OBJECTIFLUNE

PlanetPress® Connect Workflow

User Guide

Version 2020.1

PlanetPress® Workflow
OL® Software

User Guide
Version 2020.1
Last Revision: 2021-09-29

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Welcome to PlanetPress Workflow 2020.1

This PDF documentation covers version 2020.1. To view the documentation of previous versions please refer to the PDF files available in the Downloads section of our website: http://www.objectiflune.com/OL/Download/DownloadCenter.

Workflow is the heart of all of our solutions. Working in conjunction with PlanetPress Connect, PlanetPress Capture, CaptureOnTheGO, PlanetPress Imaging, PlanetPress Fax, and a variety of plugins, it helps improve your communications processes. Processes such as communication creation, interaction, distribution and even maintenance.

Workflow is the "super dispatcher". It caters for inputs from a huge variety of sources, such as email, web pages, databases, individual files (PDF, csv, XML, etc), print streams, FTP, Telnet and ERP systems. This data can then be analyzed, modified, stored, verified, routed and used as triggers for other processes from entirely within Workflow. Finally it is passed to one of our other products (or not) to be outputted in multiple ways (printed, emailed, posted, archived, sent to third party solutions, etc..).

Consider Workflow as a set of buildings blocks that enable you to build your own customized automated processes which will fit your environment and not the other way around. Create processes that will save you time and money!

Notes in this guide

Notes are used throughout this guide to draw your attention to certain information.

> **Note**
>
> Important information that deserves your attention.

Tip

Information that may help you use PlanetPress Workflow better or that suggests an easier method.

Warning

Information that is potentially critical to using PlanetPress Workflow.

Installation and setup

The installation procedure for Workflow is described in the topic Installing Workflow.

The following topics describe the different considerations that are important in regards to the installation and use of PlanetPress Workflow.

- "System requirements" below
- "Environment considerations" on page 18
- "Setting up the working environment" on page 21
- "Known Issues" on page 25

System requirements

These are the recommended system requirements for PlanetPress Workflow 2020.1.

Operating System

- Microsoft Windows 2008 R2 Server
- Microsoft Windows 2012/2012 R2 Server
- Microsoft Windows 2016 Server
- Microsoft Windows 2019 Server
- Windows 7
- Microsoft Windows 8.1
- Microsoft Windows 10 (Pro and Enterprise versions only)

Note

Windows Vista, Windows 8.0, Windows 2003 Server and earlier versions of Windows are not supported by PlanetPress Workflow.

Virtual environments

PlanetPress Workflow supports the following virtual environments:

- VMWare Environments. This includes VMWare Player, VMWare Workstation as well as VMWare ESX Server.
- VMWare VMotion. This means the virtual machine hosting PlanetPress Workflow can be automatically moved from one ESX server to another in a clustered installation.
- Microsoft Hyper-V/Azure infrastructure environments.
- Amazon Web Services (AWS)

PlanetPress Workflow is *not* officially supported on any other virtual machines such as Virtual PC, Parallels, Bochs, Xen, etc. While running PlanetPress Workflow on these virtual machines may work fine we have not tested them and cannot offer support for them.

Warning

The PlanetPress Workflow End-User License Agreement (EULA) specifies that a PlanetPress Workflow software license may only be used on a single virtual or physical PC at a time. While copying a virtual machine for backup purposes is acceptable, running two instances of the same machine, using the same serial number, is strictly prohibited.

Minimum hardware requirements

As with any software application, minimum hardware requirements represent the basic hardware on which the software will run. Note however that settling for the minimum specification is unlikely to produce the performance you expect from the system. It can be used when configuring a trial or a development system, however.

- File system: NTFS (FAT32 is not supported)
- CPU: multi-core
- RAM: 6GB
- Disk Space:At least 10GB*1

*1: Requirements will depend upon the amount of data you process through PlanetPress Workflow. For instance, a PostScript file containing several thousands of documents could easily take up several GBs.

Recommended hardware requirements

Due to its versatility, OL Connect is used for a wide variety of applications. Consequently, it is difficult to determine which hardware configuration will produce the best results for any given implementation. The following specs should therefore be viewed as a general guideline that is most likely to produce expected results for most implementations. You should, however, keep in mind that it may not represent the optimal setup for your particular application.

- File system: NTFS (FAT32 is not supported)
- CPU: Intel Core i7-4770 Haswell or equivalent
- RAM: 16GB
- Disk Space: 20GB*
- Storage Type: Solid State Drive (SSD)
- Networking: 10Gb Ethernet

*: Requirements will depend upon the amount of data you process through PlanetPress Workflow. For instance, a PostScript file containing several thousands of documents could easily take up several GBs.

Requirements for individual Connect modules

OL Connect Products comprises multiple modules that can be operated separately on multiple PCs. Each module has its own set of requirements that may differ from the other modules. While the hardware requirements described above are relatively generic when installing all Connect modules on a single server, they should not be interpreted literally for each individual module.

When installing on multiple PCs, keep the following rules of thumb in mind:

- The Connect Workflow module requires less RAM but fast hard drive access. It also benefits from fast multi-core CPUs, in order to run processes in parallel.
- The Connect Server module requires more RAM and benefits from fast multi-core CPUs. Disk access speed is less of a concern.

- The Connect Designer module requires more RAM and fast disk access to provide a responsive user-experience.
- The back-end database (MySQL by default) benefits from more RAM, speedy disk access and fast networking as it will be solicited by all modules simultaneously.

Environment considerations

This page provides technical information about the environment in which PlanetPress Workflow is intended to run.

Terminal Services

PlanetPress Workflow does not support Terminal Services environment as possible under Windows 2000, 2003 and 2008. This is to say, if Terminal Services is installed on the server where PlanetPress Workflow is located, unexpected behaviors may occur and will not be supported by our company. Furthermore, using PlanetPress Workflow in a Terminal Service environment is probably an infringement of our End-User License Agreement.

Terminal Services may also be referred to as Terminal Server or Remote Administration Mode (Windows Server 2003 and 2008).

Single-User Remote Desktop Protocol (RDP) (where only one person can use RDP at a time) is supported for PlanetPress Workflow version 6.2 and higher, however it is only supported in Windows XP or Windows 2003. While later versions of Windows may not cause issues when accessing PlanetPress Workflow through RDP, these combinations are no longer tested and may not be functional.

Virtual environments

PlanetPress Workflow supports the following virtual environments:

- VMWare Environments. This includes VMWare Player, VMWare Workstation as well as VMWare ESX Server.
- VMWare VMotion. This means the virtual machine hosting PlanetPress Workflow can be automatically moved from one ESX server to another in a clustered installation.

- Microsoft Hyper-V/Azure infrastructure environments.
- Amazon Web Services (AWS)

PlanetPress Workflow is *not* officially supported on any other virtual machines such as Virtual PC, Parallels, Bochs, Xen, etc. While running PlanetPress Workflow on these virtual machines may work fine we have not tested them and cannot offer support for them.

> **Warning**
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> The PlanetPress Workflow End-User License Agreement (EULA) specifies that a PlanetPress Workflow software license may only be used on a single virtual or physical PC at a time. While copying a virtual machine for backup purposes is acceptable, running two instances of the same machine, using the same serial number, is strictly prohibited.

32-bit or 64-bit?

PlanetPress Suite version 7.1.3 and higher, as well as PlanetPress Connect, support a 64-bit operating system. However, PlanetPress Workflow remains 32-bits in this environment, which means that for all intents and purposes there is no difference between those two environments as far as PlanetPress Workflow is concerned.

Antivirus considerations

PlanetPress Workflow generates a very large amount of temporary data on your hard disk, especially when manipulating or creating PDF files. This can sometimes cause issues when any other software is trying to access the temporary files at the same time as PlanetPress Workflow and its components are trying to read, write, create or delete those files.

If you experience these issues you may want to temporarily disable your antivirus "live", "daily" or "deep" scans for the following folders and processes:

> **Warning**
>
> Disabling any antivirus scanning permanently on any folder or program is not recommended, and Objectif Lune cannot be held reliable for any consequence of

disabling your antivirus or whitelisting the folders or executables listed here, or any other change in your antivirus protection setup!

- On Windows 7/2008 and later:
  - C:\ProgramData\Objectif Lune\PlanetPress Workflow 8\
  - C:\Users\[user]\AppData\Local\Temp\ (where [user] is the user under which Workflow is configured)
  - C:\Users\[user]\Connect (where [user] is the user under which Workflow is configured)
- On all systems:
  - C:\Windows\Temp\

> **Note**
>
> C:\Windows\Temp\ is used by multiple software which may cause risks on your computer. However, PlanetPress Workflow may use this folder as temporary storage, especially in the case of creating PDF files. We do not recommend disabling scan on this folder, unless you notice performance issues when generating PDFs, and then only as a test.

- Processes:
  - FTPPutService.exe
  - HTTPService.exe
  - LPDService.exe
  - LPRService.exe
  - PPWatchService.exe
  - PSWService.exe
  - SerialService.exe
  - SMTPService.exe
  - TelnetService.exe
  - ppNode.exe
  - PPFaxService.exe

- PPImageService.exe
- MessengerService.exe

Backup software

For similar reasons, it is important to know that backup software can also access files while copying them to a remote backup location, so you should make sure that no PlanetPress Workflow process is working during your backups.

Microsoft Office compatibility

The Microsoft Office 2010 line of products, other than Pro and Enterprise, has not been certified for use with PlanetPress Workflow. Some of its products may not be compatible with the connectors included in OL Connect.

Setting up the working environment

After installation, the working environment needs to be set up before you start using Workflow. This involves:

- Configuring PlanetPress Workflow Services (see "Workflow Services" on page 752).
- Setting up the Workflow Configuration tool. You can configure a variety of options, from how the application itself looks or behaves, to plugin specific options. These are accessible through the **Preferences** button under the PlanetPress **Workflow** (W) button, or via the key combination **Ctrl**+**Alt**+**P** .

Network considerations

While PlanetPress Workflow is typically installed on a server machine that is only accessed by one single user such as an IT person, multiple users logging on to that machine is a possibility (except with terminal servers, see "Environment considerations" on page 18). Because each user may have different local and network rights, it may be important to consider the implications in regards to PlanetPress Workflow. To change the service log on information, see "Workflow Services" on page 752.

Local and network rights

Programs, such as PlanetPress Workflow and all its services, must identify themselves in order to be granted permission to perform operations on the computer on which they run as well as on other computers accessible via a network connection. On a given workstation, you can configure your PlanetPress Workflow to use either the local system account or any specific user account. When you do this, you grant PlanetPress Workflow and all its services the same rights associated with the selected account.

When you are running PlanetPress Workflow Configuration program on a workstation, if it is associated with an account that is different from your account, the following icon is displayed in the lower right corner of PlanetPress Workflow Configuration program: . The icon reminds you that the logon information is different for the PlanetPress Workflow services, and that some network resources may not be accessibly by PlanetPress Workflow when running a live configuration.

Account requirements

PlanetPress Workflow and its services require administrator rights to run on any given computer and must therefore be associated with an account that has such rights.

We recommend creating a network or domain account specifically for the PlanetPress Workflow services, which has administrator credentials on the machine where it is installed, and is given proper rights for any network resources your configuration may request.

Mapped drives

Mapped drives (for example, drive X: leading to \\server\public\) are always user-specific and are created at logon. This means that mapped drives are typically not available by the PlanetPress Workflow services when running a live configuration. Furthermore, while the mapped drives are not shared, they are still limited to one map per computer, meaning if one user maps the X: drive, a different user (or a service) will not be able to map it again.

This creates a limitation in PlanetPress Workflow: if you create a mapped drive as a user, you will not have access to this mapped drive while running as a service unless you log off, and then have PlanetPress Workflow Tools map the drive using a Run Script action inside a Startup Process.

We strongly recommended that instead of using mapped drives, you use full UNC paths for your network drives. PlanetPress Workflow Tools can automatically convert mapped paths to UNC paths. For more information, please see "Network behavior preferences" on page 762.

Network ports used by each service

The port configuration for each PlanetPress Workflow Input task or Output task is described in the following table. The port number assignments comply with Internet standards. If a PlanetPress Workflow component is not active, the port is not used.

For information about ports used by other PlanetPress components, see Network Considerations in Connect's Online Help.

Component	Protocol	Local Port	Remote Port
Email Input (POP3 mode)	TCP	Default[1]	110
Email Input (Outlook mode)	TCP	see Remote Port	See Network Ports Used by Key Microsoft Server Products (https://msdn.microsoft.com/en-us/library/cc875824.aspx)
Folder Capture	TCP/UDP	Default[1]	Standard Windows file and printer sharing ports[2]: • UDP 137, 138; TCP 139 (NetBIOS over TCP/IP (NetBT)) • UDP 445; TCP 445 (SMB over TCP/IP)
LPD Input	TCP	515 (listening port)	N/A
FTP Input	TCP	Default[1]	21
Telnet Input	TCP	Default[1]	9100 (configurable)

Component	Protocol	Local Port	Remote Port
FTP Output	TCP	Default[1]	21
Email Output (SMTP mode)	TCP	Default[1]	25
Email Output (Outlook mode)	TCP	See Email Input (Outlook mode)	See Email Input (Outlook mode)
Send to Folder Windows Queue Output	TCP	Default[1]	Standard Windows file and printer sharing ports[2]: • 137, 138 and/or 139 (NetBIOS over TCP/IP (NetBT)) • 445 (SMB Over TCP/IP)
LPR Output	TCP	Default or 721 to 731[3]	515
PlanetPress Database	TCP or UDP	Unknown[4]	Unknown[4]
SNMP Condition	UDP	Default[1]	161

[1] Value is greater than 1024 and is assigned by Windows XP. This is the default.

[2] Windows NT 4.0 uses NetBIOS over TCP/IP for file and printer sharing, while Windows 2000, Windows XP, and Windows Server 2003 may be configured to use NetBIOS over TCP/IP or SMB over TCP/IP. The operating system may use additional ports. Refer to the Windows documentation for further information.

[3] If the “No source port range restriction” option is checked (recommended), see footnote 1. If the option is unchecked, the local port will be chosen from a range going from 721 to 731.

[4] Contact your DBMS vendor to determine which ports are used by the ODBC driver for accessing a network database.

Known Issues

NodeJS Server Input task does not run processes with similar action names

The NodeJS Server Input task does not process jobs being sent to it if the action name is a superset of another action name declared previously. For example, with two separate NodeJS processes: Action and ActionA, attempting to connect to ActionA results in a timeout because the word Action is also found in ActionA.

To work around this, either:

- Rename the processes so that they are no longer subsets of each other.
- Add a Polling interval to each process. This deactivates the trigger processes but adds a delay in the processing of requests.
- Re-order the processes, e.g. declare ActionA before Action.

This issue will be fixed in OL Connect version 2021.1.

File Count input task ignores polling interval

When used as an Input task, the File Count task does not apply the process polling interval. Once the condition is true, it triggers the process repeatedly, as if the polling interval were 0. To work around this, start the process with a Create File task followed by a File Count as Condition task.
This issue only occurs in version 2020.1 and will be fixed in version 2020.2.

HTTP Server Input triggers all trigger-based processes

In order to wake up a trigger-based process that starts with the HTTP Server Input task the server issues a signal to *all* trigger-based processes, not just those that start with an HTTP Server Input task. This means that some processes may get woken up when they do not need to. This issue only occurs in version 2020.1 and will be fixed in version 2020.2.

Microsoft patch causing handling of XLS to fail

Some Windows updates from Microsoft have impacted the handling of XLS sources in PReS\PlanetPress Workflow 8.
The Microsoft updates concerned are as follows:

- KB4041693 for Windows 8.1 and Windows Server 2012 R2
- KB4041681 for Windows 7 and Windows Server 2008 R2
- KB4041690 for Windows Server 2012 (no service pack)

Installing these updates may cause the application to fail when attempting to open or load XLS files via a plugin or in a script. The following error message may appear: “Unexpected error from external database driver (1). (Microsoft JET Database Engine)".

Suggested resolution

Uninstall the Microsoft patches and wait for the issue to be fixed in a subsequent Microsoft patch.

Workarounds

- For the Lookup in Microsoft Excel Documents plugin (found in the Connectors tab of the plugin bar): Open the original .xls file and save it with the .xlsx format. That will force the Excel Lookup plugin to switch drivers.
- For the Database Query plugin (found in the Actions tab of the plugin bar) and when using Excel/Access in PlanetPress Design: Change the ODBC driver used for Excel files from JET to ACE (change the Data Source). As an example: in Windows 10: Change the Excel File ODBC driver from ODBCJT32.dll to ACEODBC.dll. (Naming may vary from versions of the OS but the basics stay the same.) **Important**: Before switching from JET to ACE, install the latest MS Access Database Engine 2016 Redistributable (https://www.microsoft.com/en-us/download/details.aspx?id=54920). Otherwise, using ACE in one or more self-replicating processes in a Workflow configuration can cause Workflow to crash.

In the meantime Objectif Lune would like to apologize to any customers affected by this problem and for any inconvenience caused. For more information, please contact your local support team.

Data Repository error

The Push to Repository task, as well as the corresponding repository API calls SetValue() and SetValueW() may on rare occasions fail with an unexpected error (517), caused by the Write Ahead Logging (WAL) journal mode.
The workaround is to disable WAL journal mode:

1. Create the "Repository" key in \HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Objectif Lune\PlanetSuite\PlanetWatch\8.0\ if it does not exist.
2. Add a new DWORD32 value in Repository key named SQliteWALJournalMode and set it to 0.
3. Whenever switching the registry key from 1 (WAL) to 0 (DELETE), make sure the -shm and -wal files are removed from the Repository folder.
4. Restart the PPWatch service.

Other known issues

- Custom plugins cannot be permanently removed from the Plug-In Bar through the Workflow tool's user interface.
- Anoto Pen Director 2.8 is not supported on Windows Server 2012 and Windows 10.
- 22356: Using the PT-PT setting to perform ICR on AlphaNumeric fields may not work properly. If you encounter the issue, use the PT-BR setting instead, or use another PlanetPess Field in your document design.
- 21962: Barcode scanner task may have issues reading 2-D barcodes printed/scanned with low resolution. Make sure the scans and the original printed output are at least 300DPI (600 or better recommended)
- 21405: When printing through a Windows printer driver on Windows Server 2008 or Windows Server 2008 R2, the Job Owner setting is ignored. This is caused by a documented issue in those two Operating Systems. Microsoft has provided no reason nor workaround for the problem, therefore PlanetPress Workflow cannot circumvent the issue.

- Under Windows 2000, the SharePoint output task does not work with SharePoint 2010. Under the same OS, the PlanetPress Capture ICR does not work due to the .NET 3.5 requirement.
- 21465: The **SharePoint** Output task does not validate the field contents. That's Sharepoint's responsibility.

- 20143: The **Metadata to PDI** task encodes the XML using the default system encoding, not the document's. In addition, it does not discriminate between index names written in different cases (e.g. Name vs. name).
- Printing PDF files in passthrough mode using a Windows Printer Driver task causes jobs to be processed sequentially rather than in parallel. This is caused by a 3rd party library used in the printing process. Possible workarounds are to use a PlanetPress document to call the PDF files as dynamic images, or to use the PDF file as the Data File for a PlanetPress Document.
- JobInfo #4 in the **Windows Input Queue** task (the original document name set by the printing application) replaces any non-alphanumeric character with underscores in order to filter out any invalid characters. Consequently, if the path contains slashes or colons, those will be replaced with underscores.
- When the **PlanetPress Capture** database is set to MS Access, it is considered good practice to have a single process generate Patterns for documents because the Access engine may lock the other process out of the database as the first process updates it.
- After the initial installation, the PlanetPress Workflow Configuration tool may display an error message the first time you launch it if you had already sent a PlanetPress Workflow Document to it. You can safely ignore this message, you will simply have to manually start the PlanetPress Messenger service from the Workflow console for this one time only. To avoid getting the error altogether, make sure you launch the PlanetPress Workflow tool once before sending any document to it.
- 13554: In the **LaserFiche** connector, when selecting a different template after filling up the fields and then going back to the first template, the values entered in the fields are lost. They have to be entered again.
- When loading a Workflow configuration that includes references to Windows printers, the output task may fail to recognize the printer if the printer driver has changed between the moment the configuration was set up and the moment it was loaded. This is unlikely to occur, but it could, for instance, happen when importing a Version 7 configuration file into Version 8. To circumvent the issue, open the output task's properties, make sure you reselect the proper printer, close the task and send the configuration again.
- The **HTTP/SOAP** service may fail when both it and the Workflow service are logged on using 2 non-local users or 2 local users with different privileges. To resolve the issue, make sure both services use the same logon credentials.
- 13559: The **WordToPDF** task, when run under the LocalSystem account, may seem to hang if the installation of MS-Word wasn't properly completed for the LocalSystem account. If the task seems to take longer than it does when run in Debug mode, this may

be the case. You can confirm this behavior by opening up the Windows Task Manager and checking whether the MSIExec application is running. In order to complete the installation of MS-Word for the LocalSystem account, follow these steps:

1. Open a command-line window (CMD.exe)
2. Type "AT 10:56 /INTERACTIVE CMD.EXE" (replace 10:56 with the next upcoming minute on your system)
3. At the specified time, a new command-line window opens. In it, navigate to Word Installation folder, then type Winword Follow the instructions to complete the installation
4. Re-start PlanetPress Workflow and test your process.

- The **WordToPDF** task relies on MS-Word to perform its functions. However, MS-Word sometimes displays confirmation dialogs when it encounters a situation requiring user input. Such dialog windows cannot be displayed when PlanetPress Workflow runs as a service. As a result, the process may seem to hang because it is awaiting user input on a window that isn't displayed. The only way to resolve this situation is to kill the PlanetPress Workflow service. To avoid these types of issues from occurring, it is imperative that the configuration for the WordToPDF task be tested thoroughly in Debug mode prior to sending it into production. In particular, the connection to the database must be validated.
- The **WordToPDF** task requires the default system printer to be set to a queue that uses the PlanetPress printer driver. If you change the default system printer or if you import a PlanetPress Workflow configuration file from another PC that includes an instance of the WordToPDF task, you must review the properties of each instance of the task and click OK to validate its contents. A new printer queue will be created if required and the default printer will be reset properly. If you do not perform these steps, running the configuration will result in several error messages being logged and the task failing.
- The preferences for the PrintShop Mail Web connector may not be saved properly if you set them and close the PlanetPress Workflow Configuration tool without first sending the configuration to the service. Make sure you send the configuration before exiting from the Configuration tool.
- 13009: With Outlook 2010, the **Send Email** functionality requires that the service be run with administrative credentials in the domain. In addition, both Outlook and the PlanetPress Workflow Configuration tool must *not* be running while the service is.

- The Microsoft Office 2010/2013/2016 and 365 line of products has not been certified for use with PlanetPress Workflow. Some of its products may not be compatible with the connectors included.
- **Barcodes** produced in printer-centric mode may have a slightly different aspect from those produced in Optimized PostScript mode. This is due to the different types of 3rd party libraries being used to generate the barcodes. However, all barcodes scan correctly.

Basics

PlanetPress Workflow is a tool to automate the processing, distribution and printing of your business documents. Once installed on the server, it can be set up to automate all tasks related to document processing (see "Setting up the working environment" on page 21).

When you're all set up, you can start using the Workflow Configuration tool, assuming that you have already done research on the processes that need to be automated.
Working with Workflow implies the following basic steps:

1. **Creating a Workflow configuration**
   A Workflow configuration consists of a number of processes, of which each has an input task, output task and possibly a number of tasks in between. See: "About Workflow Configurations" on page 33.
2. **Debugging the configuration**
   Debugging is the act of running through your process, either step by step or as a whole, directly from the PlanetPress Workflow Configuration Tool, in order to detect and resolve issues with your process. Debugging a process requires providing a sample data file. See: "Debugging and error handling" on page 98.
3. **Sending it to the Server (and testing it again)**
   As you are working on your configuration, you can save that configuration file as a file on your local hard drive. Saving a configuration file never replaces the current PlanetPress Workflow service configuration. To do this, you must use the Send Configuration command; see "Sending a configuration" on page 37.

Related tools and resource files

Workflow serves as automation tool in a number of distinct products. Some of the tasks that can be used in a Workflow configuration only work with product-specific files. The tools that you need in order to produce those files depend on the product that you are using:

- PlanetPress **Connect** users will use the other Connect modules - **Designer** and **DataMapper** - to create the templates, data mapping configurations and print presets used by OL Connect tasks. The user guides of these modules can be found here: http://help.objectiflune.com/en/PlanetPress-connect-user-guide/2020.1/.
- PlanetPress **Suite** users may use documents made with PlanetPRess **Design**. For the user guide, see http://help.objectiflune.com/en/planetpress-design-user-guide/.

The product-specific files need to be sent to, or imported into, Workflow before they can be used in conjunction with a task (see "Workflow Configuration resource files" on page 39). They become visible in the "Configuration Components pane" on page 817.

Features

PlanetPress Workflow configurations are input driven applications designed to output data in a variety of ways through diverse means to various applications and devices. PlanetPress Workflow can be used as simple go between, passing along input data to output devices, but it can also perform various types of data processing. You can combine the various PlanetPress Workflow services to set up versatile automated processes to print jobs as well as generate other types of output.

PlanetPress Workflow processes act as sorts of dispatchers. On the one hand, they retrieve data and control plugins that retrieve data from watched locations, and on the other hand they send data and control plugins that send data to various devices, for printing or to generate documents that can then be emailed or viewed in a browser. PlanetPress Workflow can also perform a variety of operations on the data using its action plugins.

In fact, the PlanetPress Workflow plugin based architecture enables almost limitless customization. You can create or purchase compatible plugins, drop them in any of PlanetPress Workflow plugin folder and use them to perform other operations. You can even find free unsupported plugins on the Objectif Lune Web site.

PlanetPress Workflow tasks are service applications, or if you will, applications that continuously run on a given computer and that perform actions automatically. Those actions are defined in a PlanetPress Workflow configuration. A given computer can only run one PlanetPress Workflow configuration at a time. The PlanetPress Workflow Service Console may be used to monitor the services running on a given computer.

About Workflow Configurations

PlanetPress Workflow Configurations are service applications, or if you will, input driven applications that continuously run on a given computer and perform actions automatically. Those actions are defined in a PlanetPress Workflow configuration file. A configuration file consists of a set of processes, subprocesses, variables, (optional) documents and printer queues, that work together within the PlanetPress Workflow Service. A process can be used as simple go between, passing along input data to an output device or folder, but it can also perform various types of data processing.
You can combine the various PlanetPress Workflow input, action and output tasks to set up

versatile automated processes to print jobs as well as generate other types of output (emails, web pages, files...).

> **Note**
>
> A PlanetPress Workflow configuration must be composed of at least one process, but it may include as many as 512.

PlanetPress Workflow cannot work without a valid configuration, and a PlanetPress Workflow session running on a given computer can only use one configuration at a time.
For a configuration created in the PlanetPress Workflow Configuration tool to actually be executed by PlanetPress Workflow, it must be sent to the PlanetPress Workflow Service. When you do this, your PlanetPress Workflow forgets its previous configuration and starts executing the tasks included in the new configuration.

When you start the PlanetPress Workflow Configuration tool, it either opens the configuration file that is active on the PlanetPress Workflow service, or starts with no configuration at all, depending on your preferences (see "Configuration Components pane appearance preferences" on page 757).
You can always create a new configuration or open an existing one (see "Creating a new configuration" below and "Open a PlanetPress Workflow configuration file" on the next page).

The following pages provide information on different parts of a PlanetPress Workflow configuration:

- "About processes and subprocesses" on page 125
- "About Tasks" on page 300
- "About data" on page 50
- "About variables" on page 701
- "Workflow Configuration resource files" on page 39

Creating a new configuration

To create a new configuration, choose **New** from the PlanetPress Workflow Button.

By default, when you create a new configuration, PlanetPress Workflow automatically creates a process that includes a "Folder Capture" on page 320 initial input task and a "Send to Folder" on page 667 output task by default. You can then edit and save your new configuration.

The default input task and output task depend on your preferences ("Default configuration behavior preferences" on page 758).

If the active configuration file is currently opened, and if it includes unsaved modifications, PlanetPress Workflow asks you whether to send the configuration to the PlanetPress Watch service before creating the new configuration. Select the **Always send without prompting for confirmation** option to automatically send the edited version of the configuration.

If a file that is different from the default configuration file is currently opened, and if it includes unsaved modifications, PlanetPress Workflow asks you whether to save the configuration before creating the new configuration. Select the **Always save without prompting for confirmation** option to automatically save any unsaved work.

Open a PlanetPress Workflow configuration file

To open a configuration file:

1. From the PlanetPress Workflow button, choose **Open**. The **Open** dialog box appears.
2. Navigate to the Workflow configuration file you want to open, select it and click **Open**.

If the currently opened configuration file includes unsaved modifications, the PlanetPress Workflow Configuration program asks you whether to send the configuration to the PlanetPress Workflow service before opening the selected configuration.
Select the **Always send without prompting for confirmation** option to automatically send the edited version of the configuration to the PlanetPress Workflow Service before opening any other configuration file (See "Saving and sending a Workflow Configuration" on the facing page).

Note

You can also open a configuration file from a previous version of PlanetPress Workflow by changing the File Type selector to the desired version (for example, .pw7 for PlanetPress Watch /Server configurations from Version 7).

Saving and sending a Workflow Configuration

The core of the PlanetPress Suite workflow tools is the PlanetPress Watch service which, once started, constantly runs in the background to perform the tasks included in its current configuration file. The PlanetPress Workflow Configuration tool lets you create, edit, save and send configuration files.

As you are working on your configuration, you can save that configuration file as a file on your local hard drive.
Saving a configuration file never replaces the current PlanetPress Watch service configuration. To do this, you must use the Send Configuration command.

When the PlanetPress Workflow Configuration program sends a configuration, the PlanetPress Workflow service is stopped and restarted, if it is currently running, and the new configuration starts being applied immediately.

Saving a configuration

Files created and edited using PlanetPress Workflow can be saved as PlanetPress Workflow configuration files anywhere on your computer or even a network location.

To save the current configuration:

- From the PlanetPress button, choose **Save**.
- If you were editing the current PlanetPress Watch service configuration or if you were editing a new configuration file, you are prompted with the **Save As** dialog instead.

To save the current configuration under a new name:

- From the PlanetPress button, choose **Save As**.
- Browse to the location where you wanted to save the file, enter the new name of the configuration in the File name box and click Save.

Sending a configuration

PlanetPress Workflow Configuration saves entire configurations in the form of a single file. Like any other file, configuration files may be saved and reopened, as well as renamed as desired. Simply saving a configuration has no effect on the configuration actually used by the PlanetPress Workflow when it is started. To change any currently active configuration, you must use the Send Configuration command.

When you use the Send command, the PlanetPress Workflow Configuration program uses the currently opened configuration (Any_name.OL-workflow) to overwrite the PlanetPress Workflow Service's current configuration (ppwatch.cfg).

> **Note**
>
> .OL-workflow files are equivalent to .pp7 files made with older versions of PlanetPress Workflow. They contain the processes and such used by Workflow.

If the PlanetPress Workflow Service is running when you send a new configuration, it stops and restarts automatically with the new configuration. If the service is stopped before sending the configuration, it will not restart automatically.

> **Note**
>
> When you send a configuration to your PlanetPress Workflow service, all its active processes are applied; see also:"Activating or deactivating a process" on page 130.

Sending a Configuration to the local server

1. Open the configuration you want to use as PlanetPress Workflow's new configuration.
2. Edit the configuration, if required.
3. When the configuration is ready to be used, from the PlanetPress Workflow button, choose **Send Configuration**, then **Send Local**.

Sending a Configuration to a remote server

1. Open the configuration you want to use as PlanetPress Workflow's new configuration.
2. Edit the configuration, if required.
3. When the configuration is ready to be used, from the PlanetPress Workflow button, choose **Send Configuration**, then **Send Remote**.
   A list of available PlanetPress Workflow servers on the local network appears.
4. Put a checkmark next to each server where the configuration should be sent.
5. Click **OK**.

If a server is grayed out, this may mean you do not have access to send a configuration remotely to it. For more information, please see "Access Manager" on page 830.

> **Note**
>
> If PlanetPress Workflow service is paused when you send a new configuration, it will not stop and restart. Since PlanetPress Workflow service reads its configuration file when it starts up, when you resume processing, PlanetPress Workflow service will continue using the old configuration.

Exit PlanetPress Workflow Configuration program

Once you are done using the PlanetPress Workflow Configuration program, you can close it.

> **Note**
>
> Closing PlanetPress Workflow Configuration program does not stop any of PlanetPress Workflow services or processes.

You may exit the PlanetPress Workflow Configuration program in any of the following ways:

- From the PlanetPress Workflow Button, choose **Exit**.
- Click the **X** at the top-right corner of PlanetPress Workflow Configuration program.
- Press **ALT+F4** on your keyboard.
- Right-click on the PlanetPress Workflow **Configuration program** button in your task bar, and select **Close**.

If the default configuration file is currently opened, and if it includes unsaved modifications, the PlanetPress Workflow Configuration program asks you whether to send the configuration to the PlanetPress Workflow service before exiting. Select the **Always send without prompting for confirmation** option to automatically send the edited version of the configuration before exiting.

If the default configuration does not include any active process, the PlanetPress Workflow Configuration program asks you whether to continue.

If a file different from the default configuration file is currently opened, and if it includes unsaved modifications, the PlanetPress Workflow Configuration program asks you whether to save the configuration before exiting. Select the **Always save without prompting for confirmation** option to automatically save any unsaved work before exiting.

Workflow Configuration resource files

Workflow serves as automation tool in a number of distinct products. Some of the tasks that can be used in a Workflow configuration will work with product-specific resource files:

- PlanetPress **Connect** Resources are files created with one of the other Connect modules - the **Designer** and **DataMapper** (see "Connect resources" on the facing page).

- PlanetPress **Suite** users may use PlanetPress **Design** documents (see "PlanetPress Design documents" on page 44) in PlanetPress Workflow processes.
- **PrintShop Mail Suite** users may use PrintShop Mail documents to create output using the "PrintShop Mail" on page 526 task (see "PrintShop Mail documents" on page 49).

These product-specific files need to be sent to (or imported into) Workflow before they can be used in conjunction with a task. This chapter explains how to do that. Imported files become visible in the "Configuration Components pane" on page 817.

Connect resources

Connect resources are files created with Connect's **Designer** or **DataMapper** (see "Connect resources" above). They are visible in the "Configuration Components pane" on page 817 and are added by using the **Send to Workflow** option from the PlanetPress Connect Designer's **File** menu.

The available resources are:

- **Data Mapping Configurations**: Data mapping configurations are used with the **Execute Data Mapping** task to extract data from the job file.
  For each data mapping configuration in the list, the following two items appear within them:
  - **Data Model**: Displays the data model used in the data mapping configuration. Double-click on the data model to view it in your default XML viewer (generally, Internet Explorer).
  - **Sample Data File(s)**: Displays a list of sample files that are included in the data mapping configuration. (See also: "Sample Data" on page 70.)

    > **Tip**
    >
    > Double-click on a sample data file to use it as a sample data file for the active process.

- **Document Templates**: Templates can be used in content creation tasks: "Create Email Content" on page 597, "Create Web Content" on page 614 and "Create Print Content" on page 611.

- **Print Presets**:
  - **Job Presets**: Job Presets can be used in the "Create Job" on page 601 task to filter and rearrange print content items.
  - **Output Presets**: Output Presets contain settings for Print output. They can be used in the "Create Output" on page 604 task.

For more information about the different file types, see Connect's Online Help:

- Data mapping configurations
- Data model
- Templates
- Job Creation Preset
- Output Creation Preset

Importing Connect resource files

Connect resource files are added by using the **Send to Workflow** option from the PlanetPress Connect Designer's **File** menu; see Sending files to Workflow in Connect's Online Help.

They can also be imported into PlanetPress Workflow as follows:

1. Click the PlanetPress Workflow button.
2. Choose **Import**, then **Import Connect Content**. The **Import** dialog box appears.
3. In the **File type** box, select the desired file type.
4. Navigate to the document you want to import, select it and click **Open**.

When you select a package file, the individual resources contained within that package will be imported.

> **Tip**
>
> You can import multiple files at once.

Resource Save location

Any resource sent to PlanetPress Workflow from PlanetPress Connect is saved locally at the following location: %PROGRAMDATA%\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\OLConnect

Resources are saved in their appropriate folder:

- **DataMapper** contains the data mapping configurations (.OL-datamapper)
- **JobCreation** contains the Job Presets (.OL-jobpreset)
- **OutputCreation** contains the Output Presets (.OL-outputpreset)
- **Template** contains the templates (.OL-template)

> **Note**
>
> Package files are not saved anywhere. The individual resources contained within the package are extracted and placed in the folders noted above.

> **Tip**
>
> To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.

Resource archives

From version 8.2, PlanetPress Workflow maintains an archive of previous versions of resources, in the following location: %PROGRAMDATA%\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\OLConnect\Archive , each in their own folder:

- **datamapper** contains archives of the data mapping configurations (.OL-datamapper)
- **jobcreation** contains archives of the Job Presets (.OL-jobpreset)
- **outputcreation** contains archives of the Output Presets (.OL-outputpreset)
- **template** contains archives of the templates (.OL-template)
- **workflow** contains archives of Workflow configurations received by the server.

The archives are saved using the template named followed by a timestamp. A maximum of 30 of each instance of a resource is kept (meaning if you have 10 different templates, a maximum of 300 files will be present in the archive\template folder). Older archives are deleted automatically as new archives are created.

Using Connect Resources in tasks

A number of OL Connect tasks (see "OL Connect tasks" on page 590) let you select a Connect resource file to be used with the task. The selection list will appear on one or more of the tabs in the Task Properties dialog that appears when you add a task to a process (see "Adding tasks" on page 301).
For information about the options in the selection list, see "Selecting a resource file in task properties" on page 307.

Using attached data files

When sending a Connect data mapping configuration from the Designer to PlanetPress Workflow, all data files used in the document are automatically sent to PlanetPress Workflow along with the data mapping configuration. These data files appear under the data mapping configuration in the **Connect** section of the Configuration Components.

Setting an attached data file as a sample data file in a process

The attached data file can be used as a sample data file in a process. This sets the emulation of the process ("About data emulation" on page 60) and makes it possible to debug it (see "Debugging your PlanetPress Workflow process" on page 106).

1. Make sure the **Connect Resources** section is visible by clicking the ⊞ button if it appears.
2. Expand the data mapping configuration (name.OL-datamapper) by clicking the ⊞ button.
3. Right-click on the data file, then click **Set as sample data file**.

Viewing an attached data file

1. Make sure the **Connect Resources** section is visible by clicking the ⊞ button if it appears.
2. Expand the data mapping configuration (name.OL-datamapper) by clicking the ⊞ button.
3. Double-click on the data file to open the data selector (see "The Data Selector" on page 842).

> **Note**
>
> Double-clicking on the data file does the same thing as right-clicking on it an then selecting **Set as sample data file**. Clicking **Cancel** instead of OK after viewing will prevent this action from being taken.

Saving an attached data file to disk

1. Make sure the **Connect Resources** section is visible by clicking the ⊞ button if it appears.
2. Expand the document by clicking the ⊞ button.
3. Right-click on the data file, then click **Save sample data file**.

PlanetPress Design documents

A PlanetPress Design document is a file created with the Design module of **PlanetPress Suite**.

Design documents are used to produce an output, merged with data (i.e. the job file). They contain static data such as logos, addresses and graphic formatting, as well as placeholders for data. Documents may also contain conditions and programming logic.

For more information about PlanetPress Design documents, please see the PlanetPress Design User Guide.

Generating output with PlanetPress Design documents

PlanetPress Design documents are typically selected in certain **Output tasks** designed to merge data with a Design document, but they can also appear in other tasks that produce formatted data such as the **Digital Action** task and the **Add Document** task.
If a task lets you select a PlanetPress Design document to be used with the task, the selection list will appear on one or more of the tabs in the Task Properties dialog that appears when you add the task to a process (see "Adding tasks" on page 301).
For information about the options in the selection list, see "Selecting a resource file in task properties" on page 307.

Printer-centric printing

PlanetPress Design lets you send documents to printers as well as to PlanetPress Workflow servers.

- If you send a document to printers only and not to any PlanetPress Workflow server, you will not be able to see this document in the PlanetPress Workflow Configuration program. To let PlanetPress Workflow know that the document is available, you will have to add a printer resident document to your PlanetPress Workflow configuration (see "Adding printer resident documents to the Configuration Components Pane" below).
- If you send a document to PlanetPress Workflow servers only and not to any printer, you will be able to see this document in the Configuration Components Pane of the PlanetPress Workflow Configuration program, but it will not be directly available on any printer.
- If you send a document to PlanetPress Workflow servers and to printers, you will be able to see this document in the Configuration Components Pane of the PlanetPress Workflow Configuration program and it will be available on the printers.

Fonts used in Design documents

The fonts used in PlanetPress Design documents installed on PlanetPress Workflow workstations should be available locally. To install TrueType fonts, use the standard Windows procedure. To install PostScript fonts, use the **Install PostScript Font** command in the Workflow ribbon (see "The PlanetPress Workflow Ribbon" on page 880).

Adding printer resident documents to the Configuration Components Pane

By default, the **Documents** group displayed in **Configuration Components** pane of the PlanetPress Workflow Configuration program includes all those documents that are available on your local PlanetPress Workflow server. Those documents that are not available on your local PlanetPress Workflow server, but that are either available on printers or on other PlanetPress Workflow servers must be added to the list, otherwise you will not be able to use them in your PlanetPress Workflow configuration.

To add a resident document to the Configuration Components pane:

1. In the PlanetPress Workflow**Configuration Components** pane, right-click **PPS/PSM Documents** and choose **Insert > Insert Resident Document**. The **Add Resident**

Document dialog box is displayed.

2. Enter the document's name. Note that the name you enter must exactly match the actual document name or PlanetPress Workflow will not be able to use it on the printer or remote PlanetPress Workflow server.
3. Click **OK**.

Importing PlanetPress Design documents

This procedure describes how to import PlanetPress Design documents into PlanetPress Workflow. Importing documents can be useful when transferring configurations between PlanetPress Workflow installations.

To import documents into PlanetPress Workflow:

1. Click the PlanetPress Workflow button.
2. Choose **Import**, then **Import PlanetPress Document**. The **Import PlanetPress Design Document** dialog box appears.
3. In the **File type** box, select the desired file type.
4. Navigate to the document you want to import, select it and click **Open**.

The document is imported and displayed in the **Configuration Components** pane under PPS/PSM Documents. This physically installs the documents to the Documents folder relative to the install folder of PlanetPress Workflow.

> **Tip**
>
> To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.

Using files attached to PlanetPress Design documents

Data files

When sending a PlanetPress Design Document from PlanetPress Design to PlanetPress Workflow, all data files used in the document are automatically sent to PlanetPress Workflow

along with the Design document. These data files appear under the document in the **PPS/PSM Documents** section of the Configuration Components.

Setting an attached data file as a sample data file in a process

The attached data file can be used as a sample data file in a process. This sets the emulation of the process ("About data emulation" on page 60) and makes it possible to debug it (see "Debugging your PlanetPress Workflow process" on page 106).

1. Make sure the **PPS/PSM Documents** section is visible by clicking the ⊞ button if it appears.
2. Expand the document (name.ptk) by clicking the ⊞ button.
3. Right-click on the data file, then click **Set as sample data file**.

Viewing an attached data file

1. Make sure the **PPS/PSM Documents** section is visible by clicking the ⊞ button if it appears.
2. Expand the document (name.ptk) by clicking the ⊞ button.
3. Double-click on the data file to open the data selector (see "The Data Selector" on page 842).

> **Note**
>
> Double-clicking on the data file does the same thing as right-clicking on it an then selecting **Set as sample data file**. Clicking **Cancel** instead of OK after viewing will prevent this action from being taken.

Saving an attached data file to disk

1. Make sure the **PPS/PSM Documents** section is visible by clicking the ⊞ button if it appears.
2. Expand the document (name.ptk) by clicking the ⊞ button.
3. Right-click on the data file, then click **Save sample data file**.

Metadata

When a Design document uses Metadata, it can also be attached with the document. One Metadata file is generated for each data file attached to the Design document. Metadata does not appear in the Configuration Components pane but it follows the data file and can be viewed from the **Metadata** tab whenever the data file is viewed through the **Data Selector**.

Document Preview

When sending a PlanetPress Design document from PlanetPress Design to PlanetPress Workflow, a PDF Preview of the job's output is automatically sent to PlanetPress Workflow along with the Design document. This preview appears under the **PPS/PSM Documents** section of the Configuration Components pane.

The PDF contains the result of a preview with the active data file (for all data pages) run as an Optimized PostScript Stream.

Viewing the Document Preview

1. Make sure the **PPS/PSM Documents** section is visible by clicking the ⊞ button if it appears.
2. Expand the document (name.ptk) by clicking the ⊞ button. The **Document Preview** has the same name as the document but with a PDF extension.
3. Right-click on the **Document Preview**, then click **Open in PDF Viewer**.

Saving the Document Preview to disk

1. Make sure the **PPS/PSM Documents** section is visible by clicking the ⊞ button if it appears.
2. Expand the document (name.ptk) by clicking the ⊞ button. The **Document Preview** has the same name as the document but with a PDF extension.
3. Right-click on the **Document Preview**, then click **Save PDF File**.

Viewing PlanetPress Design document properties

To view the properties of a PlanetPress Design document, do one of the following:

- In the Configuration Components pane, under **PPS/PSM Documents**, click any Design document (under PPS/PSM Documents) to display its properties in the Object Inspector.
- In the Configuration Components pane, under **PPS/PSM Documents**, double-click any Design document to display its properties in the **PlanetPress Design Document Options** dialog box.

For a list of all properties, see "PlanetPress Design document properties" on page 820.

The PlanetPress Workflow Configuration tool lets you view a number of the properties associated with the PlanetPress Design documents you use, but most of those properties are set in PlanetPress Design and cannot be edited using the PlanetPress Workflow Configuration program.

The Document name of printer-resident documents can be changed using PlanetPress Workflow Configuration program simply because it is initially set using that program.

The properties available via the **Printer Settings** tab define how documents are printed. They are also set using the PlanetPress Workflow Configuration program and are retained when documents are assigned to printer queues. They can be edited by selecting documents within the **PPS/PSM Documents** category of the Configuration Components pane, which changes the document's default printer settings, or within the **Printer Queues** category, which changes the document properties on the selected queue.

PrintShop Mail documents

PrintShop Mail documents are documents made with **PrintShop Mail (Suite**, not Connect). These documents may be imported into Workflow to create output with the "PrintShop Mail" on page 526 task.

Importing PrintShop Mail documents

This procedure describes how to import variable content documents created in **PrintShop Mail** (**Suite**, not Connect) into PlanetPress Workflow.

1. Click the PlanetPress Workflow button.
2. Choose **Import**, then **Import PrintShop Mail Document**. The **Import PrintShop Mail Document** dialog box appears.

3. Navigate to the document you want to import, select it and click **Open**. The document is imported and displayed in the **Configuration Components** pane. This physically installs the documents to the Documents folder relative to the install folder of PlanetPress Workflow.

> **Tip**
>
> To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.

For help on importing **PrintShopMail Connect** templates, see "Connect resources" on page 40.

About data

Data is what drives your business, and our software. We define data as anything that is obtained through an **Input task** and used within the process itself. Once the data is obtained, it becomes the **job file** that is passed from one task to another and generally used to generate output (see "Job file" on the next page).

Data can be manipulated using the tasks in the process, used as comparison for conditions and loops, complemented with data from other sources, and used to generate your output. It originates from many different sources (as many as the input tasks support), parts of it can be stored in variables, and it is always accessible by the task that currently handles it.

Data is referred to in tasks using **data selections**; see "Data selections" on page 53. Data selections let you use data in file names, for example, or store them in a variable or in the Data Repository for use later on.

While creating a process, you will need a sample data file to make data selections from it and to debug the process with it. For more information about sample data files see "Sample Data" on page 70.

Note

Null characters present in the data may not be displayed properly when using the PlanetPress Workflow Configuration tool, and they may also be printed differently by different printers. To ensure consistency, you should consider filtering out such characters.

About documents and variable data

"Variable data" is data that is meant to be merged with a document or template.

In PlanetPress **Connect**, variable data is usually retrieved from a data file (the job file) using the OLConnect Execute Data Mapping task. This task uses a data mapping configuration file, created with the DataMapper, to produce a record set. A data mapping configuration contains a data model. Any Connect template constructed using the same data model can be merged with the resulting record set by an OLConnect Create Content task.

In **PlanetPress Suite**, Design documents are typically associated with an Output task. PlanetPress Workflow dispatches captured data (the job file) to PlanetPress Design documents directly. It is therefore critical that a process and a document use the same emulation (see "About data emulation" on page 60). PlanetPress Suite users are advised to review the PlanetPress Design User Guide, especially the **Selecting an Emulation** section.

Job file

Whichever source it may come from, a serial port, an e-mail message, or an LPR request, for instance, and whatever its format, data entering a PlanetPress Workflow process via an Input task is always referred to as a data file. When a data file enters a process, it becomes the **job file**.
'Job file' however is a more general term, that can refer to data files as well as other types of files traveling through a process. Image files, for example, can be passed from task to task in order to be downloaded to a printer. So files traveling within a process are referred to as job files.

A single job file can be the source of multiple job files. This is the case, for example, when a process includes multiple branches, as each branch is given a duplicate copy of the job file (see "About branches and conditions" on page 137). This is also the case when a job file is

split into multiple smaller files by a **Splitter** Action task, for instance (see "Data splitters" on page 451).

It is important to note that job files may be used as a helpful debugging resource (see "Debugging and error handling" on page 98).

Job file names are generated automatically and stored in the **%f** system variable (see "Job file names and output file names" below).

Actual data and sample data

The actual data is the dynamic data captured by PlanetPress Workflow at run-time. The sample data file is a static sampling of the run-time data (see "Sample Data" on page 70).
In the PlanetPress Workflow Configuration program, you use sample data files to create, edit and debug PlanetPress Workflow configurations (see "Debugging your PlanetPress Workflow process" on page 106).

Job file names and output file names

When an **Input task** sends a new data file down a process, it gives it an internal file name referred to as the job file name (associated with the **%f** variable). The new job file typically keeps the same name until the end of the process.

- If the job file comes to a branch in the process, PlanetPress Workflow makes a copy of the job file and gives the new file a new job file name.
- If the job file is processed by a Splitter action task, the task typically creates a number of new files which are all given new job file names.

Since these files are generated and managed by PlanetPress Workflow, you should not actually pay too much attention to their names.

Many **Output tasks**, on the other hand, let you determine exactly how you want the files they generate to be named. In the case of **Send to Folder** output tasks, for example, output files are saved under their job file names by default (using the variable %f), but you may use a static (MyOutput.txt, for example) or variable name (%O_Invoices, for instance) of your choosing.

Variables such as %o (original file name) bring up the issue of file overwriting. If the process receives two source files with the same name, the second output file may overwrite the first one.

This may be what you want, but otherwise you may consider using another variable, such as %u (unique 13-character string).

When choosing naming schemes for output files, consider the following:

- For the benefit of users who must identify files, be it in a folder or on a printer queue, consider using names that are as meaningful and as precise as possible.
- Some devices or applications may use file name extensions to know what to do with incoming files.

Since variable properties can be entered in the boxes where you specify the folder and file names, you can use variables (see "About variables" on page 701), data selections (see "Data selections" below) and static text. You could, for example, use the following: `ClientID_@(1,1,1,1,14,KeepCase,Trim)_StatMonth_%m`.

One last consideration regarding output file names has to do with standard JPEG and TIFF files generated by PlanetPress Image. When an output job contains multiple pages, multiple JPEG or TIFF files are generated (one image per file), each one identified by a sequence number appended to its name (this is managed by your PlanetPress Workflow). A three page job to be called Invoice, for example, will generate three JPEGs or TIFFs called Invoice0, Invoice1 and Invoice2. Note that this does not apply to multiple TIFFs, which can include multiple images in a single file.

Note

You can change the name of a previously named file using a **Rename** action task (see "Rename" on page 432).

Data selections

A data selection could be compared to an address. It indicates a location within a data file or database: the job file (see "Job file" on page 51), Metadata file (see "Metadata" on page 75), or "Data Repository" on page 95.
Data selections can be used in many task property fields and are always evaluated at run-time so they are always dynamic and depend on the job file that is currently being processed.
There are several types of data selections you can use, depending on which emulation you are using, whether or not Metadata have been created by a previous task in the process, and whether or not data have been entered in the Data Repository.

Adding a data selection

A data selection can be used in any task property that may contain a variable (see "Variable task properties" on page 303). These properties are recognizable by their colored field label (maroon, by default).
Right-click the property field and choose **Get Data Location** or **Get Metadata Location** to open the Data Selector (see "The Data Selector" on page 842) or **Get Repository Location** to open the Data Repository Manager (see "Data Repository Manager" on page 839).

> **Note**
>
> The **Get (...) Value** options will also open the Data Selector or the Data Repository Manager, but once selected, the value becomes static and does not change between each data page and job file.

After opening a sample of the data (see "Choosing a sample data file" on page 71) and/or Metadata, you can easily make a selection.
It is also possible to manually enter a data selection, or to change it after making a selection with the mouse pointer.

Data selections can also be used in a PlanetPress Design document that is being merged with the data (for example in a printed output); for more information, see PlanetPress Design User Guide.

Wild card parameter "?"

Data/Metadata selection functions accept a wildcard parameter "?", indicating the function operates on all nodes (not just one) of a given level.

Examples

- In a PDF emulation, the format of a selected region could be:
  `region(?,0.59375,2.21875,1.85416,2.51041,KeepCase,NoTrim)`

  In this case “?” represents the current physical data page processed by the task.
- In the following rule, the Metadata selection function loops through all datapages in a job, comparing their index in the document to a value:
  `(GetMeta(SelectedIndexInDocument[0], 11, Job.Group[?].Document`

```
[?].Datapage[?]) Equal 0
```

In the following rule, the question mark in the text-based data selection represents the current page number:

- `(@(?,1,1,1,9,KeepCase,NoTrim) IS EQUAL TO Page 1 of)`

Text-based data selections

Text-based selections are used for text data files such as Line Printer, ASCII and Channel Skip emulations. The selection refers to a rectangular selection that may contain multiple lines, rows, columns on a given page.

Syntax

@(page number, from line, to line, from column, to column, case option, trim option)

Here is a breakdown of the syntax (all options are mandatory):

- **@()**: Always surrounds a data selection.
- **Page Number**: The data page number from which you want the data selection to grab the data. If you want to get data from each page individually, this has to be done after a splitter.
- **From Line**: The starting line of the data selection.
- **To Line**: the last line of the data selection.
- **From Column**: the leftmost character position of the data selection.
- **To Column**: the rightmost character position of the data selection.
- **Case Options**: This can be one of three options:
  - **KeepCase**: Keeps the current uppercase and lowercase letters as they are.
  - **UpperCase**: Converts all letters to their uppercase equivalent.
  - **LowerCase**: Converts all letters to their lowercase equivalent.
- **Trim Option**: Can either be "Trim" if you want to trim empty spaces before and after the data selection or "NoTrim" if you want to retain the extra spaces.

Database data selections

These selections are used for database-driven data files such as Database and CSV emulations. The selection refers to a specific field on any given data page.

Syntax

field(record set number, child number, field name, treatment of character case, treatment of empty trailing cells)

Here is a breakdown of the syntax (all options are mandatory):

- **field()**: Always surrounds database field selections.
- **Record Set Number**: The data page (or "record") of the data selection.
- **Child Number**: Line Number in the record (if there are multiple lines returned for one single record).
- **Field Name**: The name of the field you want to retrieve.
- **Case Option**: This can be one of three options:
  - **KeepCase**: Keeps the current uppercase and lowercase letters as they are.
  - **UpperCase**: Converts all letters to their uppercase equivalent.
  - **LowerCase**: Converts all letters to their lowercase equivalent.
- **Trim Option**: Can either be "Trim" if you want to trim empty spaces before and after the data selection or "NoTrim" if you want to retain the extra spaces.

Data Repository lookups

The **Data Repository** selections are made through the lookup function. Selections are done from the data located in the "Data Repository Manager" on page 839. The lookup function returns the value of a single key, which is always a string. If the lookup operation fails to find any data, for any reason, the return value is always "NODATA".

Syntax

lookup(group, return key, lookup key, lookup value)

Here is a breakdown of the syntax (all arguments are mandatory):

- **group**: The name of the group in which to retrieve the value. Does not need to be surrounded by quotes.
- **return key**: The name of the key where the information you want to retrieve is located. Does not need to be surrounded by quotes.
- **lookup key**: The name of the key in the group with which to look up the value. The return key of the KeySet in which the lookup key's value matches the lookup value will be returned.
- **lookup value**: A string surrounded by quotes which will be used in the lookup.

The lookup syntax is akin to a SQL SELECT statement and could be loosely translated to:

```
SELECT [return key] FROM [group] WHERE [lookup key] = [lookup value];
```

PDF data selections

These selections are used for PDF data files. The selection refers to a specific area of any given page of the PDF by using precise region coordinates (in inches).
Note that when adding a metadata field, if you perform a multi-line data selection on a PDF region, only the first line of that region will be set to the metadata field.

Syntax

region(page, left, top, right, bottom, case option, trim option)

Here is a breakdown of the syntax (all options are mandatory):

- **region()**: Always surrounds PDF data selections.
- **Page**: The page of the PDF from which to retrieve the data.
- **Left**: Exact horizontal position (in inches) that defines the left of the selection region.
- **Top**: Exact vertical position (in inches) that defines the top of the selection region.
- **Right**: Exact horizontal position (in inches) that defines the right of the selection region.
- **Bottom**: Exact vertical position (in inches) that defines the bottom of the selection region.
- **Case Option**: This can be one of three options:
    - **KeepCase**: Keeps the current uppercase and lowercase letters as they are.
    - **UpperCase**: Converts all letters to their uppercase equivalent.
    - **LowerCase**: Converts all letters to their lowercase equivalent.

- **Trim Option**: Can either be "Trim" if you want to trim empty spaces before and after the data selection or "NoTrim" if you want to retain the extra spaces.

Metadata selections

Metadata selections are used with any type of emulation, as long as a metadata file was created by a previous task in the process.

> **Tip**
>
> To get a sample of the metadata file, debug your process and step through it until the option View Metadata gets enabled. This happens when metadata have been created by a task in the process. Open the metadata viewer and save the metadata file to use it as a metadata sample file in the Data Selector.

Syntax

GetMeta(Field Name [, Option Flags, Metadata Path])

Here is a breakdown of the syntax:

- **GetMeta()**: Always surrounds metadata selections.
- **Field/Attribute Name**: specifies the name of the field (or attribute, if the GetAttribute option flag is set) to retrieve (see "Metadata" on page 75).
- **Option Flag** (optional): Sets the options for the selection (see table below).
- **Metadata Path** (optional): Defines the precise path where the Metadata Field is located.

> **Note**
>
> Metadata Index/Count values are **zero-based**: the first element in any collection has an index of 0 and the last element's index corresponds to the collection's length minus 1.

Option flags

The flag value to enter should be the sum of all desired flags. So, a value of 11, which is 8+2+1, means that behavior 8, 2 and 1 are applied.

A value of 0 means 'no flag'.

Name	Value	Behavior
GetAttribute	1	Search for the name argument in the attribute collection instead of the default field collection. See: "Metadata" on page 75.
NoCascade	2	Search only the level specified by the path argument (defaults to **Page level** when path argument is empty), instead of default behavior, which recursively goes up from the **Page level** to the **Job level**.
FailIfNotFound	4	Raise an error and crash the job is the specified name is not found instead of returning an empty string.
SelectedNodesOnly	8	Returns values from selected nodes only (i.e. ignores unselected nodes).

XML data selections

XML data selections are used to retrieve an element's name, value or count from an XML file.

Syntax

xmlget(XPath[, Value option, Case option, Trim option])

Here is a breakdown of the syntax:

- **xmlget()**: Always surrounds a data selection.
- **Value Options**:
  - **Count**: The number of elements on the same level in the same node that have the same name.
  - **Name**: The element's name.
  - **Value**: The element's value.

- **Case Options**: This can be one of three options:
  - **KeepCase**: Keeps the current uppercase and lowercase characters as they are.
  - **LowerCase**: Converts all characters to their lowercase equivalent.
  - **UpperCase**: Converts all characters to their uppercase equivalent.
- **Trim Options**: Enter "Trim" if you want to trim empty spaces before and after the data selection or "NoTrim" to retain the extra spaces.

About data emulation

An emulation specifies how to interpret a data file. It is basically the method through which PlanetPress Workflow parses and displays the data. If the emulation is set to CSV (comma separated values), for instance, commas encountered in the data will typically be considered as value separators. The way data selections are made depends on the emulation (see "Data selections" on page 53).

Every Workflow process has its own data emulation setting, which depends on the sample data file you choose.
A process's data emulation is only visible in the Workflow configuration tool when using the Data Selector e.g. to select a sample data file, but it is always set to one (Line Printer, by default).

A process's emulation can be changed either by choosing another sample data file (see "Choosing a sample data file" on page 71) or by inserting a "Change Emulation" on page 391 task in the process.
Changing the emulation is particularly important if you want to make a data selection in a file after it has been changed to another format (see "Data selections" on page 53).

> **Note**
>
> Even during debugging, selecting a sample data file with a different format will cause the emulation of a process to change. In order to avoid errors, change the emulation back to the format of the original input file before using the process again.

Stabilizing data

All emulations, except the database, PDF and XML emulations, let you perform operations on the data to stabilize it. The following options are available in both the "Change Emulation" on

page 391 task and "The Data Selector" on page 842.

Add/remove characters: Enter the number of characters to add to, or remove from, the head of the data stream, or use the spin buttons to increment or decrement the value. Positive values add characters; negative values remove characters. This is useful when one or more characters of input data precede the start of the first data page. Note that certain control characters can be problematic. For example, the NUL character (hexadecimal 00) cannot be removed from the head of the data stream, and a backspace (hexadecimal 08) can cause unpredictable behavior. The Hex Viewer can be useful in helping determine the control characters that appear at the head of the data stream. (To open the Hex Viewer, select Debug > View as Hex, in the menu.) Note that you cannot add characters in a CSV. Further note that if you remove characters in a CSV emulation, you should ensure that you do not inadvertently remove field or text delimiters.

Add/remove lines: Enter the number of lines to add to, or remove from, the head of the data stream, or use the spin buttons to increment or decrement the value. Positive values add lines; negative values remove lines. This is useful when one or more lines of input data precede the start of the first data page. Note that you cannot add lines in either a CSV or user defined emulation.

Lines per page: Enter the number of lines each data page contains, or use the spin buttons to increment or decrement the value.

Pages in buffer: Enter the number of data pages you want the data page buffer to contain, or use the spin buttons to increment or decrement the value.

Read in binary mode (ASCII emulation only): Select to read the data file in binary mode. You select this if you intend to run a PlanetPress Design document on a printer queue that is set to binary mode. In binary mode, the printer reads the end of line characters (CR, LF, and CRLF) as they appear in the data stream and does not perform any substitution. A printer that does not support binary mode or is not running in binary mode replaces any CR, LF, or CRLF that appears at the end of a line of data with a LF. Note, however, that it replaces a line feed followed by a carriage return (LFCR) with two LFs. Binary mode is the recommended printer mode when you use an ASCII emulation.

Cut on FF character: Select to have a new data page when a form feed character is encountered in the data stream. If you select Cut on FF character, you have two conditions that signal the end of a data page: the form feed character and the number of lines set in the Lines per page box.

Emulation specific options

Various emulation specific options can be set for most emulations, with the exception of the line printer and database emulations. For more information about a specific emulation type, see:

- "ASCII emulation" below
- "Channel skip emulation" on page 64
- "CSV emulation" on page 65
- "Database emulation" on page 66
- "Line printer emulation" on page 67
- "PDF emulation" on page 67
- "XML Emulation" on page 70

Emulations in PlanetPress Design

The Data Selector in Workflow is essentially the same as the one used in PlanetPress Design. When you create a document in PlanetPress Design, you choose a sample data file and specify the emulation to use for the chosen data. Within PlanetPress Workflow, the same emulation tools as in PlanetPress Design are available throughout your process, using the Data Selector. One notable exception however is that User-Defined Emulation is not available because it uses PlanetPress Talk code, which is not available within the PlanetPress Workflow Configuration program.

The emulation that is used in your process can change during the process, and can be different than the one used in any PlanetPress Design document used in your process. PlanetPress Design Documents use their own emulations, as defined in the document itself from PlanetPress Design.

For more information about emulations in PlanetPress Design see PlanetPress Design User Guide.

ASCII emulation

ASCII emulation tells the process to treat the input data as a stream of ASCII characters. The data stream is read one character at a time, a line is constructed, and that line is added to the data page buffer.
In this emulation, you can define how to handle carriage returns that are not followed by line feeds and how to handle tabs. You can also define whether you want any Hewlett Packard Printer Control Language (HP PCL) escape sequences to be removed.

> **Note**
>
> ASCII emulation is only used when merging ASCII data with a PlanetPress Design document.
> When choosing an ASCII sample data file to be merged with a Connect template, select Text emulation (see "Text-based emulation" on page 68).

Using an ASCII file on a printer

If an ASCII file gets sent to a printer (which is possible in a PlanetPress Suite solution), you need to know if your printer supports binary mode as this is the recommended mode for ASCII emulation. On printers that support binary mode, you can switch the printer to binary mode using the printer keypad or by sending the appropriate PostScript code to the printer.
In binary mode, the printer reads the end of line characters (carriage return [CR], line feed [LF], and carriage return followed by a line feed [CRLF]) as they appear in the data stream and does not perform any substitution. A printer that does not support binary mode or is not running in binary mode replaces any CR, LF, or CRLF that appears at the end of a line of data with a LF.
A form feed signals the end of a data page in ASCII emulation. If no form feed occurs in the data stream, the emulation adds data to the data page buffer until the buffer is full.

ASCII emulation options

- **Tab on carriage return**: Select this option to fix formatting problems caused by isolated CR characters found within the data. When this option is selected, isolated CR characters are spaces, as defined in the Number of spaces in the tab box below. Note that this option is available only when the **Read in binary mode** option is selected.
    - **Number of spaces in the tab**: Enter the number of spaces you want the application to use when an isolated carriage return character is found within the data. This number typically corresponds to the maximum column number. If your data is formatted so as to occupy a maximum of 120 characters on each line, enter a value of 120 in this box, so when an isolated CR character is found, the data following the CR character will appear starting from column 121. Note that this option is available only when the Tab on carriage return option is selected
- **Number of spaces per tab**: Enter the number of spaces you want to use when actual TAB characters are found within the data.
- **Remove HP PCL escapes**: Select if you want all Hewlett Packard Printer Control Language escape sequences to be removed from the data.

Channel skip emulation

Channel skip emulation is a variant of line printer emulation. It tells the process to read the data stream one line at a time, and to treat the first character of each line as a code that indicates how to position the line of data in the data page buffer.

By default, in channel skip emulation, the integer 1 signals the end of a data page. You can change this default when you set up the emulation.

Note that if a given value is used for multiple channels, the result may be different at design time, or when a PlanetPress Design document is previewed or printed.

Also note that Split on FormFeed (FF) is not supported with the Channel Skip emulation in Optimized PostScript Stream mode or when printing using a Windows driver.

> **Note**
>
> Channel skip emulation is only used when merging line printer data with a PlanetPress Design document.

CSV emulation options

- **Text delimiter**: Enter the character that starts and ends the data in each field of the record. If you do not set a text delimiter and the data in a field contains the character you set as the delimiter, the data is split into two fields. If you want to use a backslash character (\) as a delimiter, you must precede it with another backslash character (thus you would enter \\). You can also specify an ASCII character using its octal value preceded by a backslash (for example, \041 is the exclamation mark character [!]).
- **Force one record per page**: Select to force a single record per data page. If you clear the selection, a record may be split across data pages if necessary. If you want to avoid splitting a record across data pages, yet have several records in the buffer, select Force one record per page, and set the Pages in buffer option to the number of records you want the buffer to hold.
- **Delimiter**: Enter the character that separates the fields of each record in the input data. If you want to use a tab as a delimiter, select Set tab as field delimiter. If you want to use a backslash character (\) as a delimiter, you must precede it with another backslash character (thus you would enter \\). You can also specify an ASCII character using its

octal value preceded by a backslash (for example, \041 is the exclamation mark character [!]).

- **Set tab as field delimiter**: Select to define a tab as the character that separates the fields of each record in the input data. Clear to use the Delimiter box to define that character.

CSV emulation

CSV emulation tells the process to read the input data one line at a time and to treat each line as a database record. It also specifies the field delimiter used to distinguish the different fields of a record.

The process reads the data stream one line at a time and puts each field of the database record on a separate line in the data page buffer, until the buffer is full. You can force a new data page for each record when you set up the emulation.

Note that a double text delimiter within a field is not considered a normal character when not using the Optimized PostScript Stream option or when printing using a Windows printer driver.

CSV emulation options

- **Text delimiter**: Enter the character that starts and ends the data in each field of the record. If you do not set a text delimiter and the data in a field contains the character you set as the delimiter, the data is split into two fields. If you want to use a backslash character (\) as a delimiter, you must precede it with another backslash character (thus you would enter \\). You can also specify an ASCII character using its octal value preceded by a backslash (for example, \041 is the exclamation mark character [!]).
- **Force one record per page**: Select to force a single record per data page. If you clear the selection, a record may be split across data pages if necessary. If you want to avoid splitting a record across data pages, yet have several records in the buffer, select Force one record per page, and set the Pages in buffer option to the number of records you want the buffer to hold.
- **Delimiter**: Enter the character that separates the fields of each record in the input data. If you want to use a tab as a delimiter, select Set tab as field delimiter. If you want to use a backslash character (\) as a delimiter, you must precede it with another backslash character (thus you would enter \\). You can also specify an ASCII character using its octal value preceded by a backslash (for example, \041 is the exclamation mark character [!]).

- **Set tab as field delimiter**: Select to define a tab as the character that separates the fields of each record in the input data. Clear to use the Delimiter box to define that character.

Database emulation

The Database emulation differs from other emulation types. With other emulations, data is pushed either to PlanetPress Workflow processes running on servers, or to PlanetPress Design documents residing on a printer. But in the case of the Dababase emulation, data must be pulled from the data source: a query must be performed on the database to extract the relevant data.

When generating output from the design tool (which is the Designer in Connect, or Design in PlanetPress suite) one can open the document and then use the Data Selector to select a database. By making a connection to the database, its structure can be accessed and it becomes possible to determine how data is to be pulled into the document.

In a Workflow process, the database query has to be performed automatically. This can be performed by the "Database Query" on page 400 Action task. The task generates a data file that it passes to the following task, be it another Action task, or any Output task. For help on setting up the database emulation see: "Choosing a database sample file" on page 72.

> Note
>
> You can also use the PlanetPress Workflow **Database** Action task to get data from a database, and output in multiple different formats such as CSV. See "Database Query" on page 400.

Bear the following in mind:

- The person or plugin performing the query must have full access to the database.
- The data is extracted at the time of the query. A new query must be performed whenever the data needs to be updated.
- Any changes to the structure of the database may have an impact on automated data querying tasks.
- You must have the proper ODBC driver installed to use this emulation.

Database emulation supports SQL ANSI 92 or higher, and supports the following data types: string, integer, floating point, all date formats, and text-only MEMO. It does not support any

binary data types such as Binary Large Object (BLOB), images, sound files, and MEMO data that includes binary data.

Database emulation requires version 2.5 or higher of Microsoft Data Access Components (MDAC), including JET 4.0, and you can save database emulation configurations to a file.

Database emulation options

For help on setting up a database emulation see: "Choosing a database sample file" on page 72.

Note for PlanetPress Suite users: For information about setting up a database emulation in a Design document, please see the relevant page in the PlanetPress Design User Guide.

Line printer emulation

Line printer emulation tells the process to treat the input data as data destined for a line printer.

In this emulation, a form feed signals the end of a data page. If no form feed occurs in the data stream, the emulation adds lines to the data page buffer until the buffer is full.

Line printer emulation offers the best overall performance of all the emulations.

> **Note**
>
> Line printer emulation is only used when merging line printer data with a PlanetPress Design document.
> When choosing a line printer sample data file to be merged with a Connect template, select Text emulation (see "Text-based emulation" on the facing page).

Line printer emulation options

The line printer emulation does not have any options other than the general text-based emulation options (see "Text-based emulation" on the facing page).

PDF emulation

The PDF emulation allows you to capture data from fully composed documents in a PDF format.

PDF emulation slightly differs from other emulations: with other emulations, data is read either one line at a time or one character at a time, while PDF emulation processes the input data from the PDF file in such a fashion that every PDF page becomes a full data page.

> **Note**
>
> Protected PDF and PDF of versions above 1.7 are not supported by PlanetPress Workflow.

PDF emulation options

The PDF emulation does not have any options - that is, there is nothing to set up when opening a PDF data file.

In the Preferences there is a number of options that affect how words, lines and paragraphs are detected in the PDF when creating data selections. You will find these options when you select **Workflow > Preferences > PDF Text Extractor**. For more information see "PDF text extraction tolerance factors" on page 773.

Text-based emulation

Text-based emulations display your data in plain text in the Data Selector and the Data Pane, one line at a time, up to the limit you specify in the emulation properties (by default, 66 lines). This is especially useful for legacy systems (such as AS/400 computers) that send data as text meant for older line printers using pre-printed forms. The emulation options are used to make sure your data is stable.

Stabilizing data is the process of defining the size of the data page and where the first data page occurs in the data stream. A stable data page is critical to obtain accurate results. When you stabilize your data, you also need to consider the internal structure of each data page. The internal structure of each data page must also be stable to make the data selections you use reliable (see "Data selections" on page 53). Ideally, a given piece of data occupies the same position across all data pages, or provides some stable characteristic that makes it possible to locate it on every data page.

Text-based emulation options

The following properties are available for the text-based emulations (Line Printer, ASCII, Channel Skip and CSV) to help stabilize the data:

- **Add/remove characters**: Enter the number of characters to add to, or remove from, the head of the data stream, or use the spin buttons to increment or decrement the value. Positive values add characters while negative values remove characters. Further note that if you remove characters in a CSV emulation, you should ensure that you do not inadvertently remove field or text delimiters.
- **Add/remove lines**: Enter the number of lines to add to, or remove from, the head of the data stream, or use the spin buttons to increment or decrement the value. Positive values add lines while negative values remove lines.
- **Lines per page**: Enter the number of lines each data page contains, or use the spin buttons to increment or decrement the value. A higher value means more lines will be displayed on each data page. Note that increasing the value for this setting increases the amount of RAM used by the application and may exceed the system's capacity. Since the Show used cells option also uses up some RAM, consider removing this option (see "Data Selector display preferences" on page 846) to reduce system load.
- **Pages in buffer**: Enter the number of data pages you want the data page buffer to contain, or use the spin buttons to increment or decrement the value. Putting more pages in the buffer multiples the lines shown and is only useful in specific cases.
  Note for PlanetPress Suite users: You should also consider using the N-Up Object if you want to display multiple data pages; see thePlanetPress Design user guide.
- **Cut on FF character**: Select to have a new data page when a form feed character is encountered in the data stream. If you select the Cut on FF character option, there are two conditions that signal the end of a data page: the form feed character and the number of lines set in the Lines per page option. Note that the **Cut on FF character** takes precedence over the **Lines per page** option.
- **Read in binary mode**: Select this option to force the printer to read the incoming data in binary mode. Use this option with the ASCII emulation to fix problems related to line spacing caused by LFCR character pairs found within the data. Use it with the ASCII emulation and with the Tab on carriage return option to fix problems related to data formatting caused by isolated CR characters found within the data. This option can only be used with the ASCII emulation.
  Note for PlanetPress Suite users: You cannot select this option if the Design document is to be installed on a printer that cannot run in binary mode.
- **Data encoding**: Select the appropriate encoding for the sample data file. You may look at the data in the Data Pane (non-English characters especially, if any) to see how the your selection affects the data.

XML Emulation

XML data emulations allow you to capture data emanating from web databases, e-mail fulfillment, e-commerce, and general XML database engines. In XML emulation, the data elements in markup language format are organized in a folder view with a root node and sub-level nodes.

> **Note**
>
> Characters referenced using the ϧ syntax are limited to values ranging from 000 (&#000;) to 256 (Ā).

> **Note**
>
> When XML data is merged with PlanetPress Design documents on a printer DOCTYPE and ENTITY tags are ignored.

XML emulation options

- **Cache XML data**: When this option is selected, PlanetPress Workflow Server only reloads the data if the size or modified date of the XML file changes. When this option is not selected, the XML data will be reloaded into memory every time that a plugin works on the data file. Caching the XML data will make subsequent tasks run faster (as loading an XML file can take a long time) but will also use up more memory since that memory isn't released in between tasks. For single runs the performance gain is less noticeable than in loops (either through a splitter, a Loop task or a Metadata filter) where the XML file would be loaded repeatedly.

For information about XML emulation options in PlanetPress Design documents, see the PlanetPress Design user guide.

Sample Data

This topic covers issues relating to the sample data used in your PlanetPress Workflow configuration.

A sample data file makes it possible to:

- Create a process that retrieves dynamic data from a data file. Once a sample data file is available, you can use it to make data selections in a process (see "Data selections" on page 53).
- Debug a process (see "Debugging your PlanetPress Workflow process" on page 106).

Choosing a sample file sets the process's **emulation** to the chosen format (see "About data emulation" on page 60). The only other way to change a process's emulation is by inserting a "Change Emulation" on page 391 task in it.
Changing the emulation is particularly important if you want to make a data selection in a file after it has been converted to another format or when the job file has changed (see "Data selections" on page 53). To interpret a sample data file correctly, a process must have the corresponding emulation setting.

> **Note**
>
> Even during debugging, selecting a sample data file with a different format will cause the emulation of a process to change. In order to avoid errors, change the emulation back to the format of the original input file before using the process again.

Choosing a sample data file

In order to create your PlanetPress Workflow process, the sample data you are going to use has to correspond precisely to the job files that will be treated by that process, at least in terms of structure.

The sample data file should have a relatively small number of records (generally less than a hundred) in order to be processed quickly, while your actual data may be much larger and take more time to process. The sample data file should also contain at least one of every exception you may want to detect, or data used for a specific condition. For example, if you wanted to filter out any data for clients in Canada, you would want to use a data file that has at least one client from Canada, to test whether your process filters it out correctly.

To choose a sample data file:

1. Click the **Debug** tab in the PlanetPress Workflow Ribbon.
2. Click on **Select** in the **Data** group.

3. Use the **Data Selector** to choose your sample data file and emulation options (see "The Data Selector" on page 842).
4. Click **OK** on the Data Selector.

Alternatively, if a **resource file** available in the configuration contains the necessary data file, it can be attached to the process easily:

1. Expand the relevant resource files folder (Connect Resources or PPS/PSM Documents) by clicking the ⊞ button.
2. Expand the file by clicking the ⊞ button.
3. Right-click on the data file, then click **Set as sample data file** or simply double-click on the data file.

For example, to use a sample data file included in a Connect data mapping configuration: select **Connect Resources > Data Mapping Configurations > [your data mapping configuration]**, right-click a data file and choose **Set as sample data file**.

> **Tip**
>
> Double-clicking on the data file does the same thing as right-clicking on it an then selecting **Set as sample data file**. Clicking **Cancel** instead of OK after viewing will prevent this action from being taken.

Choosing a database sample file

To choose a database sample file:

1. Open the Data Selector (see "The Data Selector" on page 842).
2. From the **Emulation** drop-down list, select **Database**.
3. Next to the Sample data file field, click the **Configure Database** button.
4. Associate a database.
    - **Microsoft Access Database or dBase file**: In **Database**, enter the path of the Microsoft Access database or dBase file, or click the Browse button to the right of the box to navigate to, the database file. Recall that a Microsoft Access database file bears the extension .mdb, and a dBase file bears the extension .dbf. If the file is a dBase file, you must specify the folder that contains the .dbf file. The folder in this

case is considered to be the database, while each individual .dbf file is a table in the database. Once you enter the path, the Table/query name box updates to reflect the tables and queries available in the selected database.

- **ODBC Data Source**: In **ODBC Data Source**, click to connect to an ODBC Data Source. Use the Select Data Source dialog box that appears to select an existing Data Source or set up a new one. When you exit the Select Data Source dialog box, the Database box updates to display the connection string it uses to connect to the database, and the Table/query name box updates to reflect the tables and queries available in the selected database.

> **Note**
>
> Since the Workflow tool is a 32-bit application, it can only use 32-bit ODBC data sources. Make sure you use the proper Windows application (*ODBC Data Sources (32-bit)*) to create and manage data sources that can be used in Workflow.

5. Click **Edit SQL** to create the SQL query by hand to define the SQL query that retrieves the data your document requires.
6. Set the properties that define a record set:
   - **Condition**: Select the condition that signals the end of a record set. Three possibilities exist: create a new record set for each record, create a new record set after every x records, or create a new record set when the value of a specific field changes.
   - **Sort on condition field**: Select this if the condition you set is to create a new record set when the value of a specific field changes, and you want to sort the records before applying that condition.
   - **Maximum records per record set**: Set either the number of records in each record set, or the maximum number of records in a record set. An individual record set can contain a maximum of 4000 records.
7. Set the number of records you want to include in the sample data file. The number of records you set should provide a reliable sample to ensure your document executes properly with any of the data it may encounter at runtime.

- **All**: Select to include all records in the database in the sample data file.
- **Records**: Select to define the range of records you want to include in the sample data file.

Entering an SQL query

1. In the Database Connection dialog box, click **Edit SQL**.
2. If necessary, click **Show Tables to display**, in the Tables area, a list of the tables available in the database.
3. In the SQL Query Entry area, enter the SQL query. The following two sample queries both retrieve all the fields in the Orders table. The second sorts the resulting records on the Date field.
   SELECT * FROM [Orders]
   SELECT * FROM [Orders] ORDER BY [Date]
4. Click **Test SQL** to verify the query you entered is a valid SQL query.
5. Define whether you want PlanetPress Design to automatically enclose table names and field names in square brackets.
   Alternate syntax(not recommended): Select to prevent PlanetPress Design from automatically enclosing the names of any database tables and fields that appear in the SQL query in square brackets when it exits the advanced SQL Statement dialog box.
6. **Client side cursor**: Select to download result sets to client computer running the SQL query. Under some circumstances, client side cursors may be slightly less efficient than server-side cursors, but they may also provide additional functionality, depending on the type of query that is issued.
7. Click **OK** to return to the Database Connection dialog box.

Opening a previously used data file

PlanetPress Workflow also keeps the last 9 used data files in memory, which you can reopen to use in the same process, or in a different one.
To reopen a sample data file:

1. Click the **Debug** tab in the PlanetPress Workflow Ribbon.
2. Click on **Reopen Data File** in the **Data** group.
3. Click on one of the data files in the list.

4. Use the **Data Selector** to change the emulation options if necessary.
5. Click **OK** on the **Data Selector**.

Metadata

Metadata is a hierarchical structure describing a job. Simply put, Metadata is data about data or, in other words, information tagged to data. Depending on the type of job, the Metadata includes information about the job, the data file, items in the Connect database, a PlanetPress Design document, 'User defined information' (sometimes created by regular tasks) and in some cases page properties and page counts.

Some of the Action and Output tasks produce, alter, or use the Metadata. In addition to that, PlanetPress Workflow provides a whole **series of plugins** to create and edit Metadata during a Workflow process (see "Metadata tasks" on page 559). The things that you have to know in order to use the Metadata tasks effectively are set out in another topic: "Working with Metadata" on page 78.

You can also manipulate the Metadata in your process via scripts using the **Metadata API**. See Metadata API Reference.

> **Note**
>
> Applications or plugins created in PlanetPress Suite 6 and using Metadata will need to be updated for use in version 2020.1. No backward compatibility mode is available.

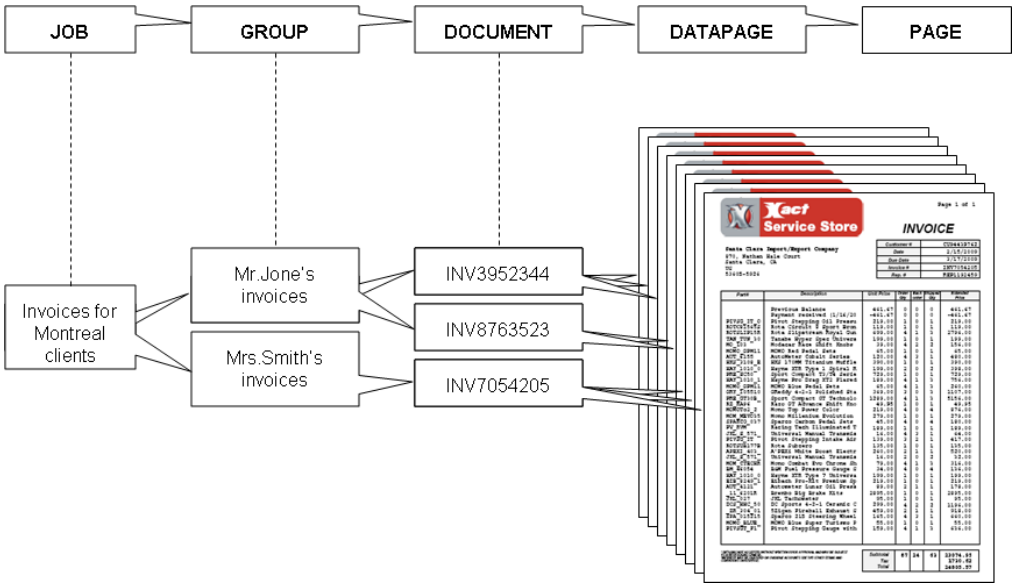
> **Warning**
>
> When a user-defined emulation (created in PlanetPress Design) is used with Metadata, results and behavior are unknown and unsupported. For instance, refreshing the Metadata file may cause the document to crash and/or corrupt. For this reason, it is strongly advised to create backup copies of your documents beforehand.

Metadata structure

The hierarchical structure of the Metadata is composed of a number of basic levels for adding information to a job. These levels are, from top to bottom:

- **Job**: A file that contains one or more groups.
- **Group**: A logical and ordered group of documents (ex: all invoices for a specific customer number; all documents going to the same address, etc.).
- **Document**: A group of one or more ordered data pages intended to the same recipient from the same source (ex: invoice).
- **Data page**: One atomic unit of content that produces zero, one or more pages.
- **Page**: One side of a physical paper sheet.

When Metadata is produced for a given job, a hierarchical (i.e. tree-like) structure is created, composed of the above elements in the following order: Job > Group(s) > Document(s) > Datapage(s) > Page(s). For example:



Note

Any operation that modifies the data with regards to the structure (ex: remove pages, alter the data, etc.) makes the Metadata obsolete and so it must be recreated or refreshed; see "Working with Metadata" on page 78.

Note: Metadata in OL Connect jobs

In **PlanetPress Suite**, all levels in the Metadata hold information about an actual job. In **Connect**, that isn't the case. The Metadata file created and maintained by OL Connect tasks looks the same, but contains less information. Only the first three levels in the Metadata hold information about the job: **Job**, **Group** and **Document**. A Group has information about a **record set** in the Connect database and a Document has information about one **record** in that set. This information appears under **User defined information** instead of under Production information. The Data Model fields are added into the Document level.
Although Data page and Page nodes are visible in the Metadata file, they don't contain any actual job related information in this case.
The Metadata related plugins (see "Metadata tasks" on page 559) can be used in conjunction with OL Connect tasks nonetheless; see "How Metadata affects the output" on page 79.

Metadata Attributes and Fields

Each Metadata node (i.e. Job, Group, Document, etc.) is described with a series of elements, that is, system-defined attributes or user-defined fields holding static or dynamic information about the node they are attached to. Each element has a name and a value. Here is a definition of these 2 types of elements:

- **Attribute**: A read-only, system-defined element which holds certain information about a certain node in the Metadata structure. This information can be static (e.g. the size of a physical page) or evaluated on-the-fly (e.g. the number of documents in a group). Attributes are non-repetitive (i.e. name is unique) and do not persist through Metadata recreation. (See also: "Metadata Attributes reference" on page 83.)
- **Field**: A read-write, user-defined element which holds custom information about a certain node in the Metadata structure. Fields are repetitive (i.e. the same field may appear multiple times) and persist through Metadata recreation.

When the Metadata file is viewed through the Data Selector in Workflow, attributes are listed under **Production information**; fields are listed under **User defined information** (see "Metadata tab" on page 844).

In addition to attributes and fields, each Metadata node has a number of properties and methods. The Boolean property **selected** indicates whether or not to produce the pages under that node. By default, this property is set to true for all nodes. This property is not visible in the Metadata file, but it can be used in a Run Script task via the Metadata API.

Metadata Tools in PlanetPress Design

PlanetPress Suite includes a complete set of Metadata-related functionality, which can be referred to as Metadata Tools. These tools can be used to generate Metadata, retrieve or define Metadata elements, and build the Metadata structure of a PlanetPress Design document. For information about these tools see the Design user guide: PlanetPress Design 7.6 User Guide.

Working with Metadata

A set of special Workflow plugins allows to edit the Metadata during a Workflow process (see "Metadata" on page 75 and "Metadata tasks" on page 559). This topic describes what you have to know about Metadata in order to be able to use these plugins effectively.

How data and Metadata influence each other

When Metadata are created, they are based upon a data file. However, modifying one file doesn't automatically change the other, and Metadata aren't reset by default in a Branch, Condition or Loop.

- **Modifying Metadata does not immediately modify the data**. This is one of the benefits of Metadata because you can sort it, filter it, sequence it, add data to it, without ever modifying the data file itself. This is important because if you, for instance, filter out certain data pages from the Metadata and then save your data file with the **Send to Folder** task, the full data file is saved, not the filtered one. However in some cases Metadata does affect your output directly (see "How Metadata affects the output" on the next page).
- **Modifying data does not immediately modify the Metadata**. So, if you have a PDF file with Metadata and you use a PDF splitter, the Metadata information would still reflect the original data, not the split. This can generally be resolved by using the Create Metadata plugin (again).
- **Branches, Conditions and Loops (such as the "PDF Splitter" on page 464) do not reset the Metadata**. This is important to know in cases where Metadata does affect your output (see "How Metadata affects the output" on the next page). Not handling the Metadata properly in such cases can cause confusing issues because the Metadata and the Data may become out of sync.

How tasks influence Metadata

As a general rule, only Input tasks and Metadata related tasks modify Metadata. There are, however, a few notable exceptions:

- "Run Script" on page 481 tasks can modify Metadata using the "Metadata API" on page 196 (see "Using Scripts" on page 141).
- "Create PDF" on page 396 has the option to reset your Metadata according to the new PDF file.
- "OL Connect tasks" on page 590 can add information, such as record IDs, a record set ID or a print job ID, to the Metadata. They put it under 'User defined information' on the Job, Group or Document level.
- The "Barcode Scan" on page 385 task can add information to the existing Metadata, and creates it if there is none.
- The "Capture Fields Generator" on page 542, "Capture Fields Processor" on page 545, "Get Capture Document" on page 555 and "Find Capture Documents" on page 551 tasks generate their own Metadata.
- The "Lookup in Microsoft® Excel® Documents" on page 498 enhances Metadata fields with information from an Excel spreadsheet, but does not otherwise change its structure.

How Metadata affects the output

By default the data file is not affected when the Metadata are modified. There are however a few situations in which Metadata will or may affect the output.

In **OL Connect**, output is normally created from records in the Connect database, but options in some "OL Connect tasks" on page 590 make it possible to influence the output via the Metadata.

- The "Execute Data Mapping" on page 621 task and "Retrieve Items" on page 635 task can output records in the Metadata.
- The "Create Print Content" on page 611 and "Create Email Content" on page 597 tasks have the option to update the records in the Connect database from the Metadata and use the updated records as input.

In **PlanetPress Suite**, the Metadata defines the order in which the data is consumed by a Design template. Changing the order and location of the various items means that the final output will be different than the original and will follow the order dictated by the Metadata instead of the order of the physical data.

- When you print a PDF with a Windows Print Queue, the Metadata is inspected to determine whether pages should print or not (see "Print using a Windows driver" on

page 656).

- The "Create PDF" on page 396 task also takes the Metadata into account.

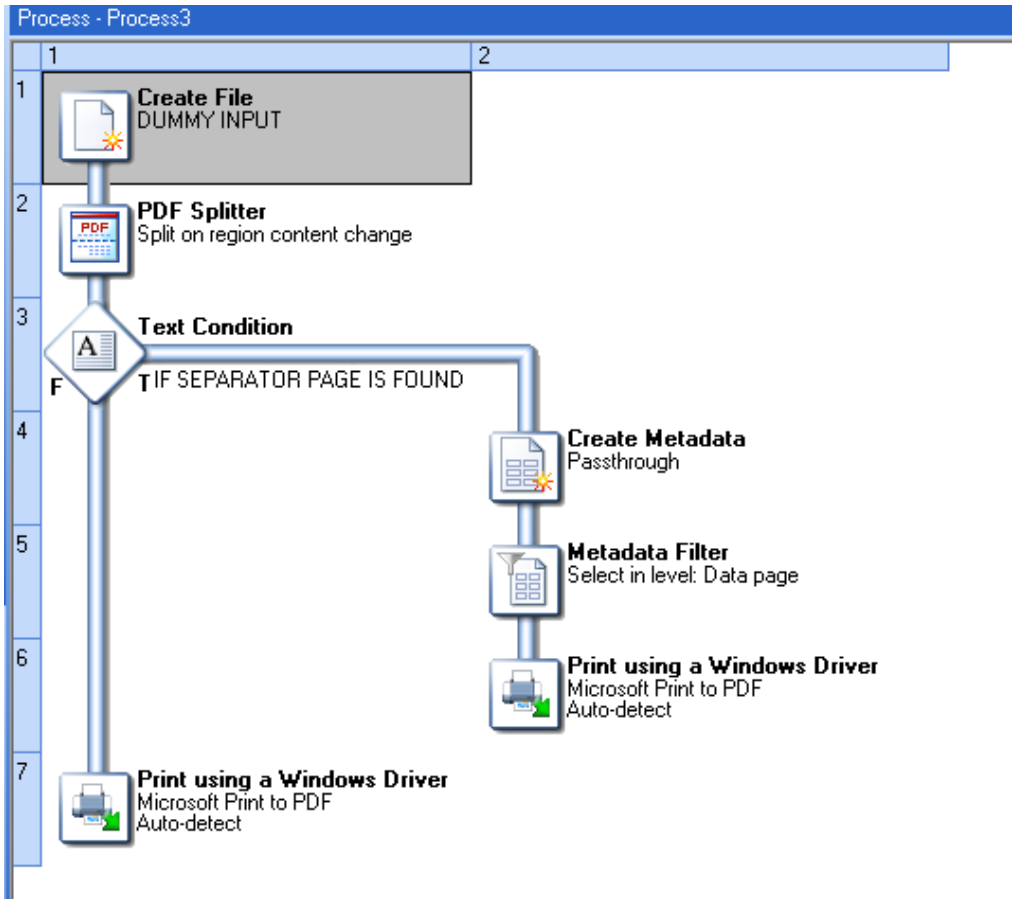
Output issues caused by Metadata, and how to avoid them

A Branch, Loop (the "PDF Splitter" on page 464, for instance, or the Loop task) and Condition don't reset the Metadata. This can cause confusing issues if they are used in combination with a task that takes the Metadata into account.
To avoid such issues, either regenerate your Metadata inside the (condition) branch or loop as early as possible (see "Create Metadata" on page 559), or use the "Metadata File Management" on page 565 to delete the active Metadata file and let the data file be taken into account instead of the Metadata.

Example

Here is an example of an issue that occurs when Metadata is not re-created in a Loop.

In the following process, the Job file is a PDF that contains several invoices. Some (but not all) of those invoices start with a separator page that you don't want to print. Invoices that don't have a separator page should be printed as-is.
The process would look something like this (by default):

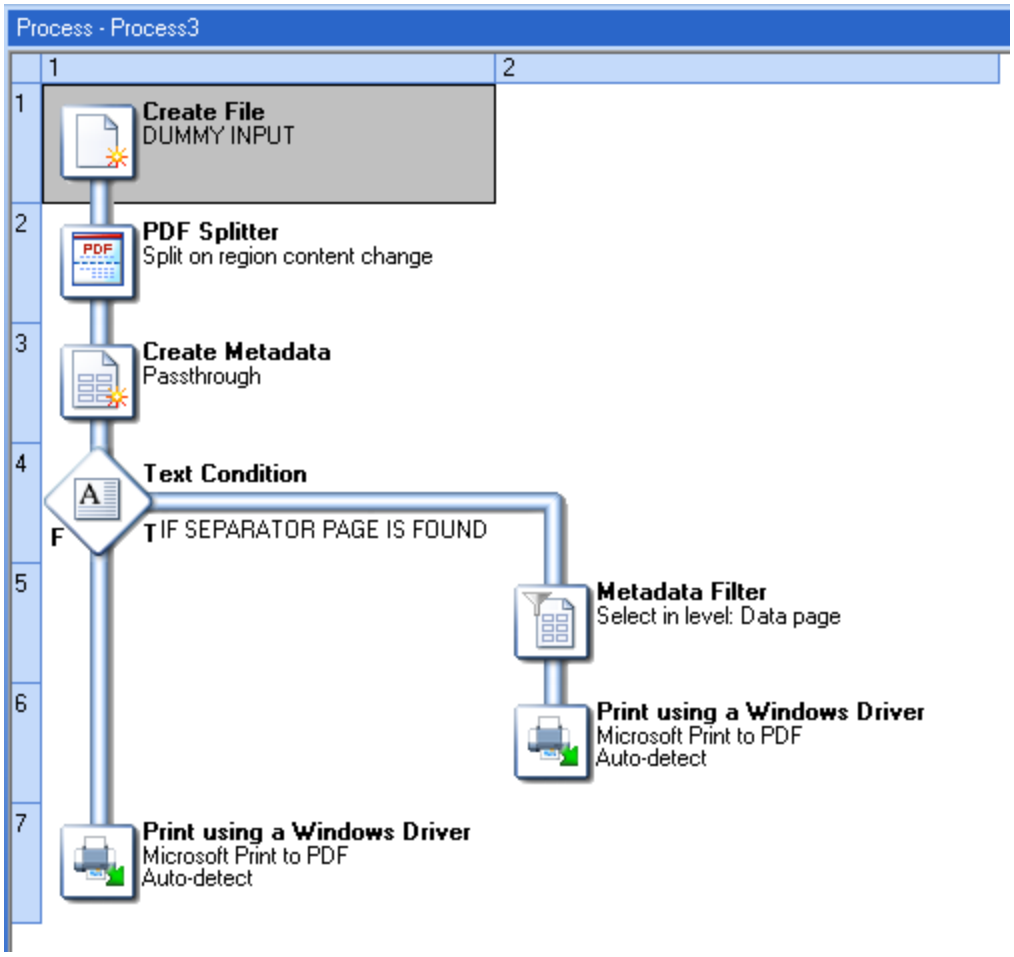


- Step 2 splits the PDF whenever it encounters a new Invoice Number on the Top Right corner of a page. From this point on, the rest of the process applies to each split (i.e. each invoice).
- Step 3 checks if the first page is a separator (presumably by looking for some kind of keyword on the page).
- If a separator page was found, step 4 creates Metadata for the split PDF…
- ...and step 5 filters out the first page (which means the Metadata unselects the first Data Page, in effect "hiding" it from the Print Output task).
- Step 6 prints the PDF to a printer. When printing a PDF file in passthrough mode, the Metadata is inspected to determine which pages should print or not. In this case, Page 1 is unselected in the Metadata, therefore the printer receives the job starting from Page 2, which is exactly what you want.
- Step 7 prints the entire PDF since no separator page was found.

Now here comes the issue:

- The process moves back up to Task 2 in order to process the second split of the original PDF. The Metadata file still exists in the process! So far, it doesn't impact the rest of the process… but wait…
- Let's say in step 3 no separator page is found on page 1 of the second split PDF.
- Step 7 prints that second split PDF… but page 1 is unselected in the Metadata (because the Metadata was carried over from the last split!) so at the very least, you will be missing one page. If the second split has more pages than the first one, other pages at the end will get missing as well, as the Metadata doesn't know about it. Or if it has less pages than the first one, the last pages will be blank.

To avoid running into the issue, you should use the "Create Metadata" on page 559 task to re-create the Metadata immediately after every split, thus ensuring that the process cannot, in either branch of the condition, be using the Metadata from the previous split.



Metadata Attributes reference

An **Attribute** is a read-only, system-defined element which holds certain information about a certain node in the "Metadata" on page 75 structure. This information can be static (e.g. the size of a physical page) or evaluated on-the-fly (e.g. the number of documents in a group). Attributes are non-repetitive (i.e. name is unique) and do not persist through Metadata recreation.

When the Metadata file is viewed through "The Data Selector" on page 842, the Attributes are listed under **Production information** (see "Metadata tab" on page 844).

The Metadata Attributes can be categorized as either Production, Finishing or Index/Count.

- **Production** attributes describe the production of the job and/or Metadata (e.g. path and name of the data file, date at which Metadata was created, etc.)
- **Finishing** attributes describe the finishing intent (e.g. page dimensions, page orientation, duplex mode, etc.).

> Note
>
> The presence of some finishing attributes depends on the PlanetPress Design document and target device used when producing the job.

- **Index/Count** attributes are not part of the original Metadata file. They are evaluated dynamically, based on the content of the Metadata.

> Note
>
> Metadata Index/Count values are one-based when viewed in the user interface: the first element in any collection has an index of 1 and the last element's index corresponds to the collection's length. However, in the API and in Metadata selections, they are **zero-based**: the first element in any collection has an index of 0 and the last element's index corresponds to the collection's length minus 1. This means the zero-based value has to be used when retrieving Metadata (see also: "Metadata selections" on page 58 and "Rule Interface" on page 860).

In the following table, the last 5 columns indicate at which level the corresponding attribute is available. This also depends on the type of job, however.

Note

In the Metadata file created for an **OL Connect** job:

- Only three levels are filled with actual data about the job: Job, Group and Document.
- Only Index and Count attributes are used.

Attribute	Description	Category	Job	Group	Document	Datapage	Page
DataEncoding	(optional) Name of the character encoding.	Production	X	X	X		
DataFile	(optional) Path and name of the data file used by the PlanetPress Design Document.	Production	X	X	X		
Date	Date the Metadata was created in ISO format.	Production	X	X	X		
Time	Time the Metadata was created in ISO format.	Production	X	X	X		

Attribute	Description	Category	Job	Group	Document	Datapage	Page
Title	Title of the source document.	Production	X	X	X		
Producer	Name of the software that created the Metadata.	Production	X	X	X		
Creator	Name of the software that created the source of the Metadata.	Production	X	X	X		
TargetDevice	Name of the device for which the Metadata and associated data is intended.	Production	X	X	X		
Author	Name of the user who printed the job initially, as available in the spool file, and as the first job info of the Windows capture input.	Production	X				
Dimension	Two floating-	Finishin	X	X	X	X	X

Attribute	Description	Category	Job	Group	Document	Datapage	Page
	point values separated by a colon indicating the media size in typographical points (ex: 612:792).	g					
Orientation	"Rotate0", "Rotate90", "Rotate180" or "Rotate270", indicating respectively portrait, landscape, rotated portrait and rotated landscape.	Finishing	X	X	X	X	X
Side	"Front" or "Back"; indicates whether the page is on the front or the back of the paper sheet. This attribute is a "best effort" and is device-dependent.	Finishing					X

Attribute	Description	Category	Job	Group	Document	Datapage	Page
Duplex	"None", "DuplexTumble" or "DuplexNoTumble"; indicates a change of the duplex status.	Finishing	X	X	X	X	X
InputSlot	Device-dependent identifier of the media source.	Finishing	X	X	X	X	X
OutputBin	Device-dependent identifier of the media destination.	Finishing	X	X	X	X	X
Weight	Device-dependent weight of the media.	Finishing	X	X	X	X	X
MediaColor	Device-dependent color of the media.	Finishing	X	X	X	X	X
MediaType	Device-dependent type of the media.	Finishing	X	X	X	X	X

Attribute	Description	Category	Job	Group	Document	Datapage	Page
Index		Index/Count		X	X	X	X
IndexInDocument	Returns the Absolute index of the node within all the nodes under the parent Document.	Index/Count				X	X
IndexInGroup	Returns the Absolute index of the node within all the nodes under the parent Group.	Index/Count			X	X	X
IndexInJob	Returns the Absolute index of the node within all the nodes under the parent Job.	Index/Count		X	X	X	X
Count		Index/Count	X	X	X	X	
DocumentCount		Index/Count	X				
DatapageCount		Index/Count	X	X			

Attribute	Description	Category	Job	Group	Document	Datapage	Page
PageCount		Index/Count	X	X	X		
SelectedCount		Index/Count	X	X	X	X	
SelectedDocumentCount		Index/Count	X				
SelectedDatapageCount		Index/Count	X	X			
SelectedPageCount		Index/Count	X	X	X		
SelectedIndexInDocument	Returns the Absolute index of the node within all the selected nodes under the parent Document.	Index/Count				X	X
SelectedIndexInGroup	Returns the Absolute index of the node within all the selected nodes under the parent Group.	Index/Count			X	X	X
SelectedIndexInJ	Returns the	Index/C		X	X	X	X

Attribute	Description	Category	Job	Group	Document	Datapage	Page
ob	Absolute index of the node within all the selected nodes under the parent Job.	ount					
NumCopies	Indicates how many times the job is set to execute, as set when printing using a Windows driver.	Index/Count	X				

Working with JSON

In online processes, it is common to send data to and retrieve data from a server. That data is often exchanged in JSON format. JSON is short for **J**ava**S**cript **O**bject **N**otation. It is a way to store information in a structured and easy-to-read format. It is often referred to as "XML without nodes" and it is designed for exchanging data.

Refer to the following online resources for more information on JSON and its syntax:

- www.json.org
- www.w3schools.com

JSON support in Workflow tasks and scripts

PlanetPress Workflow offers JSON support in and via the following **tasks**:

- The "XML/JSON Conversion" on page 449 task converts an XML job file to JSON or a JSON job file to XML.
- The following OL Connect tasks accept JSON data as **input**: "Create Email Content" on page 597, "Create Print Content" on page 611, "Create Web Content" on page 614, "Render Email Content" on page 631, and the "Create Preview PDF" on page 607 task.
- When the OL Connect "Execute Data Mapping" on page 621 task or the OL Connect "Retrieve Items" on page 635 task is set to **output** Records in JSON, it outputs a JSON Record Data List (see "Types of JSON in Workflow" below).
- The OL Connect Send "Get Data" on page 576 task can output its results to a JSON file.

In **scripts** written in any JSON-aware language (including JavaScript), JSON is obviously supported.

Certain methods in the "Data Repository API" on page 175 accept or return JSON data.

Types of JSON in Workflow

Workflow tasks that support JSON accept or output one or two of the following types of JSON:

- a regular **JSON string**, containing a JSON object or an array of JSON objects representing records. If a value in a record object is a string, it is considered to be a field value. If a value in a record object is a JSON object, it is considered to be a nested table with detail records. For examples, see "JSON string examples" below.
- a **JSON Record Data List** (see the REST API Cookbook). A JSON Record Data List is a proprietary JSON object type. It includes a **schema** entry with information about the types of all fields at the beginning of the record, and the data set with values after the schema. This structure allows for easy handling of REST API return values through scripting in Workflow or in the Designer; see "JSON Record Data List example" on page 93.

JSON string examples

The following JSON string samples show various techniques to incorporate data in a JSON string.

A simple JSON structure holding the first and last name of a person:

```
{
"first": "Peter",
```

```
"last": "Parker"
}
```

A JSON string with references to **local variables** and a **Job Info variable** (see "About variables" on page 701):

```
{
"first":"%{first}",
"last":"%{last}",
"email":"%2"
}
```

A JSON string containing a local variable and various **Data Repository selections** (see "Data Repository lookups" on page 56):

```
{
"jobid":"%{jobid}",
"account":"lookup(OLCS_jobs, account, jobid, '%{jobid}')",
"datafile_name":"lookup(OLCS_jobs, datafile_name, jobid, '%
{jobid}')",
"pages":"lookup(OLCS_jobs, pages, jobid, '%{jobid}')",
"documents":"lookup(OLCS_jobs, documents, jobid, '%{jobid}')",
"recordsetid":"lookup(OLCS_jobs, recordsetid, jobid, '%{jobid}')"
}
```

An example where the entire JSON string is provided in a Job Info variable:

```
%1
```

A JSON string constructed with information retrieved from an XML job data file (see "XML data selections" on page 59):

```
{
"first":"xmlget('/request[1]/values[1]/first
[1]',Value,KeepCase,NoTrim)",
"last":"xmlget('/request[1]/values[1]/last
[1]',Value,KeepCase,NoTrim)",
"email":"xmlget('/request[1]/values[1]/email
[1]',Value,KeepCase,NoTrim)"
}
```

A JSON string that contains nested data:

```
{
"name":"Peter Parker",
"email":"parkerp@localhostcom",
"ExtraData":"foobar",
"detail": [{"id":"inv123","ExtraData":"hello"},
{"id":"456","ExtraData":"world"}]
}
```

JSON Record Data List example

A JSON Record Data List describes a list of data fields (as name/value pairs), a data table schema and nested data records (if any) for one or more data records. Below is an example of such a JSON Record Data List.

```
[
{
        "schema": {
                "columns": {
                        "ID": "STRING",
                        "Date": "DATETIME"
                },
                "tables" : {
                        "detail": {
                                "columns": {
                                        "ItemTotal": "CURRENCY",
                                        "ItemShipped": "FLOAT",
                                        "ItemOrdered": "BOOLEAN"
                                        }
                                },
                        "detail2": {
                                "columns": {
                                        "ItemUnitPrice": "CURRENCY",
                                        "ItemOrdered": "INTEGER"
                                }
                        }
                }
        },
        "id": 3678077,
        "datasetid": 2392921,
        "fields": {
                "ID": "CU19762514",
                "Date": 1331096400000
        },
        "tables": {
```

```
                "detail": [{
                        "id": 3678078,
                        "fields": {
                                "ItemTotal": "2300.00",
                                "ItemShipped": 2.0,
                                "ItemOrdered": false
                        }
                        },
                        {
                        "id": 3678079,
                        "fields": {
                                "ItemTotal": "29.99",
                                "ItemShipped": 1.0,
                                "ItemOrdered": "false"
                        }
                }],
                "detail2": [{
                        "id": 3678080,
                        "fields": {
                                "ItemUnitPrice": "1150.00",
                                "ItemOrdered": 2
                        }
                        },
                        {
                        "id": 3678081,
                        "fields": {
                                "ItemUnitPrice": "29.99",
                                "ItemOrdered": 1
                        }
                }]
        }
}
]
```


Values could be retrieved in JavaScript as follows:

var foo = record.fields.ID;
var bar = record.tables.detail[0].fields.ItemTotal;

Data Repository

The Data Repository is a permanent structure to store data that can then be reused, modified or augmented at a later time, by different processes.
This feature was introduced in version 8.5.

The Data Repository is especially useful in situations where data needs to be kept in between processes. A few examples:

- An HTTP-based authentication process, once it has validated user credentials, could store session information (unique ID, user name, session starting time) into the repository. All other related processes could then look into the repository to determine if a new request is received from an already authenticated user, if the session has expired, what the user name is, etc.
- Data comes in and is merged into a Capture OnTheGo template and stored in the Data Repository. The end-user augments the data (using the COTG as a data-entry system). The process that receives the augmented data could look into the Data Repository to retrieve the original data (or the ID of the original data records) in order to augment, modify or delete it.

Structure

As can be seen in the "Data Repository Manager" on page 839, the Data Repository consists of Groups, Keys and KeySets.

Feature Name	**Description**	Equivalent Database Terminology
Group	A Group is defined by its Keys (columns), and may contain 0 or more KeySets (rows) within it.	Table
Key	A Key is defined only by its name. The Data Repository only supports STRING values and any data inserted into it is converted to string automatically. The maximum size of a single key is 1 billion	Column/Field

Feature Name	**Description**	Equivalent Database Terminology
	bytes.	
KeySet	A group may contain as many KeySets (rows), which contain variable data, as necessary. A KeySet is inserted using the "Push to Repository" on page 430 task.	Row/Record
Lookup	A method of retrieving one or more KeySets from a group in the data repository.	Query

Accessing the Data Repository

Via plugins

Storing data in the Data Repository

Data can be stored in the Data Repository using the Push to Repository task (see "Push to Repository" on page 430).

Retrieving data from the Data Repository

In any Workflow task where variable data is allowed (recognisable by the maroon field labels), information can be retrieved from the Data Repository using a Lookup function. Right-click a field with a maroon label and select **Get Repository Location**. This will bring up the "Data Repository Manager" on page 839. Select a Group, Key and KeySet entry to determine which value or values should be retrieved at runtime; then click OK. The Lookup Function Syntax, displayed at the bottom left of the Data Repository Manager, will be copied into the field.

The syntax is of the Lookup function is:

```
Lookup(Group_Name, Key_To_Retrieve, Key_To_Match, 'Value_To_Match')
```

> **Note**
>
> **Value_To_Match**can be a static string, a *jobInfo* or a *variable*, but **not** a data selection.

For the **Value_To_Match** parameter, the single-quotes surrounding the value are mandatory even if the value is dynamic.

This function may also be used anywhere else where the contextual menu gives access to it. You could, for example, use it on the General tab of the Create File task, to fill in the value of a key/value pair in a JSON string.

Tip

The Data Repository Manager displays, at the bottom left, the syntax used for accessing a specific value.

Note

Lookup()returns NODATA when the group and/or key does not exist.

In previous versions of the software, trying to do a look-up in a non-existent group and/or key would cause an error. This change in behavior may affect any Workflow configuration that uses an on error process related to invalid groups/keys.

Scripts

In a script you can access the Data Repository using the "Data Repository API" on page 175.

For a quick start, turn to this How-to: Interacting with the Data Repository API.

Data Repository Manager

At design-time, the Data Repository Manager may be used to insert or remove Groups, Keys and KeySets; see "Data Repository Manager" on page 839.

Where to find the Data Repository

In case the Repository contains valuable information that must not be lost in case of a hardware failure, create a backup of the repository.
By default, the Data Repository is located in the following folder:
%ProgramData%\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\Repository.

It is also possible to create a Repository at a custom location; see ConnectionString.

Debugging and error handling

This chapter touches on two subjects that are intrinsically linked, though their use is different.

Debugging is the act of running through your process, either step by step or as a whole, directly from the PlanetPress Workflow Configuration tool, in order to detect and resolve issues with your process.

Error handling, on the other hand, occurs when your configuration has been sent to PlanetPress Workflow services, and are running in "production" mode. The automated handling of errors within your processes will have a large impact on recovering from errors as they happen during production.

About error handling

When your process is running, or during debugging, it may happen that the task that is currently running causes an error, and the task fails. For example, when trying to save to a folder that does not exist, or printing to a printer that cannot be found.

When such an error occurs, in most cases you would want to be aware of it and to take certain actions in order to correct or report the error. This is where our error handling features come in handy.

Most of the tasks, branches and conditions included in your process can have their own error handling behavior, with the exception of **Comments**, the **Input Error bin** task, and older legacy tasks from previous versions of Workflow that did not have error handling.

By default, when an error occurs, the task is skipped and the unmodified job file is passed on to the next task. You can overwrite this behavior by changing the options of the **On Error** tab of the process - which sets the default error handling behavior for all the tasks in that process - or of an individual task.

Using the On Error tab

Whenever an error is triggered either during debugging or when a process runs in production, the settings specified in the **On Error** tab of the task that generated the error will be used to determine a course of action.

On Error Tab

The **On Error** tab is common to all tasks and processes. It can be found in the"Task Properties dialog" on page 863.

By default, any Action task, Branch, Splitter or Condition that generates an error will simply be ignored, and the task just under it (not within a branch) will be given control of the job file without any modification. Any initial input task that generates an error will stop the process from running as a whole, and Output tasks will not generate output. The **On Error** tab can be used to overwrite the default behaviors.

- **Send to Process**: Check this option to send the job file to an error management process.
- **Error Process drop-down**: Enabled only when the **Send to Process** option is checked. Lists any process of which the initial input task is the **Input Error Bin** task.
- **Action**: In the initial input tasks, this group is disabled and defaults to **Stop Process**. In all other tasks where the **On Error** tab is present, the following options are available:
    - **Default**: By default, the task is ignored as if it did not exist and the error is logged before continuing the branch or process; the job file is passed on to the next task in the process. When an error occurs in a loop (or in a plugin that acts like a loop), the loop may log the error, terminate the current iteration and proceed with the next iteration.
    - **Stop Branch**: If the task is in a branch of the process, the branch is stopped and the job file is returned to the process after the branch. The branch will not produce any output. If the task is not on a branch, the entire process will be stopped.
    - **Stop Process**: The process is stopped and no more processing is done. No further output is produced.
- **Log Message**: Check this option to enable logging a custom error message in the PlanetPress **Workflow** log file and in the Windows Application Events.

- **Message**: Enabled only when the **Log Message** option is checked. Enter a message that will be logged in the PlanetPress **Workflow** log file. You can use any variables available in PlanetPress Workflow to customize the message.
- **Store the message in variable**: Select in which **jobinfo**, local or global variable you want to store the message content.
- **ID**: Enter an error ID. This ID will be visible in the **Windows Event Viewer**. However, the ID is not visible in the PlanetPress **Workflow** log file.
- **Store the ID in variable**: Select in which **jobinfo**, local or global variable you want to store the error ID.
- **Reset to defaults**: Resets all options in this tab to their default values.

When storing the message or ID, if they are stored in a **jobinfo** they will be available in any error handling process where errors are being forwarded. If your process continues after the error, the contents of the variables selected in this window will be available to the rest of your process, or as long as they are not overwritten.

All **error codes** are listed in the knowledge base of PlanetPress Workflow. Though some error messages are specific to a task in particular, others may apply to any and all tasks because they are related more to the system than to PlanetPress Workflow itself. Some examples would be W3813, W3830, W3991, W4005. These correspond to issues such as not having any space to write files, permission errors on folders or files, etc.

Creating and using Error processes

An Error process is a special type of process that never runs on its own, and cannot be called using the **GoSub** or **Send to Process** tasks. It can only be used in the **On Error** tab of a task in your process, and will be triggered if the **Send to Process** option is checked in that tab and an Error process is selected in the drop-down list.

To create an Error process, simply replace the initial input task by the **InputErrorBin** Input task, and that process automatically becomes able to handle error jobs sent to it. It is up to you, however, to decide how that error job will be handled.

For example, you could place the job file in a specific folder, then send an email to a supervisor indicating that a job has failed. Or you could update a database with an error status so that it appears on a customer's online order. You could also zip the order up and send it to an administrator, while simultaneously advising the person that sent the job that it failed.

You can have as many error processes as you can normal processes - that is, you are limited to 512 processes, subprocesses, startup processes and error processes combined.

Information available in an Error process

The following information is available from within your Error process when it is triggered.

- A series of variables containing information about the error, the task that triggered it and the process that contained it (see below). These are "System variables" on page 704.
- "Job Info variables" on page 702 (%1 to %9).
- The data file as it was before starting the task.
- Global variables (which are, of course, available anywhere).

> **Note**
>
> Local variables in the process are not sent to error processes, even if the error process has a variable of the same name.

Error handling variables

The error handling variables are read only and are filled by the On Error mechanism.
They can be accessed anywhere, but they only appear in the contextual menu of a task property field when the current process is an error-handling process (that starts with the Error Bin Input task). See also: "Variable task properties" on page 712.

Variable	Name
%{error.process}	Name of the process where the error was triggered.
%{error.tasktype}	The type of task that triggered the error
%{error.taskname}	The name of the task that triggered the error
%{error.taskindex}	The position of the task in the process
%{error.errormsg}	The error message, as entered in the **OnError** tab of the task. This is the same message as appears in PlanetPress Workflow Log

Variable	Name
	file.
%{error.errorid}	The error ID, as entered in the **OnError** tab of the task. This is the same ID that appears in the Windows Event Viewer.
%{error.errorlog}	A string containing the logged error message(s) from a task. Multiple error messages are delimited by a "|" (vertical bar) character.

Accessing the Logs

If your process is running live in the PlanetPress Workflow Service, you have two ways of seeing what is happening now or what has happened in the past.

Viewing running processes

To view what processes are running and processing data as it happens:

1. In the PlanetPress Workflow Ribbon, click on the **Tools** tab, then select **Service Console** in the **Services** group. The PlanetPress Workflow Service Console opens.
2. Click on the service you want to check, including:
    - PlanetPress Workflow
    - LPD Server
    - Telnet Capture
    - Serial Capture
    - HTTP/SOAP Server
    - LPR Client
    - FTP Client
    - PlanetPress Image
    - PlanetPress Fax
    - PlanetPress Messenger
3. When any job or file is processed by the selected service, the processing logs will be displayed in the window on the right.

> **Note**
>
> The information that is displayed here is the same as in PlanetPress Workflow logs and depends on the logging level that you set in the "General and logging preferences" on page 775 and on the 'Minimal logs' option in the "Process properties" on page 854.

Viewing logs for jobs that have already processed

The logs for jobs that have already processed are available in the following folder:

C:\ProgramData\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\Log

You can access this folder more quickly by using this procedure:

1. Open the Workflow Configuration tool and then press CTRL+SHIFT+ALT+F4 simultaneously. This macro keyboard shortcut opens the PlanetPress Workflow working folders.
2. Double-click on the folder called **Log**.
3. There are multiple logs displayed here, including:
    - ppwYYYYMMDD.log - PlanetPress Workflow logs, including the year, month and day of the log (from midnight to midnight).

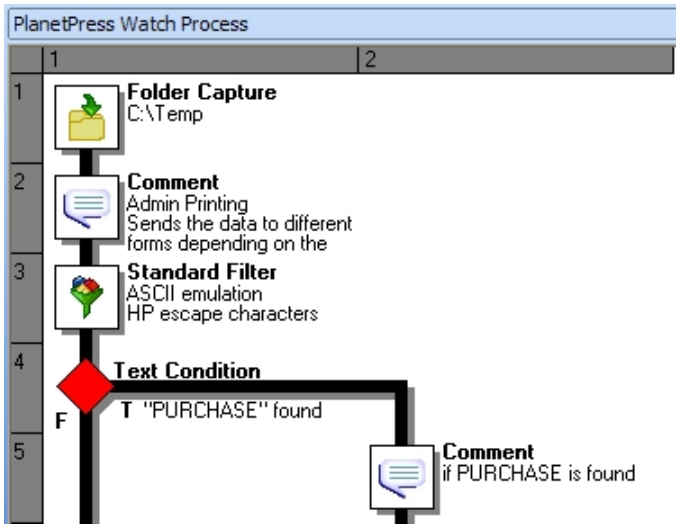
> **Note**
>
> The PlanetPress Image and PlanetPress Fax logs are available in different folders. From the **Watch** folder, go up one level then go in either folders, under which you will find the **Log** folder for that specific software within the suite.

Resubmit backed up input files to a process

Each Input task includes an option that lets you back up input files. This option is not selected by default, since it has the potential to generate a very large number of backup files. To turn on the backup option of an Input task, simply open its properties, go to the **Other** tab and check the **Backup input files** option, then type in a unique file name for the backup file (this should be variable; see "Variable task properties" on page 303).

But if, for a given input task, you did select this option and something goes wrong and an original input file is lost or corrupted, you will have the option to use the **Resubmit Job** command to pull the backed up input file into the process.

Granted that you have backup copies of the files polled by an Input task, you may resubmit them as required. The PlanetPress Workflow Configuration tool gives you the option to resubmit them as they were submitted originally (polled by the initial input task) or to submit them to those tasks located on the index you select.
The numbers on the left in the Process area indicate the task index.



In the above image, the Folder Capture task is on level 1 and the Text condition is on level 4.

Here's how to resubmit backed up input data files.

> **Note**
>
> The resubmit option is triggered through the Workflow configuration tool, but the job being resubmitted is actually handled by the Workflow Service, using that service's credentials. The service must therefore be running in order to resubmit jobs.

1. In the PlanetPress Workflow Ribbon, go to the **Tools** tab then click **Resubmit Job** in the **Services** group. The **File Resubmission** dialog box is displayed.
2. From the **Process** box, select the process for which you want to resubmit the backed up input files.

3. From the **Task index** box, select the index level to which you want the data to be sent. The index is the position in the process where you want to submit the job file. The numbers on the left in the Process area indicate the task index.
4. In the list of backed up input files, select the file you want to resubmit (see "Knowing what to resubmit" below).
5. Using the **From page** and **To page** boxes, select the **data pages** that you want to resubmit. (Data pages refers to blocks of data between natural delimiters in a data file, such as lines in a CSV file.) If you want to resubmit all the data pages from the selected input file, enter 0 in both boxes.

> **Warning**
>
> The **From page** and **To page** boxes are only useful for Printer Queue (or printer capture) Input tasks. They will not function for other types of inputs. In these cases, the complete backup job is submitted.

6. Click **Send** to resubmit the data.
7. To resubmit backed up input files for the same process or for a different one, repeat step 2 to step 6.
8. To close the **File Resubmission** dialog box, click **Close**.

Knowing what to resubmit

When something goes wrong with an output job, a print job for instance, and printouts are lost, you need to know the **name of the job** in order to resubmit the input. This refers to the name used internally by PlanetPress Workflow and generated by the Input task using parameters defined within the task. The name of the job file can be found in the logs (see The PlanetPress Workflow Service Console). To simplify file identification, you should consider using names that include both the name of the original input file (if any) plus some details such as the current date and time.

In addition it may be useful to know the **number of each failed page**. If a job contains 1000 documents and if documents 1 to 950 were printed correctly, you might not need to resubmit the entire job, but only the **input data** for the 50 last documents. However this is only useful if the relationship between the input data and actual output documents is easy to determine.
For help on how to include (data) page numbers in a PlanetPress Suite Design document, or

page numbers in a Connect template, please see PlanetPress Design User Guide or Connect Online Help, respectively.

Debugging your PlanetPress Workflow process

After designing a process, which is to add the different tasks, branches and conditions to the process and configuring them (see "About processes and subprocesses" on page 125), you can test whether or not the process and configuration actually work.

Once you have created and fully debugged all your processes, you will be ready to send it to PlanetPress Workflow service. See "Saving and sending a Workflow Configuration" on page 36.

Prerequisites

Before you can start debugging, these are the prerequisites.

- There must not be any "Unknown tasks" on page 701 in the process.
- A sample data file must be selected; see "Choosing a sample data file" on page 71.

> **Note**
>
> The sample job file should generally be the exact same format as the data that the process will receive when PlanetPress Workflow is processing the job at run-time.

About the Debug mode

When debugging your process, it is important to keep in mind that:

- The **initial Input** task is never executed. The sample data file is used instead of the initial run. This is to prevent "live" data from being retrieved by the initial input task while debugging is being done. If, however, the initial task is critical to the process, it can be executed by copying the initial input task and pasting it as a secondary input task (the first Action task to actually run in the process). Do not forget, however, to remove this duplicate task before saving the configuration!
- If any task makes an operation on the system (for example, capturing files, sending data, printing, etc), it is actually executed, not simulated.

- Any task is executed with the **permissions** of the user that is currently running the PlanetPress Workflow Configuration tool. When running in Service mode, the user configured in the **Configure Services** dialog is used instead. If the credentials are different, a job that runs in debug mode may fail at run-time if the permissions are not available to the Service. Please see "Workflow Services" on page 752 for more details.

Running in Debug mode

Debugging can be run in different ways:

- From the **Debug** tab, click on **Run**. This executes the complete process, step by step, until it is completed.
- From the **Debug** tab, click on **Step**. This executes only the first task in the process and waits for further action. While stepping through a process (using Step, not Run), breakpoints may be used and given steps may be passed, using the buttons on the Debug ribbon (see below).
- Right-click on any task in the process and click **Run from Here** or **Step from Here**. These actions are the same as using the debug **Step** and **Run** buttons, but will execute the process only starting from that task forward.

Double-click on any task to change its properties. If you change the properties of a task before you step through it, those new properties will be used when the task is executed. Note that you cannot modify the process itself while in debug mode (you cannot add, delete or move tasks, change branches and conditions, etc).

Look at the **Messages Area** pane to see any message generated by the tasks that run (See " The Message Area Pane" on page 866).

Use the **Debug Information** pane to see the current value of any variable in your process or globally, or to evaluate custom expression. See "The Debug Information pane" on page 865.

Use the **Object Inspector** - one of the panes alongside the Debug Information pane - on the process to enter sample job information as required.

The **Debug** ribbon provides the following buttons:

- Click on **Skip** to ignore the next task or branch and go to the subsequent one. The job file is not modified in any way.

- Click on **View as Text** in the **Data** group of the **Debug** tab to view the current job file using a text editor (Notepad by default).
- Click on **View as PDF** to view the current job file in Adobe Acrobat if it is present (this will work only for PDF job files).
- Click on **View Metadata** to open the data selector and see the current state of the process' Metadata.
- Click on **View as Hex** to view the current job file in the internal Hex editor.
- Click on the **Stop** button to stop the debugging process. If you use **Run**, **Step** or **Skip** after stopping the process, debugging starts over from the top.
- Use the **Set Breakpoint** button to tag the currently selected task, branch or condition as a breakpoint. When you click Run in your process, the process will execute every task until it reaches a breakpoint and will stop just before the task that is set as a breakpoint.
- Use the **Ignore** button to disable the task, branch or condition that is currently selected. If you disable a branch or condition, all tasks inside that branch or condition are ignored including the output. Note that if you set a task, branch or condition to be ignored, it will also be ignored at run-time, providing you sent the configuration to the service.

Debugging and Emulation changes

One of the cases where debugging is most useful is whenever the job file is converted to another type of emulation, or if a new data file of a different emulation is used somewhere in the process. For example, if a process starts with a Line Printer data file and then converts it into a PDF, it is not possible to select anything from the PDF to be used as (variable) task property, because the Line Printer emulation is active by default. The debugging features can easily resolve this limitation.

The first method is used if your process has all the required tasks, but data selections after an emulation change are necessary.

- Step through the process until you have reached the point after the emulation or data change.
- Make the necessary data selections (see "Data selections" on page 53). Any data selection used in task properties after this point will use the new emulation.
- Continue stepping through each task until the end of the process to debug it.

This method does not allow you to add, remove or move tasks, however.
The second method can be used when that is required.

- Step through the process in Debug mode until you reach the emulation or data change.
- Click on **View as Text** (or **View as PDF** if your data is PDF at this point) in the **Data** group of the **Debug** tab.
- In the viewer that appears, save the file to a location on your hard drive.
- Stop the process, and select the file you saved as your process's sample data file (see "Choosing a sample data file" on page 71).
- If you need to continue debugging your process after the emulation change, you can still do it by using **Skip** on all the tasks until the emulation change, inclusively. Then use **Step** or **Run** to continue debugging.

Lastly, PlanetPress Workflow has an option that can be used in conjunction with the previous to avoid skipping through large processes:

- **Step** through the process until the emulation or data change, as in the first method.
- **Save** the data file locally and then select it as your sample data file, as with the second method.
- Instead of skipping through each task, use the **Run from here** or **Step from here** options, either from the **Debug** tab or by right-clicking on the task where you want to start the process.

About printing

To print a document you can either use an Output task, or a combination of "PlanetPress Workflow printer queues" on page 111 and the Printer Queue Output task. Decisive factors, in addition to the printer that you're using, are:

- The type of job (Connect, or PlanetPress Suite).
- The features that you want to use. When you associate a single **Printer Queue** Output task with multiple printer queues, you have the option of using load balancing or not (see "Load balancing" on page 120).
- The file type. Printer Queues can only handle PostScript and PDF files.

Printing can be done locally or remotely. The spool file is sent to the printer by the Output task itself, or by Workflow if the file is placed in a Workflow Printer Queue.
Printer-centric printing - which means that a document and data are merged on a printer - is

only supported with PlanetPress Design documents, and requires that this feature be available on the printer.

OL Connect print jobs

There are two **OL Connect** tasks designed to create print output based on a Connect Designer template: the "Create Output" on page 604 task, and the "All In One" on page 590 task, which combines 4 different OL Connect tasks, including the Create Output task, within a single one. Both tasks can produce many different types of files and distribute them to many different printers, or to a folder.

Print options

The file type, printer model, output type (a folder, LPR queue or Windows printer), and print options and settings are normally contained in an **Output Creation Preset**. Output Creation Presets are created in the Connect Designer and can be used with any Connect template (see Output Creation Preset and Print Options in Connect's Online Help). For some options, such as grouping documents and splitting jobs, a **Job Creation Preset** is required as well (see Job Creation Preset in the Connect Online Help).
Presets have to be sent to or imported into Workflow before they can be used in a Workflow process.

Alternatively, the All in One and Create Output tasks can send the spool file back to the Workflow process, instead of to the destination defined in the Output Creation Preset. (To achieve this, select the **Handle through Workflow** option in the task properties.)
Back in the process the output file may be sent to a folder using the Send to Folder task, or to a Workflow Printer Queue via the Output to Printer Queue task.
Here are a few reasons why you might want to use the Handle through Workflow option:

- Additional flexibility. Printer Queues have load balancing options that allow to distribute the printing load and make the process faster and more efficient. Print jobs may, for example, be split equally among several printers, or they may be split according to each printer’s capacity and speed. (See "PlanetPress Workflow printer queues" on the next page.)
- Archiving. If the output file is a PDF, the file can be sent to an Archiving solution before it is sent to the printer.
- Easier debugging. If the output file is a PDF, for example, you can open it inside Workflow once it has been sent back to the process (see "Debugging your PlanetPress Workflow process" on page 106).

Using a Printer Queue requires creating the appropriate Printer Queue in the Workflow Configuration tool first.
In the Output to Printer Queue task, select **No document** to let the spool file pass through it.

PlanetPress Suite print jobs

In **PlanetPress Suite**, the printer model and settings are defined in the Design document itself (see "PlanetPress Design documents" on page 44).
Print output is normally generated by an Output task that merges a PlanetPress Design document with a data file (i.e. the job file). This can be either the "Print using a Windows driver" on page 656 Output task, or the "Printer Queue Output" on page 658 Output task.
The latter has to be combined with at least one Printer Queue, and to ensure that the print output is actually sent to the intended printer, you also have to:

- Create a matching Printer Queue in Workflow (see "PlanetPress Workflow printer queues" below).
- Associate the document with that Printer Queue (see "Associating PlanetPress Design documents and PlanetPress printer queues" on page 120).

Note that the Printer Queue Output task requires printer licenses, unless you have the “Optimized Output” add-on in your Connect license, which grants you the equivalent of PlanetPress Production in Connect Workflow. Even then, doing “printer-centric” output requires a printer license (see "Activate a printer" on page 836).

Printer-centric printing

Alternatively the merging of the document and data can take place inside a printer (if the printer is suitable for it). In that case, PlanetPress Workflow sends one of two things to a printer: a file that contains only the data to the selected Printer Queue, along with a trigger that specifies which document the printer should use to merge the data. The document must already be present on the printer’s hard disk or memory, otherwise printing will fail; or a file that contains the data and the document to the selected Printer Queue. Since the data and the document with which it must be merged are both sent to the printer, printing should never fail.

PlanetPress Workflow printer queues

The printer queues displayed in the **Configuration Components** pane of the PlanetPress Workflow Configuration program are not to be confused with Windows printer queues. When you start building a PlanetPress Workflow configuration it contains no printer queues. If you

want Workflow to dispatch spool files to printer queues, you have to create queues in Workflow and set each one's properties.

Printer Queue types

The PlanetPress Workflow Configuration program lets you create four types of printer queues:

- Windows Output printer queues are used to send print jobs to local or network printers. See "Windows Output printer queue" on page 114.
- LPR Output printer queues are used to send print jobs to printers via the LPR/LPD protocol. See "LPR Output Printer Queue" on page 115.
- FTP Output printer queues are typically used to send print jobs to FTP sites. See "FTP Output Printer Queue" on page 117.
- Send to Folder printer queues are typically used to send print jobs to local or network folders. See "Send to Folder printer queue" on page 118.

The properties associated with each queue will differ depending on the queue type. In the case of an FTP Output printer queue, for example, the properties include the IP address of the FTP server. In the case of a Windows Output printer queue, on the other hand, you will specify the name of a local or shared Windows printer queue.

Using Printer Queues

To send print jobs to any of those PlanetPress Workflow printer queues, you must use a "Printer Queue Output" on page 658 task. Note that with a single task, you can send print jobs to multiple Workflow printer queues simultaneously, regardless of queue types.

Workflow printer queues have a number of unique features that make it possible to design very flexible Workflow printing solutions. A few examples:

- You could send big output files to a production printer and smaller files to the office printer, using a Condition in the print process, for example.
- These printer queues offer various automatic load balancing options; see "Load balancing" on page 120.
- Printer-specific commands can be added after the output has been created, to be executed before or after printing.

Shared printer queue properties

The options on a printer queue's Advanced properties tab are common to all printer queues. They include the printer's speed and any special pre- or post-job commands required for printer specific reasons. Pre-job commands are added right before the data in the data file, while post-job commands are placed at the end of the data file.

Advanced tab

- **Print speed**: Enter the speed, in pages per minute (PPM), of the printer associated with the printer queue. This value is used to determine how to divide jobs when you use the **Queue Balancing** option for load balancing.
- **Commands**: The list of available commands appears in this box. Select either **Pre-job commands** or **Post-job commands** in the **Selected** box, and double-click a command from this list to add it to the appropriate list.
- **Selected**: Select either **Pre-job commands** or **Post-job commands** to add new commands to the appropriate list and to see those commands that have already selected. Double-click a command to remove it from the selected list.
- **Add**: Click to add a new command to the list displayed in the **Commands** box. You must then edit the new command's description and value. Note that new commands are shared by all printer queues.
- **Delete**: Click to remove a command from the **Commands** box.
- **Command description**: Use this box to edit the description of the command currently selected in the **Commands** box.
- **Command value**: Use this box to edit the code of the command currently selected in the **Commands** box. Use the right-click menu for a list of standard printer control characters. (See also: "Frequently used printer control characters" below.)

Frequently used printer control characters

Character name:	Character code:	Typical use in printing context:
End-Of-Job	\004	Indicates the end of a print job
Backspace	\b	Moves a character space backwards

Character name:	Character code:	Typical use in printing context:
Horizontal Tab	\t	Adds a horizontal tab
Line Feed	\012	Moves to the next line
Form Feed	\f	Moves to the next page
Carriage Return	\r	Moves to the beginning of the current line
DOS End-Of-File	\032	Indicates the end of a print job in a DOS environment
Escape	\033	Adds an escape character
New Line (CRLF)	\n	Goes to a new line

Windows Output printer queue

Windows output printer queues send print jobs to local or network printer queues set up in the Windows session in which PlanetPress Workflow is running. Note that jobs sent to those queues completely bypass the printer driver.

Properties

General tab

- **Printer queue**: Select the Windows printer queue to which you want to send print jobs.
- **Job name**: Enter the job's file name. By default, the variable %f (Job File Name; see "System variables" on page 704) is used. You may use a different variable, but you may not use a data selection. This information may be used for the printer's banner page.
- **Job owner name**: Enter the job owner name. You may use a PlanetPress Workflow variable. The field is empty by default, which is equivalent to use the default print job owner name, i.e. the current logged in user name.

Advanced tab

- **Print speed**: Enter the speed, in pages per minute (PPM), of the printer associated with the printer queue. This value is used to determine how to divide jobs when you use the **Queue Balancing** option for load balancing.
- **Commands**: The list of available commands appears in this box. Select either **Pre-job commands** or **Post-job commands** in the **Selected** box, and double-click a command from this list to add it to the appropriate list.
- **Selected**: Select either **Pre-job commands** or **Post-job commands** to add new commands to the appropriate list and to see those commands that have already selected. Double-click a command to remove it from the selected list.
- **Add**: Click to add a new command to the list displayed in the **Commands** box. You must then edit the new command's description and value. Note that new commands are shared by all printer queues.
- **Delete**: Click to remove a command from the **Commands** box.
- **Command description**: Use this box to edit the description of the command currently selected in the **Commands** box.
- **Command value**: Use this box to edit the code of the command currently selected in the **Commands** box. Use the right-click menu for a list of standard printer control characters. (See also: "Frequently used printer control characters" on page 113.)

LPR Output Printer Queue

LPR output printer queues send print jobs to LPD-compatible printers using the LPD/LPR protocol. Note that most of the settings associated with LPR output are configured via the PlanetPress Workflow user options (See "LPR Output preferences" on page 799).

Properties

General tab

- **Printer address**: Enter the IP address or host name of the printer receiving LPR jobs.
- **Queue name**: Enter the printer queue name. Based on printer and network requirements, this property may not be required.

- **Data type**: Select the proper data type. Select:
  - (l) Binary data if the job file is a standard binary file.
  - (f) Formatted text to interpret the first character of each line of text as a standard FORTRAN carriage control character.
  - (d) DVI file if the job file contains data in the TeX DVI format.
  - (o) PostScript file if the job file is a PostScript file.
  - (n) Ditroff format if the job file contains data in device independent troff.
  - (t) Troff format if the job file contains data in troff.
  - (v) Sun raster file if the job file contains raster images. This ensures that the printer uses the correct filter to interpret the data.
- **Job name**: Enter the job's file name. By default, the variable %f (Job File Name) is used. You may use a different variable, but you may not use a data selection. This information may be used for the printer's banner page.
- **Job owner name**: Enter the job owner name. You may use a PlanetPress Workflow variable.

Advanced tab

- **Print speed**: Enter the speed, in pages per minute (PPM), of the printer associated with the printer queue. This value is used to determine how to divide jobs when you use the **Queue Balancing** option for load balancing.
- **Commands**: The list of available commands appears in this box. Select either **Pre-job commands** or **Post-job commands** in the **Selected** box, and double-click a command from this list to add it to the appropriate list.
- **Selected**: Select either **Pre-job commands** or **Post-job commands** to add new commands to the appropriate list and to see those commands that have already selected. Double-click a command to remove it from the selected list.
- **Add**: Click to add a new command to the list displayed in the **Commands** box. You must then edit the new command's description and value. Note that new commands are shared by all printer queues.
- **Delete**: Click to remove a command from the **Commands** box.
- **Command description**: Use this box to edit the description of the command currently selected in the **Commands** box.

- **Command value**: Use this box to edit the code of the command currently selected in the **Commands** box. Use the right-click menu for a list of standard printer control characters. (See also: "Frequently used printer control characters" on page 113.)

> **Note**
>
> If you plan to use an LPR output printer queue to send PlanetPress Design documents generated using the Optimized PostScript Stream option, you should not enter data selections in the Printer address and Queue name variable property boxes. If you do need to use information stored in the data to configure the LPR output printer queue, you should first use Job info variables to store the information, and then use these variables in the Printer address and Queue name variable property boxes.

FTP Output Printer Queue

Unlike **FTP** output tasks, which are typically used to send data files to FTP sites, FTP output printer queues are mostly used to send print jobs to FTP sites.

FTP output printer queue properties are as follows:

General tab

- **FTP Server**: Enter the IP address or host name of the FTP server.
- **User name**: Enter an FTP server user name.
- **Password**: Enter a password associated with the FTP server user name entered above.
- **Use FTP Client default port number**: Forces the FTP connection on port 21, the default FTP port.
- **FTP Port**: Enter the FTP port to use. This option is disabled if Use FTP Client default port number is checked. The port should always correspond with the server's port number.
- **Directory**: Enter the directory to which the print jobs are to be uploaded. If you leave this box empty, the job files are sent to the root directory of the FTP server.
- **File name**: Enter the name under which the print jobs will be saved. Consider using a dynamic name, since using a static name will cause every new file to overwrite the previous one.
- **Connection mode group**

- Active: Select to prompt the FTP client to use active mode when sending files to the FTP server.
- Passive: Select to prompt the FTP client to use passive mode when sending files to the FTP server.

Advanced tab

- **Print speed**: Enter the speed, in pages per minute (PPM), of the printer associated with the printer queue. This value is used to determine how to divide jobs when you use the **Queue Balancing** option for load balancing.
- **Commands**: The list of available commands appears in this box. Select either **Pre-job commands** or **Post-job commands** in the **Selected** box, and double-click a command from this list to add it to the appropriate list.
- **Selected**: Select either **Pre-job commands** or **Post-job commands** to add new commands to the appropriate list and to see those commands that have already selected. Double-click a command to remove it from the selected list.
- **Add**: Click to add a new command to the list displayed in the **Commands** box. You must then edit the new command's description and value. Note that new commands are shared by all printer queues.
- **Delete**: Click to remove a command from the **Commands** box.
- **Command description**: Use this box to edit the description of the command currently selected in the **Commands** box.
- **Command value**: Use this box to edit the code of the command currently selected in the **Commands** box. Use the right-click menu for a list of standard printer control characters. (See also: "Frequently used printer control characters" on page 113.)

Send to Folder printer queue

Unlike **Send to Folder** output tasks, which are typically used to send data files to local or network folders, Send to Folder printer queues are mostly used to send print jobs. The files generated will always be PostScript files.

Properties

General tab

- **Folder**: Enter the path of the folder to which the print jobs are to be saved.
- **File name**: Enter the name of the print jobs sent to this queue. To prevent each new file from overwriting the previous one, you should use variable names. This variable property box lets you use a combination of text, variables and data selections.
- **Concatenate files**: If this option is selected, when PlanetPress Workflow tries to save the print job under an existing name, it appends the content of the new print job file to that of the existing file, instead of overwriting it.
- **Separator string**: This option is used to add a separator string between the content of each file when the Concatenate files option is selected.

Advanced tab

- **Print speed**: Enter the speed, in pages per minute (PPM), of the printer associated with the printer queue. This value is used to determine how to divide jobs when you use the **Queue Balancing** option for load balancing.
- **Commands**: The list of available commands appears in this box. Select either **Pre-job commands** or **Post-job commands** in the **Selected** box, and double-click a command from this list to add it to the appropriate list.
- **Selected**: Select either **Pre-job commands** or **Post-job commands** to add new commands to the appropriate list and to see those commands that have already selected. Double-click a command to remove it from the selected list.
- **Add**: Click to add a new command to the list displayed in the **Commands** box. You must then edit the new command's description and value. Note that new commands are shared by all printer queues.
- **Delete**: Click to remove a command from the **Commands** box.
- **Command description**: Use this box to edit the description of the command currently selected in the **Commands** box.
- **Command value**: Use this box to edit the code of the command currently selected in the **Commands** box. Use the right-click menu for a list of standard printer control characters. (See also: "Frequently used printer control characters" on page 113.)

Load balancing

PlanetPress Workflow offers various load balancing options to distribute the printing load and to make the process faster and more efficient. Print jobs may, for example, be split equally among several printers, or they may be split according to each printer's capacity and speed.

Load balancing can only be used for jobs sent to **Printer Queue** output tasks and it only applies when multiple Workflow Printer Queues are selected.

In the **General** tab of the **Printer Queue Output Properties** dialog box, you may select multiple printers, and in the Advanced tab, you can set the load balancing options for the selected printers.

Associating PlanetPress Design documents and PlanetPress printer queues

One of the resources stored in a PlanetPress Workflow printer queue is the list of PlanetPress Design documents associated with it. Also stored in the printer queue are the properties of each document associated with the queue.

Note that Workflow printer queues are different from normal printer queues; see "PlanetPress Workflow printer queues" on page 111.
For more information about PlanetPress Design documents, see "PlanetPress Design documents" on page 44.
For information about printing, see "About printing" on page 109.

Assigning documents to a Workflow printer queue

To assign PlanetPress Design documents to PlanetPress Workflow printer queues:

1. In the **PPS/PSM Documents** group of the **Configuration Components** pane, select either a single document or a group of documents.
2. Drag the selected documents over a PlanetPress Workflow printer queue. The selected document or the group of documents is associated with the printer queue. Each document keeps its default properties.

Breaking the association between documents and a Workflow printer queue

To break the association between a PlanetPress Design document and a given Workflow printer queue:

- Select the document as displayed under the printer queue in question and press **Delete**.

To break the association between a PlanetPress Design document and **multiple** Workflow printer queues:

1. Select the document as displayed under one of the printer queues in question and from the right-click menu choose **Delete Instances**.
   The **Delete Document Instances** dialog box appears.
2. In the **Printer Queue** list, select all those Workflow printer queues for which you want unlink the document.
3. Click OK.

Modifying Design document settings

To modify the settings of a PlanetPress Design document assigned to a Workflow printer queue:

- Double-click on the document located within a printer queue. The **Document Properties** dialog appears.

The settings available in this window are the same as the Printer Settings dialog of a document's properties in the Documents list of the Configuration Components pane, but they are specifically for this document on this printer queue. See "PlanetPress Design document properties" on page 820 for more details.

Triggers

In PlanetPress Workflow, a **trigger** is typically a two line piece of PostScript code placed just before the data. Triggers tell the printer to turn on PostScript mode and specify which document should be used in the merging process (PlanetPress Design document+data).

Triggers are used in two situations:

- When the server running PlanetPress Workflow sends a PlanetPress Design document along with the data to the printer, it adds a trigger before the document (trigger+document+data).
- When the server running PlanetPress Workflow only sends the data to the printer, because the document is already present on the printer, it adds a trigger before the data (trigger+data).

PlanetPress Workflow adds the trigger code automatically, but you may want to use custom triggers. You would do this, for example, to use special printer functions. For more on custom triggers, see the PlanetPress Design User Guide.

Objectif Lune Printer Driver (PS)

Introduction

The Objectif Lune Printer Driver (PS) allows end-users to print directly to PlanetPress Workflow from any Windows application, by using the familiar File|Print option. At the other end, PlanetPress Workflow can capture the incoming stream and optionally convert it to a PDF file along with its metadata.

Although it is available with every PlanetPress Workflow instance, this feature becomes even more useful in environments where the Document Input emulation is available (with PlanetPress Workflow).

Install a Objectif Lune Printer Driver (PS)

The Objectif Lune Printer Driver (PS) is automatically installed during the PlanetPress Workflow setup, along with a default Windows Printer Queue called PlanetPress Printer.

Install a Windows Printer Queue using the Objectif Lune Printer Driver (PS)

A Windows Printer Queue using the Objectif Lune Printer Driver (PS) can be installed from PlanetPress Workflow WinQueue Input plugin properties.

To create a new Windows printer queue from any PlanetPress Workflow:

1. Start your PlanetPress Workflow Configuration program.
2. Insert a WinQueue Input plugin.

3. In the WinQueue Input plugin properties, click New.
4. Enter a Name for the printer queue.
5. Click OK.

Every new Windows printer queue using the Objectif Lune Printer Driver (PS) is shared by default. Once such a shared queue is created, end-users can install it on their own computer by going through the same steps they would when installing a new remote printer in their Operating System. By default, connecting to a shared printer will automatically result in the Objectif Lune Printer Driver being downloaded to the connecting host.

Printer Properties setup

PlanetPress Workflow **WinQueue Input** task can be configured to set a Windows printer queue using Objectif Lune Printer Driver (PS) to produce one of 3 different types of data files: EMF, PostScript, or PDF.

Printer properties settings

Spool Print Jobs in EMF Format

- This will create an EMF data file.
- This format is usually reserved for use with the Windows Print Converter action plugin.

Spool Print Jobs in RAW Format

- This will create a PostScript data file when the option Create Composed Document Stream (with Medatada) is unchecked.
- This will create a PDF data file when the option Create Composed Document Stream (with Medatada) is checked.

Create Composed Document Stream

By default, the Create Composed Document Stream option is:

- Checked if the incoming stream has been produced with the Objectif Lune Printer Driver.
- Unchecked if the incoming stream comes from some other PostScript Driver.
- Grayed out and unchecked if the incoming stream is not PostScript.

Data Capture from PlanetPress Workflow

Once a shared Windows printer queue using Objectif Lune Printer Driver (PS) is installed on both the server and the client sides, data capture can be achieved the same way as with any other Windows printer queues.

1. Open your PlanetPress Workflow Configuration program.
2. Insert a new process.
3. Select WinQueue Input from the Plugin Bar and insert it in the new process.
4. In the WinQueue Input properties, select a Windows print queue using the Objectif Lune Printer Driver (PS) from the drop-down list.
5. Click OK.
6. Send the configuration and start your PlanetPress Workflow service.
7. Start the windows application from which you want to capture data.
8. Open your selected document.
9. Click File | Print.
10. Choose the same Windows print queue as in step 4.

> **Note**
>
> Steps 6-8 can be performed at any time, even if PlanetPress Workflow is not yet started. This is because every Windows printer queue using Objectif Lune Printer Driver (PS) is paused by default. Once the service has started, it captures every queued job.

PDF creation parameters

PDF files retrieved from a Windows print queue using Objectif Lune Printer Driver (PS) have the following properties:

- PDF 1.4
- Optimized PDF (subject to change)
- No down-sampling of images

These settings are pre-configured and cannot be changed by the user.

About Metadata

Metadata files are files containing information on the job itself rather than containing the job per se. A job sent to the Objectif Lune Printer Driver (PS) creates its own Metadata, allowing users to retrieve relevant information, such as, for instance, the time and date the print request was sent and how many pages it contains. For more on this, see the Metadata documentation pages ("Metadata" on page 75).

About processes and subprocesses

Processes

A process is a single workflow within a configuration (see "About Workflow Configurations" on page 33). A process begins with a single input task, contains one or more tasks and/or branches, and terminates with one or more output tasks. In its simplest form, a process can retrieve data from a given folder and save it in a different folder. In most cases, though, processes are more elaborate and configurations, which may include many processes, can be extremely complex.

PlanetPress Workflow processes act as dispatchers: on the one hand, they retrieve data and control plugins that retrieve data from watched locations, and on the other hand they can perform a variety of operations on the data and send data to various devices.
A given process may include Output tasks that generate files used by Input tasks from other processes.
Each process's schedule determines when its initial input task can be performed. Other tasks included in the process are performed regardless of schedule, granted that the previous task was performed.

The available processes in your PlanetPress Workflow Configuration are listed in the "Configuration Components pane" on page 817.

There are several types of processes available to you:

- A **regular** process will run as soon as an input file is available through its input task or, if it is scheduled not to run at that time, will start processing as soon as the schedule permits it. To learn how to create a process see: "Adding a process" on page 127.
- **Startup processes** run only once before every other process in a given configuration (see "Startup processes" on the facing page).

- **Subprocesses** can be called by any other process (see "Subprocesses" on the next page).
- **Error processes** can only be used in the On Error tab of a task in your process (see "Creating and using Error processes" on page 100).

Self-replicating processes are in fact regular processes that replicate themselves in the background when multiple input files are received simultaneously. The input task in a self-replicating process polls its source once, determines the number of files to process, then replicates itself up to the maximum allowed and treats the files simultaneously. The initial process runs again once it has completed itself and replicates again as necessary, until all files have been processed.
You can either create a regular process that is set to be self-replicating from the start (see "Creating a process" on the next page) or change a regular process into a self-replicating process and vice versa (see "Process properties" on page 854).

Processes in a configuration (except startup processes) will always run concurrently. You can schedule processes to run only at certain times or intervals via their properties (see "Process properties" on page 854).

Regular and startup processes can be set to be **Active** (process runs normally) or **Inactive** (process will not run at all); see "Activating or deactivating a process" on page 130.

Startup processes

Startup processes run only once before every other process in a given configuration. They can be used to perform operations that need to be completed once before the configuration can actually be run, such as to map network drives.

The order in which the Startup processes are arranged in the Configuration Components pane determines, from top to bottom, the order in which the Startup processes are executed when the Workflow Service launches. To learn how to reorder processes see: "Reordering objects in the Configuration Components pane" on page 826.
Startup processes always run sequentially.

To learn how to create a startup process see: "Adding a startup process" on page 128.

Subprocesses

Subprocesses are special processes that can be called by any other process. Subprocesses act exactly as subroutines in programming languages, allowing users to reuse existing processes by sharing them to the whole configuration file. They can thus be used to perform redundant operations that may need to be executed numerous times; for instance, archiving a copy of a zipped file received as the input job file, then decompressing it before sending the unzipped version of it back to the calling process.

To learn how to create a subprocess see: "Adding a subprocess" on the facing page.

To **call** a subprocess from another process, use the "Go Sub" on page 478 Process logic task.

Whenever a process calls a subprocess, the main process (the caller) will wait for the called subprocess to finish its execution before carrying on with its own. This means the subprocess feature is synchronous with the main process. This also means the calling process actually appends the subprocess to its own workflow.

Creating a process

Adding a process

There are two different ways to create a new regular process.

- In the **Ribbon**, go to the **Home** tab and click the **Process** button in the **Processes** group.
- In the **Configuration Components** pane, right-click on any process or the **Processes** folder and select **Insert > Insert Process** or **Insert Self Replicating Process**.

Regardless of the method, a new process is created with a default name (Process1, Process2, etc), an Input task and an Output task. The defaults are configurable in the "Default configuration behavior preferences" on page 758 screen.

> **Note**
>
> While a configuration is limited to a maximum of 512 processes, any given process can have as many tasks as necessary (see: "About Tasks" on page 300).

Adding a startup process

You may create a startup process in two different ways.

- In the **Ribbon**, go to the **Home** tab and click the **Startup Process** button in the **Processes** group.
- In the **Configuration Components** pane, right-click on any process or the **Processes** folder and select **Insert > Insert Startup Process**.

In addition, you may convert a regular process into a startup process:

- Right-click a regular process and select **Startup** to convert the process into a startup process.

Note that a self-replicating process can't be converted into a startup process.

Adding a subprocess

To add a PlanetPress Workflow **subprocess**:

- In the **Ribbon**, go to the **Home** tab and click the **Subprocess** button in the **Processes** group.
- In the **Configuration Components** pane, right-click on the **Subprocesses** folder and select **Insert > Insert Subprocess**.

> **Tip**
>
> A branch in a process can be converted into a subprocess; see "Converting a branch to a subprocess" on page 139.

Editing a process

Designing a process is done by dragging **tasks** from the Plug-In Bar onto the process in the Process area. Each task then needs to be configured via the Task properties dialog (see "About Tasks" on page 300). For a list of all operations you can perform on tasks in the Process area, please refer to "The Process area" on page 871.

Processes can be **deleted, duplicated, renamed, disabled, grouped** etc. via the Configuration Components pane. For a list of all operations that can be performed on processes in the Configuration Components pane, please refer to "Configuration Components pane" on page 817.

Special workflow types

PlanetPress Workflow supports multiple input and output types, in so many different combinations that it would be hard to give example processes for each possibility. However, some types of processes like HTTP and PDF processes will probably be used more often than other types of processes. You will find a description of each of these special workflow types and at least one example of an implementation that uses them in the chapter: "Special workflow types" on page 278.

Importing processes

You can import individual processes or groups of processes from another PlanetPress Workflow configuration file without having to import the contents of the entire configuration file. The PlanetPress Workflow Configuration tool imports everything necessary to run the processes, including configured tasks and some configuration components.

> **Note**
>
> Resource files must be imported separately; see "Importing Connect resource files" on page 41, "Importing PlanetPress Design documents" on page 46 and "Importing PrintShop Mail documents" on page 49.

To import processes and other components from a configuration file:

1. From the PlanetPress Workflow Button, choose **Import | Configuration Components**. The **Import** dialog appears.
2. Navigate to the PlanetPress Workflow configuration file containing the processes or groups of processes you want to import.
3. Select the file, then click **Open**. The **Import Configuration** dialog appears displaying all the processes and/or process groups, as well as the subprocesses, variables, PlanetPress Design documents and printer queues in the selected configuration file.

4. In the list, select the components you want to import. The PlanetPress Workflow Configuration program lets you open and import any of the following:
    - Complete PlanetPress Watch 4 to 6 configurations, as well as PlanetPress Workflow 7 and 8 configurations.
    - Specific processes from Version 6, 7 and 8 configurations, including their local variables.
    - Specific subprocesses from any PlanetPress Workflow 7 and 8 Tools configurations.
    - Specific global variables from PlanetPress Workflow 7 and 8 Tools configurations.
    - References to specific PlanetPress Design or PrintShop Mail documents. Note that the documents themselves must be imported separately.
    - Specific printer queues.
5. Check **Overwrite existing components with same name** if you want processes with existing names to be overwritten by those in the imported configuration, or uncheck it to duplicate those processes under a new automatically generated name.
6. Click **OK** to start the import.
   PlanetPress Workflow Configuration imports the selected objects and automatically renames duplicate items in the imported configuration.

Important considerations

- When importing a PlanetPress Workflow configuration file, resource files like Connect templates, PlanetPress Design documents and PrintShop Mail documents are not physically imported as they are not part of the configuration file itself. In order for the documents to be available, you will need to send each document from Connect Designer, PlanetPress Design or PrintShop Mail (see their respective documentation for details).
- If you import a PlanetPress Workflow configuration that contains a PlanetPress **Fax** output task, you must update the task's properties and refresh the host name. Otherwise, when PlanetPress Workflow will attempt to output the file, an error will be generated.

Activating or deactivating a process

All processes are Active by default, but you may make any PlanetPress Workflow process Inactive as required.

An inactive process will display in the Configuration components as red and strike-through. Inactive processes can be useful for designing new processes in a live configuration. As the process does not execute there is no danger of submitting it to a PlanetPress Workflow Service.

To activate or deactivate a process:

1. Right-click the process in question in the **Configuration Components** pane
2. Click **Active** to disable or enable the process.
3. Send the configuration. Because making a process active or inactive is a change in the configuration, to make the change effective in the PlanetPress Workflow Service, you will have to send the edited configuration to your PlanetPress Workflow Service (see "Sending a configuration" on page 37).

> **Note**
>
> If you try to send a configuration that contains only inactive processes, the PlanetPress Workflow Configuration program will ask you to confirm the operation (this can be changed in the Notification User Options).

Process properties

To have access to the properties of a process or subprocess:

- Right-click on the process in the **Configuration Components pane**.
- Select **Properties**.

You can also double-click on the process to show its options.

> **Note**
>
> Subprocesses do not have the General tab which is only used for scheduling, but they do have the Information tab.

Options

General tab

- **Active**: Select to make the process active. Clear to prevent this process from running when you send the configuration to PlanetPress Workflow.
- **Startup**: Select to make this process a startup process (see: "Startup processes" on page 126). This option is not available for self-replicating processes and error processes. The order in which the Startup processes are arranged in the Configuration Components pane determines, from top to bottom, the order in which the Startup processes are executed when the Workflow Service launches. To change the order you may drag and drop them (see "Moving and copying configuration components" on page 823).
- **Self Replicating**: Check this if you want the process to replicate itself in the background when multiple input files are received simultaneously. When this is checked, the input task polls its source once, determines the number of files to process, then replicates itself up to the maximum allowed and treats the files simultaneously. The initial process runs again once it has completed itself and replicates again as necessary, until all files have been processed.
- **Max percentage of threading (%)**: Determines how many processes you may have running at the same time. This is a percentage of the maximum number of threads specified in the "Messenger plugin preferences" on page 777. For example if the maximum number of threads is 10 and you specify 50% here, a maximum of 5 replications will occur (the original process + 4 copies).
- **As soon as possible**: Select to have the process run continuously. Clear to enable the Time Grid to fine-tune the schedule of the process.

> **Tip**
>
> Non-startup processes starting with the HTTP Server Input, NodeJS Server Input or LPD Input task will run trigger-based if they are set to run **As soon as possible** with a **Polling interval** of 0. This reduces CPU usage.

> **Note**
>
> In order to wake up a trigger-based process that starts with the HTTP Server Input

task the server issues a signal to *all* trigger-based processes, not just those that start with an HTTP Server Input task. This means that some processes may get woken up when they do not need to. This issue only occurs in version 2020.1 and will be fixed in version 2020.2.

- **Day(s) to keep backup**: Indicate the number of days to keep backups of jobs processed by input tasks. Note that backups will only be kept for those input tasks that have the Keep backup file option selected and that they are required to resubmit input files.
- **Polling interval**: Enter the frequency (in seconds) at which the process should verify if there are new jobs to process. The polling interval also applies to scheduled tasks that only run on certain times. For example, if your process polls every 30 seconds on a task that's only scheduled to run one hour per week, it will capture the input 120 times during that period.

> **Note**
>
> The polling interval is ignored when multiple files are present in the input and will be used only when there are no longer any files to process.

- **Month**: Select the month of the year when the process should be run or select All months to have the process run all year long. This option is disabled when "As soon as possible" is checked.
- **Week of month / by date**: Select the desired option for the time grid. Note that any selection you make in this box will be interpreted based on the selection made in the Month box. If you chose All months in the Month box and Last in the Week of month / by date box, then the process will run on the last week of every month. If you chose January in the Month box and First in the Week of month / by date box, then the process will run only on the first week of January.
    - Select Date to display dates on the grid’s top ruler.
    - Select any of the other options to display days on the top ruler.
    - Select All weeks to have the process run every week.
    - Select First, Second, Third or Fourth to have the process run on the first, second,

third or fourth week.

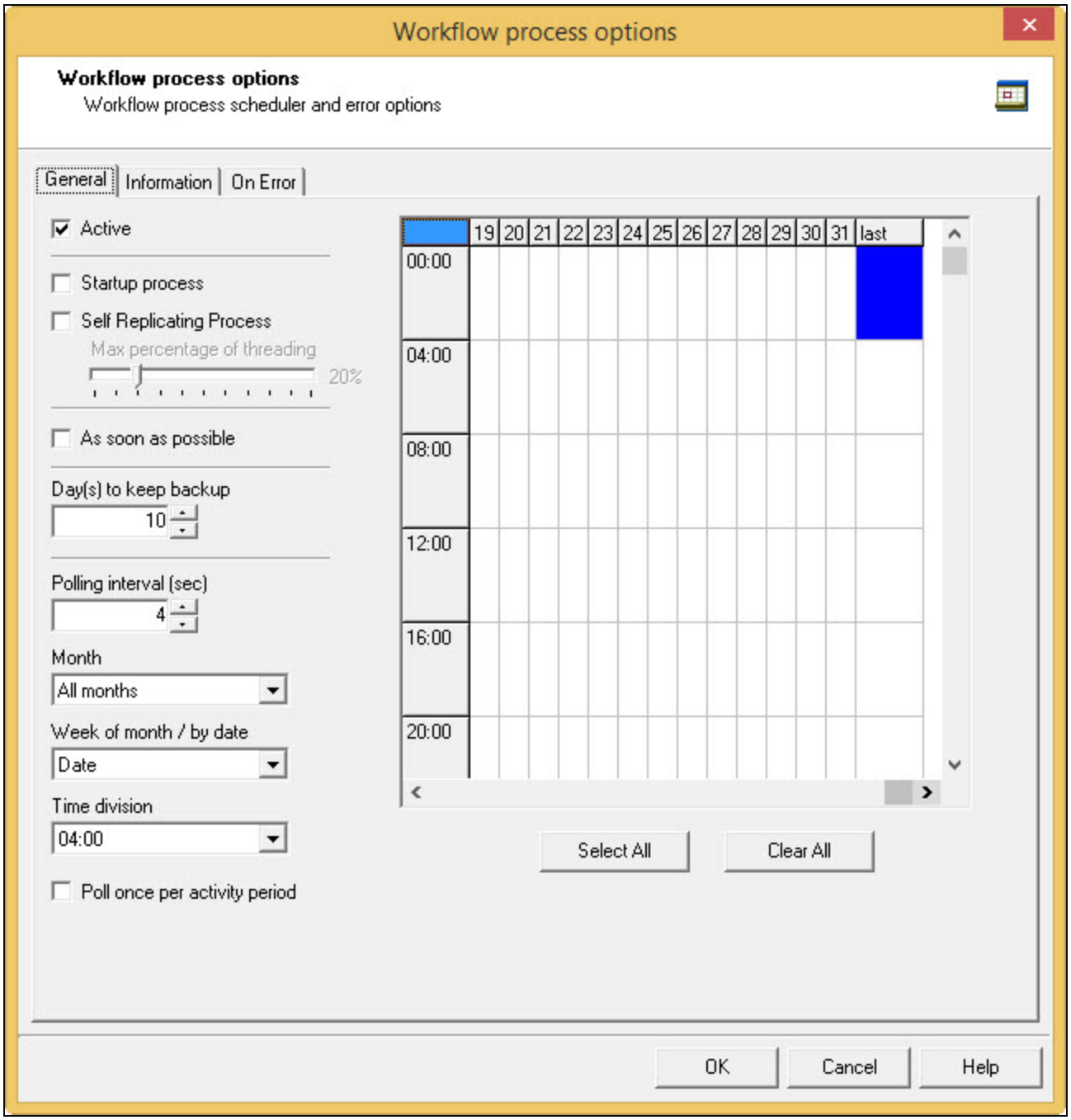
  - Select Last to have the process run only on the last week.

- **Time division**: Select the duration of each daily segment in the time grid. If you select 00:15, each segment will represent only 15 minutes and each day will be made up of 96 blocks (4 blocks per hour times 24 hours). If you select 24:00, each segment will represent an entire day.
- **Poll once per activity period**: Select to perform this process' initial input task no more than once for each set of contiguous blocks (blocks that are on the top of one another). Choosing this option overrides the polling interval option. By default since the Time Grid blocks are divided by hours, this option will make your polling happen once every hour.
- **Minimal logs**: With this option enabled, the process will only log its Start time and the End time (along with the Time Spent), if no error was encountered during execution of the process. In case of an error, the entire process information is logged.

The Time Grid

The PlanetPress Workflow **Process Options** dialog box includes a time grid that lets you set exactly when you want a process to poll. The grid is composed of blocks that represent time periods on a given day. To activate the Time Grid, the "As soon as possible" option must be unchecked.

In the Time Grid, a blue block will indicate that the process is active within that time block. White blocks mean the process will not poll.
Note that when multiple files are present in the input, these may continue to be processed after the period set in the time grid. The "Folder Listing" on page 323 plugin in combination with a "Time of Day Condition" on page 488 could be used to prevent further processing of those files.



- Click on any block to select / deselect it.
- Click and drag from one block to another to toggle all blocks between the two.
- Shift-click on any block to toggle all blocks from the top-left corner of the grid to the block you click.

- To select all of the time segments for a given day or date, click the day or date on the top grid ruler. To deselect all of the time segments for a given day or date, CTRL+click the day or date on the top grid ruler.
- To select all the days or dates for a given time segment, click the time segment on the left grid ruler. To deselect all the days or dates for a given time segment, CTRL+click the time segment on the left grid ruler.
- To select the entire grid, use the **Select All** button located below the grid. To deselect the entire grid, use the **Clear All** button located below the grid.

> **Note**
>
> "Toggle" means turn on when it's off and vice versa, when selecting multiple blocks in one command. This means if you select a certain number of blocks in the Time Grid and then use the shift+click or drag method, blocks that are on will turn off.

> **Warning**
>
> Changes made to the system time can have adverse effects on the processes managed by PlanetPress Workflow. When changing from daylight saving time to standard time, for example, if PlanetPress Workflow starts a given process at 2:00 AM, and if the system time is then taken back to 1:00AM, the application will start a new instance of the same process when the system time reaches 2:00 AM for a second time. So, when you manually change the system time, be aware that it may have an effect on PlanetPress Workflow and its processes. And for those cases when you know the system time will change automatically, you may consider creating special schedules.

Information tab

The **Information** tab lets you enter information that is not critical to your process but may help others (or yourself in the future) to understand what the process does. It offers two boxes:

- **Description**: A one-line box to give a title or short description to your process.
- **Comments**: A multi-line box to give more detailed information, for example the file format expected, explanation of the system in general.

On Error Tab

A process's On Error tab specifies the default values for error handling of all of the tasks in that process.
When a task has its own error handling settings, those settings overwrite the process's default error handling settings. The **Set All Tasks** button resets the On Error properties of all the tasks included in the current process to the On Error properties of the process itself.
All other options in the On Error tab of the Process Properties dialog are the same as in the On Error tab in the Task Properties dialogs; see "Using the On Error tab" on page 99.

About branches and conditions

While some processes can simply start with an input task, manipulate the data with a few action tasks and finish with an output task, in some cases you may want to have more control over the flow of your process. For example, you may want multiple outputs, such as printing to multiple printers as well as generating a PDF and emailing it. To do this, you will need branches. You may also want to detect certain criteria in your data and act differently depending on that data, such as sending an email only when an email address is found, or printing to a different printer depending on who sent you a print job. To do this, conditional branches ("conditions") are used.

For the list of operations you can perform on Branches and Conditions, please refer to "The Process area" on page 871.

Branches

A branch is effectively a doubling of your job file (see "Job file" on page 51). As your job file goes down the process, when a branch is encountered, a copy of the job file will go in that branch. In the branch, all tasks up to the Output task will be performed, before returning to the main trunk to continue processes. You can have branches within branches, and all branches must have an Output task. For more information on branches, see "Branch" on page 472.

A branch is represented as a crossing:

Conditions

A condition will either execute the branch it creates or the main trunk, but never both. As your job file goes down the process, when it encounters a condition it will verify whether that

condition results in a "true" or "false" value. If the result is true, it goes in the branch, processes all tasks up to the output, and the process finishes. If the result is false, it goes down the main trunk and continues processing until the process finishes.

A conditional branch (or condition) is shown as a crossing with a diamond over it, for example:

There are several Condition tasks:

- "File Name Condition" on page 477
- "File Size Condition" on page 478
- "File/Folder Condition" on page 476
- "Run Script" on page 481
- "SNMP Condition" on page 484
- "Text Condition" on page 487
- "Time of Day Condition" on page 488

Adding a branch or condition

The PlanetPress Workflow Configuration program offers two different commands when it comes to adding new branches to a process.

- You can add a new branch by dragging and dropping a Branch task or one of the Condition tasks from the **Process Logic** category of the **Plug-in Bar**, into your process. Branches as well as conditions can thus be added like a task; see "Adding tasks" on page 301.
- You can add a new branch that contains all of the tasks below the point where you insert the branch. To do this, right-click on the first task that you want to include in the branch, and select **Branch From Here...**.

The default output task of a new branch or condition is configurable in the "Default configuration behavior preferences" on page 758.

Converting a branch to a subprocess

To allow for maximum flexibility and backward compatibility with the subprocess feature, the **Convert to subprocess** option lets users transform existing processes easily. This option is available whenever a **Branch** task is selected; right-clicking on it will display the contextual menu, which holds the **Convert to subprocess** option.

Selecting this option automatically creates a new subprocess, takes the branch and all of its tasks and inserts it in the new subprocess, including the Branch task itself. In the main process, the branch is removed and replaced with a **GoSub** action task referring to the newly created subprocess.

> **Note**
>
> The **Branch** task's options Backup job file, Backup job information and Backup emulation are also automatically passed to the subprocess, which means that, if the subprocess needs to use a different emulation than the calling process, a **Change Emulation** task is required.

If any task converted into a subprocess was previously using local variables, these variables must be removed or transferred to global variables or Job Information variables to be usable in the newly created subprocess (see "About variables" on page 701).

Running a process on desktop

Since PlanetPress Workflow configurations are typically meant to run without user interaction, all of their processes are set to run in the background by default. In some cases, such as when a dialog box must appear or user input is required, you may make any process run on your desktop instead of as a service.

Generally this will happen only when calling a third-party software using the Run External Program plugin, but also when using a Script that generates a dialog that someone must click or interact with.

> **Note**
>
> The term "Desktop" is defined as the desktop of the user logged on to the computer

where PlanetPress Workflow is installed. These dialogs cannot be displayed on any other computer.

Toggling a process’s Run on Desktop property

To toggle a process's Run on Desktop property:

1. Select an active process in the **Configuration Components** pane.
2. In the **Object Inspector** Pane, change the **Run on desktop** property from **False** to **True**, or vice versa.

Using Scripts

Scripts can be used to perform various operations, such as to manipulate data, for example. PlanetPress Workflow can perform scripts written in four different scripting languages and also provides an interface for editing scripts.

> **Note**
>
> While this chapter provides some very useful and detailed information about scripting within PlanetPress Workflow, its focus is to inform you about the features, variables and functions unique to this environment. This chapter assumes that you have a working knowledge of the scripting language you wish to use and does not purport to teaching you anything about this language that you don't already know. Learning any of these language is beyond the scope of this documentation.

Run Script task

Scripts are incorporated in a process via the **Run Script** task (see "Run Script" on page 481).

When using the Run Script task as a **condition**, you need a way to tell your process whether the result is true or false. The condition result is returned by the "Script.ReturnValue" on page 174 variable. If the return value is zero (the default), the condition is false. Otherwise, it is true.

When using the Run Script as an **action** task, the job file going out of the Run Script action task will be the same as the one coming in, unless you have specifically changed it within your script by writing to the file that is the target of the "Watch.GetJobFileName" on page 165 function. The same goes for any Job Info, local or global variables, unless you use the "Watch.SetJobInfo" on page 171 or "Watch.SetVariable" on page 172 functions to modify them.

Scripting languages

There are four scripting languages available through the Run Script task: JavaScript (JScript and Enhanced JScript), VBScript, Python and Perl. Each language has its own strengths and weaknesses which we will not cover in this documentation. While VBScript is the most used language at the moment, the examples provided in this chapter are presented in all supported languages.

Note

- The **JScript** engine is Microsoft's JScript 5.8, which is the equivalent of JavaScript 1.5 (ECMA-262 3rd edition + ECMA-327 (ES-CP) + JSON).
  Enhanced JScript allows the use of more recent JavaScript syntax. Many methods - basic methods like `Date.now()`, `String.trim()`, `btoa()`/`atob()` and more advanced methods like `Array.forEach()` - are added to the JScript engine via the polyfill.js library.
- While JavaScript and VBScript are natively available on Windows operating systems, Python and Perl require third-party tools to be functional. For Perl, ActivePerl can be installed. For Python ActivePython (version 2.7.13) can be installed.

APIs

Multiple APIs (methods of communicating with PlanetPress Workflow scripting tools) are available through the scripting engine, in all languages.

- The **Watch** object is used to communicate with your current process and configuration. See "The Watch Object" on page 156.
- The PlanetPress **Connect REST API** consists of many services that expose access to a number of areas including Workflow, data entity management and file store operations. See the Connect REST API Cookbook.
- You can manipulate PDF files using the PlanetPress **Alambic API**. See "AlambicEdit API reference" on page 243. Note that in PlanetPress Suite, the PlanetPress Alambic API is part of the PDF Tools.
- You can manipulate the Metadata in your process using the **Metadata API**. See the "Metadata API" on page 196.
- You can communicate with a SOAP server using the **SOAP API**. See "SOAP Server API Reference" on page 149.
- You can communicate with the PlanetPress Capture Database using the **Capture API**. See Capture API Reference.
- You can communicate the with the Data Repository using the **Data Repository API**. See: "Data Repository API" on page 175.

The Script Editor and XSLT Editor

The **Script Editor** is used to edit scripts in **Run Script** tasks and the **XSLT Editor** is used to edit scripts in **Open XSLT** action tasks. You can open either editor using the **Open Editor** button from the task's Properties dialog. When you do so, the script currently displayed in the dialog box is pasted to the editor's scripting box.

Both editors are visually identical and share almost exactly the same commands. They let you import and export scripts, perform common editing, such as search and replace, and feature syntax highlighting and formatting.

You can use the Script Editor to edit scripts written in VBScript, JavaScript (JScript, Enhanced JScript), Perl, and Python.
You can use the XSLT Editor to edit scripts written in XSLT 1.0 and 2.0.

Note

- The **JScript** engine is Microsoft's JScript 5.8, which is the equivalent of JavaScript 1.5 (ECMA-262 3rd edition + ECMA-327 (ES-CP) + JSON).
  Enhanced JScript allows the use of more recent JavaScript syntax. Many methods - basic methods like `Date.now()`, `String.trim()`, `btoa()`/`atob()` and more advanced methods like `Array.forEach()` - are added to the JScript engine via the polyfill.js library.
- While JavaScript and VBScript are natively available on Windows operating systems, Python and Perl require third-party tools to be functional. For Perl, ActivePerl can be installed. For Python ActivePython (version 2.7.13) can be installed.

For information on the available **editor options**, refer to "Editor Options" on page 801.

Import and export scripts

Both the Script Editor and XSLT Editor let you import and export scripts.

Note

When you import a script, it replaces any script currently displayed in the editor.

Importing a script

To import a script:

1. In the editor, choose **File > Import**. The **Open** dialog box appears.
2. To import a script that uses a different scripting language or that was saved under a different file format, make a selection in the Files of type drop-down list.
3. Navigate to the script you want to import and select it.
4. Click **OK**. The script is imported, displayed and formatted according to the syntax of the language selected in the editor. If the imported file had the extension of a recognized scripting language (.vbs or .js, for example), the editor language is automatically changed.

Exporting a script

To export a script:

1. In the editor, choose **File > Export**. The **Save As** dialog box appears.
2. To save the script using a different scripting language or under a different file format, make a selection in the **Save as type** drop-down list.
3. Navigate to the location where you want to save the exported script.
4. Enter the name of the script in the **File name** box.
5. To save the script using a different scripting language or under a different file format, make a selection in the **Save as type** drop-down list.
6. Click **OK**.

Find Strings in a Script

The **Find Text** dialog box allows you to search for text strings in the editor. The available options help you limit the search, making searches quicker and easier.

To find strings in a script:

> **Note**
>
> If you only want to search a particular section of the script, you should select it before performing the following procedure.

1. Choose **Search | Find**, or press CTRL+F. The **Find Text** dialog box appears. The last used string is displayed in the Text to find drop-down list box.
2. Set the search settings and options.
    - **Text to find**: Enter a new search string or select a previous search from the drop-down list.
    - **Case sensitive**: Select to limit the search to instances of text with the same case as the text in the Text to find box.
    - **Whole words only**: Select to limit the search to complete words matching the text in the Text to find box. Whole words are defined as strings that have a space or punctuation before and after the word.
    - **Regular expressions**: Select to treat the regular expressions of the scripting language as text to search. If you clear this option, the regular expressions of the language are not included in the search.
    - **Global**: Select to search the entire content of the script.
    - **Selected text**: Select to find matching text within the text block you select. A portion of text must be selected before you run the search.
    - **Forward**: Select to search the script forward, from the location of the cursor or from the beginning of the script, depending on what you choose as the origin (From cursor begins where the cursor is currently located in the script, Entire scope begins from the beginning of the script or beginning of script selection). If you limit the scope to selected text, you move forward only within the selection. When the search reaches the end of the script or script selection, the search finishes. It does not loop back to the beginning.
    - **Backward**: Select to search the script backward, from the location of the cursor or from the end of the script, depending on what you choose for the origin (From cursor begins where the cursor is currently located in the script, Entire scope begins from the beginning of the script or beginning of script selection). If you limit the scope to selected text, you move backward only within the script selection. When the search reaches the beginning of the script or script selection, the search finishes. It does not loop back to the beginning.
    - **From cursor**: Select to start the search from the position of the cursor.
    - **Entire scope**: Select to search the entire script or a script selection. The scope croplands to a script selection if you make a selection before executing the Find.
3. Click **OK**. The first matching string is highlighted in the script.

4. To find the next matching string, choose **Search | Find Again** or press F3.

Find and replace Strings in a Script

The **Replace With** dialog box lets you search for and replace text strings in the editor. The available options help you limit the search, making replacements quicker and easier.

To find and replace strings in a script:

1. Choose **Search | Replace**, or press CTRL+R. The **Replace With** dialog box appears. The last used strings are displayed in the Text to find and Replace with boxes.
2. Set the replacement settings and options.
    - **Text to find**: Enter a new search string or select a previous search from the drop-down list.
    - **Replace with**: Enter the string that will replace the string displayed in the Text to find box.
    - **Case sensitive**: Select to limit the search to instances of text with the same case as the text in the Text to find box.
    - **Whole words only**: Select to limit the search to complete words that match the text in the Text to find box. Whole words are defined as strings that have a space or punctuation before and after the word.
    - **Regular expressions**: Select to treat the regular expressions of the scripting language as text. If you clear this option, the regular expressions of the language are blocked from the search.
    - **Prompt on replace**: Select to have PlanetPress Workflow display a prompt before it replaces text. When you use the Replace All function, you are prompted each time matching text is found. The prompt includes an **All** button for replacing all matching text. This suppresses any further prompting.
    - **Global**: Select to search the entire content of the script.
    - **Selected text**: Select to find matching text only within a text block you select. The text must be selected before you run the search.
    - **Forward**: Select to search the script forward, from the location of the cursor or from the beginning of the script, depending on what you choose as the origin (From cursor begins where the cursor is currently located in the script, Entire scope begins from the beginning of the script or beginning of script selection). If you limit the scope to selected text, you move forward only within the selection. When the search

reaches the end of the script or script selection, the search finishes. It does not loop back to the beginning.

- **Backward**: Select to search the script backward, from the location of the cursor or from the end of the script, depending on what you choose for the origin (From cursor begins where the cursor is currently located in the script, Entire scope begins from the beginning of the script or beginning of script selection). If you limit the scope to selected text, you move backward only within the script selection. When the search reaches the beginning of the script or script selection, the search finishes. It does not loop back to the beginning.
- **From cursor**: Select to start the search from the position of the cursor.
- **Entire scope**: Select to search either the entire script, or a script selection. The scope corresponds to a script selection if you make a selection before executing the **Find**.

3. Do one of the following:
   - Click **OK** to replace the first string encountered. If you selected **Prompt on replace**, a dialog box opens to ask you whether to proceed with the replacement. You can **OK** to replace the first string only, or you can click All to replace that string as well as every other string that matches the replacement settings.
   - Click **Replace All** to replace all the strings that match the replacement settings.
4. To find and replace the next matching string, choose **Search | Find Again** or press F3. Once again, if you selected **Prompt on replace**, a dialog box opens to ask you whether to proceed with the replacement. You can OK to replace that string only, or you can click All to replace that string as well as every other string that matches the replacement settings.

Go to a line in a script

The **Go To Line** dialog box lets you jump to a specific line within your script. It works whether or not the line numbers are displayed on the left side of the editor window. (To learn how to toggle the line number display settings, see "Editor Options" on page 801).

To go to a line in a script:

1. Click anywhere in the Script Editor, then choose **Search > Go To Line**, or press Alt+G. The **Go To Line** dialog box appears. The last used line numbers are displayed in the **Enter new line number** drop-down list box.

2. Enter a new line number in the **Enter new line number** box or select one from drop-down list.
3. Click **OK**.

Bookmarks in a script

Bookmarks help you identify and jump to specific places within your script.

Bookmarks are displayed in the editor's gutter, so you will not be able to see them unless the gutter is both visible and sufficiently wide. If line numbers are also displayed in the gutter, bookmarks may be harder to see. To control line number and gutter display, see "Editor Options" on page 801.

> **Note**
>
> Bookmarks are not preserved when you close the editor.

Toggling bookmarks

To toggle bookmarks:

- Place the cursor on a line in your script and, from the editor's pop-up menu, choose **Toggle Bookmark** and a given bookmark number.

If the bookmark you selected was not displayed on any line, it is added to the line where you placed the cursor. If the bookmark you selected was displayed on the line where you placed the cursor, it is removed. If the bookmark you selected was displayed on a different line, it is moved to the line where you placed the cursor.

Jumping to a bookmark

Before you can jump to bookmarks, you must add bookmarks to specific lines in your script (see above).

To jump to a bookmark:

- From the editor's pop-up menu, choose **Go To Bookmark** and a given bookmark number.

If the bookmark you selected was displayed on a line, the cursor jumps to that line.

SOAP Server API Reference

PlanetPress Workflow offers a SOAP Server API Reference allowing jobs to be submitted from a third party application using the SOAP protocol. SOAP is short for Simple Object Access Protocol.

While there are multiple possibilities for solutions using a SOAP server implementation, the SOAP Server API Reference is specifically for submitting jobs from a SOAP client. It implements methods that will allow SOAP clients to submit jobs and get information from PlanetPress Workflow executing them.

Methods, structures	**Description**
"GetProcessList" on the next page	Allows SOAP clients to request the list of available PlanetPress Workflow processes, based on their authentication credentials.
"GetProcessTaskList" on page 151	Allows a user to remotely request the tasks list of a process. This will be useful with the PostJob method since it needs a TaskIndex.
"GetSOAPProcessList" on page 152	Allows users to request the list of PlanetPress Workflow processes that contain a SOAP Input plugin with the SOAP action name. This is useful when working with the SubmitJob method since it requires a SOAPActionName.
"PostJob" on page 153	Allows users to remotely submit files to PlanetPress Workflow by using the Resubmit from here feature, which lets a user specify a starting task index from which the File is to be processed.
"PostJobInfoStruc" on page 154	Structure containing any required information to prepare the file for resubmission into a PlanetPress Workflow process.
"SubmitJob" on page 154	Allows users to remotely submit files to their PlanetPress Workflow from a SOAP client. The SOAP client has the option to wait for a response file from PlanetPress Workflow SOAP

	server.
"SubmitJobInfStruc" on page 156	Structure containing any required information to prepare the file for a valid insertion into a PlanetPress Workflow process.

> **Note**
>
> With the SOAP API reference, new SOAP plugins have been introduced. The old plugin, which could be used as an Input, Action or Output task, was renamed **Legacy SOAP Client** and has become obsolete.

GetProcessList

The GetProcessList function allows SOAP clients to request the list of available PlanetPress Workflow processes, based on their authentication credentials.

Syntax

```
GetProcessList (user name, Password) : GetProcessListResult
```

Parameters

- **user name**: String containing the user name.
- **Password**: String containing the password. This is case sensitive.

Return Value

- **GetProcessListResult**: Structure containing the following information:
  - **Success**: Integer indicating the system-defined Success/Error level of the operation. A result of 0 means that the operation was successful.
  - **Message**: String containing text information about the Success status.
  - **ProcessList**: Structure containing the following information details.
    - **ProcessName**: String containing the process name.
    - **Active**: Boolean value specifying whether the process is currently active.

> **Note**
>
> To obtain access to the complete list of processes for all users, the end-user must have administrator privileges.

GetProcessTaskList

The GetProcessTaskList function will allow a user (a SOAP client) to remotely request the tasks list of a process. This will be useful with the PostJob method since it needs a TaskIndex.

Syntax

```
GetProcessTaskList (ProcessName, user name, Password) :
GetProcessTaskListResult
```

Parameters

- **ProcessName**: The Name of the PlanetPress Workflow process.
- **user name**: String containing the user name.
- **Password**: String containing the password. This is case sensitive.

Return Value

- **GetProcessTaskListResult** – Structure containing the following information:
  - **Success**: Integer indicating the system-defined Success/Error level of the operation. A result of 0 means that the operation was successful.
  - **Message**: String containing text information about the Success status.
  - **TaskNames**: Structure containing the following information details:
    - **TaskName**: String containing the name of the task
    - **TaskIndex**: Integer: 1 based index of the task.
    - **TaskDepth**: Integer: 1 based depth of the task.

> **Note**
>
> The TaskNames array will be sorted by the execution order of the process with the primary input of the process having an index of 1.

GetSOAPProcessList

The GetSOAPProcessList function will allow users to request the list of PlanetPress Workflow processes that contain a SOAP Input plugin with the SOAP action name. This is useful when working with the SubmitJob SOAP API method since it requires a SOAPActionName.

Syntax

```
GetSOAPProcessList (user name, Password) : GetSOAPProcessListResult
```

Description

Parameters

- **user name**: String containing the user name.
- **Password**: String containing the password. This is case sensitive.

Return Value

- **GetSOAPProcessListResult**: Structure containing the following information:
  - **Success**: Integer indicating the system-defined Success/Error level of the operation. A result of 0 means that the operation was successful.
  - **Message**: String containing text information about the Success status.
  - **ProcessList**: Structure containing the following information details.
    - **SOAPActionName**: String containing the name of the process as seen in your PlanetPress Workflow.
    - **Active** – Boolean value indicating if the process is active in your PlanetPress Workflow.

> **Note**
>
> If a user has administrator privilege, he will have access to all processes and therefore he will see all the processes.

PostJob

The PostJob method allows a user (a SOAP client) to remotely submit files to PlanetPress Workflow by using the Resubmit from here feature. The main advantage of this feature is that it allows a user to specify a starting task index from which the File is to be processed.

Syntax

```
PostJob (File, PostJobInfStruc , user name, Password) :
PostJobResult
```

Description

Parameters

- **File**: base64Binary. This is an array of byte base64 encoded (see http://en.wikipedia.org/wiki/Base64).
- **PostJobInfStruc**: Structure containing any required information to prepare the file for resubmission into a PlanetPress Workflow process (see "PostJobInfoStruc" on the next page).
- **User name**: String containing the user name.
- **Password**: String containing the password. This is case sensitive.

Return Value

PostjobResult: Structure containing the following information:

- **Success**: Integer indicating the system-defined Success/Error level of the operation. A result of 0 means that the operation was successful.
- **Message**: String containing text information about the Success status.
- **PostjobInfStruc**: Structure containing any required information to prepare the file for resubmission into a PlanetPress Workflow process (see "PostJobInfoStruc" on the next page).

> **Note**
>
> The task index can be retrieved by using the GetProcessTaskList method. See point GetProcessTaskList for details.

> **Note**
>
> The PostJob method can never return a file to the calling application.

PostJobInfoStruc

Structure containing any required information to prepare the file for resubmission into a PlanetPress Workflow process using a SOAP client.

- **VariableList**: Array of complex type, containing pairs of variable names and variables value. The list also contains the Job Info variables.
  - **VariableName**: String
  - **VariableValue**: String
- **ProcessName**: String: name of the PlanetPress Workflow process.
- **TaskIndex**: Integer: 1 based index of the task where the resubmission should start.
- **FirstPage**: Integer: first page of data to process.
- **LastPage**: Integer: Last page of data to process.

> **Note**
>
> If both FirstPage and LastPage are set to 0, the entire data file is used.

SubmitJob

The SubmitJob method allows a user to remotely submit files to their PlanetPress Workflow from a SOAP client. The SOAP client has the option to wait for a response file from PlanetPress Workflow SOAP server.

Syntax

```
SubmitJob (File, SubmitJobInfStruc , ReturnJobFile, user name,
Password) : SubmitJobResult
```

Arguments

- **File** – base64Binary. This is an array of byte base64 encoded (see http://en.wikipedia.org/wiki/Base64).
- **SubmitJobInfStruc** – Structure containing any required information to prepare the file for a valid insertion into a PlanetPress Workflow process (see "SubmitJobInfStruc" on the next page).
- **ReturnJobFile** – Boolean value. When true, PlanetPress Workflow SOAP server returns the job file. When false, there no file is returned to the SOAP client. (For example: when submitting a job for print, there is no need to return a file)
- **user name**: String containing the user name.
- **Password**: String containing the password. This is case sensitive.

Return Value

SubmitJobResult: Structure containing the following information:

- **Success**: Integer indicating the Success/Error level of the operation. A result of 0 means the operation was successful.
- **Message**: String containing text information about the Success/Failure status.
- **SubmitJobInfStruc**: Structure containing any required information to prepare the file for a valid insertion into a PlanetPress Workflow process (see "SubmitJobInfStruc" on the next page).
- **ResultFile**: base64Binary. If Success is different than 0 or the ReturnJobFile was set to False in the initial call, no file is returned. Otherwise, ResultFile contains the job file, as it existed at the completion of the PlanetPress Workflow process (for instance, if the process creates a PDF and sets it as the current job file, the PDF is the file that gets returned to the calling SOAP client).

> **Note**
>
> The **SubmitJob** method only returns a file if the PlanetPress Workflow process contains a **SOAP Input** task.

> **Note**
>
> If ReturnJobFile is set to true, the schedule options of the process should be set to a pooling lower than four seconds, so the client application gets a timely response.

> **Note**
>
> To return the file, the process must be completed before the timeout of the server occurs. The Timeout option can be set in your PlanetPress Workflow preferences.

SubmitJobInfStruc

Structure containing any required information to prepare the file for a valid insertion into a PlanetPress Workflow process using SOAP.

- **VariableList**: Array of complex type, containing pairs of variable name and variable value. The list also contains the JobInfo variables.
  - **VariableName**: String
  - **VariableValue**: String
- **SOAPActionName**: String containing the name of the **Input SOAP** task's action name.

The Watch Object

PlanetPress Workflow scripting offers a number of methods of communicating with your process by means of PlanetPress Workflow automation object's methods and functions. The automation object is available in all 4 languages through their own syntax - the examples provided here are for JavaScript.

Note

While the functions here are in mixed case to simplify reading, it's important to note that some languages (especially JavaScript) are case-sensitive and will require the proper case. Examples in this chapter will always use the proper case when relevant.

Here is a list of the methods and functions that are available to you through the automation object (or "Watch" object). While these examples are all in JavaScript, you can click on any variable name to open a page to see examples for each supported language.

Variable Name Example Usage (VBScript)	Description
"Watch.GetJobFileName" on page 165	Retrieves a string containing the job path and file name located in the job spool folder.
Example Usage:	`var s = Watch.GetJobFilename();`
"Watch.GetOriginalFileName" on page 167	Retrieves a string containing the job's original path and filename. Note: this filename is generally no longer available if it has been captured by Watch.
Example Usage:	`var s = Watch.GetOriginalFileName();`
"Watch.GetMetadataFilename" on page 166	Retrieves a string containing the job's metadata path and filename. This is useful when using the Metadata API in your script. (See Metadata API.)
Example Usage:	`var s = Watch.GetMetadataFileName();`
"Watch.GetJobInfo" on page 166	Retrieves the content of a numbered job info (%1 to %9).
Example Usage:	`var s = Watch.GetJobInfo(9);`

Variable Name Example Usage (VBScript)	Description
"Watch.GetVariable" on page 168	Retrieves the content of a local or global variable by name.
Example Usage:	`var s = Watch.GetVariable ("MyVariable");`
"Watch.ExpandString" on page 162	Retrieves the content of any Workflow string, containing any variable available to Watch, including data selections.
Example Usage:	`var watchDate = Watch.ExpandString ("%y-%m-%d");`
"Watch.Log" on page 170	Writes to the Workflow log file, or the message window when in debug - can accept multiple log levels from 1 (red) to 4 (gray).
Example Usage:	`Watch.Log("Hello, World!", 3);`
"Watch.ShowMessage" on page 172	Displays a popup dialog box to the user (user has to be logged on).
Example Usage:	`Watch.ShowMessage("test message");`
"Watch.SetJobInfo" on page 171	Writes the value of a string to a numbered job info.
Example Usage:	`Watch.SetJobInfo(9, "Job info 9 Value");`
"Watch.SetVariable" on page 172	Writes the value of a string to a local or global variable by name.
Example Usage:	`Watch.SetVariable("MyVariable",`

Variable Name Example Usage (VBScript)	Description
	`"Hello World!");`
"Watch.Sleep" on page 173	Pauses all processing for X milliseconds.
Example Usage:	`Watch.Sleep(1000);`
"Watch.ExecuteExternalProgram" on the next page	Calls and executes an external program in the command line.
Example Usage:	`Watch.ExecuteExternalProgram("lpr -S 192.168.100.001 -P auto c:\\myfile.ps", "c:\\", 0, true);`
"Script.ReturnValue" on page 174	Returns a boolean True or False value to a Workflow scripted condition
Example Usage:	`Script.ReturnValue = 1;`
Watch.GetPDFEditObject	Is used to manipulate PDF files using the AlambicEdit API; see the "AlambicEdit API reference" on page 243. The AlambicEdit library allows Workflow to access, create or modify PDF files.
"Watch.InstallResource" on page 169	Is used to copy or unpack resources, such as a Connect Designer template, Data Mapping Configuration, package file, etc., from the supplied path to the Connect Documents folder.
Example Usage:	`Watch.InstallResource("c:\myfile.ol-package");`

Watch.ExecuteExternalProgram

Calls and executes an external program through a specified command line. The program's execution will be directed by the appropriate flags specified as this method's parameters.

Syntax

Watch.ExecuteExternalProgram const CommandLine: WideString; const WorkingDir: WideString; ShowFlags: Integer; WaitForTerminate: WordBool: integer;

const CommandLine

The command line to execute as a widestring.

const WorkingDir

The working directory for the execution of the command line as a widestring.

ShowFlags

Integer value representing the flag to use during the execution of the command line. These flags have an effect on the execution window opened by the ExecuteExternalProgram procedure.

Flag	Effect
0	Hide the execution window.
1	Display the window normally.
2	Display the window minimized.
3	Display the window maximized.
4	Makes the window visible and brings it to the top, but does not make it the active window.

WaitForTerminate

A Boolean value that, if true, pauses the script until the command line has been fully executed.

Examples

JavaScript

```
Watch.ExecuteExternalProgram("lpr -S 192.168.100.001 -P auto
c:\\myfile.ps", "c:\\", 0, true);
```

VBScript

```
Watch.ExecuteExternalProgram "lpr -S 192.168.100.001 -P auto
c:\myfile.ps", "c:\", 0, true
```

Python

```
Watch.ExecuteExternalProgram("lpr -S 192.168.100.001 -P auto
c:\\myfile.ps", "c:\\", 0, True)
```

Perl

```
$Watch->ExecuteExternalProgram("lpr -S 192.168.100.001 -P auto
c:\myfile.ps", "c:\", 0, true);
```

Watch.ExpandResourcePath

The `Watch.ExpandResourcePath` method expands a Connect resource file name (e.g. invoice.OL-template) to its fully qualified path (e.g. C:\ProgramData\Objectif Lune\PlanetPress Workflow\Documents\invoice.OL-template). It returns empty ('') if the resource does not exist, and will log an empty line next to the task number if logged.

Files in the Connect resources folder are visible in Workflow's Configuration Components pane under Connect Resources (see "Connect resources" on page 40).

Syntax

Watch.ExpandResourcePath(filename)

filename

A string containing the file name.

Examples

JavaScript

```
Watch.ExpandResourcePath("invoice.OL-template");
```

VBScript

```
Watch.ExpandResourcePath "invoice.OL-template"
```

Python

```
Watch.ExpandResourcePath("invoice.OL-template");
```

Perl

```
$Watch->ExpandResourcePath("invoice.OL-template");
```

Watch.ExpandString

Provides access to the emulated job file and to all variables. This function returns a string that is the expanded version of the input string.

Syntax

Watch.ExpandString(StringToExpand)

StringToExpand

A regular parseable string that may contain system variables (%u, %f), user variables (%1 to %9), octal codes, and data selections.

Example

This example results in expanding the string of the variables to the date value in the following format: “YYYY-MM-DD”.

JavaScript

```
var s;
                        s= Watch.ExpandString("%y-%m-%d");
                Watch.Log("Current Date is: " + s, 2);
```

VBScript

```
Dim s
s= Watch.ExpandString("%y-%m-%d")
Watch.Log "Current Date is: " + s, 2
```

Python

```
s= Watch.ExpandString("%y-%m-%d")
Watch.Log("Current Date is: " + s, 2)
```

Perl

```
$s = $Watch->ExpandString("%y-%m-%d");
$Watch->Log("Current Date is: " . $s,2);
```

Watch.GetConnectToken

The Watch.GetConnectTokenmethod uses the default Connect Server host as defined in the Workflow preferences (see "OL Connect preferences" on page 772) to log into the Connect Server and retrieve an authorization token.

Syntax

Watch.GetConnectToken()

Return value

The method returns a JSON structure like the following:

```
{
        "host": "localhost",
        "port": 1234,
        "token": "fdjhfds89r378cm034573890mc3y893r092p",
        "method": "basic"
}
```

where:

- `host` is the host or IP address of the server.
- `port` is the TCP port number.
- `token` is the authentication token.
- `method` is the authentication method; currently, only basic is supported.

Examples

JavaScript

```
Watch.GetConnectToken();
```

VBScript

```
Watch.GetConnectToken
```

Python

```
Watch.GetConnectToken();
```

Perl

```
$Watch->GetConnectToken();
```

Watch.GetConnectTokenEx

The `Watch.GetConnectTokenEx` method uses the arguments passed to it to log into the Connect Server and retrieve an authorization token.

Syntax

Watch.GetConnectTokenEx(host, port, username, password)

The arguments contain the Connect Server settings (see "OL Connect preferences" on page 772), in the form of strings (host, username and password) and a number (port).

Return value

The method returns a JSON structure containing the host, port, token and authentication method. For example:

```
{
        "host": "localhost",
        "port": 1234,
        "token": "fdjhfds89r378cm034573890mc3y893r092p",
        "method": "basic"
}
```

- `host` is the host or IP address of the server.
- `port` is the TCP port number.
- `token` is the authentication token.
- `method` is the authentication method; currently, only basic is supported.

Examples

JavaScript

```
Watch.GetConnectTokenEx("localhost", 1234, "myUser", "secret");
```

VBScript

```
Watch.GetConnectTokenEx "localhost", 1234, "myUser", "secret"
```

Python

```
Watch.GetConnectTokenEx("localhost",1234,"myUser","secret");
```

Perl

```
$Watch->GetConnectTokenEx("localhost",1234,"myUser","secret");
```

Watch.GetJobFileName

Returns the complete path and file name of the job. This method is the same as PW_ GetJobFileName. getjobfilename() obtains the file name of a PlanetPress Workflow process. This is useful for manipulating the job file, for example to replace data within it. If your script writes to this file, the modified contents will be used by the next plugin in your process.

Example

In the following example, GetJobFileName() retrieves the name of the job file, which is then logged using "Watch.Log" on page 170.

JavaScript

```
var s;
                        s = Watch.GetJobFilename();
                Watch.Log("The job filename is: " + s, 3);
```

VBScript

```
Dim s
s = Watch.GetJobFileName
Watch.Log "The job filename is: " + s, 3
```

Python

```
s = Watch.GetJobFileName()
Watch.Log("The job filename is: " + s, 3)
```

Perl

```
$s = $Watch->GetJobFileName;
$Watch->Log("The job filename is: " + $s, 3);
```

Watch.GetJobInfo

Returns the job information corresponding to the specified index. Index is an integer from 1 to 9. (See also: "Job Info variables" on page 702.)

Syntax

Watch.GetJobInfo(Index: integer): string

Example

JavaScript

```
var s;
                        s = Watch.GetJobInfo(3);
                Watch.Log("Jobinfo 3's value is: " + s, 2);
```

VBScript

```
Dim s
s = Watch.GetJobInfo(3)
Watch.Log "Jobinfo 3's value is: " + s, 2
```

Python

```
s = Watch.GetJobInfo(3)
Watch.Log("Jobinfo 3's value is: " + s, 2)
```

Perl

```
$s = $Watch->GetJobInfo(3);
$Watch->ShowMessage("Jobinfo 3's value is: " . $s, 2);
```

Watch.GetMetadataFilename

Returns the complete path and file name of the metadata file associated with the current job file.

Example

JavaScript

```
Watch.GetMetadataFileName();
```

VBScript

```
Watch.GetMetadataFileName
```

Python

```
Watch.GetMetadataFileName()
```

Perl

```
$Watch->GetMetadataFileName();
```

Watch.GetOriginalFileName

Returns the original name of the file, when it was captured. This method is the same as PW_GetOriginalFileName.

Example

JavaScript

```
Watch.GetOriginalFileName();
```

VBScript

```
Watch.GetOriginalFileName
```

Python

```
Watch.GetOriginalFileName()
```

Perl

```
$Watch->GetOriginalFileName();
```

Watch.GetResources

The `Watch.GetResources` method retrieves a specific type of Connect resources when it is passed a file extension (e.g. "OL-template") or all Connect resources when it is passed an empty string.

Files in the Connect resources folder are visible in Workflow's Configuration Components pane under Connect Resources (see "Connect resources" on page 40).
For the file types see: Connect file types.

Syntax

Watch.GetResources(resourcetype)

resourcetype

A string containing a file extension (e.g. "ol-template") to get a specific type of resource, or an empty string to get all resources.

Examples

JavaScript

```
Watch.GetResources("OL-template");
```

VBScript

```
Watch.GetResources "OL-template"
```

Python

```
Watch.GetResources("OL-template");
```

Perl

```
$Watch->GetResources("OL-template");
```

Watch.GetVariable

Returns the string value of the corresponding variable name. Note that if an undeclared variable is called using this method, an error will be generated.

Syntax

Watch.GetVariable(Name: String): String

Example

JavaScript

```
var s;
                        s = Watch.GetVariable("MyVariable");
                        Watch.Log("MyVariable's value is: " + s, 2);
                        s = Watch.GetVariable("global.MyVariable");
                Watch.Log("Jobinfo 3's value is: " + s, 2);
```

VBScript

```
Dim s
s = Watch.GetVariable("MyVariable")
Watch.Log "MyVariable's value is: " + s, 2
s = Watch.GetVariable("global.MyVariable")
Watch.Log "global.MyVariable's value is: " + s, 2
```

Python

```
s = Watch.GetVariable("MyVariable")
Watch.Log("global.MyVariable's value is: " + s, 2)
```

Perl

```
$s = $Watch->GetJobInfo(3);
$Watch->ShowMessage("global.MyVariable's value is: " . $s, 2);
```

Watch.InstallResource

The `Watch.InstallResource(path)` method copies or unpacks a resource, such as a Connect Designer template, Data Mapping Configuration, or package file, from the supplied path to the Connect resources folder (%PROGRAMDATA%\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\OLConnect).
If a file already exists, it will be overwritten.
The original resource file, which is processed by this functionality, will not be deleted or altered in any way.

The Workflow process will wait for the file(s) to be unpacked or copied to the Connect resources folder, so that the next plugin in line that uses an installed resource will have the latest, up-to-date version of the file.

Files in the Connect resources folder are visible in Workflow's Configuration Components pane under Connect Resources (see "Connect resources" on page 40).

Syntax

Watch.InstallResource(path)

path

A string containing the resource path.

Examples

JavaScript

```
Watch.InstallResource("c:\\myfile.ol-package");
```

VBScript

```
Watch.InstallResource "c:\myfile.ol-package"
```

Python

```
Watch.InstallResource("c:\\myfile.ol-package");
```

Perl

```
$Watch->InstallResource("c:\\myfile.ol-package");
```

Watch.Log

Creates messages that are added to PlanetPress Workflowwatch.log file. The PlanetPress Workflow watch.log file is located in the following folder:
%PROGRAMDATA%\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\Log

View error messages in the Services Console while PlanetPress Workflow is in Run mode by choosing Tools | Services | Service Console. In the Service Console, error messages appear with colors that correspond to the message level.

Level	Type	Text Color in Service Console
1	Error	Red
2	Warning	Orange
3	Information	Black
4	Debug	Grey

Arguments

Message

A string representing the message that is logged in the log file. Note that the text of the message must use the locale encoding of the system where the PlanetPress Workflow *software will be running, otherwise it will be unreadable.*

Level

An integer between 1 and 4, specifying the severity level of the error message. Set message levels as follows.

Level	Description
1	The message is logged as an Error in the log file.
2	The message is logged as a Warning in the log file.
3	The message is logged as Information in the log file.
4	The message only appears when the application runs in Debug mode.

Examples

In the following example, log() will write an *information* entry in the watch log that says "this is a log"

VBScript

```
Watch.Log "this is a log", 3
```

JavaScript

```
Watch.Log("this is a log", 3);
```

Python

```
Watch.Log("this is a log",3)
```

Perl

```
$Watch->Log("this is a log",3);
```

Watch.SetJobInfo

Sets the job information at the specified index to a specified string value. (See also: "Job Info variables" on page 702.)

Syntax

Watch.SetJobInfo(Index: Integer; Value: String)

Example

JavaScript

```
Watch.SetJobInfo(3, "Job info 3 Value");
```

VBScript

```
Watch.SetJobInfo 3, "Job info 3 Value"
```

Python

```
Watch.SetJobInfo(3, "Job info 3 Value")
```

Perl

```
$Watch->SetJobInfo(3, "Job info 3 Value");
```

Watch.SetVariable

Sets the variable to a specified string value. Note that if an undeclared variable is called using this method, an error will be generated.

Syntax

Watch.SetVariable (Name: String; Value: String)

Example

JavaScript

```
Watch.SetVariable("MyVariable", "Desired value");
                Watch.SetVariable("global.MyVariable", "Desired value");
```

VBScript

```
Watch.SetVariable "MyVariable", "Desired value"
Watch.SetVariable "global.MyVariable", "Desired value"/
```

Python

```
Watch.SetVariable("MyVariable", "Desired value")
Watch.SetVariable("global.MyVariable", "Desired value")
```

Perl

```
$Watch->SetVariable("MyVariable", "Desired value");
$Watch->SetVariable("global.MyVariable", "Desired value");
```

Watch.ShowMessage

Displays a message to the user. Use this method to show the current message whether or not a user is logged in. Note that for this method to work, the "Run on Desktop" option must be

enabled and you must be logged on as the same user as the PlanetPress Watch Service.

Examples

In the following example, showmessage() displays a dialog box saying “test message”.

JavaScript

```
Watch.ShowMessage("test message");
```

VBScript

```
Watch.ShowMessage("test message")
```

Python

```
Watch.ShowMessage("test message")
```

Perl

```
$Watch->ShowMessage("test message");
```

Watch.Sleep

Pauses the process for the specified number of milliseconds. This can be used while waiting for something else to happen when the delay is known.

Syntax

Watch.Sleep(milliseconds: integer)

Example

In the following example, `Sleep()` pauses the process for 1 second (1000 milliseconds)

JavaScript

```
Watch.Sleep(1000);
```

VBScript

```
Watch.Sleep 1000
```

Python

```
Watch.Sleep(1000)
```

Perl

```
$Watch->Sleep(1000);
```

Script.ReturnValue

Set this variable to 1 (true) or 0 (false) in order to return a `true` or `false` status to PlanetPress Workflow, when using your script as a conditional branch. This variable will have no effect if the script is run as an action.

If the property is not set, the default value is `false`.

Example

This example will always return true, as the condition is static. It is, after all, simply an example. You get the idea.

JavaScript

```
var everythingOK;
everythingOK = true;
if(everythingOK){
       Script.ReturnValue = 1;
} else {
       Script.ReturnValue = 0
}
```

VBScript

```
Dim everythingOK
everythingOK = true
if (everythingOK = true) then
 Script.ReturnValue = 1
else
 Script.ReturnValue = 0
end if
```

Python

```
everythingOK = True
if everythingOK:
 Script.ReturnValue = 1
else:
 Script.ReturnValue = 0
```

Perl

```
$everythingOK = 1;
if ($everythingOK) {
 $Script->{ReturnValue}  = 1;
} else {
 $Script->{ReturnValue}  = 0;
}
```

Data Repository API

The Data Repository is a permanent structure to store data that can then be reused, modified or augmented at a later time, by different processes.
The Data Repository can be accessed at runtime by the Push To Repository plugin and other tasks (see "Data Repository" on page 95) and at design time via the "Data Repository Manager" on page 839.
This topic explains how to access the Data Repository in script.

For a quick start, turn to this How-to: Interacting with the Data Repository API.

> **Warning**
>
> All operations on the Repository must be performed through this API - rather than directly accessing the physical file - since the Repository's underlying file structure may change over time. This API is guaranteed to remain compatible with future versions of the Data Repository. It is used by all Workflow tasks dealing with the Repository.

Data repository structure

The table below lists the different levels in the repository and what their names corresponds to:

The term ...	... is the same as an Excel ...	... is the same as a Database ...
Group	Sheet	Table
Key	Column	Field
KeySet	Row	Record

> **Note**
>
> Group and key names are case-insensitive.

API Reference

Obtaining an instance of the Repository Object

The Data Repository is accessed via a COM object that exposes methods to store and retrieve data within the Repository.

JavaScript

```
var repoObject = new ActiveXObject
("RepositoryLib.WorkflowRepository");
```

VB Script

```
set repoObject = CreateObject("RepositoryLib.WorkflowRepository")
```

In each example in this documentation, the object `repoObject` is deemed having been obtained through the above call to the COM object.

The default Repository is always stored at the same location (see "Where to find the Data Repository" on page 97).
The `ConnectionString` property allows to create an instance of the Repository at another location; see ConnectionString.

Using a JSON parameter or return value

Whenever a parameter or return value is defined as a JSONStringArray type, that JSON array is itself a string. Since a JSON array internally defines double quotes as the delimiter for each element, you must enclose the entire string in single quotes. Alternatively, you can escape the double quotes inside the JSON Array.

For instance, the following calls to **AddGroup()** are correct:

```
repoObject.AddGroup("MyGroup",'["FirstKey", "SecondKey"]');
repoObject.AddGroup("MyGroup","[\"FirstKey\", \"SecondKey\"]");
```

But the following is incorrect:

```
repoObject.AddGroup("MyGroup","['FirstKey', 'SecondKey']");
```

Many methods require using the **JSONStringArray** type but JSON is not natively supported in VB Script. Therefore, for those methods, only JavaScript sample code is provided. There are many resources on the Web that propose ways of implementing JSON parsing in VB Script so you can implement whichever you see fit. However, using JavaScript is highly recommended.

Repository management methods

Name	Description
"CheckRepository" on page 185	Verifies the integrity of the repository and recovers unused space left by deleted keysets. Similar to packing a database, the operation is non-destructive but it does require exclusive access to the Repository. You should therefore only perform this operation when you know for sure no other process is accessing the Data Repository.
"ClearRepository" on page 185	Deletes all groups, keys and keysets from the repository, returning it to a blank state. Use with caution!
"ClearGroupData" on page 185	Deletes all keysets inside **GroupName** while retaining the existing key structure.
"ClearAllData" on page 185	Delete all keysets in all groups, while retaining the existing key structure.
ConnectionString	Creates/opens a Repository to read from and write to at a custom location. Set `ConnectionString` to a string containing a full path and file name.
"Version" on page 196	Returns the version of the DLL library used by the Repository.

Group methods

Name	Description
"AddGroup" on page 182	Creates a group named **GroupName** and optionally creates keys listed in keyNames. The keyNames parameter may be empty.
"ListGroups" on page 188	Retrieves the list of all group names in the Repository, stored in a JSONStringArray..
"RemoveGroup" on page 190	Deletes the group named **GroupName**, along with all its **keysets** and keys.
"RenameGroup" on page 193	Renames group **oldName** to **newName**. While this operation has no impact on the data stored in the specified group, it does require any plugin and/or script that uses oldName to be modified to refer to **newName**.

Key Methods

Name	Description
"AddKey" on page 182	Adds key **KeyName** to group **GroupName**. **KeyName** must not already exist in the specified group. Note that this method only adds a key name to the group, not a key value. See "AddValue" on page 184 for information on how to set a value for a key.
"ListKeys" on page 189	Retrieves the list of all Key names and data types in Group **GroupName**, stored in a JSONStringObject. You should use **JSON.Parse()** to convert the string into an actual JavaScript object. You can then use the for…in construct to list the different properties for that object (i.e. the keys in the group).

Name	Description
"RemoveKey" on page 190	Removes existing key **KeyName** from group **GroupName**. The key to remove must exist in the group, otherwise an error is raised. All values for the key, in all keysets for the group, are removed. Note that when the Group contains a large number of **KeySets**, this operation may take a while.
"RenameKey" on page 193	Renames key **oldName** to **newName** in group **GroupName**. While this operation has no impact on the data stored in that Group, it does require any plugin and/or script that uses **oldName** to be modified to refer to **newName**.

Value Methods

Name	Description
"AddValue" on page 184	Creates a new **KeySet** by assigning Value to the key **KeyName** in Group **GroupName**. Note that **KeyName** must exist in **GroupName**, otherwise an error is raised. See "AddKey" on page 182 for information on adding a key to a group. Upon successful completion, the method returns the ID of the newly created KeySet.
"GetValue" on page 187	Performs a lookup in group **GroupName** and retrieves the first value for key **KeyName** that matches Condition. The condition is specified using basic SQL WHERE syntax. The Condition may be left empty in which case the very first value found for the specified **KeyName** is returned.
"SetValue" on page 194	Updates multiple **keysets** in group **GroupName** by setting the key **KeyName** to **Value** for all keysets that match Condition. The condition is specified using basic

Name	Description
	SQL WHERE syntax. The Condition may be left empty in which case all keysets in GroupName are updated. Note that KeyName must exist in **GroupName**, otherwise an error is raised. The method returns an array of the keyset ID's that were updated ([1,2]), or an empty array ([]) if no keysets were updated.
"SetValueByID" on page 195	Updates **KeyName** with Value in group **GroupName**, where the keyset's **ID** matches the **ID** parameter. **KeyName** must exist in GroupName, otherwise an error is raised. The method returns the ID of the keyset that was updated or -1 if the keyset was not updated. Note that this method is functionally equivalent to using "SetValue" on page 194 with its Condition parameter set to "ID=ID".

KeySet methods

Name	Description
"AddKeySets" on page 183	Inserts a new keyset inside **GroupName** and assigns values to keys as specified in KeyValues. Every key specified in **KeyValues** must exist otherwise an error is raised. However, it is not required to specify all available keys in **KeyValues**. Only the keys specified are updated in **GroupName** while unspecified keys are set to an empty string.
"GetKeySets" on page 185	Retrieves Keys values in **GroupName** for keysets that match Condition. When

Name	Description
	an asterisk * is passed as the **Keys** parameter, all keys are retrieved. When Condition is left empty, all keysets are retrieved.
"RemoveKeySets" on page 192	Deletes all keysets in **GroupName** that match Condition. The condition is specified using basic SQL WHERE syntax. Condition may be left empty, in which case all keysets in **GroupName** are deleted. The method returns the number of keysets that were deleted.
Skin/Formats/CrossReferencePrintFormat ("RemoveKeySetByIDDeletes the keyset whose ID equals ID from GroupName. Returns 1 if successful, 0 otherwise. This method is functionally equivalent to using RemoveKeySets with its Condition parameter set to "ID=ID". SyntaxRemoveKeySetByID(GroupName: string, ID: integer): integer ExamplesIn each of these examples, the object repoObject is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see Obtaining an instance of the Repository Object).JavaScript/* both methods perform the same task */repoObject.RemoveKeySetByID ("Users", 10);repoObject.RemoveKeySets ("Users", "ID=10");VB Script/* both methods perform the same task */repoObject.RemoveKeySetByID "Users", 10repoObject.RemoveKeySets "Users", "ID=10"" on page 1)	Deletes the keyset whose ID equals ID from **GroupName**. Returns 1 if successful, 0 otherwise. Note that this method is functionally equivalent to using "RemoveKeySets" on page 192 with its Condition parameter set to "ID=ID".

AddGroup

Creates a group named **GroupName** and optionally creates keys listed in **keyNames**. The **keyNames** parameter may be empty.

Syntax

```
AddGroup(GroupName: string, keyNames: JSONStringArray)
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.AddGroup("Users", '["FirstName", "LastName"]');
repoObject.AddGroup("Users", '');
```

VB Script

```
repoObject.AddGroup "Users", "[""FirstName"", ""LastName""]"
repoObject.AddGroup "Users", ""
```

AddKey

Adds key **KeyName** to group **GroupName**. **KeyName** must not already exist in the specified group. Note that this method only adds a key name to the group, not a key value. See "AddValue" on page 184 for information on how to set a value for a key.

Syntax

```
AddKey(GroupName: string, KeyName: string)
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.AddKey("Users", "email");
```

VB Script

```
repoObject.AddKey "Users", "email"
```

AddKeySets

Inserts a new **keyset** inside **GroupName** and assigns values to keys as specified in **KeyValues**. Every key specified in **KeyValues** must exist otherwise an error is raised. However, it is not required to specify all available keys in **KeyValues**. Only the keys specified are updated in **GroupName** while unspecified keys are set to an empty string.

Syntax

```
AddKeySets(GroupName: string, KeyValues: JSONObjectArrayString):
JSONIntegerArray
```

Examples

Basic examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.AddKeySets("Users", '[{"FirstName": "John","LastName":
"Smith"},{"FirstName": "Richard", "LastName": "Doe"}]');
```

VB Script

```
repoObject.AddKeySets "Users","
[{""FirstName"":""John"",""LastName"":""Smith""},
{""FirstName"":""Richard"",""LastName"": ""Doe""}]"
```

Inserting a row

In most cases, you won't need to insert or update a row in a script, as this can be easily done through the the Push to Repository action task. However, in some cases you might want to script it for simplicity's sake.
This JavaScript example inserts 2 different rows into the Users group.

```
var repoObject = new ActiveXObject
("RepositoryLib.WorkflowRepository");
repoObject.AddKeySets("customers", '[{"CustomerID": "CUJS123456",
"FirstName": "John","LastName": "Smith"},
{"CustomerID": "CURD654321", "FirstName": "Richard", "LastName":
"Doe"}]');
```

Tip: to update a row instead of adding it, use the GetValue() function to get the KeySet ID; then update each individual value using SetValueByID() (see "GetValue" on page 187 and "SetValueByID" on page 195).

Sample return value

The method returns a JSONIntegerArray containing the ID's of all **keysets** inserted into **GroupName**:

```
'[131,132]'
```

AddValue

Creates a new **KeySet** by assigning Value to the key **KeyName** in Group **GroupName**. Note that **KeyName** must exist in **GroupName**, otherwise an error is raised. See "AddKey" on page 182 for information on adding a key to a group. Upon successful completion, the method returns the **ID** of the newly created **KeySet**.

Syntax

```
AddValue(GroupName: string, KeyName: string, Value: string):
integer64
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.AddValue("Users", "LastName", "Smith");
```

VB Script

```
repoObject.AddValue "Users", "LastName", "Smith"
```

CheckRepository

Verifies the integrity of the repository and recovers unused space left by deleted keysets. Similar to packing a database, the operation is non-destructive but it does require exclusive access to the Repository. You should therefore only perform this operation when you know for sure no other process is accessing the Data Repository.

Syntax

```
CheckRepository()
```

ClearAllData

Delete all **keysets** in all groups, while retaining the existing key structure.

Syntax

```
ClearAllData()
```

ClearGroupData

Deletes all keysets inside **GroupName** while retaining the existing key structure.

Syntax

```
ClearGroupData(GroupName: string)
```

ClearRepository

Deletes all groups, keys and keysets from the repository, returning it to a blank state. Use with caution!

Syntax

```
ClearRepository()
```

GetKeySets

Retrieves Keys values in GroupName for keysets that match Condition.

When an asterisk ***** is passed as the **Keys** parameter, all keys are retrieved.
To ensure backward compatibility with versions prior to 2018.1, all keys are retrieved when the Keys parameter is left empty. It is however recommended to use an asterisk instead.

When **Condition** is left empty, all keysets are retrieved, which is useful for reports, cleanup, or custom filters based on more complex conditions.

`GetKeySets()` converts the results coming from the Repository from UTF8 to Ansi, in order to make results with special characters like 'éèêë?æ' compatible with scripting.
To obtain the UTF8 value, without conversion, use `GetKeySetsW()`.

Syntax

```
GetKeySets(GroupName: string, Keys: JSONStringArray, Condition:
string): JSONStringArray
```

Examples

Basic examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.GetKeySets("Users", '["FirstName","LastName"]',
"Gender='M'");
```

VB Script

```
myKeySet = repoObject.GetKeySets("Users", "
[""FirstName"","LastName""]", "Gender='M'")
```

Querying a single row

This JavaScript example shows how to get one or more rows from the repository and use them in the process. The script gets 3 fields ("firstname", "lastname" and "email") from the CustomerID field. It assumes there's a local variable called %{CustomerID} set in the workflow process.

```
var CustomerID = Watch.GetVariable("CustomerID");
var repoObject = new ActiveXObject
("RepositoryLib.WorkflowRepository");
var customer = repoObject.GetKeySets("customers",'
["firstname","lastname", "customerID"]',"customerID = '" +
CustomerID + "'");
Watch.SetJobInfo(9,customer);
```

By replacing the last option from GetKeySets (the filter on CustomerID) with an empty string, you can get all the rows from the Data Repository.

Return value: JSONStringArray

The method returns a JSONStringArray of key-value pairs, for example:

```
'[{"FirstName": "John","LastName": "Smith"},{"FirstName":
"Richard", "LastName": "Doe"}]'
```

The return value (saved for example in the %9 JobInfo variable, as the above example does) can be used in a number of ways:

- It can be returned to a web page that's making an HTTP request to Workflow. JSON is the simplest way to transfer information between any system that supports JavaScript.
- It can be passed to Designer and loaded up directly as an object in a script there.
- The JSON can be converted to XML, which makes it useable in the DataMapper module. This can be easily done in a preprocessor script in the DataMapper (see DataMapper online help).

GetValue

Performs a lookup in group GroupName and retrieves the first value for key **KeyName** that matches Condition. The condition is specified using basic SQL WHERE syntax. The **Condition** may be left empty in which case the very first value found for the specified **KeyName** is returned.

Syntax

```
GetValue(GroupName: string, KeyName: string, Condition: string)
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
var myValue = repoObject.GetValue("Users", "email", "
LastName='Smith' AND FirstName='John' "); /* retrieves email for
John Smith */
var myValue = repoObject.GetValue("Users", "email", "
```

```
LastName='Smith' "); /* retrieves email for first user named Smith
*/
var myValue = repoObject.GetValue("Users", "email", ""); /*
retrieves email for first user */
```

VB Script

```
myValue = repoObject.GetValue("Users", "email", "
LastName=""Smith"" AND FirstName=""John"" ") /* retrieves email for
John Smith */
myValue = repoObject.GetValue("Users", "email", "
LastName=""Smith"" ") /* retrieves email for first user named Smith
*/
myValue = repoObject.GetValue("Users", "email", "") /* retrieves
email for first user */
```

Retrieving a KeySet ID

This JavaScript example retrieves the KeySet ID, which is then used to update values in the row.

```
/* Get KeySet ID */
var repoObject = new ActiveXObject
("RepositoryLib.WorkflowRepository");
var keySetID = repoObject.GetValue("customers", "ID",
"CustomerID='CURD654321'");
/* Update Values */
repoObject.SetValueByID("customers", "FormOfAddress", "Mr.",
keySetID);
repoObject.SetValueByID("customers", "Country", "US", keySetID);
repoObject.SetValueByID("customers", "Language", "EN", keySetID);
```

ListGroups

Retrieves the list of all group names in the Repository, stored in a JSONStringArray.

Syntax

```
ListGroups(): JSONStringArray
```

Example

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the

Repository Object" on page 176).

JavaScript

```
var repoObject = new ActiveXObject
("RepositoryLib.WorkflowRepository");
var myList = JSON.parse(repoObject.ListGroups());
for (var i=0; i<myList.length; i++) {
/* Log all group names to the console */
 Watch.Log(myList[i],2);
}
```

Sample return value

```
'["Users","Cart","Orders"]'
```

ListKeys

Retrieves the list of all Key names and data types in Group **GroupName**, stored in a JSONStringObject. You should use JSON.Parse() to convert the string into an actual JavaScript object. You can then use the for…in construct to list the different properties for that object (i.e. the keys in the group).

Syntax

```
ListKeys(GroupName: string):JSONStringArray
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
var repoObject = new ActiveXObject
("RepositoryLib.WorkflowRepository");

var myList = JSON.parse(repoObject.ListKeys("Internal"));
for (var Property in myList) {
/* Log all key names for group Users to the console */
Watch.Log(Property,2);
}
```

Sample return value

'{"ID": "meta", "FirstName": "string", "LastName": "string", "email": "string", "DateC": "meta", "DateM": "meta"}'

As shown in the sample, the value associated with each key name is actually the data type for that key. Only two values are currently possible: string and meta, where meta denotes an internally generated key.

RemoveGroup

Deletes the group named **GroupName**, along with all its keysets and keys.

Syntax

```
RemoveGroup(GroupName: string)
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.RemoveGroup("Users");
```

VB Script

```
repoObject.RemoveGroup "Users"
```

RemoveKey

Removes existing key **KeyName** from group **GroupName**. The key to remove must exist in the group, otherwise an error is raised. All values for the key, in all keysets for the group, are removed. Note that when the Group contains a large number of **KeySets**, this operation may take a while.

Syntax

```
RemoveKey(GroupName: string, KeyName: string)
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.RemoveKey("Users", "email");
```

VB Script

```
repoObject.RemoveKey "Users", "email"
```

RemoveKeySetByID

Deletes the **keyset** whose ID equals ID from **GroupName**. Returns 1 if successful, 0 otherwise.

> **Note**
>
> This method is functionally equivalent to using **"RemoveKeySets" on the next page** with its Condition parameter set to "ID=ID".

Syntax

```
RemoveKeySetByID(GroupName: string, ID: integer): integer
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
/* both methods perform the same task */
repoObject.RemoveKeySetByID("Users", 10);
repoObject.RemoveKeySets("Users", "ID=10");
```

VB Script

```
/* both methods perform the same task */
repoObject.RemoveKeySetByID "Users", 10
repoObject.RemoveKeySets    "Users", "ID=10"
```

RemoveKeySets

Deletes all keysets in **GroupName** that match **Condition**. The condition is specified using basic SQL WHERE syntax. The method returns the number of keysets that were deleted. When passing 'ID' as the Condition, all keysets in **GroupName** will be deleted.

Syntax

```
RemoveKeySets(GroupName: string, Condition: string): integer
```

Examples

Basic examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.RemoveKeySets("Users", 'Gender="M"');
```

VB Script

```
repoObject.RemoveKeySets "Users", "Gender='M'"
```

Deleting a row

This script attempts to delete a client from the rows, then returns "true" or "false" in JobInfo variable %9 as a response.

```
var CustomerID = Watch.GetVariable("CustomerID");
var repoObject = new ActiveXObject
("RepositoryLib.WorkflowRepository");
var deletedCount = JSON.parse(repoObject.RemoveKeySets
("customers","customerID = '" + CustomerID + "'"));
var answer = (deletedCount > 0) ? "true" : "false";
Watch.SetJobInfo(9, answer);
```

RenameGroup

Renames group **oldName** to **newName**. While this operation has no impact on the data stored in the specified group, it does require any plugin and/or script that uses **oldName** to be modified to refer to **newName**.

Syntax

```
RenameGroup(oldName, newName: string)
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.RenameGroup("Users", "Customers");
```

VB Script

```
repoObject.RenameGroup "Users", "Customers"
```

RenameKey

Renames key **oldName** to **newName** in group **GroupName**. While this operation has no impact on the data stored in that Group, it does require any plugin and/or script that uses oldName to be modified to refer to **newName**.

Syntax

```
RenameKey(GroupName: string, oldName: string, newName: string)
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.RenameKey("Users", "LastName", "SurName");
```

VB Script

```
repoObject.RenameGroup "Users", "LastName", "SurName"
```

SetValue

Updates multiple keysets in group **GroupName** by setting the key **KeyName** to **Value** for all keysets that match Condition. The condition is specified using basic SQL WHERE syntax. The Condition may be left empty in which case all keysets in GroupName are updated. Note that **KeyName** must exist in **GroupName**, otherwise an error is raised. The method returns an array of the keyset **ID**'s that were updated ([1,2]), or an empty array ([]) if no keysets were updated.

> **Note**
>
> There is currently no **Update** feature in the API for a whole KeySet (a row).

Syntax

```
SetValue(GroupName: string, KeyName: string, Value: string,
Condition: string): string
```

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
repoObject.SetValue("Users", "FormOfAddress", "Mr.",  "Gender='M'"
);
repoObject.SetValue("Users", "FormOfAddress", "Ms.",  "Gender='F'
AND MaritalStatus='Married'" );
repoObject.SetValue("Users", "FormOfAddress", "Miss", "Gender='F'
AND MaritalStatus='''" );
```

VB Script

```
repoObject.SetValue "Users", "FormOfAddress", "Mr.",  "
Gender=""M"" "
repoObject.SetValue "Users", "FormOfAddress", "Ms.",  "
```

```
Gender=""F"" AND MaritalStatus=""Married"" "
repoObject.SetValue "Users", "FormOfAddress", "Miss", "
Gender=""F"" AND MaritalStatus=""""" "
```

SetValueByID

Updates **KeyName** with **Value** in group **GroupName**, where the KeySet's ID matches the **ID** parameter. **KeyName** must exist in **GroupName**, otherwise an error is raised. The method returns the ID of the keyset that was updated or -1 if the keyset was not updated.
The KeySet ID can be retrieved with `GetValue()` ("GetValue" on page 187).

> **Note**
>
> There is currently no **Update** feature in the API for a whole KeySet (a row).

Syntax

```
SetValueByID(GroupName: string, KeyName: string, Value: string, ID:
integer): integer64
```

> **Note**
>
> This method is functionally equivalent to using "SetValue" on the previous page with its Condition parameter set to "ID=ID".

Examples

In each of these examples, the object `repoObject` is deemed having been obtained through a call to the COM object "RepositoryLib.WorkflowRepository" (see "Obtaining an instance of the Repository Object" on page 176).

JavaScript

```
/* both methods perform the same task */
repoObject.SetValueByID("Users", "FormOfAddress", "Mr.", 10);
repoObject.SetValue("Users", "FormOfAddress", "Mr.", "ID=10" );
```

VB Script

```
/* both methods perform the same task */
repoObject.SetValueByID "Users", "FormOfAddress", "Mr.",  10
repoObject.SetValue "Users", "FormOfAddress", "Mr.",  "ID=10"
```

Updating a row

There is currently no 'update' feature in the API for a whole KeySet. This JavaScript example retrieves the KeySet ID, which is then used to update values in the row.

```
/* Get KeySet ID */
var repoObject = new ActiveXObject
("RepositoryLib.WorkflowRepository");
var keySetID = repoObject.GetValue("customers", "ID",
"CustomerID='CURD654321'");
/* Update Values */
repoObject.SetValueByID("customers", "FormOfAddress", "Mr.",
keySetID);
repoObject.SetValueByID("customers", "Country", "US", keySetID);
repoObject.SetValueByID("customers", "Language", "EN", keySetID);
```

Version

Returns the version of the DLL library used by the Repository.

Syntax

```
Version(): string
```

Metadata API

The "Metadata" on page 75 is a hierarchical structure describing the data in a job. It is composed of 5 basic levels, from top to bottom: Job, Group, Document, Datapage, and Page. There is a set of plugins that allow to edit the Metadata during a Workflow process (see "Metadata tasks" on page 559), but you can also manipulate the Metadata in your process via scripts using the **Metadata API**.

In the Metadata API, each unit, on all levels in the hierarchy, is represented by an object called a "Node" on page 215.
A Node item is a collection of its lower level node type items. At the top of this tree sits a single Node object named "MetaJob" on page 200. The MetaJob is a collection of "MetaGroup" on page 203 objects, where each MetaGroup is a collection of one or more "MetaDocument" on

page 206 objects. In turn, MetaDocument objects hold "MetaDatapage" on page 210 objects, which have "MetaPage" on page 213 objects.

In addition, a Node contains a collection of "Attributes" on page 232 and can contain any number of "Fields" on page 233.

All of these objects are contained in a "MetaFile" below object, and they are obtained, directly or indirectly, through methods of this object.

> **Note**
>
> In an **OL Connect job**, only the first three levels in the Metadata hold information about the job: **Job**, **Group** and **Document**. A Group has information about a **record set** in the Connect database and a Document has information about one **record** in that set. This information appears in the Fields collection of the respective Node object. (When viewing the Metadata file, this information is visible under 'User defined information'.) The Data Model fields are added into the Document level.

> **Note**
>
> Be aware that changing the order and location of the various Node objects (except for the Page object) within the Metadata structure, and/or setting the "Selected" on page 219 property of a Node, may affect the output of a job (see "Including or excluding nodes from the output" on page 216 and "How Metadata affects the output" on page 79).

MetaFile

The **MetaFile** object represents the physical Metadata file and is used to load and save the Metadata from and to the file system. It also publishes the "MetaJob" on page 200 object, which is the root node of the Metadata structure.

The MetaFile object is the only object that is formally published to the user. All the other objects are obtained, directly or indirectly, through methods of this object.

A standalone, empty MetaFile object can be created using CreateObject ("MetadataLib.MetaFile") in any script program, even outside of Workflow, or the {145E89F9-C2DF-4604-821A-9BD6C4B468DA} CLSID with CoCreateInstance.

The current job's Metadata file name can be obtained using the Watch.GetMetadataFilename method (see "Watch.GetMetadataFilename" on page 166) when using the "Run Script" on page 481 task. Note that the exact syntax may vary according to the selected script language. When writing a plugin using the plugin SDK the current job's Metadata file name can be obtained by calling the IWatchJob::MetadataFilename method from within IWatchPlugin::Execute.

> **Warning**
>
> Under no circumstances should any other objects of this library be created directly. **Always use the published APIs to create new objects.**

> **Warning**
>
> The Metadata objects point to an underlying persistent data store. This means that if there are live references to Metadata objects and the underlying data is destroyed (e.g. a new file is loaded), the objects would point to invalid data. The effect of calling any object method in these circumstances is undefined and may result in memory corruption, crash or loss of data.

Methods

Name	Description
Job()	Returns the "MetaJob" on page 200 node, which sits at the top of the Metadata tree structure.
"LoadFromFile(const String Filename)" on the facing page	Loads a Metadata file from the file system.
"SaveToFile(const String Filename)" on the facing page	Saves a Metadata file to the file system.
"Export(const String Filename, TExportFormat Format)" on the facing page	Exports the Metadata in a non-native format.

LoadFromFile(const String Filename)

Loads a Metadata file from the file system. This function throws an error when the Metadata file is invalid or when it can't be found. Note that this error should be caught in a try-catch block.

Filename

Name of the file to load.

Exceptions

- EOleException: Invalid Metadata file or other error while loading.

SaveToFile(const String Filename)

Saves the current Metadata structure in a file.

Filename

Name of the file to save into. If the file already exists, the file is overwritten and its current contents is lost.

Export(const String Filename, TExportFormat Format)

Exports the Metadata in a non-native format.

Filename

Name of the file to save to. If the file already exists, the file is overwritten and its current content is lost.

Format

Format in which to save the file. The only value currently supported is efXml21 (value = 0), which is an XML format corresponding to the former Metadata native file format.

Exceptions

- EOleException: The specified export format is invalid.

MetaJob

Properties

Name	Type	Description
"Attributes" on page 232	MetaCollection	Returns the node's attribute collection. (See the "Metadata Attributes reference" on page 83.)
"Count" on page 217	Integer	Returns the number of child nodes.
"Fields" on page 233	MetaCollection	Returns the node's field collection.
"NodeType" on page 218	TNodeType	Returns the node type of the current Node. Note that the TNodeType type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical values to use.
"Selected" on page 219	Bool	Indicates whether or not the Node is set to be printed.
"SelectedCount" on page 219	Integer	Returns the number child nodes selected to be output. (See also: "Including or excluding nodes from the output" on page 216.)
"SelectedState" on page 219	Integer	Returns an integer indicating whether the node is selected or not, taking its parents into account. 0: The node is not selected. 1: The node is selected but one of its parents is not. 2: The node and all of its parents are selected.

Methods

Name	Return type	Description
"Add(Integer Index)" on page 220	Node	Adds a new child node to the current node.
"AttributeByIndex(Integer Index)" on page 221	String	Returns the specified attribute's value.
"AttributeByName(const String Name)" on page 221	String	Returns the value of the attribute of the specified name.
"Clear()" on page 221		Deletes all the child nodes as well as the attributes and fields.
"DatapageCount()" on page 222	Integer	Returns the total number of datapages present underneath this node.
"DocumentCount()" on page 223	Integer	Returns the total number of documents in all groups.
"FieldByIndex(Integer Index)" on page 223	String	Returns the specified field's value.
"FieldByName(const String Name)" on page 224	String	Returns the value of field of the specified name.
"FieldByNameIndex(const String Name, Integer Index)" on page 224	String	Returns the value of the N'th field of the specified name.
"Item(Integer Index)" on page 226	Node	Returns the child (node) item located at the specified index.
Group(Integer Index), see "Item(Integer Index)" on page 226	Node	Returns the MetaGroup at the specified index.

"PageCount()" on page 226	Integer	Returns the total number of pages present underneath this node.
"Paste()" on page 226	Node	Inserts the clipboard's content as the last child of the current node.
"PasteAt(Integer Index)" on page 227	Node	Inserts the clipboard's content as a child node at the specified index.
"Select(TSelectWhat SelectWhat)" on page 227		Selects the child nodes according to the SelectWhat parameter. The TSelectWhat type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical values to use.
"SelectedDatapageCount()" on page 228	Integer	Returns the number of datapages selected to be output that are underneath this node.
"SelectedDocumentCount()" on page 228	Integer	Returns the number of documents selected to be output that are underneath this node.
"SelectedPageCount()" on page 229	Integer	Returns the number of pages selected to be output that are underneath this node.
"Sort(const String Name, optional TSortFlags Flags, optional const String Name2, optional TSortFlags Flags2, optional const String Name3, optional TSortFlags Flags3)" on page 230		Sorts the sub-nodes according to a number of criteria.

MetaGroup

Properties

Name	Type	Description
"Attributes" on page 232	MetaCollection	Returns the node's attribute collection. (See the "Metadata Attributes reference" on page 83.)
"Count" on page 217	Integer	Returns the number of child nodes.
"Fields" on page 233	MetaCollection	Returns the node's field collection.
"Index" on page 218	Integer	Gets the index of the node in its parent.
"NodeType" on page 218	TNodeType	Returns the node type of the current Node. Note that the TNodeType type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical values to use.
"Parent" on page 219	Node	Returns the parent node of the current node.
"Selected" on page 219	Bool	Indicates whether or not the Node is set to be printed.
"SelectedCount" on page 219	Integer	Returns the number child nodes selected to be output. (See also: "Including or excluding nodes from the output" on page 216.)
"SelectedState" on page 219	Integer	Returns an integer indicating whether the node is selected or not, taking its parents into account. 0: The node is not selected.

		1: The node is selected but one of its parents is not. 2: The node and all of its parents are selected.

Methods

Name	Return type	Description
"Add(Integer Index)" on page 220	Node	Adds a new child node to the current node.
"AttributeByIndex(Integer Index)" on page 221	String	Returns the specified attribute's value.
"AttributeByName(const String Name)" on page 221	String	Returns the value of the attribute of the specified name.
"Clear()" on page 221		Deletes all the child nodes as well as the attributes and fields.
"Copy() " on page 222		Places a copy of the node in the metadata clipboard.
"Cut()" on page 222		Removes the node and places it in the metadata clipboard.
"DatapageCount()" on page 222	Integer	Returns the total number of datapages present underneath this node.
"Delete()" on page 222		Deletes the node.
"FieldByIndex(Integer Index)" on page 223	String	Returns the specified field's value.
"FieldByName(const String Name)" on	String	Returns the value of field of the

page 224		specified name.
"FieldByNameIndex(const String Name, Integer Index)" on page 224	String	Returns the value of the N'th field of the specified name.
"IndexInJob()" on page 225	Integer	Returns the index of this page in the job, taking all the pages from all the datapages from all the documents from all the groups into account.
"Item(Integer Index)" on page 226	Node	Returns the child (node) item located at the specified index.
Document(Integer Index), see "Item (Integer Index)" on page 226	Node	Returns the MetaDocument at the specified index.
"PageCount()" on page 226	Integer	Returns the total number of pages present underneath this node.
"Paste()" on page 226	Node	Inserts the clipboard's content as the last child of the current node.
"PasteAt(Integer Index)" on page 227	Node	Inserts the clipboard's content as a child node at the specified index.
"Select(TSelectWhat SelectWhat)" on page 227		Selects the child nodes according to the SelectWhat parameter. The TSelectWhat type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical values to use.

"SelectedDatapageCount()" on page 228	Integer	Returns the number of datapages selected to be output that are underneath this node.
"SelectedPageCount()" on page 229	Integer	Returns the number of pages selected to be output that are underneath this node.
"SelectedIndexInJob()" on page 229	Integer	Index of the page among all the selected pages in the Job.
"Sort(const String Name, optional TSortFlags Flags, optional const String Name2, optional TSortFlags Flags2, optional const String Name3, optional TSortFlags Flags3)" on page 230		Sorts the sub-nodes according to a number of criteria.

MetaDocument

Properties

Name	Type	Description
"Attributes" on page 232	MetaCollection	Returns the node's attribute collection. (See the "Metadata Attributes reference" on page 83.)
"Count" on page 217	Integer	Returns the number of child nodes.
"Fields" on page 233	MetaCollection	Returns the node's field collection.
"Index" on page 218	Integer	Gets the index of the node in its parent.
"NodeType" on page 218	TNodeType	Returns the node type of the current Node. Note that the TNodeType type is not defined in

		an Active Script environment, such as the Run Script task. See the detailed reference for the numerical values to use.
"Parent" on page 219	Node	Returns the parent node of the current node.
"Selected" on page 219	Bool	Indicates whether or not the Node is set to be printed.
"SelectedCount" on page 219	Integer	Returns the number child nodes selected to be output. (See also: "Including or excluding nodes from the output" on page 216.)
"SelectedState" on page 219	Integer	Returns an integer indicating whether the node is selected or not, taking its parents into account. 0: The node is not selected. 1: The node is selected but one of its parents is not. 2: The node and all of its parents are selected.

Methods

Name	Return type	Description
"Add(Integer Index)" on page 220	Node	Adds a new child node to the current node.
"AttributeByIndex(Integer Index)" on page 221	String	Returns the specified attribute's value.
"AttributeByName(const String Name)" on page 221	String	Returns the value of the attribute of the specified name.
"Clear()" on page 221		Deletes all the child nodes as

		well as the attributes and fields.
"Copy() " on page 222		Places a copy of the node in the metadata clipboard.
"Cut()" on page 222		Removes the node and places it in the metadata clipboard.
"Delete()" on page 222		Deletes the node.
"FieldByIndex(Integer Index)" on page 223	String	Returns the specified field's value.
"FieldByName(const String Name)" on page 224	String	Returns the value of field of the specified name.
"FieldByNameIndex(const String Name, Integer Index)" on page 224	String	Returns the value of the N'th field of the specified name.
"IndexInGroup()" on page 225	Integer	Returns the index of this page in its parent group, taking all the pages from all the datapages from all documents into account.
"IndexInJob()" on page 225	Integer	Returns the index of this page in the job, taking all the pages from all the datapages from all the documents from all the groups into account.
"Item(Integer Index)" on page 226	Node	Returns the child (node) item located at the specified index.
Datapage(Integer Index), see "Item(Integer Index)" on page 226	Node	Returns the MetaDatapage at the specified index.
"PageCount()" on page 226	Integer	Returns the total number of pages present underneath this

		node.
"Paste()" on page 226	Node	Inserts the clipboard's content as the last child of the current node.
"PasteAt(Integer Index)" on page 227	Node	Inserts the clipboard's content as a child node at the specified index.
"Select(TSelectWhat SelectWhat)" on page 227		Selects the child nodes according to the SelectWhat parameter. The TSelectWhat type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical values to use.
"SelectedPageCount()" on page 229	Integer	Returns the number of pages selected to be output that are underneath this node.
"SelectedIndexInGroup()" on page 229	Integer	Index of the page among all the selected pages in its parent Group.
"SelectedIndexInJob()" on page 229	Integer	Index of the page among all the selected pages in the Job.
"Sort(const String Name, optional TSortFlags Flags, optional const String Name2, optional TSortFlags Flags2, optional const String Name3, optional TSortFlags Flags3)" on page 230		Sorts the sub-nodes according to a number of criteria.

MetaDatapage

Properties

Name	Type	Description
"Attributes" on page 232	MetaCollection	Returns the node's attribute collection. (See the "Metadata Attributes reference" on page 83.)
"Count" on page 217	Integer	Returns the number of child nodes.
"Fields" on page 233	MetaCollection	Returns the node's field collection.
"Index" on page 218	Integer	Gets the index of the node in its parent.
"NodeType" on page 218	TNodeType	Returns the node type of the current Node. Note that the TNodeType type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical values to use.
"Parent" on page 219	Node	Returns the parent node of the current node.
"Selected" on page 219	Bool	Indicates whether or not the Node is set to be printed.
"SelectedCount" on page 219	Integer	Returns the number child nodes selected to be output. (See also: "Including or excluding nodes from the output" on page 216.)
"SelectedState" on page 219	Integer	Returns an integer indicating whether the node is selected or not, taking its parents into account. 0: The node is not selected.

		1: The node is selected but one of its parents is not. 2: The node and all of its parents are selected.

Methods

Name	Return type	Description
"Add(Integer Index)" on page 220	Node	Adds a new child node to the current node.
"AttributeByIndex(Integer Index)" on page 221	String	Returns the specified attribute's value.
"AttributeByName(const String Name)" on page 221	String	Returns the value of the attribute of the specified name.
"Clear()" on page 221		Deletes all the child nodes as well as the attributes and fields.
"Copy() " on page 222		Places a copy of the node in the metadata clipboard.
"Cut()" on page 222		Removes the node and places it in the metadata clipboard.
"Delete()" on page 222		Deletes the node.
"FieldByIndex(Integer Index)" on page 223	String	Returns the specified field's value.
"FieldByName(const String Name)" on page 224	String	Returns the value of field of the specified name.
"FieldByNameIndex(const String Name, Integer Index)" on page 224	String	Returns the value of the N'th field of the specified name.

"IndexInDocument()" on page 225	Integer	Returns the index of this page in its parent document, taking all the pages from all the datapages into account.
"IndexInGroup()" on page 225	Integer	Returns the index of this page in its parent group, taking all the pages from all the datapages from all documents into account.
"IndexInJob()" on page 225	Integer	Returns the index of this page in the job, taking all the pages from all the datapages from all the documents from all the groups into account.
"Item(Integer Index)" on page 226	Node	Returns the child (node) item located at the specified index.
Page(Integer Index), see , see "Item (Integer Index)" on page 226		Returns the MetaPage at the specified index.
"Paste()" on page 226	Node	Inserts the clipboard's content as the last child of the current node.
"PasteAt(Integer Index)" on page 227	Node	Inserts the clipboard's content as a child node at the specified index.
"Select(TSelectWhat SelectWhat)" on page 227		Selects the child nodes according to the SelectWhat parameter. The TSelectWhat type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical

		values to use.
"SelectedIndexInDocument()" on page 228	Integer	Index of the page among all the selected pages in its parent Document.
"SelectedIndexInGroup()" on page 229	Integer	Index of the page among all the selected pages in its parent Group.
"SelectedIndexInJob()" on page 229	Integer	Index of the page among all the selected pages in the Job.
"Sort(const String Name, optional TSortFlags Flags, optional const String Name2, optional TSortFlags Flags2, optional const String Name3, optional TSortFlags Flags3)" on page 230		Sorts the sub-nodes according to a number of criteria.

MetaPage

Properties

Name	Type	Description
"Attributes" on page 232	MetaCollection	Returns the node's attribute collection. (See the "Metadata Attributes reference" on page 83.)
"Fields" on page 233	MetaCollection	Returns the node's field collection.
"Index" on page 218	Integer	Gets the index of the node in its parent.
"NodeType" on page 218	TNodeType	Returns the node type of the current Node. Note that the TNodeType type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical

		values to use.
"Parent" on page 219	Node	Returns the parent node of the current node.

Methods

Name	Return type	Description
"AttributeByIndex(Integer Index)" on page 221	String	Returns the specified attribute's value.
"AttributeByName(const String Name)" on page 221	String	Returns the value of the attribute of the specified name.
"Copy() " on page 222		Places a copy of the node in the metadata clipboard.
"Cut()" on page 222		Removes the node and places it in the metadata clipboard.
"Delete()" on page 222		Deletes the node.
"FieldByIndex(Integer Index)" on page 223	String	Returns the specified field's value.
"FieldByName(const String Name)" on page 224	String	Returns the value of field of the specified name.
"FieldByNameIndex(const String Name, Integer Index)" on page 224	String	Returns the value of the N'th field of the specified name.
"IndexInDocument()" on page 225	Integer	Returns the index of this page in its parent document, taking all the pages from all the datapages into account.

"IndexInGroup()" on page 225	Integer	Returns the index of this page in its parent group, taking all the pages from all the datapages from all documents into account.
"IndexInJob()" on page 225	Integer	Returns the index of this page in the job, taking all the pages from all the datapages from all the documents from all the groups into account.
"Item(Integer Index)" on page 226	Node	Returns the child (node) item located at the specified index.
"SelectedIndexInDocument()" on page 228	Integer	Index of the page among all the selected pages in its parent Document.
"SelectedIndexInGroup()" on page 229	Integer	Index of the page among all the selected pages in its parent Group.
"SelectedIndexInJob()" on page 229	Integer	Index of the page among all the selected pages in the Job.

Node

Node objects are items in the Metadata's single-rooted tree-like structure. Each Node item is a collection of its lower level Node type. There are 5 types of Metadata Node objects:

- "MetaJob" on page 200
- "MetaGroup" on page 203
- "MetaDocument" on page 206
- "MetaDatapage" on page 210
- "MetaPage" on page 213

The MetaJob is a collection of MetaGroup objects, where each MetaGroup is a collection of one or more MetaDocument objects, and so on, except for the MetaPage which does not have child nodes.

Properties and methods

All Node objects share a number of **properties** and **methods** that are common to all Node object types. There are also properties and methods that are either unique to a specific Node object type, or shared between only a few of them.

Each Node object type provides methods to access its children (in other words, Nodes that are located underneath that Node item in the tree structure). The method's name varies to match the type of Node. For example, the child accessor method in a MetaDocument node is named `Datapage`.
There is also a generic accessor method named `Item` that is common across all Node object types. The Item method of the MetaGroup returns a MetaDocument, while the same method for a MetaDatapage returns a MetaPage.
Note: The "MetaPage" on page 213 object does not have a child accessor method as it does not contain any Node objects.

For the available properties and methods see the Node type's documentation: "MetaJob" on page 200, "MetaGroup" on page 203, "MetaDocument" on page 206, "MetaDatapage" on page 210, and "MetaPage" on page 213.

Including or excluding nodes from the output

The **Selected** property of any Node object is used to select whether the node - and all of its children, down to the smallest unit - are to be included in the final output or not.
If a node has its Selected property set to true, all of its children that also have their own Selected property set to true will print.
If Selected is false, its children will not print, regardless of their Selected status.

Methods like Count, Index or PageCount work on all nodes, *regardless* of their Selected attributes.
Methods whose names start with "Selected" however are meant to work with selected nodes. In other words, "Selected..." methods only consider nodes that are set to be part of the output.
SelectedCount only considers child nodes that have their Selected property set to true, but also checks if their parents also have their Selected property to true. It is therefore possible that a node is selected but is not counted.
The SelectedState property can be used to verify the effective selection state of a node, i.e. whether or not a node will be part of the output and, if not, whether it is because it is itself not selected or one of its parents is not.

Attributes and Fields

In addition to being a collections of objects, a Metadata Node also contains two types of elements, called "Attributes" on page 232 and "Fields" on page 233. These are name/value pairs, where the name is case-insensitive.

- An **Attribute** is a read-only, system-defined element which holds certain information about a certain node in the Metadata structure. This information can be static (e.g. the size of a physical page) or evaluated on-the-fly (e.g. the number of documents in a group). Attributes are non-repetitive (i.e. name is unique) and do not persist through Metadata recreation.
  For an overview of Attributes and in which Node objects they are available, see the "Metadata Attributes reference" on page 83.
- A **Field** is a read-write, user-defined element which holds custom information about a certain node in the Metadata structure. Fields are repetitive (i.e. the same field may appear multiple times) and persist through Metadata recreation.

They are each stored in a collection container object (a MetaAttributeCollection and a MetaFieldCollection, respectively).
As is the case with Nodes, both collections share a number of methods and properties. The Fields collection however has additional methods to support multiple entries with the same name, which is forbidden with attributes.

Node properties and methods reference

This topic gives detailed information about all properties and methods of the Node object. The availability of a property or method with an actual Node object, however, depends on the type of the Node: "MetaJob" on page 200, "MetaGroup" on page 203, "MetaDocument" on page 206, "MetaDatapage" on page 210, and "MetaPage" on page 213.

Properties

Attributes

Returns the attribute collection (MetaCollection) of the current node. See "Attributes" on page 232.

Count

Not available in MetaPage

Returns the number of child nodes in the current node.

Fields

Returns the field collection (MetaCollection) of the current node. See "Fields" on page 233.

Index

Not available in MetaJob

Gets the index of the node in its parent.

Returns:

The index (0-based) at which the current node is found in the parent's node list.

Exception:

- *EOleException*: Index is lower than 0 or higher than Count-1.

NodeType

Returns a value representing the type (TNodeType) of the current node.

Return value	Node type
0	Job
2	Group
3	Document
5	Datapage
6	Page

> **Note**
>
> In an Active Script environment, such as the Run Script task, the return value is a numerical value.
> However, in environments where the TNodeType type is defined, the node types are ntJob, ntGroup, ntDocument, ntDatapage, and ntPage.

Parent

Not available in MetaPage

Returns the parent node of the current node.

Selected

Not available in MetaPage

Indicates whether or not the node is set to be printed (see "Including or excluding nodes from the output" on page 216). If a node has its Selected property set to true, all of its child that also have their own Selected property set to true will print. If Selected is false, its child will not print, regardless of their Selected status.

(reading) Returns:

True if the node is selected, false otherwise.

(writing) Parameters:

Select True to mark as selected to be printed, false if it is not to be printed.

SelectedCount

Not available in MetaPage

Returns the number of child nodes in the current node that are set to be output, meaning that they have their Selected property set to true, taking the parents into account.

Returns:

The number (integer) of child nodes that will be included in the output. If the current node and all of its parents have their Selected property set to true, this amounts to the number of child nodes that are selected. If any parent is not selected, returns 0.

SelectedState

Indicates whether the node is selected or not, taking its parents into account.

Returns:

Returns an integer indicating the selected state of the node. If the node and all of its parents are selected, the method returns ssTrue (2). If the node is selected but one of its parents is not, the return value is ssDisabled (1). If the node is not selected, the return value is ssFalse (0).

Return value	State
0	False: The node is not selected.
1	Disabled: The node is selected but one of its parents is not.
2	True: The node and all of its parents are selected.

> **Note**
>
> In an Active Script environment, such as the Run Script task, the return value is a numerical value.
> However, in environments where the Selected State type is defined, the types are ssFalse (= 0), ssDisabled (= 1), and ssTrue (= 2).

Methods

Add(Integer Index)

Not available in MetaPage

Adds a new Node as a child of the current node.

Parameters:

Index

Specifies where in the child list to add the node. The node is inserted before the node at the specified index. In other words, the node being inserted becomes the node found at Index. To add a node at the start of the collection, use 0. To add it at the end, use Node.Count.

Returns:

Reference to the Node that was added.

Exception:

- *EOleException*: The value of Index is invalid.

AttributeByIndex(Integer Index)

Returns the value of the Metadata attribute at the specified index.

Parameters:

Index

0-based index of the attribute value to retrieve. The index of the first element is 0 and the index of the last is Count-1.

Returns:

The value of the attribute as a string.

Exception:

- *EOleException*: Index is lower than 0 or higher than Count-1.

AttributeByName(const String Name)

Returns the value of the metadata attribute of the specified name.

Parameters:

Name

Name of the attribute to retrieve.

Returns:

The value of the attribute as a string. If an attribute named Name is not found, an empty string is returned.

Clear()

Not available in MetaPage

Deletes all the child nodes of the current node, as well as all of its attributes and fields.

Copy()

Not available in MetaJob

Places a copy of the current node, along with all of its children, attributes and fields, in the metadata clipboard. Modifying the original node after the copy is made does not modify the copy in the clipboard.

Cut()

Not available in MetaJob

Places a copy of the current node, along with all of its children, attributes and fields, in the metadata clipboard and immediately removes the original from the Metadata structure.

> **Warning**
>
> The node being cut is removed immediately. Any reference to it or its child nodes becomes invalid. The results of calling methods of such references is undefined.

DatapageCount()

MetaJob and MetaGroup only

Returns the number of MetaDatapage nodes in all child nodes. This methods recursively goes through all child nodes to count the total number of MetaDatapage that are contained underneath the current node.

Returns:

Total number (integer) of MetaDatapage nodes found under the current node.

Delete()

Not available in MetaJob

Removes the current node, along with all of its children, attributes and fields, from the metadata structure.

> **Warning**
>
> The node being deleted is removed immediately. Any reference to it or its child nodes becomes invalid. The results of calling methods of such references is undefined.

DocumentCount()

MetaJob only

Returns the number of MetaDocument in all child nodes. This method recursively goes through all child nodes to count the total number of MetaDocument nodes that are contained underneath the current node.

Returns:

Total number (integer) of MetaDocument nodes found under the current node.

FieldByIndex(Integer Index)

Returns the value of the Metadata Field at the specified index. (See: "Fields" on page 233.)

Parameters:

Index

0-based index of the field value to retrieve. The index of the first element is 0 and the index of the last is Count-1.

Returns:

The value of the field as a string.

Exception:

- *EOleException*: Index is lower than 0 or higher than Count-1.

FieldByName(const String Name)

Returns the value of the Metadata Field of the specified name. (See: "Fields" on page 233.) If more than one field has the same name, this method returns the value of the first one it finds, starting at the first field in the list.

Parameters:

Name

Name of the field to retrieve.

Returns:

The value of the field as a string. If an field named Name is not found, an empty string is returned.

FieldByNameIndex(const String Name, Integer Index)

Returns the value of the n'th metadata field of the specified name. This method can be used to retrieve the value of a specific field when more than one field has the same name.

Parameters:

Name

Name of the field to retrieve.

Index

Ordinal of the field to retrieve. To retrieve the value of the first field named Name, use 0. For the second field, use 1, and so on.

Returns:

The value of the specified field as a string. If an field named Name is not found, or Index is higher or equal to the number of fields named Name (in other words, you specify 4 to get the fifth but there are only three), an empty string is returned.

Exception:

- *EOleException*: Index is lower than 0.

IndexInDocument()

MetaPage and MetaDatapage only

Returns the index of this page in its parent document, taking all the pages from all the datapages into account.

Returns:

Absolute index (integer, 0-based) of the page within all the pages under the parent document.

IndexInGroup()

MetaDocument, MetaDatapage and MetaPage only

Returns the index of this page in its parent group, taking all the pages from all the datapages from all documents into account.

Returns:

Absolute index (integer, 0-based) of the page within all the pages under the parent group.

IndexInJob()

Not available in MetaJob

Returns the index of this page in the job, taking all the pages from all the datapages from all the documents from all the groups into account.

Returns:

Absolute index (0-based) of the page within all the pages in the job.

Item(Integer Index)

Group (Integer Index) ***MetaJob only***

Document (Integer Index) ***MetaGroup only***

Datapage (Integer Index) ***MetaDocument only***

Page (Integer Index) ***MetaDatapage only***

Returns the child node located at the specified index.

Parameters:

Index

0-based index of the node to retrieve. The index of the first node is 0 and the index of the last is Count-1.

Returns:

Reference to the specified node.

Exception:

- *EOleException*: *Index* is lower than 0 or higher than Count-1.

PageCount()

MetaJob, MetaGroup and MetaDocument only

Returns the number of MetaPage in all child nodes. This methods recursively goes through all child nodes to count the total number of MetaPage that are contained underneath the current node.

Returns:

Total number of MetaPage found under the current node.

Paste()

Not available in MetaPage

Inserts the contents of the metadata clipboard as the last child node of the current node. This removes the node from the clipboard, making it empty after the paste operation.

Returns:

Reference to the top node being pasted.

Exception:

- *EOleException*: The node type of the clipboard and the current node don't match. For example, trying to paste a MetaGroup in a MetaGroup or a MetaPage in a MetaDocument.

PasteAt(Integer Index)

Not available in MetaPage

Inserts the contents of the metadata clipboard at the specified index in the current node. This removes the node from the clipboard, making it empty after the paste operation.

Parameters:

Index

Specifies where in the child list to add the node. The node is inserted before the node at the specified index. In other words, the node being inserted becomes the node found at Index. To add a node at the start of the collection, use 0. To add it at the end, use Node.Count.

Returns:

Reference to the top node being pasted.

Exceptions:

- *EOleException*: The node type of the clipboard and the current node don't match. For example, trying to paste a MetaGroup in a MetaGroup or a MetaPage in a MetaDocument.
- *EOleException*: The value of Index is invalid.

Select(TSelectWhat SelectWhat)

Not available in MetaPage

Changes the "selected" status of the current node as well as all of its child nodes according to the SelectWhat parameter.

Parameters:

SelectWhat

Indicates what to select. The value swNone changes the Selected property of the current node and all child nodes to false, while swAll changes it to true.

Script users: use 0 for swNone, 1 for swAll.

SelectedDatapageCount()

MetaJob and MetaGroup only

Returns the number of datapages under the current node that are set to be part of the output, i.e. that have their Selected property set to true, as well as all of their parents.

Returns:

The number of such nodes, if any. If the current node is not selected or one of its parents is not, it returns 0.

SelectedDocumentCount()

MetaJob only

Returns the number of documents under the current node that are set to be part of the output, i.e. that have their Selected property set to true, as well as all of their parents.

Returns:

The number of such nodes, if any. If the current node is not selected or one of its parents is not, it returns 0.

SelectedIndexInDocument()

MetaDatapage and MetaPage only

Returns the index of this page in its parent document, taking only the selected pages into account.

Returns:

Absolute index (0-based) of the page within all the selected pages under the parent document. If the page is not set to be output (i.e. its SelectedState is different than ssTrue), it returns -1.

SelectedIndexInGroup()

MetaDocument, MetaDatapage and MetaPage only

Returns the index of this page in its parent group, taking only the selected pages from all the datapages from all documents into account.

Returns:

Absolute index (0-based) of the page within all the selected pages under the parent group. If the page is not set to be output (i.e. its SelectedState is different than ssTrue), it returns -1.

SelectedIndexInJob()

Not available in MetaJob

Returns the index of this page in the job, taking only the selected pages from all the datapages from all the documents from all the groups into account.

Returns:

Absolute index (0-based) of the page within all the selected pages in the job. If the page is not set to be output (i.e. its SelectedState is different than ssTrue), it returns -1.

SelectedPageCount()

MetaJob, MetaGroup and MetaDocument only

Returns the number of pages under the current node that are set to be part of the output, i.e. that have their Selected property set to true, as well as all of their parents.

Returns:

The number of such nodes, if any. If the current node is not selected or one of its parents is not, it returns 0.

Sort(const String Name, *optional* TSortFlags Flags, *optional* const String Name2, *optional* TSortFlags Flags2, *optional* const String Name3, *optional* TSortFlags Flags3)

Not available in MetaJob

Sorts the sub-nodes contained in the node according to a number of sort criteria. Unselected sub-nodes will be placed at the end, after all the selected sub-nodes, in the order in which they were placed prior to the sort.

Each of the three sort criteria can be modified by specifying one or more flags.

Value	Meaning
1	The name refers to an Attribute rather than a field.
2	The sort is done in descending order (i.e. the highest to the lowest).
4	The field is an integer numeric value.

> **Note**
>
> In an Active Script environment, such as the Run Script task, you must work with the numerical values.
> In environments where the flags are defined, you may instead use sfAttribute (= 1), sfDescending (= 2), and sfNumeric (= 4).

All the parameters to this method except for the first one are optional. If a Name is specified, it must be valid for every sub-node. If, for example, the specified field is not found in a sub-node,

or a numeric sort is performed and one of the values is not numeric (i.e. consists of only decimal characters, no thousand or decimal separator allowed), the method will fail.

If a sub-node contains multiple occurrences of fields with the specified name, only the first occurrence will be considered.

String comparisons are done without regards to the case (case-insensitive) using the Windows Win32 API function CompareString(LOCALE_USER_DEFAULT, NORM_IGNORECASE, ...).

Parameters:

Name

Name of the field or attribute contained in each sub-node whose value will be used as the first sort criteria. If it is an attribute instead of a field, this needs to be specified in the Flags parameter.

Flags (optional)

Set of flags that modify how the sorting on Name is done.

Name2 (optional)

Name of the field or attribute contained in each sub-node whose value will be used as the second sort criteria. If it is an attribute instead of a field, this needs to be specified in the Flags2 parameter.

Flags2 (optional)

Set of flags that modify how the sorting on Name2 is done.

Name3 (optional)

Name of the field or attribute contained in each sub-node whose value will be used as the third sort criteria. If it is an attribute instead of a field, this needs to be specified in the Flags3 parameter.

Flags3 (optional)

Set of flags that modify how the sorting on Name3 is done.

Exceptions:

- *EOleException*: Specified field or attribute does not exist in one of the sub-nodes.
- *EOleException*: A numeric sort is specified and one of the fields or attributes does not contain a valid numeric integer value.
- *EOleException*: An error occurred while comparing two strings.

Attributes

An **Attribute** is a **read-only**, **system-defined** element: a name/value pair, where the name is case-insensitive. It holds certain information about a certain "Node" on page 215 in the Metadata structure. This information can be static (e.g. the size of a physical page) or evaluated on-the-fly (e.g. the number of documents in a group).
Attributes are non-repetitive (i.e. name is unique) and do not persist through Metadata recreation.

For an overview of Attributes and the Node types in which they are available, see the "Metadata Attributes reference" on page 83.

Attributes are stored in a collection container object, just like the Node's "Fields" on the facing page. As is the case with the different types of Nodes, both collections share a number of methods and properties. The Fields collection however has additional methods to support multiple entries with the same name, which is forbidden with attributes.

> **Warning**
>
> Attributes are intended for system-defined data. Please restrict user-defined data to Fields, and do not modify the Attributes.

Properties

Name	Type	Description
Count	Integer	Returns the number of elements in the collection.

Methods

Name	Return type	Description
"Add(const String Name, const String Value)" on page 235		Adds a new element to the collection or overwrites its value.
Clear()		Clears all elements from the collection.
"CountByName(const String Name)" on page 237	Integer	Returns the number of elements with the specified name.
"Delete(Integer Index)" on page 237		Deletes the element at the specified index.
"Item(Integer Index)" on page 237	String	Returns the value of the element stored at the specified index.
"ItemByName(const String Name)" on page 238	String	Returns the value of the element of the specified name.
"Name(Integer Index)" on page 239	String	Returns the name of the element stored at the specified index.

Fields

A **Field** is a **read-write**, **user-defined** element: a name/value pair, where the name is case-insensitive. It holds custom information about a certain "Node" on page 215 in the Metadata structure. Fields are repetitive (i.e. the same field may appear multiple times) and persist through Metadata recreation.

Fields are stored in a collection container object, just like "Attributes" on the previous page. As is the case with the different types of Nodes, both collections share a number of methods and properties. The Fields collection however has additional methods to support multiple entries with the same name, which is forbidden with attributes.

Properties

Name	Type	Description
Count	Integer	Returns the number of elements in the collection.

Methods

Name	Return type	Description
"Add(const String Name, const String Value)" on the facing page		Adds a new element to the collection or overwrites its value.
"Add2(const String Name, const String Value, TAddFlags Flags, Integer Index (optional))" on the facing page		Adds a new element with a customizable behavior if the name already exists. Note that the TAddFlags type is not defined in an Active Script environment, such as the Run Script task. See the detailed reference for the numerical values to use.
Clear()		Deletes all the elements of the collection.
"CountByName(const String Name)" on page 237	Integer	Returns the number of elements with the specified name.
"Delete(Integer Index)" on page 237		Deletes the element at the specified index.
"Item(Integer Index)" on page 237	String	Returns the value of the element stored at the specified index.
"ItemByName(const String Name)" on page 238	String	Returns the value of the element of the specified name.
"ItemByNameIndex(const String Name, Integer Index)" on	String	Returns the value of the *n*'th element of the specified name.

page 238		
"Name(Integer Index)" on page 239	String	Returns the name of the element stored at the specified index.

Attributes and Fields methods

This topic lists the methods of the "Attributes" on page 232 and "Fields" on page 233 collection container objects.

Note that the `Add2()` and the `ItemByNameIndex()` functions are only available with Fields. Fields support multiple entries with the same name, which is forbidden with Attributes.

Add(const String Name, const String Value)

Adds a new element to the collection. If the specified name already exists in the collection, the new value overwrites the previous one.

Parameters

Name

Name of the element to add. The name must adhere to this syntax rules: start with a letter, followed by zero or more letters, numbers, underscore or dash. The name is not case-sensitive.

Value

Value of the element. There is no restriction on the content, although binary is discouraged.

Exceptions

- EOleException The name is empty or invalid.

Add2(const String Name, const String Value, TAddFlags Flags, Integer Index (optional))

Fields only

Adds a new field to the collection. The behavior of the method when the specified name already exists in the collection is determined by the Flags argument.

Parameters

Name

Name of the field to add. The name must adhere to this syntax rules: start with a letter, followed by zero or more letters, numbers, underscore or dash. The name is not case-sensitive.

Value

Value of the element. There is no restriction on the content, although binary is discouraged.

Flags

Additional flags for the method. This determines how the method behaves when the specified name already exists.

afReplace	0	Overwrites the previous value with the new
afAppend	1	Appends the new value at the end of the previous one
afDuplicate	2	Creates a new field with the same name
afFail	3	Raise an error

> **Note**
>
> In an Active Script environment, such as the Run Script task, you must use the **numerical** value, since the TAddFlags type is not defined in an Active Script environment.

Index (optional)

Instance of the field to modify. This must be a numeric value equal to 0 or greater and can only be used with the afReplace flag.

Exceptions

- EOleException The name is empty or invalid.
- EOleException The flags value is invalid.
- EOleException The name already exists and the afFail flag was specified.

- EOleException The index is invalid.
- EOleException An index is specified but afReplace is not specified.

CountByName(const String Name)

Returns the number of attributes or fields (integer) with the specified name.

Parameters

Name

Name of the element to count.

Returns

Number of occurrences of elements with the specified name.
Note that when counting an **attribute** by name, the only possible values are 1 and 0 because attributes can only occur once.

Delete(Integer Index)

Delete a specified element from the collection.

Parameters

Index

0-based index of the element to delete. The first element in the collection is at index 0 and the last is at Count-1.

Exceptions

- EOleException Index is lower than 0 or higher than Count-1.

Item(Integer Index)

Returns the value of the element at the specified index in the collection.

Parameters

Index

0-based index of the element to delete. The first element in the collection is at index 0 and the last is at Count-1.

Returns

The value of the specified element as a string.

Exceptions

- EOleException Index is lower than 0 or higher than Count-1.

ItemByName(const String Name)

Returns the value of the element of the specified name.

Parameters

Name

Name of the element to retrieve.

Returns

The value of the element as a string. If no element is found, an empty string is returned.
Fields only: If more than one field has the specified name, the value of the first one in the list is returned.

ItemByNameIndex(const String Name, Integer Index)

Fields only

Returns the value of the *n*'th field of the specified name. This method can be used to retrieve the value of a specific field when more than one field has the same name.

Parameters

Name

Name of the field to retrieve.

Index

Ordinal of the field to retrieve. To retrieve the value of the first field named Name, use 0. For the second field, use 1, and so on.

Returns

The value of the specified field as a string. If an field named Name is not found, or Index is higher or equal to the number of fields named Name (in other words, you specify 4 to get the fifth but there are only three), an empty string is returned.

Exceptions

- EOleException Index is lower than 0.

Name(Integer Index)

Returns the name of the element at the specified index.

Parameters

Index

0-based Index of the element value to retrieve. The first element in the collection is at index 0, and the last is at Count-1.

Returns

The name of the element as a string.

Exceptions

- EOleException Index is lower than 0 or higher than Count-1.

StringSort

StringSort is a convenience class that provides a generic sorting class for ActiveScript-compatible languages. It is a non-trivial task to sort data in scripting, especially in VBScript where there is no equivalent for the JScript sort function. It is designed as a list of strings. Each string in the list is a key based on which the sort is done. Each key can have an optional integer value that can be used, for example, to retrieve a record in an array.

To create a StringSort object, use CreateObject("MetadataLib.StringSort") or the {A07730B7-4100-457E-91E2-31BFF24E1EC4} CLSID. Although the object is published by the metadata library, it is completely independent of the metadata and can be used in any script, including those run outside of PlanetPress Suite.

Methods

Name	Returns	Description
"Add(const String Key, Integer Value)" on the facing page	Integer	Adds a new item in the sort list.
Clear()		Empties the sort list, removing all the strings.
"Count()" on the facing page	Integer	Returns the number of elements in the list.
"Delete(Integer Index)" on the facing page		Removes an item from the sort list.
"Find(const String Key)" on the facing page	Integer	Finds an item in the list and returns its index.
"Key(Integer Index)" on page 242	String	Returns the key at the specified index.
"Sort()" on page 242		Sorts the list.
"SortByValue()" on page 242		Sorts the list based on the value instead of the key.
"Value(Integer Index)" on page 242	Integer	Returns the value at the specified index.

Add(const String Key, Integer Value)

Adds a new string key in the list, with an optional associated integer Value.

Key

String on which the sort will be performed.

Value (optional)

Integer associated with the string. This value is not used and will not be changed by the sort class. If the string goes to another position in the list after the sort, this value will move as well to the new index of the string.

Return value: 0-based index (integer) of the newly added string. It is therefore always equal to Count-1.

Count()

Returns the number of strings in the list.

Return value: Integer. Number of strings in the list. If the list does not contain any string, the return value is 0.

Delete(Integer Index)

Removes a single string from the list.

Index

0-based index of the string to remove.

Exceptions

- EOleException Index is lower than 0 or higher than Count-1.

Find(const String Key)

Finds a string and returns its position in the list.

Key

String to find.

Return value: 0-based index (integer) of the string. If the string is not found, the method returns -1.

Key(Integer Index)

Returns the key at the specified index.

Index

0-based index (integer) of the string to retrieve.

Return value: String. Value of the key at the specified index.

Exceptions

- EOleException Index is lower than 0 or higher than Count-1.

Sort()

Sorts the items in the list according to their key. The sort performed is a simple alphabetical string sort: 30 comes after 200. The strings are expected to be formatted correctly to return the desired order (ex: "030", "200" will be sorted with 30 first and then 200).

SortByValue()

Sorts the items in the list according to their value instead of the key.

Value(Integer Index)

Retrieves the value of the optional integer at the specified index.

Index

0-based index (integer) of the value to retrieve.

Return value: The integer value at the specified index.

Exceptions

- EOleException: Index is lower than 0 or higher than Count-1.

AlambicEdit API reference

The AlambicEdit library allows Workflow to access, create or modify PDF files. It does so by wrapping Adobe PDF Library API calls in an object-oriented COM API. The use of COM as the underlying technology allows Workflow's scripting environment to create an instance of that COM object through the `Watch.GetPDFEditObject` method (see "The Watch Object" on page 156).

The object's hierarchy is modeled on the PDF document structure:

- The `PDF` object implements the IPDF interface. This interface defines methods to open, close and save files, as well as to access meta information such as the XMP attachment. The interface also implements a Pages collection object to access the list of pages in the PDF. (See "PDF object" on page 245.)
- The `Pages` collection object implements the IPages interface. This interface defines methods to add, import, move or delete pages as well to access individual Page items. (See "Pages collection object" on page 257.)
- The `Page` object implements the IPage interface. This interface defines methods to retrieve information from a page or modify it. A page may also be drawn on a Windows Device Context (DC), but note that access to DCs may not be available in all scripting languages. (See "Page object" on page 262.)

"IPdfInfos" on page 273, "IPdfPrintParams" on page 274 and "IPdfRect" on page 275 are the structures used.

> **Note**
>
> In OL Connect, PDF files are normally best handled by "OL Connect tasks" on page 590. However, the AlambicEdit API can provide a solution in special situations; see for example Stamping one PDF file on another PDF file.

Syntax conventions

The syntax for methods, properties and structures is as follows.

Methods

Syntax

RETURN_VALUE_TYPE methodName([ARGUMENT_TYPE arg1[, ARGUMENT_TYPE arg2[,...]]])

Methods with a RETURN_VALUE_TYPE of VOID do not have a return value.

In case of failure, methods raise an exception.

Examples

VOID Open(STRING fileName, BOOLEAN doRepair)

STRING GetXYML()

JavaScript implementation:

```
myPDF.Open("C:\\PDFs\\SomeDocument.pdf", false);
var myXYML = myPDF.GetXYML();
```

Note: In JavaScript, all method calls must include parentheses, even for methods that do not require arguments (e.g. Watch.GetPDFEditObject(), myPDF.Pages()).

VBScript implementation:

```
myPDF.Open "C:\\PDFs\\SomeDocument.pdf", false
myXYML = myPDF.GetXYML
```

Properties

Syntax

PROPERTY_TYPE propName

Examples

INTEGER Orientation

JavaScript implementation:

```
var currentOrientation = myPDF.Pages(0).Orientation;
myPDF.Pages(0).Orientation = 180;
```

VBScript implementation:

```
currentOrientation = myPDF.Pages(0).Orientation
myPDF.Pages(0).Orientation = 180;
```

Structures

Syntax

STRUCT_NAME {
FIELD_TYPE fieldName1[,
FIELD_TYPE fieldName2[,
...]]
}

Examples

lPDFRect {
LONG left,
LONG top,
LONG right,
LONG bottom
}

JavaScript implementation:

```
var pdfRect = myPDF.Pages(0).Size();
var pageWidth = pdfRect.right - pdfRect.left;
```

VBScript implementation:

```
set pdfRect = myPDF.Pages(0).Size
pageWidth = pdfRect.right - pdfRect.left
```

PDF object

The PDF object implements the **IPDF** interface. This interface defines methods to open, close and save files, as well as to access meta information such as the XMP attachment. The interface also implements a Pages collection object to access the list of pages in the PDF.

To instantiate the PDF object, call the Watch.GetPDFEditObject method in Workflow's scripting environment.

Javascript implementation: var myPDF = Watch.GetPDFEditObject();

VBScript implementation: set myPDF = Watch.GetPDFEditObject

IPDF methods

Name	Return type	Description
"Close()" on page 248		Closes the PDF file. If changes were made but not saved, they are silently lost. All IPage objects must be released before closing a PDF.
"Create(filename)" on page 249		Creates a new empty PDF file.
"GetInfos()" on page 249	"IPdfInfos" on page 273	Retrieves the contents of the Document Information Dictionary from the PDF.
"GetVersion(*major, *minor)" on page 250		Returns the version of the underlying PDF file format. For example, for PDF 1.7, 1 is returned in major and 7 is returned in minor. Note that this method is not available in scripts.
"GetXMP()" on page 250	STRING	Retrieves the XMP attachment embedded in the PDF.
"GetXYML()" on page 250	STRING	Retrieves the entire extractable text from the PDF in XYML format.
"IsProtected(filename)" on page 251	BOOL	Returns True if the PDF file is password-protected. When a file is password-protected, the OpenEx() method must be used instead of the Open() method.
"MergeWith(pdfFilename)" on page 251		Merges the pages of pdfFilename (the source) with the pages of the current PDF (the destination).

"MergeWith2(pdfFilename, xnum, ynum, xoffset, yoffset, scaleFactor)" on page 251		Overlays each page of pdfFilename (the source) onto pages of the current PDF (the destination) in a grid whose size is specified by xnum and ynum. The pages are laid from left to right and then from top to bottom.
"Open(filename, doRepair)" on page 252		Opens an existing PDF, optionally repairing it.
"OpenEx(filename, password, doRepair)" on page 253		Opens an existing, password-protected PDF, optionally repairing it.
"Pages()" on page 253	IPages (see "Pages collection object" on page 257)	Provides access to the Pages collection of the PDF.
"Print(printername)" on page 254		Prints a range of PDF pages to the specified Windows printer with default options.
"PrintEx(printername, *PdfPrintParams)" on page 254		Prints a range of PDF pages to the specified Windows printer with specific printer options stored in an "IPdfPrintParams" on page 274 structure.
"Save()" on page 255		Saves changes to the PDF file. The version of the PDF file format is the highest possible for a newly created file and is unchanged when saving an existing file, unless the SetVersion method was called in which case the file format used will be the one set by SetVersion.
"SetInfos(Infos)" on page 255		Sets the contents for the PDF's Document Information Dictionary.

"setTolerances (tolerableDeltaWidth, tolerableDeltaHeight, tolerableDeltaFontHeight, tolerableGap)" on page 256		Sets the floating point values for the tolerable factors.
"SetVersion (major, minor)" on page 256		Sets the version of the underlying PDF file format. This is applied when the file is saved.
"SetXMP(xmpPacket)" on page 257		Sets the XMP attachment by replacing the existing one with xmpPacket.

IPDF methods reference

Close()

Closes the PDF file. If changes were made but not saved, they are silently lost. All IPage objects must be released before closing a PDF.

Syntax

VOID Close ()

Note: Before using Close() in Javascript, you should call the CollectGarbage() global method to ensure all references to pages are properly discarded. This additional statement is not required with other languages. For instance:

```
var objPDF = Watch.GetPDFEditObject();
objPDF.Open(Watch.GetJobFileName(), false);
var objPages = objPDF.Pages();
var objPage = null;
for(var i=0; i<objPages.Count(); i++) {
        objPage = objPages.Item(i);
}
objPage=null;
objPages=null;
CollectGarbage();
objPDF.Close();
```

If you run the above code without calling the CollectGarbage() method, the Close() method will error out.

Create(filename)

Creates a new empty PDF file. See also: "Save()" on page 255.

Syntax

VOID Create (STRING filename)

filename

Name of the file to create. The file is not physically written to disk until IPDF.Save() is called.

ConvertToVDX(pdfFilename, ppmlFilename)

Converts a PDF file to a VDX file by adding the necessary entries in the catalog and root dictionaries as well as embedding a PPML file as a stream object in the PDF. The validity of the PPML is left to the caller.

This method opens, modifies, saves and closes the specified PDF file. This means that, contrary to the other methods of the IPDF interface, this method works on - and only on - the PDF file specified by the first argument; IPDF.Open() or .Create() do not need to be called beforehand. If they were called, the file opened or created by these methods is untouched (unless of course pdfFilename specifies the same filename as Open()).

Syntax

VOID ConvertToVDX (STRING pdfFilename, STRING ppmlFilename)

pdfFilename

Name of the file to convert.

ppmlFilename

Name of the PPML file to embed.

GetInfos()

Retrieves the contents of the Document Information Dictionary from the PDF.

Syntax

IPdfInfos GetInfos ()

Return value

An "IPdfInfos" on page 273 structure containing the PDF properties. Cannot be NULL.

GetVersion(*major, *minor)

Returns the version of the underlying PDF file format.

Note: This method is not available in all scripting environments.

Syntax

*GetVersion(LONG *major, LONG *minor)*

major

Pointer to a LONG that receives the major version number.

minor

Pointer to a LONG that receives the minor version number.

GetXMP()

Retrieves the XMP attachment embedded in the PDF.

Syntax

STRING GetXMP ()

Return value

String containing the complete text of the PDF's XMP attachment.

GetXYML()

Retrieves the entire extractable text from the PDF in XYML format.

Syntax

STRING GetXYML ()

Return value

A string containing the complete text of the PDF in XYML format.

IsProtected(filename)

Returns True if the PDF file is password-protected. When a file is password-protected, the OpenEx() method must be used instead of the Open() method. See also: "OpenEx(filename, password, doRepair)" on page 253.

Syntax

BOOL IsProtected (STRING filename)

filename

Name of the file to check for password-protection.

Return value

True if the file is password-protected, False otherwise.

MergeWith(pdfFilename)

Merges the pages of pdfFilename (the source) onto the pages of the current PDF (the destination). Each page of the source is overlaid transparently onto the corresponding destination page, 1 on 1, 2 on 2, 3 on 3, etc. The source must have the same number of pages than the destination and each pair of pages should have the same size. The resulting file is not optimized.

This method is the same as calling: PDF.MergeWith2(pdfFilename, 1, 1, 0, 0, 1.0); (see "MergeWith2(pdfFilename, xnum, ynum, xoffset, yoffset, scaleFactor)" below).

Syntax

VOID MergeWith (STRING pdfFilename)

pdfFilename

Name of the source PDF from which pages are taken to be overlaid on the pages of the destination PDF.

MergeWith2(pdfFilename, xnum, ynum, xoffset, yoffset, scaleFactor)

Merges the pages of pdfFilename (the source) onto the pages of the current PDF (the destination). Each page of the source is overlaid transparently onto a destination page in a grid whose size is specified by xnum and ynum. The pages are laid from left to right and then from top to bottom. The resulting file is not optimized.

In PlanetPress Suite, this method is useful for n-Up imposition. For example, (xnum=1, ynum=1, scaleFactor=1.0) means that each source is overlaid on the corresponding destination page, 1 on 1, 2 on 2, 3 on 3, etc. Having (xnum=3, ynum=2) with xoffset, yoffset and scaleFactor set accordingly results in a 3x2 mosaic looking like this:

1	2	3
4	5	6

There is no separator between the source pages on the destination page. A space can be obtained by using an offset bigger than the size of the scaled source page.

Syntax

VOID MergeWith2 (STRING pdfFilename, LONG xnum, LONG ynum, LONG xoffset, LONG yoffset, FLOAT scaleFactor)

pdfFilename

Name of the source PDF from which pages are taken.

xnum

Number of columns.

ynum

Number of rows.

xoffset

Horizontal space to put between the top left corner of each source page, in points.

yoffset

Vertical space to put between the top left corner of each source page, in points.

scaleFactor

Scale at which to draw on source pages on the destination. Use 1.0 to draw the page at its nominal size.

Open(filename, doRepair)

Opens an existing PDF, optionally repairing it.

Syntax

VOID Open (STRING filename, BOOL doRepair)

filename

Name of the file to open.

doRepair

Boolean. If true, the software automatically attempts to repair the file if it is found to be damaged or corrupt. Otherwise, the operation fails if the file is damaged.

OpenEx(filename, password, doRepair)

Opens an existing, password-protected PDF, optionally repairing it. See also: "IsProtected (filename)" on page 251.

Syntax

VOID OpenEx (STRING filename, STRING password, BOOL doRepair)

filename

Name of the file to open.

password

Password to open the file.

doRepair

Boolean. If true, the software automatically attempts to repair the file if it is found to be damaged or corrupt. Otherwise, the operation fails if the file is damaged.

Pages()

Provides access to the Pages collection of the PDF.

Syntax

IPages Pages ()

Return value

An IPages collection object. Each page in the zero-based collection can be accessed through the IPages.Item() method. Note that since Item() is the collection's default method, it can be omitted altogether (e.g. IPages(0) is the same as IPages.Item(0)).

Print(printername)

Prints a range of PDF pages to the specified Windows printer with default options. See also: "PrintEx(printername, *PdfPrintParams)" below.

Syntax

VOID Print (
STRING printerName,
LONG fromPage,
LONG toPage
)

printerName (optional)

Name of the printer to print to. The default options of the printer will be used. If NULL, the default printer is used.

fromPage

0-based index of the first page to print.

toPage

0-based index of the last page to print. To print all pages from fromPage to the end, use -1.

PrintEx(printername, *PdfPrintParams)

Prints a range of PDF pages to the specified Windows printer with specific printer options stored in an "IPdfPrintParams" on page 274 structure. See also: "Print(printername)" above.

Syntax

VOID PrintEx (
STRING printerName,
*IPdfPrintParams * PdfPrintParams*
)

printerName (optional)

Name of the printer to print to. The default options of the printer will be used. PdfPrintParams , if non-NULL, may override some of them. If NULL, the default printer is used.

PdfPrintParams (optional)

Pointer to an "IPdfPrintParams" on page 274 structure that specifies various print options. If NULL , default values are used.

Save()

Saves changes to the PDF file. The version of the PDF file format is the highest possible for a newly created file and is unchanged when saving an existing file, unless the SetVersion method was called in which case the file format used will be the one set by SetVersion. See also: "SetVersion (major, minor)" on the next page.

Syntax

VOID Save (BOOL optimize)

optimize

If true, the file is optimized before being written to disk, i.e. objects are garbage-collected and/or regenerated, the PDF is linearized, etc.

SetInfos(Infos)

Sets the contents for the PDF's Document Information Dictionary.

Syntax

VOID SetInfos (IPdfInfos Infos)

Infos

"IPdfInfos" on page 273 structure containing the new values.

setPageCacheSize(cacheSize)

Sets the maximum number of IPage objects in the cache. Calling this method flushes the cache.

Syntax

VOID setPageCacheSize (UNSIGNED LONG cacheSize)

cacheSize

Maximum number of IPage pointers that the cache can hold, between 1 and 1000.

setTolerances(tolerableDeltaWidth, tolerableDeltaHeight, tolerableDeltaFontHeight, tolerableGap)

Sets the floating point values for the tolerable factors.

Syntax

VOID setTolerances (
FLOAT tolerableDeltaWidth,
FLOAT tolerableDeltaHeight,
FLOAT tolerableDeltaFontHeight,
FLOAT tolerableGap
)

tolerableDeltaWidth

Tolerable delta width factor value.

tolerableDeltaHeight

Tolerable delta height factor value.

tolerableDeltaFontHeight

Tolerable delta font height factor value.

tolerableGap

Tolerable delta gap between words factor value.

SetVersion (major, minor)

Sets the version of the underlying PDF file format. This is applied when the file is saved. See also: "Save()" on the previous page.

Syntax

VOID SetVersion (LONG major, LONG minor)

major

Major version number.

minor

Minor version number.

SetXMP(xmpPacket)

Sets the XMP attachment by replacing the existing one with xmpPacket.

Syntax

VOID SetXMP (STRING xmpPacket)

xmpPacket

New XMP attachment to use instead of the existing one.

Pages collection object

The Pages collection object implements the **IPages** interface. This interface defines methods to add, import, move or delete pages as well to access individual Page items.

It is accessed via the "PDF object" on page 245.

IPages methods

Name	Return type	Description
"Count()" on the next page	LONG	Returns the number of items in the Pages collection, in other words the number of pages in the PDF.
"Delete()" on the next page		Deletes a page from the PDF.
"ExtractTo (destFilename, srcIndex, srcCount, optimize)" on page 259		Extracts pages from the PDF and creates a new file with these pages.
"Insert(index, *mediaSize)" on page 259		Inserts a new blank page in the PDF file.
"InsertFrom (srcFilename,		Inserts pages from another PDF file into this one. All relevant resources are copied with the pages.

srcIndex, srcCount, destIndex)" on page 260		
"InsertFrom2 (srcPages, srcIndex, srcCount, destIndex)" on page 260		Inserts pages from another IPages object into this one. All relevant resources are copied with the pages.
"Item(index)" on page 261	IPage (see "Page object" on page 262)	Returns a Page object from the PDF. Note that since`Item()` is the collection's default method, it can be omitted altogether (e.g. `IPages(0)` is the same as `IPages.Item(0)`).
"Move(index, count, offset)" on page 261		Moves a range of pages within the same PDF.

IPages methods reference

Count()

Returns the number of items in the Pages collection, in other words the number of pages in the PDF.

Syntax

LONG Count ( )

Return value

The number of pages in the PDF.

Delete()

Deletes a page from the PDF.

Syntax

VOID Delete (LONG index)

index

0-based index of the page to delete.

ExtractTo(destFilename, srcIndex, srcCount, optimize)

Extracts pages from the PDF and creates a new file with these pages. All relevant resources are copied with the pages. If the target file already exists, it is overwritten.

Syntax

```
VOID ExtractTo (
 STRING destFilename,
 LONG srcIndex,
 LONG srcCount,
 BOOL optimize
)
```

destFilename

Name of the PDF to create with the specified pages.

srcIndex

0-based index of the first page to copy.

srcCount

Number of contiguous pages starting from srcIndex to extract.

optimize

If true, optimize (linearize and garbage-collect) the output file.

Insert(index, *mediaSize)

Inserts a new blank page in the PDF file. See also: "Count()" on the previous page.

Syntax

```
VOID Insert (
 LONG index,
 IPdfRect * mediaSize
)
```

index

*0-based index at which to insert the page. The page is inserted *before* the page at index "index ". To insert a page at the end, use IPages.Count().*

mediaSize

"IPdfRect" on page 275 structure containing the rectangular dimensions of the new page, in points. Cannot be NULL.

InsertFrom(srcFilename, srcIndex, srcCount, destIndex)

Inserts pages from another PDF file into this one. All relevant resources are copied with the pages. See also: "Count()" on page 258.

Syntax

VOID InsertFrom (
STRING srcFilename,
LONG srcIndex,
LONG srcCount,
LONG destIndex
)

srcFilename

Name of the PDF from which pages are retrieved.

srcIndex

0-based index of the first page to copy.

srcCount

Number of contiguous pages starting from srcIndex to insert. If srcCount is -1, all pages from srcIndex up to the end are inserted.

destIndex

0-based index of the position where to insert the pages. They will be inserted before the page at index destIndex. To insert the pages at the end, use IPages.Count().

InsertFrom2(srcPages, srcIndex, srcCount, destIndex)

Inserts pages from another IPages object into this one. All relevant resources are copied with the pages. See also: "Count()" on page 258.

Syntax

VOID InsertFrom2 (
IPages srcPages,
LONG srcIndex,
LONG srcCount,
LONG destIndex
)

srcPages

IPages collection from which the pages are retrieved.

srcIndex

0-based index of the first page to copy.

srcCount

Number of contiguous pages starting from srcIndex to insert. If srcCount is -1, all pages from srcIndex up to the end are inserted.

destIndex

0-based index of the position where to insert the pages. They will be inserted before the page at index destIndex. To insert the pages at the end, use IPages.Count().

Item(index)

Returns a Page object from the PDF. Note that since Item() is the collection's default method, it can be omitted altogether (e.g. IPages(0) is the same as IPages.Item(0)).

Syntax

IPage Item (LONG index)

index

0-based index of the page to acquire.

Return value

An IPage object for the specified page. (See "Page object" on the next page.)

Move(index, count, offset)

Moves a range of pages within the same PDF.

Syntax

VOID Move (
LONG index,
LONG count,
LONG offset
)

index

0-based index of the first page of the range.

count

Number of contiguous pages to move.

offset

Number of hops to move the pages. If negative, the pages are moved towards the beginning of the file. If positive, towards the end.

Page object

The Page object implements the **IPage** interface. This interface defines methods to retrieve information from a page or modify it. A page may also be drawn on a Windows Device Context (DC), but note that access to DCs may not be available in all scripting languages.

IPage properties

Name	Type	Description
Orientation	Integer	Gets/sets the orientation of the page, in degrees. The value is always a multiple of 90 and is the number of degrees the page should be rotated clockwise when displayed or printed.

IPage methods

Name	Return type	Description
"ExtractText(left, bottom, right, top)" on page 265	String	**Deprecated.** Returns the text located inside the region bounded by the left, bottom, right and top parameters. If multiple lines are found, they are

		separated by a CR-LF pair.
"ExtractText2(left, top, right, bottom)" on page 267	String	Returns the text located inside the region bounded by the left, top, right and bottom parameters. If multiple lines are found, they are separated by a CR-LF pair.
"MediaSize()" on page 268	"IPdfRect" on page 275	Returns the size of the actual media, i.e. the sheet of paper.
"setIncludeBorders (pbIncludeBorders)" on page 268		Sets whether or not borders are included for IPage.ExtractText2(). If true, a character is considered to be inside the region using the 30% rule (i.e. at least 30% of the character must be enclosed in the region). Otherwise, the character must be entirely enclosed in the region to be returned.
"setTolerances (tolerableDeltaWidth, tolerableDeltaHeight, tolerableDeltaFontHeight, tolerableGap)" on page 268		Sets the floating point values for the tolerable factors.
"Merge(imageFile, left, top, rotateAngle, scaleFactor)" on page 269		Inserts an image file and places it on the page at a specific location. Supported image types are: JPG and PNG.
"Merge2(srcPage, left, top, rotateAngle, scaleFactor)" on page 270		Transparently places a PDF page on top of the current page at a specific location.
"MergeToLayer(imageFile, left, top, rotateAngle, scaleFactor, layerName)" on page 271		This method behaves the same as Merge() but allows to insert the image as a layer (aka an Optional Content Group). Supported image types are JPG and PNG.
"MergeToLayer2(srcPage,		This method behaves the same as Merge2

left, top, rotateAngle, scaleFactor, layerName)" on page 272		() but allows to put the source page as a layer (aka an Optional Content Group).
"Size()" on page 273	"IPdfRect" on page 275	Returns the size of the rectangle that is used to clip (crop) the content of the page before applying it to the medium, in points.

IPage methods reference

Draw(context, scale, offsetX, offsetY)

Draws the page onto the device context. This method is highly dependent on the state of the device context and there are a few interaction pitfalls to lookout for. See below for details.

Note: This method is not available in all scripting environments.

Syntax

VOID Draw (
HDC context,
FLOAT scale,
LONG offsetX,
LONG offsetY
)

context

Device context on which to draw the page.

scale

Scale at which to draw. To draw at the 100% size, use a scale of device_dpi / 72. Do not use the DC to do the scaling; this will result in scaling artifacts being drawn.

offsetX

*Horizontal offset from the left edge of the DC surface, in *device* units, at which to start the drawing.*

offsetY

*Vertical offset from the top edge of the DC surface, in *device* units, at which to start the drawing.*

The drawing is done in PDF user space units (72th of an inch). In order to have a smooth drawing of the page, the device context must have its mapping mode set to MM_TEXT with a 1:1 mapping between logical space (SetWindowExtEx) and device space (SetViewportExtEx). Since MM_TEXT has its origin at the top instead of the bottom, the drawing is done vertically mirrored; this means that the other mapping modes may not work because they are based at the bottom. A 100% zoom is obtained by setting the scale to the ratio of the device dpi divided by 72.

The Acrobat library automatically clips the drawing based on the viewable portion of the DC. If the DC is translated or scaled, either by a world transform (SetWorldTransform) or a logical-to-device space transform (SetWindowOrgEx or SetViewportOrgEx), the *untransformed* space is used. As a result, all scaling and translation operation must be done by the library itself to work correctly. Otherwise, unwanted scaling artifacts or clipping will occur.

As such, the drawing code of the caller should look similar to this to obtain the same result as what Acrobat does:

1. Fill the entire drawing area with gray.
2. Determine the origin (orgx, orgy) (for example, at (0, 0), or as indicated by scroll bars).
3. Draw a white rectangle of size (CropBox.width * zoom, CropBox.height * zoom) at (orgx, orgy) representing the page (optional; Acrobat does not do that, and this method already draws the white page background).
4. Call the IPage.Draw() method to draw the page at (orgx, orgy).

Note that extra care must be taken when filling rectangles as to whether the boundary pixel will be *inside* or *outside* the region.

<u>ExtractText(left, bottom, right, top)</u>

Returns the text located inside the region bounded by the left, bottom, right and top parameters. If multiple lines are found, they are separated by a CR-LF pair.

> **Warning**
>
> This method is subject to many limitations (see below) and exists for backward-compatibility and debugging purposes only. For production purposes, use ExtractText2() instead.

Syntax

```
VOID ExtractText (
 FLOAT left,
 FLOAT bottom,
 FLOAT right,
 FLOAT top
)
```

left

Distance in inches of the left limit of the region from the left edge of the /CropBox.

bottom

Distance in inches of the bottom limit of the region from the bottom edge of the /CropBox.

right

Distance in inches of the right limit of the region from the left edge of the /CropBox.

top

Distance in inches of the top limit of the region from the bottom edge of the /CropBox.

Return value

A string containing the text extracted from the specified region.

Limitations

- No Unicode support.
- A word is extracted only if it fits entirely in the region.
- Empty lines are not supported.
- A maximum of 4096 chars is returned.
- A word can contain a maximum of 128 chars.

- Horizontal moveto is not considered as a space.
- /CropBox size is not taken into account (an object whose left is at 144 is considered to be 2 inches from the edge even if the /CropBox starts at 72).
- Only horizontal text is supported; vertical or rotated text is undefined.
- Rotated pages are unsupported.
- /UserUnit is not supported.

ExtractText2(left, top, right, bottom)

Returns the text located inside the region bounded by the left, top, right and bottom parameters. If multiple lines are found, they are separated by a CR-LF pair.

Syntax

```
VOID ExtractText2 (
 FLOAT left,
 FLOAT top,
 FLOAT right,
 FLOAT bottom
)
```

left

Distance in inches of the left limit of the region from the left edge of the /CropBox. Must be between 0 and 5000.

top

Distance in inches of the top limit of the region from the top edge of the /CropBox. Must be between 0 and 5000.

right

Distance in inches of the right limit of the region from the left edge of the /CropBox. Must be between 0 and 5000.

bottom

Distance in inches of the bottom limit of the region from the top edge of the /CropBox. Must be between 0 and 5000.

Return value

A string containing the text extracted from the specified region.

MediaSize()

Returns the size of the physical medium on which the page is intended to be placed, in points. This corresponds to the /MediaBox entry of the /Page object in the PDF. See also: "Size()" on page 273.

Syntax

IPdfRect MediaSize ( )

Return value

An "IPdfRect" on page 275 structure containing the dimensions, in points, of the media size. Cannot be NULL.

setIncludeBorders(pbIncludeBorders)

Sets whether or not borders are included for IPage.ExtractText2(). If true, a character is considered to be inside the region using the 30% rule (i.e. at least 30% of the character must be enclosed in the region). Otherwise, the character must be entirely enclosed in the region to be returned. See also: "ExtractText2(left, top, right, bottom)" on the previous page.

Syntax

VOID setIncludeBorders (LONG pbIncludeBorders)

pbIncludeBorders

If zero, the char must be completely inside the region. Otherwise, the 30% rule applies.

setTolerances(tolerableDeltaWidth, tolerableDeltaHeight, tolerableDeltaFontHeight, tolerableGap)

Sets the floating point values for the tolerable factors.

Syntax

```
VOID setTolerances (
 FLOAT tolerableDeltaWidth,
 FLOAT tolerableDeltaHeight,
 FLOAT tolerableDeltaFontHeight,
 FLOAT tolerableGap
)
```

tolerableDeltaWidth

Tolerable delta width factor value.

tolerableDeltaHeight

Tolerable delta height factor value.

tolerableDeltaFontHeight

Tolerable delta font height factor value.

tolerableGap

Tolerable gap between words factor value.

Merge(imageFile, left, top, rotateAngle, scaleFactor)

Inserts an image file and places it on the page at a specific location.
Supported image types are: JPG and PNG. It calls MergeToLayer internally.

Syntax

```
VOID Merge (
 STRING imageFile,
 FLOAT left,
 FLOAT top,
 FLOAT rotateAngle,
 FLOAT scaleFactor
)
```

imageFile

Full name of the image to insert on the current page.

left

Coordinate at which to place the left edge of the image from the left edge of the page, in points.

top

Coordinate at which to place the top edge of the image from the top of the page, in points.

rotateAngle

Angle at which to rotate counter-clockwise the inserted image, in degrees. The rotation is done after the image is placed at (left, top) and centered around that point.

scaleFactor

Scale at which to display the image. For bitmaps, this is based on a 72 dpi resolution. Use 1.0 for the nominal size.

Merge2(srcPage, left, top, rotateAngle, scaleFactor)

Transparently places a PDF page on top of the current page at a specific location. The source page can be either from the same PDF or another opened file. If the source is from the same PDF file, the source page is not modified. This allows to have the same behavior as IPDF.MergeWith() by first inserting the pages from an external file, merging them and then deleting them, but with more flexibility.

Syntax

```
VOID Merge2 (
 IPage srcPage,
 FLOAT left,
 FLOAT top,
 FLOAT rotateAngle,
 FLOAT scaleFactor
)
```

srcPage

IPage object to overlay on the current page.

left

Coordinate at which to place the left edge of the image from the left edge of the page, in points.

top

Coordinate at which to place the top edge of the image from the top of the page, in points.

rotateAngle

Angle at which to rotate counter-clockwise the inserted image, in degrees. The rotation is done after the image is placed at (left, top) and centered around that point.

scaleFactor

Scale at which to display the image. For bitmaps, this is based on a 72 dpi resolution. Use 1.0 for the nominal size.

MergeToLayer(imageFile, left, top, rotateAngle, scaleFactor, layerName)

This method behaves the same as Merge() but allows to insert the image as a layer (aka an Optional Content Group).

Supported image types are JPG and PNG. If the input file is a PNG with an alpha channel, the PNG is alpha blended with the page underneath. Monochrome PNG files are drawn transparently, with the white used as the transparent color.

Syntax

```
VOID MergeToLayer (
 STRING imageFile,
 FLOAT left,
 FLOAT top,
 FLOAT rotateAngle,
 FLOAT scaleFactor,
 STRING layerName
)
```

imageFile

Full name of the image to insert on the current page.

left

Coordinate at which to place the left edge of the image from the left edge of the page, in points.

top

Coordinate at which to place the top edge of the image from the top of the page, in points.

rotateAngle

Angle at which to rotate counter-clockwise the inserted image, in degrees. The rotation is done after the image is placed at (left, top) and centered around that point.

scaleFactor

Scale at which to display the image. For bitmaps, this is based on a 72 dpi resolution. Use 1.0 for the nominal size.

layerName

Name of an Optional Content Group in which to put the layer containing the image. The string cannot be empty but can be NULL if no layer is required.

MergeToLayer2(srcPage, left, top, rotateAngle, scaleFactor, layerName)

This method behaves the same as Merge2() but allows to put the source page as a layer (aka an Optional Content Group).

Syntax

```
VOID MergeToLayer2 (
 IPage srcPage,
 FLOAT left,
 FLOAT top,
 FLOAT rotateAngle,
 FLOAT scaleFactor,
BSTRlayerName
)
```

srcPage

IPage object to overlay on the current page.

left

Coordinate at which to place the left edge of the image from the left edge of the page, in points.

top

Coordinate at which to place the top edge of the image from the top of the page, in points.

otateAngle

Angle at which to rotate counter-clockwise the inserted image, in degrees. The rotation is done after the image is placed at (left, top) and centered around that point.

scaleFactor

Scale at which to display the image. For bitmaps, this is based on a 72 dpi resolution. Use 1.0 for the nominal size.

layerName

Name of an Optional Content Group in which to put the layer created from the source page. The string cannot be empty but can be NULL if no layer is required.

layerName

Name of an Optional Content Group in which to put the layer created from the source page. The string cannot be empty but can be NULL if no layer is required.

Size()

Returns the size of the rectangle that is used to clip (crop) the content of the page before applying it to the medium, in points. This corresponds to the /CropBox entry of the /Page PDF object. It can be seen as the bounding box of the page since by definition, anything outside of it should be left out of the drawing, although there may be empty areas within it.
See also: "MediaSize()" on page 268.

Syntax

IPdfRect Size ( )

Return value

An "IPdfRect" on page 275 structure containing the dimensions, in points, of the page size. Cannot be NULL.

IPdfInfos

The IPdfInfos structure contains the same basic information that can be found in Acrobat Reader's™ File Properties . To instantiate the IPdfInfos structure, create the AlambicEdit.PdfInfos object in Workflow's scripting environment.

Javascript implementation:
var pdfInfos = new ActiveXObject("AlambicEdit.PdfInfos");

VBScript implementation:
set pdfInfos = CreateObject("AlambicEdit.PdfInfos")

Structure

```
iPdfInfos {
        STRING Title
                The document's title.
        STRING Author
                The name of the person who created the document.
        STRING Subject
                The subject of the document.
        STRING Keywords
                Keywords associated with the document. Multiple keywords
separated with semi-colons.
        STRING Creator
                If the document was converted to PDF from another format,
name of the application that created the original document from
which it was converted.
        STRING Producer
                If the document was converted to PDF from another format,
name of the application that converted it to PDF.
        STRING CreationDate
                The date and time the document was created, in human-read
form.
)
```

IPdfPrintParams

The IPdfPrintParams structure contains information used to control the printing of the file. To instantiate the IPdfPrintParams structure, create the AlambicEdit.PdfPrintParams object in Workflow's scripting environment.

Javascript implementation:
var pdfPrintParams= new ActiveXObject("AlambicEdit.PdfPrintParams");

VBScript implementation:
set pdfPrintParams = CreateObject("AlambicEdit.PdfPrintParams")

Structure

```
IPdfPrintParams {
        STRING  docName
                Name of the document; this is the name displayed in the W
spooler window.
        STRING  pageRange
                Pages to print and/or page ranges separated by commas; e.
"0,3,5-12". Page numbers are 0-based. Leave empty to print all
pages.
        LONG    copies
                Number of copies to print.
        BOOL    shrinkToFit
                If true, the page will be resized (shrunk or expanded) an
rotated to fit to the physical media on which it is being printed.
        BOOL    printAnnotations
                If true, annotations will be printed.
)
```

IPdfRect

The IPdfRect structure defines a rectangular region within a PDF page. To instantiate the IPdfRect structure, create the AlambicEdit.PdfRect object in Workflow's scripting environment.

Javascript implementation:
var pdfRect = new ActiveXObject("AlambicEdit.PdfRect");

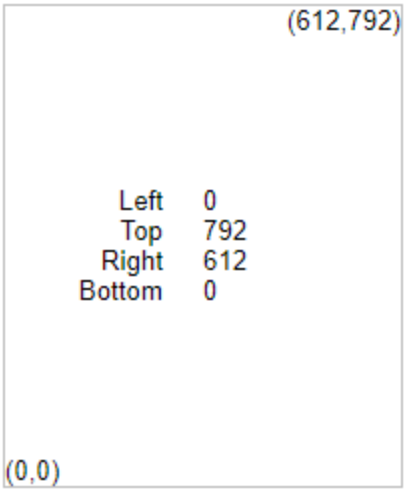
VBScript implementation:
set pdfRect = CreateObject("AlambicEdit.PdfRect")

Structure

```
IPdfRect {
        LONG    left
                Left edge of the rectangle.
        LONG    top
                Top edge of the rectangle.
        LONG    right
                Right edge of the rectangle.
        LONG    bottom
                Bottom edge of the rectangle.
)
```

All values are expressed in points (72 points per inch).

NOTE: the PDF's coordinate system has its origin on the bottom left corner of the page, extending up and to the right. Therefore, a Letter-sized page has the following rectangular values:



Stopping execution

When using a script, you may come to a point where you'd like the task to fail (raise an error) and trigger your **On Error** tab under certain conditions (see "Using the On Error tab" on page 99). This can be done by using the scripting language's built-in error features, described here.

Note that the value or description of the error will not be available to your error process if one is used. However, when available, a description of the error message will be logged in the Watch log.

VBScript

In VBSCript, the `Err.Raise` method will halt the execution of the script and trigger the **On Error** tab unless you previously specified `On Error Resume Next`. See MSDN for the Raise method properties and this page for a list of available errors to raise. In the case of VBScript, the error number used will determine the message shown in the log. You can also override the standard error message by providing your own:

```
Dim s
s = Watch.GetJobInfo(9)
```

```
If (s = "") Then
       Err.Raise 449 ' Raises Error #449: "Argument is not optional"   '
Err.Raise 1999,"My Plugin","Custom error" ' Raises error #1999:
"Custom error"
Else
       ' Do something with Job Info 9!
       Watch.Log "Job Info 9's value is: " + s, 4
End If
```

JavaScript

JavaScript uses the `throw` statement to create an exception which, if not nested inside a `catch ()` construct, will cause the script execution to stop and the **On Error** tab to be triggered.

```
var s;
s = Watch.GetJobInfo(9);
if (!s) {
   throw  449;
} else {
   // Do something with Job Info 9!
   Watch.Log("Job Info 9's value is: " + s,4);
}
```

See also: throw on developer.mozilla.org.

Python

In Python, the `raise` statement is similar to JavaScript and will stop processing and trigger the **On Error** tab unless an `except` statement is used. See the python documentation.

```
s = Watch.GetJobInfo(9)
if not s:
        raise NameError('Value cannot be empty')
else:
        # Do something with Job Info 9!
        Watch.Log("Job Info 9's value is: " + s,5)
```

Perl

In PERL, `die` stops execution of the script unless the `unless` command is used, but in order to raise an exception and trigger the **On Error** tab, you must nest the `die` command inside an `eval` statement. See the perl documentation.

```
$s = $Watch->GetJobInfo(9);
if ($s eq "") {
   eval {die "Value cannot be empty!"};
} else {
   # Do something with Job Info 9!
   $Watch->Log("Job Info 9's value is: ${s}",4);
}
```

Special workflow types

PlanetPress Workflow supports multiple input and output types, in so many different combinations that it would be hard to give example processes for each possibility. However, some types of processes like PDF and HTTP processes, and processes related to another product, are important enough to pay some attention to them.

This chapter will describe each of these special workflow types and give at least one example of an implementation that uses them.

> **Note**
>
> Typical **OL Connect workflows** are described in PlanetPress Connect's Online Help; see Workflow processes in OL Connect projects.

HTTP Server workflow

An HTTP workflow receives requests from a client via a GET or POST request, sometimes only with information, sometimes with attached files. An HTTP workflow is basically an XML workflow since that is the type of file created by the **HTTP Server Input** task. See the "HTTP Server workflow" on the facing page page for more details.

OL Connect Send processes

Connect Send allows for PostScript files to be received over the internet from any Windows Desktop application. It is in fact an application with two components. The first is a Windows printer driver while the other is a group of Workflow plugins (Job Processor, Get Job Data and Get Data). These two components work together indiscriminately, each needing the other to function.

OL Connect Send (see "OL Connect Send" on page 745) needs one Workflow process to handle the job transfer, and in licensed mode it needs at least one other process to interact with the user. Reports about the use of OL Connect Send might be produced in yet another Workflow process. For examples of these processes see "Workflow processes in a Connect Send solution" on page 298.

PDF workflow

A PDF workflow uses a PDF as its job file and manipulations are generally made in the Metadata instead of the PDF itself, since PDF files are much larger than most other data files compatible with PlanetPress Workflow. The Metadata Tools are extensively used in the example presented, which is a weekly sales report sent to all the sales associates of a particular company branch. See the "PDF Workflow" on page 287 for more details.

PlanetPress Capture workflow (PlanetPress Suite only)

A Capture workflow is divided in two steps: Creating an output of documents containing the PlanetPress Capture Fields, and retrieving the information from the Anoto Digital Pen to merge it with the original documents. See "PlanetPress Capture Workflow" on page 289 for more details.

SOAP workflow

As SOAP can be either a client or a server, two workflows will be presented. The SOAP Client workflow presents PlanetPress Workflow as the client and will explore how to retrieve WSDL information and how to make a SOAP request as a client. The SOAP Server workflow will show how to create a process that responds to SOAP requests, and where our own WSDL is located.

HTTP Server workflow

An HTTP Server workflow is one that has one or more processes that always start with the **HTTP Server Input** task and returns something to a client using a web browser. Each process would have a specific task referred to as an "action", called from the browser itself.

HTTP Server Input tasks are typically used in one of the two following situations:

- **HTML Form Action**: An HTML Form in the browser that may contain text and attached files can be filled and sent to a process with the **HTTP Server Input** task.

- **HTTP Data Submission**: A custom application or a server sends the request to PlanetPress Workflow using either a POST or GET command. The application or server then waits for a response from PlanetPress Workflow.

PlanetPress Workflow can serve both static and dynamic resources to a web browser, however it is not meant to be used as a fully featured web server, as it is not built for responsiveness nor guaranteed uptime. It is much better to have a common web server (for example, IIS or Apache) to serve your contents and to have PlanetPress Workflow available only to process things only it can do. For more information on how to serve HTML and PDF generated by Connect through IIS, watch the Connect with Evie - IIS series.

> **Tip**
>
> Essentially the **"NodeJS Server Input" on page 352** task does the same as the HTTP Server Input task, but it uses a NodeJS Server (installed by Workflow) instead of Workflow's custom server component. The NodeJS Server Input task is more secure, more up to date and more standardized.
> It is configured using its three settings dialogs in the Preferences (**Workflow button > Preferences**).

> **Note**
>
> You can control access to the PlanetPress Workflow Tools HTTP Server via the Access Manager.

Important configuration, setup and options

Before starting to work with HTTP workflows, there are a few key points to keep in mind in terms of configuration.

First of all, the following options are available in the PlanetPress Workflow Preference screen, under the HTTP Server Input 1 and HTTP Server Input 2 sections:

- **Port (default value: 8080 recommended)**: The port number is the one in which a browser needs to make a request to PlanetPress Workflow. By default in most web servers, port 80 is used and, when this is the case, it is not necessary to include it. For

example, if I type http://www.objectiflune.com/ in my browser, it is actually accessing the address http://www.objectiflune.com:80/ , but port 80 is always hidden. The reason port 8080 is used by default is to prevent any interference with existing web servers installed or activated on the same server as PlanetPress Workflow.

- **Time-out (seconds)**: This determines how long the HTTP Server service will wait for the process to finish, before returning a time out error back to the client browser. This means that if a process takes more than 120 seconds (by default) to complete, the browser will time out. While you can change this value, it is recommended to always keep your processing to a minimum, since both browsers and users generally frown upon being stopped for more than a minute, unless they are well aware of this processing time (and even then...)
- **Enable server for SSL requests**: This enables secure communication between the browser and the server via HTTPS. By enabling this option, you will need to provide for the proper certificates, key and password. While this configuration is beyond the scope of this topic, there are plenty of resources on the Internet to explain these systems.
- **Serve HTTP resources**: This is where you enable static resources in PlanetPress Workflow. When enabling this option, the HTTP server will always look in the **Resource Folder** for files requested inside of the **Resource action name as a folder**. This means that, if your Resource folder is `c:\PlanetPress\http` and your **Resource action name** is `static`, pointing your browser to `http://127.0.0.1:8080/static/css/style.css` will immediately load and return the file `c:\PlanetPress\http\css\style.css` . This does not require any process to work - everything is handled directly by the **HTTP Server Input** and files are returned immediately. This feature is very useful when dealing with stylesheets, images, browser JavaScript, or static HTML files that do not require any processing.

Note

It is possible to serve a default HTML file when no action is specified, for example `http://localhost:8080/` . This is done by creating an `index.html` file in the **Resource Folder** defined above. However, resources called by this `index.html` must still use the **Resource action name**, for example a stylesheet would still point to `http://127.0.0.1:8080/static/css/style.css` or more simply `static/css/style.css`.

You also need to take into consideration the options inside each of your processes that start with the **HTTP Server Input** task, as they will greatly impact how this process responds. In the process's properties, the following options will modify HTTP behavior:

- **Self-Replicating Process**: This option is critically important when dealing with HTTP processes. Basically, this means that when HTTP requests are received, the process will duplicate itself up to the specified maximum number, in order to simultaneously (and asynchronously) handle multiple requests. See "Process properties" on page 854 for more details.
- **As soon as possible**: This option needs to be checked, otherwise requests will not be handled as they come in (this option is meant to be used on scheduled processes that run at intervals).
- **Polling Interval (sec)**: This option determines how much time the HTTP Server Input waits between the moment it finishes processing a request and the moment it picks up a new request. This should be put at 0 in order to process requests as soon as possible, meaning immediately.

And finally, the **HTTP Server Input** task properties. While these are described in the "HTTP Server Input" on page 330 task properties page, here are a few considerations to keep in mind when using this task:

- The **HTTP Action** corresponds precisely to the name immediately following the first slash of your address. That is to say, placing the action `myaction` here means the process would be triggered by opening `http://127.0.0.1:8080/myaction` in your browser.
- The HTTP service accepts both *POST* and *GET* requests. Other than the presence of file attachments, there is little difference in how these are handled. This means that visiting `/myaction?id=12345&q=test` would be the same as having a form with two *<input>* fields named, respectively, *id* and *q*, and submitting them with the information "12345" and "test". In both cases, this information is located in the XML envelope that is the original input file of a process that starts with a Server Input task.
- When doing *POST* requests and uploading files, always make sure to include the "multipart" option in the *<form>* tag:
  <form action="http://127.0.0.1:8080/myaction" method="POST" **enctype="multipart/form-data"**>
  Otherwise, file attachments will not be received, only their file names.
- The Mime Type option is better left at Auto-Detect unless the process requires it to be forced to a specific type. This means that if a process can either return a PDF when

successful or an HTML page with an error message, it will not attempt to send an HTML with a PDF mime type (which, obviously, would cause confusion).

- There is no **HTTP Server Output** task (see below on how to end your process)

Request/process/response cycle

Once a process using the **HTTP Server Input** task is created, it is important to understand the cycle that is triggered when such a process runs. Note that this is the process when the default **HTTP Server Input** task options are used (more on how that behavior changes later):

1. A request is received by the HTTP service.
2. This request is converted into an XML request file along with one or more attachments when present.
3. The XML request file and attachments are saved in a local folder, if the HTTP Action is a valid one (otherwise, the files are deleted).
4. The HTTP service keeps the request from the client open (it does not yet respond to it), and waits.
5. The HTTP process corresponding to the HTTP Action captures the XML file and attachments and the process begins.
6. The process runs its course just like any other process would (including subprocesses, send to process, etc).
7. The *very last job file* that is active when the process finishes is then returned to the HTTP service.
8. The HTTP service returns the file to the client and then closes the connection.
9. If, during this time, the timeout has expired (if the process takes more than 120 seconds), the HTTP service returns a "timeout" to the client, but the process stills finishes on its own. When the process finishes, the return file is ignored by the HTTP service.

Point 7 is critical to understand, as it has an impact on what the client receives. If a process receives a file that is split into multiple parts and each of these parts generates and output, the last split's output will be sent to the client. If the last output task generates a PostScript file for printing, this PostScript is returned to the client.

In most cases, what is returned is what remains after the last task, but only if this task's processing is done in PlanetPress Workflow. For example, if the data file is a text file and this file is sent to PlanetPress Image using the Image connector, it is a text file that is returned, not

the output of the Imaging. Similarly, ending a process with the **Delete** task does not return an empty file, it returns the actual data file.

Actually the most used way of returning a response is this: generate an HTML file using either "Create File" on page 312 or "Load External File" on page 421, then use the "Delete" on page 644 task as a last output. The HTML is thus returned to the client.

Example HTTP Workflows

- "HTTP PDF Invoice Request" below (GET)
- "HTTP brochure request" on page 286 (Customer Information+ POST)
- "Capture Web Manager Workflow" on page 296 (Capture + HTTP)

HTTP PDF Invoice Request

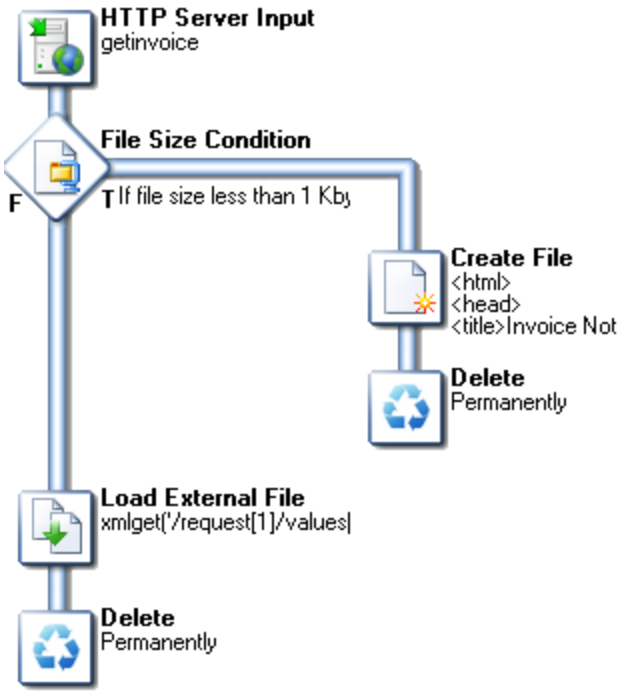
This straightforward workflow simply receives a GET request from a browser, loads an existing PDF invoice from a folder on the hard drive, and returns it to the browser. To do this, a client (or a web service) would request the following page:

http://ppworkflowserver:8080/getinvoice?in=INV999999

Breakdown of this URL:

- **http://** : transfer protocol. This could be HTTPS if the SSL certificates are activated in the preferences.
- **ppworkflowserver** : name of the machine. This could also be an IP (192.168.1.123) or a full domain name (www.myserver.com), depending on the connectivity between the client and PlanetPress Workflow Server.
- **:8080** : The default PlanetPress Workflow HTTP Port, set in the preferences.
- **/getinvoice** : The HTTP Action Name, as set in the **HTTP Server Input** task.
- **?in=INV999999** : A GET Variable, specifying that the variable named *invoicenum* (invoice number) would have a value of INV999999 , or any other "valid" invoice number.

Process illustration



Task breakdown

- The **HTTP Server Input** task receives a request through the /getinvoice HTTP Action. Because this task either returns an HTML page with an error message or a PDF, the **MIME type** is *Auto-Detect*.
- It checks whether the invoice request exists by checking if the size of the file is *less* than 1kb using "File Size Condition" on page 478. The condition returns "true" if the file is not found:
  c:\PlanetPress\archives\pdf\invoices**xmlget('/request[1]/values[1]/invoicenum [1]',Value,KeepCase,NoTrim)**.pdf
  Here, the **xmlget()** function grabs the *invoicenum* variable from the GET request, which would be INV999999.pdf in the specified folder.
- If the file is not found, then a simple, basic HTML page is created indicating the invoice was not found. For this, a "Create File" on page 312 task will suffice, followed by the "Delete" on page 644 output task. As mentioned in "HTTP Server workflow" on page 279, deleting the data file only means you are not doing anything with it locally - it is still returned to the client.

> **Tip**
>
> Instead of creating a web page from scratch, you could create a web page from a Connect Web template; use the "Create Web Content" on page 614 task.

- If, however, the file *is* found, then it is loaded with the "Load External File" on page 421 task, and then deleted (for the same reasons).

HTTP brochure request

This workflow builds on the knowledge acquired in "HTTP PDF Invoice Request" on page 284 and uses a single process, but in this case it also uses a PlanetPress Design document (see "PlanetPress Design documents" on page 44) which merges the data received from a browser form with the document to generate a PDF brochure, which is sent via email.

Resources

- HTTPBrochureRequest.zip (PlanetPress Workflow Configuration)
- InformationBrochure.zip (PlanetPress Design Document)

Installation

- Download both files and unzip them.
- Open **InformationBrochure.pp7** and send it to PlanetPress Workflow.
- Open **HTTPBrochureRequest.pw7** and send the configuration to your local PlanetPress Workflow service.
- Open your browser to `http://localhost:8080/generatebrochure`

Task breakdown

- The **HTTP Server Input** receives the initial request from the browser.
- Because this is a demonstration, a backup is made of the XML request. It's not suggested to do this every time, especially on servers receiving a large number of requests, as these files do take some amount of space for each request.

- A condition checks whether the form has been submitted, by verifying that one of the required fields is empty. If it is, it means this is the initial request, so the condition becomes true.
    - If this is the initial request, an HTML page is created which contains a form asking the client for a required full name and email, and optional company name. A checkmark also offers to subscribe to a newsletter (it is unchecked by default!). The form submits back to the same URL, meaning it is handled by the same process.
    - The file is renamed with the .html extension, so that both the HTTP service and the browser will recognize it as an HTML page. And then, as usual, it is deleted (but still returned to the browser).
- When the condition is false, it means that there is something in the Full Name field. In this case, we know that the form was filled and submitted back to the process, and we handle the request as such.
- First, we add the full name, email and company information to job informations, in order for them to be available for the rest of the process.
- Then, we have a small condition that verifies if the user checked the "Newsletter" box. If so, the conditional branch is triggered. Note that this condition is put inside its own branch because otherwise, the rest of the process would not run when the newsletter is selected. Since we want both to happen, the branch is there with a "stub" if the condition is false.

PDF Workflow

A PDF workflow, in essence, is one that does not contain any Connect template or Design document and only uses PDF files as data files. The idea is that a PDF file, because it is a formatted document in and of itself, doesn't need to go through a merge process before it can be printed.

PlanetPress Workflow provides a few tasks specifically designed to work with PDFs:

- "Merge PDF Files" on page 341
- "PDF Splitter" on page 464
- "Create PDF" on page 396

In most cases, this kind of workflow also implies the use of **Metadata** tasks (see "Metadata tasks" on page 559).
You can use Metadata tasks to group, sort and sequence (split) the PDF data. The Create PDF task will apply the active Metadata to the PDF data file before creating the PDF output.

Things to keep in mind while working with Metadata are set forth in another topic: "Working with Metadata" on page 78.

> **Note**
>
> In Connect it is also possible to group, sort and split PDF data using "OL Connect tasks" on page 590.

Example: Daily sales report from PDF files

This workflow makes heavy use of PDF tasks and Metadata, and assumes that you are using PlanetPress Workflow version 7.3 or higher.

This single process workflow generates a daily sales report for any sales representative inside of a company which made at least one sale. It does this by capturing the invoices generated within a specific day, putting all the invoices for each sales representative in a single PDF and then sending it to the sales representative. It does this using several specific Metadata tasks as well as a quick lookup in an external Excel spreadsheet.

Resources

- PDF-DailySalesReport-Workflow.zip

Task breakdown

- The initial input is the "Merge PDF Files" on page 341, which retrieves and merges all the PDF files inside of the specified folder. Once a single PDF is created, the task also optimizes the PDF (to avoid duplicating images and font definitions for each page) as well as generates a basic Metadata structure containing a single document with one Data Page per captured PDF.
- The "Metadata Level Creation" on page 568 creates the Document level of the Metadata by placing each PDF data file in its own Document level. It does this by detecting when the Address in the document changes.
- Then, the "Metadata Fields Management" on page 562 adds a few fields at the Document level in order to properly tag each document with the appropriate information, in this case the Customer ID, Country and Rep ID. These fields are used for the following Metadata tasks.

- The "Metadata Filter" on page 566 follows by removing any invoice that is not in the US. Note that the Metadata filter is an **inclusive* filter*, meaning that the filter *includes* the parts of the Metadata where the result of the filter is *true*, and filters out anything else.
- The "Metadata Sorter" on page 571 then re-orders the Metadata documents by Rep ID, so that all of the invoices for any particular sales representative are all together.
- "Lookup in Microsoft® Excel® Documents" on page 498 then uses the Rep ID field to retrieve each sales representative's email from a specific Excel spreadsheet.
- The "Metadata Sequencer" on page 570 acts like a splitter, where the separation happens whenever the Rep ID changes. Since documents are sorted with that field, each sequence can contain one or more document, but they will all be for the same Rep ID.
- "Create PDF" on page 396 is then used to generate a single PDF for each sales representative. Because Create PDF works in conjunction with Metadata and because it can be used in pass-through mode, in this instance it will only take the relevant PDF pages from the original data file in order to create a single PDF file. Other than the extraction of these pages, the original concatenated data file is untouched.
- Finally, the output is done using a "Send to Folder" on page 667 in this case. Obviously, this should be a "Send Email" on page 664 output, but since we don't want to spam anyone, instead we place the PDF in a folder with the Rep ID's email as a folder name.

PlanetPress Capture Workflow

PlanetPress Capture, introduced in PlanetPress 7.2 and enhanced ever since, is a set of tools that is used to simplify digital archiving processes by capturing information from a special pen which records everything it writes on paper, as long as this paper contains special Anoto Patterns.

> **Warning**
>
> There are important considerations to keep in mind when dealing with PlanetPress Capture. Please review them in "PlanetPress Capture Implementation Restrictions" on page 730.

In order to properly build a PlanetPress Capture workflow, it is very important to understand the terminology, implications and limitations of the technology. This is the first part of this section:

- "PlanetPress Capture Glossary" on page 715
- "General considerations" on page 718

- "Security Considerations" on page 721
- "20,000 Patterns" on page 722
- "PlanetPress Capture Implementation Restrictions" on page 730

There are also 2 external tools that are used to communicate the pen's data to PlanetPress Workflow:

- "Anoto penDirector" on page 728
- "PlanetPress Mobile Application" on page 730

Creating a Capture-Ready document

This is done when creating your PlanetPress Design document. Adding one or more PlanetPress Capture fields to a PlanetPress Design document creates a capture-ready document, which can be used in the workflow. For more information, see the PlanetPress Design User Guide.

Generating the Capture Patterns

Once your document is created, the **Capture Fields Generator** action task is used to apply the capture patterns to each of your documents and send them to the printer. This printing process will consist of:

- Retrieving your data file.
- Creating metadata (See "Create Metadata" on page 559).
- Separating each individual document in the metadata (this can be done in your Design document or through the "Metadata Level Creation" on page 568 action task).
- Using the "Capture Fields Generator" on page 542 action task to generate the capture patterns
- Printing your documents.

Capturing and Archiving

After the printed documents have been inked with the Anoto Digital Pen, the PGC files from the pen must be processed and merged with the appropriate documents in the PlanetPress Capture Database. A workflow process that receives PGC files and reads them in turn consists of the following actions:

- An "HTTP Server Input" on page 330 task or "Folder Capture" on page 320 task that receives the PGC.
- The "Capture Fields Processor" on page 545, which converts each PGC in an EPS layer, adds this layer to the PDF in the database, releases patterns and closes documents.
- Optionally, a "Capture Condition" on page 537 task to do post-processing using the Capture Fields data.
- A "Get Capture Document" on page 555 action task to retrieve each document in the database and output a PDF file
- Any existing output such as Output to Folder, email, ftp, etc.

Technical

Because of timeout limitations, it is generally a good idea to use the **Send immediate response to client** option of the **HTTP Server Input** task, especially when processing a large amount of documents from the pen. Additionally, HTTP Server Processes should always be self-replicating and have a short polling interval set in their properties.

Managing and Post-Processing

There are a couple of things that can be done even after documents have been inked. As long as a document remains open, it is still present in the Capture database and be used in a process:

- The "Find Capture Documents" on page 551 input task is used to retrieve a list of documents under specific criteria.
- The **Capture Condition** and **Get Capture Document** tasks are used to effect post-processing and retrieve document from the Capture database.

Error Handling

Whenever an error occurs during the Capture Field Processor phase, it is of course important to be able to handles these errors. For this purpose, the "PGC to PDF Converter" on page 557 task was added with PlanetPress 7.4, adding the ability to quickly and directly convert a PGC file to a blank PDF file containing the ink data as an EPS layer. This is useful when, for example, data is received for a document that's already been closed.

- The "Input Error Bin" on page 335 input task is triggered when the process sends data to the error process.
- A "PGC to PDF Converter" on page 557 task converts the PGC to a PDF
- Any existing output is used here, for example an email notification.

The Examples

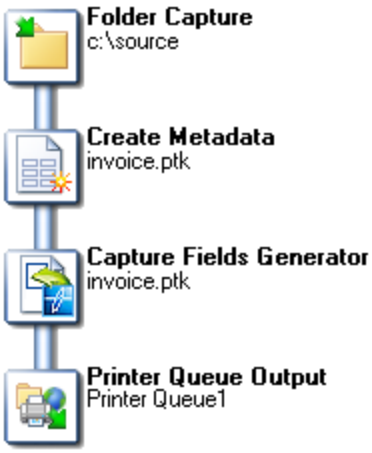
- "Basic Functional Capture Workflow" below
- "Capture Post Processing Workflow" on the facing page
- "Capture Web Manager Workflow" on page 296

Basic Functional Capture Workflow

This workflow is the most basic and simple workflow that you can use with PlanetPress Capture. In small implementations with only one simple document, this may be the only thing required for a functional workflow since, even in this simple state, it can be enough to automate the archive of your digital documents.

Generator Process

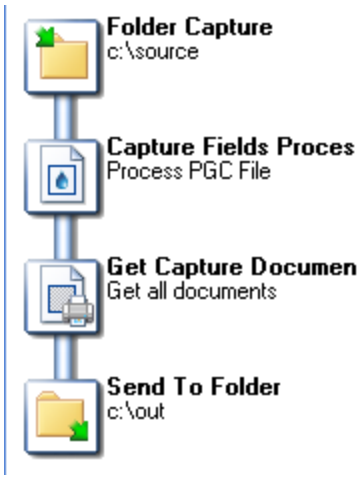
The workflow requires two separate processes that will be triggered at different times. The first process, the **generator process**, produces printable output by merging a data file with a Capture-Ready PlanetPress Design document. For each document page produced, an Anoto Pattern is assigned to the document and locked, and a page is produced in the output. Depending on the setup used, this may produce on or more print jobs or PDFs as an output.



- Any input task
- "Create Metadata" on page 559
- "Capture Fields Generator" on page 542
- Print output

PGC Handling Process

The second process is the **PGC Handling process**. It receives data from the Anoto Digital pen, updates the Capture database and releases patterns as appropriate.



- "HTTP Server Input" on page 330 or "Folder Capture" on page 320 input task
- "Capture Fields Processor" on page 545
- "Get Capture Document" on page 555
- Archive or Print output

Capture Post Processing Workflow

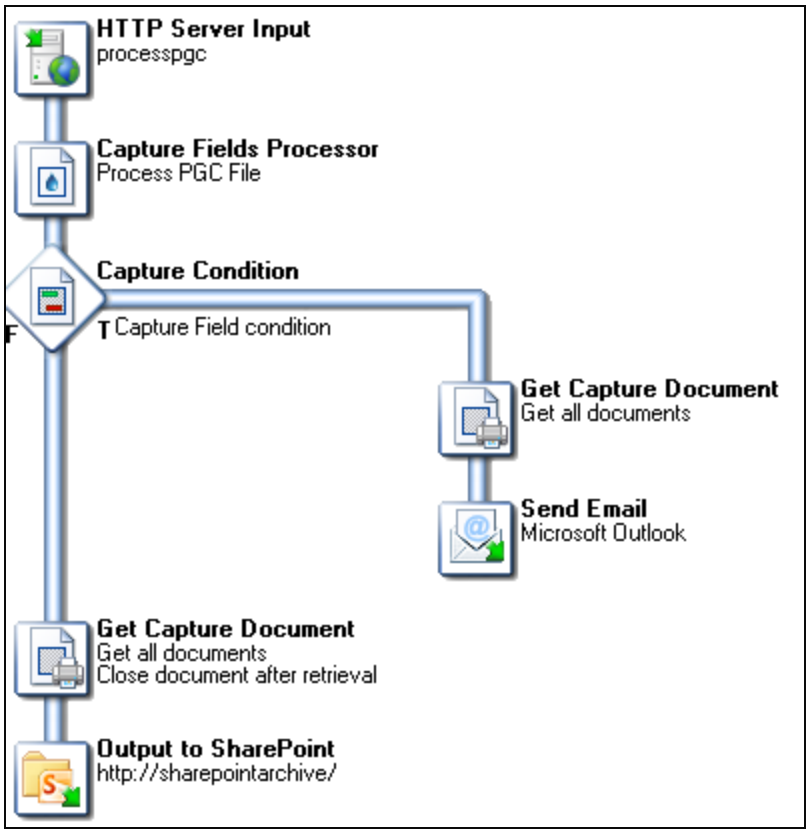
Though the "Basic Functional Capture Workflow" on the previous page is minimal functional one, it will most likely not be enough for most actual implementations. The goal with PlanetPress Capture (and PlanetPress Workflow in general) being to automate as much as possible, there are some tools within the **PlanetPress Capture** tasks that can greatly help with this goal.

There are two places where post-processing can happen: after the "Capture Fields Processor" on page 545 while handling incoming ink data, or after the "Find Capture Documents" on page 551 task that is part of an automated process or after a user request.

Post-Processing is generally done using the "Capture Condition" on page 537 task, which verifies the presence or state of the ink on the document or on specific fields.

After PGC Handling

Here is an example of a process that receives ink data, updates the database, and then verifies whether or not a field that indicates manager attention is required (for example, a box noting the wrong number of items in a delivery slip). If attention is required, the document is sent via email to the manager. Otherwise, the document is simply archived.



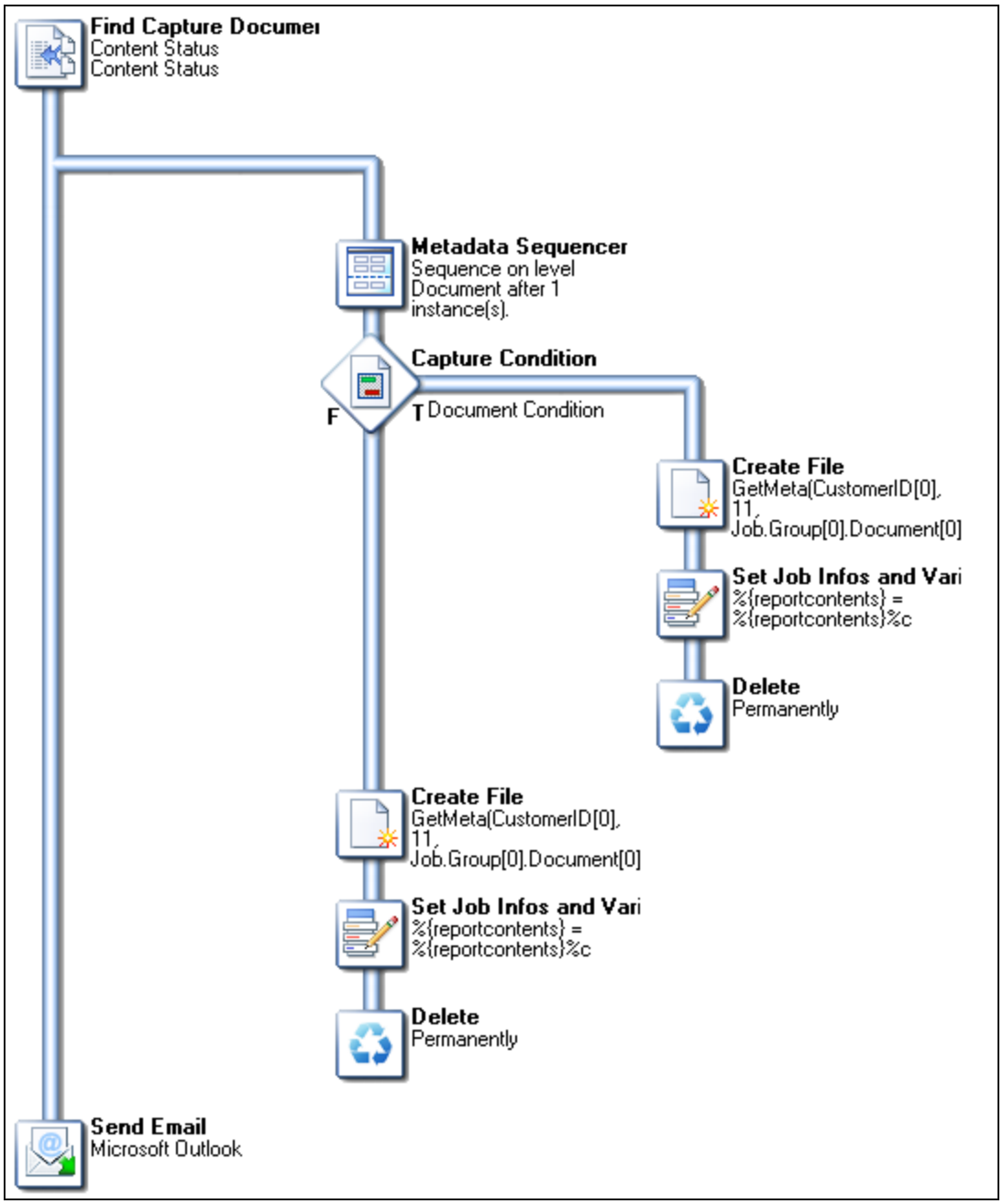
Task Breakdown:

- The HTTP Server Input receives a POST request sent either by the Anoto penDirector or the PlanetPress Mobile Application. This requests contains information sent by the pen as well as a PGC file as an attachment. Because we're only concerned about the PGC, the task is configured to ignore the XML envelope as well as loop through each attachments (of which there is only one). So, the output of the task is the PGC file alone.

- The Capture Fields Processor then uses the PGC file to update any documents in the database that the pen wrote on, and closes those documents in the database when they are complete.
- Capture Condition is where we can check whether a specific field (a "RequireManager" field) has ink contained in it, and if it does, the branch on the right is triggered.
    - In the branch, Get Capture Document retrieves a PDF version of the document and sends it as an attachment to an email sent directly to a manager using Send Email.
- Otherwise, Get Capture Document is used again, but this time the PDF is stored in a SharePoint Server using the Output to SharePoint connector.

After Retrieving Information from the Capture Database

There are two basic ways in which the **Find Capture Document** task can be used. First, in an automated process that runs at specified intervals. For example, the following process which sends a daily report of all incomplete and "in error" documents to an agent who would presumably take action on each document through the document manager.



Capture Web Manager Workflow

This example is both a more involved workflow for **Capture**, and an interesting implementation of an HTTP Workflow. Before looking at this example, it would be best to become familiar with both "PlanetPress Capture Workflow" on page 289 and "HTTP Server workflow" on page 279.

The example is too complex to display as images in this guide, so it is rather available for download.

Resources

- Capture Web Manager Workflow Configuration (PW7)
- Capture Web Manager PlanetPress Design Document (PP7)

> **Note**
>
> This example is compatible with PlanetPress Workflow 7.4 and higher and will not work in older versions.

Installation

1. Download both resource files
2. Create a folder on your disk called `c:\`PlanetPress
3. Import the **invoice.pp7** Design document into Workflow, or open it in PlanetPress Design and send it towards your local PlanetPress Workflow server (*localhost* or *127.0.0.1*).
4. Open the configuration file **CaptureExampleProcess.pw7**
5. Click the PlanetPress Workflow button (**File** menu) and go in **Preferences**.
6. In the **HTTP Server Input 2** section, check the **Serve HTTP resources** option, change the **Resource action** name box to static , and the **Resource folder** to `c:\`PlanetPress`\http` . Then, click OK.
7. Send the configuration to your local PlanetPress Workflow server.
8. Start PlanetPress Workflow services (see "Start and stop PlanetPress Workflow Service" on page 749).
9. Open your browser and point it to http://127.0.0.1:8080/documentlist, assuming you have not changed the default **HTTP port** in the **HTTP Server Input 2** section.

Explanation

You can follow along the process by looking at the comments available in each process of the workflow file. Each comment explains both what the following plugins do, but also how it

integrates into the workflow in general and what to keep in mind when doing an actual implementation of such a process.

Considerations

- The workflow itself is a standalone system that does not interact with any third-party systems, which of course does not correspond to real customer implementation. A client will most likely need to communicate with both an ERP system that generates documents as well as an archive software to store completed documents.
- The HTML, CSS and data file are generated whenever the process starts, in a specified location, in order to avoid having to distribute multiple static files which would need to be extracted and moved to a specific folder. In an actual implementation, these files would probably be edited externally and loaded from a location on the hard drive. However, the method of using a template to generate output is not so alien to PlanetPress Workflow so it is not condemned to do so.
- The example doesn't use any advanced coding such as JavaScript, Ajax and caching. It's easier to follow, but is less optimized in its use than a complex workflow that would use such features.

Workflow processes in a Connect Send solution

OL Connect Send (see "OL Connect Send" on page 745) needs one Workflow process to handle the job transfer, and in licensed mode it needs at least one other process to interact with the user. Reports about the use of OL Connect Send might be produced in yet another Workflow process.
Each OL Connect Send solution will require the Workflow processes to be configured differently, but certain plugins will always be part of the solution.

Job transfer process

The Workflow process that handles the **job transfer** starts with an **HTTP Input task**. The action name of this HTTP Input task must match the last part of the URL for print job submission set in the printer driver installer (by default: olcs_transfer).
The **Job Processor** plugin is the only other task in this Workflow process (see "Job Processor" on page 585).

Interactive process

When a job is received in licensed mode, an interactive process is started. This process, which may consist of several Workflow processes, serves web pages to the customer and handles the customer's response, changing (settings for) the print job.
A few of the key components in this process are:

- The **HTTP Server Input** plugin. The interactive process start with this plugin. The action name of this HTTP Input task must match the HTTP action for interaction given in the Connect Send Printer Driver installer (by default: **olcs_interaction**). (See HTTP Server Input.)
- The **Get Job Data** plugin. Creating interactive processes for incoming print jobs requires that the relevant information about the respective job is available and can be used in Workflow. This is what the OL Connect Send **Get Job Data** plugin is made for. (See "Get Job Data" on page 581.)
- The **Create Web Content** plugin. Each web page served by an interaction process is generated by this plugin. (See Create Web Content.)
- The **Create Preview PDF** plugin generates a PDF preview for a single record as fast as possible. It is typically used for previews embedded in web pages. (See Create Preview PDF.)

Production report process

The key plugin in a process that produces reports about jobs received with OL Connect Send is the **Get Data** plugin. It allows to query the OL Connect Send database. (See "Get Data" on page 576.)

Sample project

The **Ad Hoc Mail Consolidation** sample project may help you understand the Workflow processes for OL Connect Send and configure your own.

- Watch the sample in action on demo.objectiflune.com. Under **Ad Hoc Mail Consolidation**, click **Demo** and follow the instructions. (If you have already installed the printer driver, you don't have to do that again.) Add a Connect Send printer with the given settings and print the provided Word file to that printer. The printer will trigger an interactive process on demo.objectiflune.com.
- Download the sample files from OL's Resource Center: http://help.objectiflune.com/en/#csend.

About Tasks

A task is a plugin or a block that is used to build PlanetPress Workflow processes. Tasks can do multiple things depending on the type of task and where they are placed. You can add as many tasks as you like to your processes and order them in any way you can.

There are different types of tasks:

- **Input Task**: Will either capture data from a specific location, or wait for input from a service or other computer to start processing.
- **Action Task**: Will manipulate the data in any number of ways. An action task is any task that is not an input or output task or a branch or condition.
- **Output Task**: Will output data to a specific location or send to a different service or computer.

Some tasks are multipurpose and can be used as either an input, action or output task or any combination. These multipurpose tasks are indicated as such in the task description and can be found in the most relevant section of the available tasks.

All plugins can be found in "The Plug-in Bar" on page 869.

For more information on the tasks that are by default available to you in PlanetPress Workflow, see the following pages:

- "Input tasks" on page 309
- "Action tasks" on page 379
- "Data splitters" on page 451
- "Process logic tasks" on page 471
- "Connector tasks" on page 490
- "PlanetPress Capture" on page 715
- "Metadata tasks" on page 559
- "OL Connect tasks" on page 590
- "OL Connect Send" on page 745
- "Document Management tasks" on page 668

- "Output tasks" on page 643
- "Unknown tasks" on page 701

> **Note**
>
> Completely empty files (0 bytes) cannot be processed by Workflow.

In fact, the PlanetPress Workflow plugin based architecture enables almost limitless customization. You can create or purchase compatible plugins, drop them in PlanetPress Workflow's Plug-In Bar and use them to perform other operations.

Adding tasks

You can add as many tasks as you want to your process by using the *Plug-in Bar* in PlanetPress Workflow program.

To insert a task:

1. Open the *Plug-in Bar* by clicking on its tab. If you can't see the **Plug-in Bar** tab, click on the **View** tab in the Ribbon and make sure the *Plug-in Bar* is highlighted in the **Show/Hide** section.
2. Locate the task you want to add to your process. You can navigate between the different task categories by clicking the icons at the bottom of the *Plug-in Bar*.
3. Using your mouse, click and drag the task in your process at the place you want to insert it.
4. Depending on where you place your mouse, you may see that you can replace or insert existing tasks, or not place it at that location at all.
5. When you drop the task in the desired location, a dialog box containing the available task properties is displayed.
6. Set the task properties as required and click OK to close the dialog box.

There are a few things to keep in mind when dropping tasks:

- You can insert input tasks anywhere in the process except in output task locations.
- When you add an output task, a new branch leading to that new task is added above the selected task or branch, except when replacing an existing output task.
- Dropping a task on top of another one replaces it.
- Dropping a task between two tasks will insert it at that location.
- You cannot add a task above the initial input task of a process, since new tasks are always added above a selected task or branch.

Editing a task

To edit a task, you simply need to access and change its properties (see "Task properties" below). You may even do it while your process is in **Debug** mode (See "Debugging your PlanetPress Workflow process" on page 106).

To edit a task:

1. In the PlanetPress Workflow **Process** area, double-click the **Task** icon. A dialog box containing the available task properties is displayed.
2. Edit the task properties as required. Click specific tabs to see all the properties associated with the task.
3. Click **OK** to close the dialog box and save the new properties.

> **Note**
>
> For the list of operations you can perform on tasks in a process via the Process area, please refer to "The Process area" on page 871.

Task properties

Any task you add to your PlanetPress Workflow process must be configured using its **Properties** dialog. It appears as soon as you add a task to a process, or when you double-click on a task.
Each task's Properties dialog will give you the options to configure that specific, individual task. Properties of one task do not directly affect the properties of another task, however there are some software preferences that may affect tasks in one way or another (see "Preferences" on page 754).

Each task has its own set of tabs available, though some tabs are common to most tasks.

- Most tasks have the **General** tab which lets you configure the main task properties for that specific task.
- All tasks except for the **InputErrorBin**, **Run Script**, **Open XLST** and **Comment** tasks have an **On Error** tab that lets you manage errors generated by the task. For a description of the options that it contains, see "Using the On Error tab" on page 99.
  The error management system (the **On error** tab and the **Error Bin Input** task), however, is only triggered when there is an error within the task functionality - that is, a plugin error. These kinds of errors are triggered if the plugin cannot communicate with a service, another task, if the plugin crashes, etc.
- All initial Input tasks have the **Other** tab which lists Job Infos (see "Job Info variables" on page 702) and lets you back up the job file (see "Job file" on page 51).
- The **Comments** tab is common to all tasks. It contains a text area (**Task comments**) that lets you write comments about the task. These comments are saved when the dialog is closed with the **OK** button, and are displayed in "The Task Comments Pane" on page 884.

Some Action, Create Content and Output tasks let you select a **resource file** to use with the task; for more information see "Selecting a resource file in task properties" on page 307.

Variable task properties

When you edit tasks, you may notice that some of the properties that you can modify have a red (or more precisely, a maroon) title. This means that the property can be dynamically determined whenever your process runs, that is to say it will not remain static. This can be extremely useful when, for example, you want to determine how many copies you will print out depending on your data, or what document will be used in the printout depending on the department it came from.

Variable properties may include:

- Static data.
- System variables. See "System variables" on page 704.
- Local and Global Variables. See "Local variables" on page 708.
- Job Infos. See "Job Info variables" on page 702.
- Data and Metadata Selections. See "Data selections" on page 53.

- Printer Control Characters. See "Shared printer queue properties" on page 113. These are normally only used in printer outputs.

Variable properties can also be used in these special locations:

- In the Set Job Infos and Variables Action Task. See "Set Job Infos and Variables" on page 440.
- In Scripts. See the chapter on "Using Scripts" on page 141.
- In the Create File Input Task. See "Create File" on page 312.
- Within a PlanetPress Design Document, using the ExpandString() function. See the PlanetPress Design User Guide and PlanetPress Talk Reference Guide.

Variable properties can also be mixed, meaning you can combine, within a single variable property box, any number and order of variable types. You can, for example, do the following for an output file name: *%O_@(1,1,1,30, KeepCase,Trim)_%y-%m-%d.txt*. This would translate in the original file name, followed by part of the first line of a text data file, then the current date.

Inserting variables in task properties

In any variable properties box, you may use the contextual (**right-click**) menu to add variables and control characters, as well as to get data and make data selections. The lower part of the contextual menu is divided into 4 items that provide variable properties:

- **Variables**
  - **System**: Contains standard system variables, see "System variables" on page 704.
  - **Job Info**: Contains Job Info variables from %1 to %9
  - **Local Variables**: Contains a list of local variables in this process. If no local variables exist, this item is disabled.
  - **Global Variables**: Contains a list of global variables in this configuration. If no global variables exist, this item is disabled.
- **Control Characters**: Contains a list of control characters that can be used in printers.
- **Get Data Value**: Brings up the **Data Selector**, retrieves the value you select and places it in the variable properties box. This information becomes static and does not change between each datapage and job file.
- **Get Data Location**: Brings up the **Data Selector** and records your selection. The data selection is dynamic, meaning it will get the data located in the area you choose, every

time a new data file passes through it. This is indicated by a data selection (see "Data selections" on page 53).

- **Get Metadata Value**: Brings up the **Data Selector** with only the **Metadata** tab visible and lets you select the value (contents) of a Metadata attribute or field. The result is static and does not change between jobs.
- **Get Metadata Location**: Brings up the **Data Selector** with only the **Metadata** tab visible and lets you select the location of the data. The result is variable and changes between jobs.
- **Get Repository Value**: Brings up the "Data Repository Manager" on page 839 dialog to select the value (contents) of a specific key. The result of the lookup is static.
- **Get Repository Location**: Brings up the **Data Repository Manager** dialog to select the location of the key to lookup every time this task is executed.

You can quickly identify variable information that is already present in your variable properties as such:

- A **percentage** sign identifies system variables, as well as standard and custom job info variables — %f, for example.
- A **backslash** indicates a control character — \004, for example.
- An at sign (**@**) indicates a data selection for emulations other than database — @(1,1,1,1,17,KeepCase,Trim), for example.
- **Field** indicates a data selection for a database emulation — field(1,0,0,'Billing_Email',KeepCase,NoTrim), for example.
- The **lookup()** function indicates a lookup in the "Data Repository Manager" on page 839.

Masks

Certain tasks, such as the Folder Capture Input task and the File Name Condition task, allow for entering a mask instead of a file name. See "Masks" on the next page.

Date and Time Format

To simplify things and to prevent errors, date and time formats have been standardized.

- Dates are entered and displayed as yyyy/MM/dd (2007/06/13, for example).
- Times are entered and displayed using the 24 hour format as HH:mm:ss (3:38:54 PM, for example, is entered and displayed as 15:38:54).

Masks

A file name that includes characters meant to be replaced at run-time is referred to as a mask. Masks can be used in many edit boxes and can be used, for instance, to select multiple files. File selection is typically limited by fixed characters or special wildcard characters. If you create a **Folder Capture** Input task and enter *.* in the Masks box, the Input task will grab all the files that are put in the source folder. If you enter *.mdb instead, the task will only take those database files that have an mdb extension. You can use any standard wildcard character in PlanetPress Workflow.

> **Note**
>
> Masks are case-insensitive, since the Windows platform does not support case-sensitive file names (yes, you can have mixed case in a file name but that's visual fluff - the OS itself does not care).

> **Tip**
>
> You can specify multiple masks in one edit box if you separate them with a semicolon (;). For example: *.xml;*.pdf.

Mask Format

Here are the different mask formats available.

- **Literal characters**: Any alphanumerical character is considered a literal character and must appear. For example, a mask of "trigger.txt" will not capture any other files than that name.
- **Wildcards**: Two wildcards are available in masks.
  - **Asterisk** (*): Supports any number of characters. ***.txt** would pick up any text file, **file*.txt** would pick up any file starting with file and any characters: **file1.txt**, **filetest.txt**.
  - **Question Mark** (?): Supports a single character. **file?.txt** would pick up **File1.txt** or **filea.txt**, but not **file13.txt** or **filetest.txt**.

- **Brackets**: Specifies a set of supported characters, or range of characters. Only one character from the range is accepted, making this a subset of the ? wildcard.
  - **Sets**: [13ab] defines support for **one** of these 4 characters; **file[13ab].txt** would pick up **file1.txt** , **filea.txt** , but not **file13.txt** or **filea3.txt**.
  - **Negative Sets**: [!13ab] indicates the character should NOT be part of the set. **file[!13ab].txt** would pick up **file2.txt** and **filec.txt** but not **file1.txt** or **fileb.txt** (nor would it pick up **file13.txt** or **filea3.txt**).
  - **Ranges**: [1-5] , [a-d] define ranges between the characters. **file[1-5].txt** would pick up **file1.txt** and **file4.txt** but not **file6.txt** or **file13.txt**.
  - **Negative Ranges**: Negative ranges such as [!2-4] are also possible.

> **Note**
>
> File names containing brackets can be a hassle when attempting to capture them with a mask and using sets or ranges. You can capture a set that contains an opening bracket (**[[]**) , but not a closing bracket as the closing bracket always ends the set or range. There is no escape character available in masks.

Selecting a resource file in task properties

The **Properties** dialog of some Action, Create Content and Output tasks lets you select a file. Depending on where the selection list appears you will have access to the Connect Resources ("Connect resources" on page 40), all PlanetPress Design documents ("PlanetPress Design documents" on page 44) or only to the PlanetPress Design documents installed on a printer queue.

In most cases, you have three options:

- You can choose a specific file from the list of installed documents (see "Workflow Configuration resource files" on page 39); these will be either Connect resources, or PlanetPress Design documents, depending on the task.
- You can choose a variable file (see below).
- You can choose not to use any document (only in certain cases). If an Output task was originally designed to merge a PlanetPress Design document with data, this means no document is merged with the data and the job file is sent *as is*.

Variable file name

The **variable file name** feature is used to dynamically determine which file is used with the task. The file name can be constructed using any variable (see "Variable task properties" on page 712).

To insert a variable file name:

1. Click on the %o entry in the document list
2. Right-click to insert variables using the contextual menu, or type the variables.
3. Click **OK** on the dialog.

> **Note**
>
> At run-time, if PlanetPress Workflow cannot find the document name generated by those variables, the task will fail.

Input tasks

Input tasks are the starting point to any process and determine what file this process will being with. Each process must begin with an Input task, and although a given process may have multiple Input tasks, no task can have more than one initial Input task.

Initial Input tasks

Initial Input tasks are always at the beginning of a process and are always triggered when the process starts. The process itself may start on a schedule or poll at regular intervals, which means the initial Input task only runs whenever the process is set to run. For more information about what happens outside of the process scheduled times and to learn how to set the schedule, see "Process properties" on page 854.

> **Note**
>
> If an error occurs during an initial Input task, the **On Error** tab is never triggered. See "Using the On Error tab" on page 99.

Input tasks may either poll a specific location, or wait for jobs to be sent to a specific PlanetPress Workflow Service. It is not recommended to have two Initial Input tasks capturing the same input location, for the following reasons:

- It is a "hit and miss" to know which of the two tasks will pick up the file. This is an issue if the two processes are different.
- One of the processes may process a file quicker than another and finish first, which may be an issue if the processing relies on FIFO (First In, First Out).
- One process may error out as it's trying to capture an input that's currently being read by another one. This causes issues if the process is on a schedule and only runs once per period.

It is important to note that Initial Input tasks process files *one at a time*, and will return to the Input task once the current file has finished processing. Each time it returns to the Input task, it again only captures one single file. It does this until there are no more files in the folder and will also capture any new file that was added during the time it processed other files. Once no more files are found, it stops processing until it is scheduled to run again.

This is an important consideration when scheduling a task, as the Folder Capture task will keep capturing files as long as new files are added, even if it means continuing to capture and process outside its scheduled time. It is also important that while the Folder Capture input task is processing files it keeps a copy of each file in a temporary folder, and will not delete any of these files until it has finished processing all of them. This may cause issues with running out of disk space.

Secondary Input tasks

Secondary Input tasks are placed in the process like an Action task would and will replace the job file in the process with the file they retrieve. Since they are part of the process, they can use data from previous tasks to pull data from a variable location. Secondary Inputs do not follow a separate schedule from the process - they are automatically run when the process triggers them.

Considerations

- If your initial Input task does not start, either because there is no data to capture or because the process is out of its schedule, any secondary Input task will not run either.
- Secondary Input tasks replace both the job file and the job info variables. They do not change local and global variables.
- If your secondary Input task creates a job file using a different emulation, you will need to use a "Change Emulation" on page 391 task after the secondary Input task to correctly change to that emulation. (For more information about emulations, see "About data emulation" on page 60.)

Properties common to all input tasks

The **Other** tab in the Task Properties dialog (see "Task properties" on page 302) is common to all Input tasks.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.

- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Available Input tasks

- "Create File" on the next page
- "Email Input" on page 314
- "File Count" on page 474
- "Folder Capture" on page 320
- "Folder Listing" on page 323
- "FTP Input" on page 326
- "HTTP Client Input" on page 328
- "HTTP Server Input" on page 330
- "Input Error Bin" on page 335
- "Input SOAP" on page 337
- "LPD Input" on page 339
- "Merge PDF Files" on page 341
- "Microsoft 365 Email Input" on page 344
- "Microsoft 365 OneDrive Input" on page 349
- "PrintShop Web Connect" on page 359
- "Secure Email Input" on page 361
- "Serial Input" on page 366
- "SFTP Input" on page 368
- "Telnet Input" on page 374
- "WinQueue Input" on page 376

The SFTP Input task also appears in the Input category when it is installed. (It isn't installed by default.)

Create File

Create File input tasks are different from other input tasks in that they do not pull in data from a source location. The data that this task passes along to other task is its own: text or values from variables entered when the task was created or last edited.

Since **Create File** input tasks are not dependent on data from external sources, they are performed at every polling interval and the process is thus started every time.

This task is put into effect in the following use cases and example processes:

- HTTP PDF Invoice Request
- HTTP Brochure Request

Input

Create File does not capture any file and, if it is a secondary input task, discards the current data file.

Processing

Create File generates a job file with the contents of it's text. If variables and control characters are present, they are evaluated at run-time when the task is executed.

A file created with the Create File plugin will be encoded with the ISO 8859-1 (ISO Latin-1) table.

Output

The output is the job file. No metadata is generated by the task itself, however if metadata is present in the job and it is not deleted (in the "Other" tab), it will remain active.

Task properties

General Tab

- **Create File**: Enter the text to use as the data. The Create File box is a Variables Properties box, so you can use any of the variables, control characters or data selections as noted in "Variable task properties" on page 712.
- **Add CRLF after last line**: Check if you want the plugin to automatically add a new line at the end of the file. Remove the checkmark to leave the file as-is, useful in the creation of CSV files for example.
- **Delete Metadata**: Check to delete any metadata attached to your data file.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

This task does not generate any job information.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Email Input

The **Email Input** task retrieves email data through a Microsoft Outlook or POP3 connection.

> **Note**
>
> If Microsoft Outlook connection is used, Microsoft Outlook 2000 or higher must be installed on the computer where PlanetPress Workflow is located.

Input

Email Input captures all emails and their attachments from the selected inbox, when those emails correspond to the rules defined in the General tab. If no rule is defined, all emails in the inbox are retrieved. Emails retrieved using POP3 are deleted from the server, emails retrieved from an Outlook inbox are moved to the Deleted Items folder by default.

Processing

Depending on the options selected below, each email is converted into a text-only data file, and each attachment is separated from the email.

Output

Depending on the options, each email is sent as a data file, followed by each of its attachments sequentially.

> **Note**
>
> If you use **Email Input** tasks to capture data encoded using a Double-Byte character set (such as those used for Japanese or Chinese, for instance), it is preferable to use attachments rather than the email body to carry the data from its source to the input task, as data corruption is less likely to occur using this method.

Task properties

General Tab

- **Data Location group**
  - **Message body**: Select to use the data found in the body of the email.
  - **Attached file**: Select to use the data found in the email's attachment. If both the Message body and Attached files options are selected, the message's body and the message's attachment are treated as separate data files and processed one after the other.
  - **Unzip attached file**: Select to unzip the attached files.
    - **Zip password:** Enter the password required to unzip the attached files (if any). Note that you can use variables and data selections.
- **Conditions group**
  - **"Subject" contains**: Select to limit those messages used by this task to those with a specific subject. The subject you enter in the box below can include variables.

    > Note
    >
    > Since characters '?' and '*' are considered valid to define the subject of an email, their use as wildcards is not supported .

  - **Nothing**: Select to limit those messages used by this task to those that do not specify any subject.
  - **"From" contains**: Select to limit those messages used by this task to those that are sent from a specific address. The address you enter in the box below can include variables.
  - **"To" contains**: Select to limit those messages used by this task to those that are sent to a specific address. The address you enter in the box below can include variables.

Login Tab

- **Use Microsoft Outlook**: Select to use the Microsoft Outlook email account of the current user to receive emails. The current user is the one defined in PlanetPress Workflow Service Logon.
  - **Move message after processing to folder**: Enter the name of an Outlook Folder to keep copies of the emails taken by this email input task. You should enter only the name of the folder as it appears in Outlook's Folder List area, regardless of whether it is a child of another folder. For example, if you want to use a folder named Bills that is listed under another folder named PassedDue, only enter Bills in the text box. Make sure no two folders have the same name, even if they are under different parent folders, as this could generate errors. Consider creating a special folder in Outlook (perhaps a child of the Deleted Items folder named Watch) and then using that folder as your backup folder.
- **Use POP3 mail group**
  - Select this option to use a POP3 mail server and to activate this group. Note that emails retrieved via POP3 are always deleted from the server.
  - **Incoming mail (POP3)**: Enter the address of the incoming POP3 mail server. This box is only enabled when the Use POP3 mail option is selected.
  - **Account name**: Enter the email account name on the POP3 mail server. This box is only enabled when the Use POP3 mail option is selected.
  - **Password**: Enter the password required to unlock the selected account on the POP3 mail server. This box is only enabled when the Use POP3 mail option is selected.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut

CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - Date received**. Contains the date of the reception of the email (and not the date of retrieval by PlanetPress Workflow). The format is `YYYY/MM/DD HH:MM:SS`.
- **%2 - Sender's name**: Contains the name of the sender as defined by the sender himself (or, if the sender is using Exchange, by the name defined in his Exchange server).
- **%3 - Sender's address**: Contains the email address of the sender as defined by the sender himself.
- **%4 - Subject**: Contains the subject of the received email (may be blank).
- **%5 - Recipients**:Contains a list of the names of all the recipients of the email, separated by a semicolon (;).
- **%6 - Header**: Contains the header of the received email.
- **%7 - Attachment Count**: Contains the number of attachments of the email. A ZIP file is counted as 1 attachment. Some embedded images may be counted as attachment. The body of the email does **not** count as an attachment.

> **Note**
>
> Because of the way Microsoft Exchange works, when receiving an email from a user on the same local Exchange server, the email address may not be available. See FAQ-1509 in the Knowledge Base of PlanetPress Workflow.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

File Count

File Count tasks check if a target folder contains a specified number of files. They can be used as Condition task or as Input task.

When used as Input task, the task triggers the process to run only when the condition is true. As long as the condition is false, it does nothing (except log any errors).

Setting the file count to 0 allows to take action, for example, when a scheduled process is expected to have files but it doesn't.

> **Note**
>
> When used as an Input task, the File Count task does not apply the process polling interval. Once the condition is true, it triggers the process repeatedly, as if the polling interval were 0.
> To work around this, start the process with a Create File task followed by a File Count as Condition task.
> This issue only occurs in version 2020.1 and will be fixed in version 2020.2.

Processing

At run time, the number of files in the folder is compared to the specified value, using the specified operator.

If the folder or file count value is invalid and the task is used as Input task, the process does not run. If it is a Condition task, it returns False. No error is generated.

Output

Job Information definitions

When used as Input task, the File Count task sets the following Job Info variables.

- **%1 - FolderName**. The target folder.
- **%2 - Mask**. The specified mask.

- **%3 - FileCount**: The specified file count.

Task properties

General Tab

- **Target folder**: Enter the full path of the folder from which the input files are to be taken, or use the **Browse** button to select it. Note that subfolders are not processed.
  This is a variable property field. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.
- **Masks**: Enter a single or multiple file names or use file name masks (see "Masks" on page 306). Multiple filters are separated by a semicolon (e.g. *.csv;.xls*).
  This is a variable property field. (See "Variable task properties" on page 303.)
  - **Treat as regular expressions**: When ticked, the contents of the **Mask** field are deemed to be a regular expression . You can specify multiple masks based on regular expressions, separating the regular expressions by a semicolon.
    Please refer to Regular Expressions for more information.

> Note
>
> No Variable Data can be used inside this field if the **Treat as regular expressions** option is ticked. The percent sign, the curly brackets and the period are all key elements of the RegEx syntax, therefore they cannot be mixed and matched with Workflow variable data syntax (e.g. %1, ${global.myvar}, etc.). Also, there is no validation of the RegEx being specified.

- **File count**: Select whether the condition is to check if the file count is equal to, less than, greater than, less than or equal to, or greater than or equal to the specified value.
- **Value**: Enter the desired file count. This is a variable property field. (See "Variable task properties" on page 303.)

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Folder Capture

Folder Capture input tasks retrieve files corresponding to a specified file mask, from a specified folder.

Input

Folder Capture retrieves all files corresponding to the specified mask. These files may be of any format, even formats that are not readable by PlanetPress Workflow.

Note

As with any task that can refer to network resources, it is important to understand the considerations involved with paths and permissions of these resources. Please refer to the "Network considerations" on page 21 page.

Warning

If you create a **Folder Capture** input task that takes any file it finds in the root folder of one of your hard disks, then PlanetPress Workflow will try to remove all the files located in that folder, including all the system and hidden files. So when using a Folder Capture, be aware of where you are capturing.

Processing

Each file capture by the input is sent down through the process, one at a time. When the file is finished, the process goes back to the input which feeds another file down, as long as there are files in the queue. Once all the files are gone, the task polls the input folder again to see if new files are present and, if so, the process continues with these files. Otherwise, the process ends.

Output

The output to this task is a series of individual files, one after the other. These files are not modified in any way from when they are captured from the source folder.

Task properties

General Tab

- **Folder list**: Enter the full path of the folder from which the input files are to be taken.
- **Masks**: Enter a single or multiple file names or use file name masks. See "Masks" on page 306.
    - **Treat as regular expressions**: When ticked, the contents of the **Mask** field are deemed to be a regular expression . You can specify multiple masks based on regular expressions, separating the regular expressions by a semicolon.

The checkbox is not ticked by default. Please refer to Regular Expressions for more information.

> **Note**
>
> No Variable Data can be used inside this field if the **Treat as regular expressions** option is ticked. The percent sign, the curly brackets and the period are all key elements of the RegEx syntax, therefore they cannot be mixed and matched with Workflow variable data syntax (e.g. %1, ${global.myvar}, etc.). Also, there is no validation of the RegEx being specified.

- **Sort files by**: Select a given sorting method to prompt PlanetPress Workflow to sort the files in the source folder before taking them (and thus to take them in a specific order). Select None to let PlanetPress Workflow take the files without sorting them first.
- **Sort order**: If you selected a sorting method in the Sort files by box, select the order in which you want the files to be sorted.
- **Use archive attribute**: Select to turn on the archive attribute of the data files found in the source folder and to leave them in their original location (i.e. to take copies of the source files). Note that PlanetPress Workflow never takes source files that have their archive attribute turned on (so the source files will not be taken again and again). When this option is turned off, PlanetPress Workflow removes data files from the source location.
- **Capture files in subfolders**: Select to capture files from child folders of the source folder as well.
- **Sort directories first**: If you selected a sorting method in the Sort files by box, and if you want the folders present in the source folder to be sorted first, select this option. When this option is selected, the chosen Sort order is applied to each separate folder, not across folders. The subfolders themselves are always processed in alphabetical order, regardless of the sort order.
- **Include hidden files**: Select if you want any hidden folders or files present in the source folder to be taken as well.
- **Include empty files**: Select if you want any empty folders or files present in the source folder to be taken as well.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - Source File Name**. Contains the file name (excluding path but including extension) of the file name that is captured. Equivalent to using the %o system variable.
- **%2 - Folder**: Contains the folder from which the data was captured.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Folder Listing

Folder Listing input tasks list the files present in a selected folder and give you the option to use filename masks, to sort files by name or date, and to list the files present in the selected folder’s subfolders. The lists it generates are in XML format.

Input

Folder Listing captures nothing, however it does read the input folders (and, if selected, subfolders) and gathers information about each file in that folder.

Processing

Folder Listing loops through the files and, for each file, generates an XML node with information about the file.

Output

The output is an XML file containing information about each file. If the Sub-directories option was checked, the structure of the XML also contains the folder structure as it is present on the drive.

Here is a sample of the XML that is generated:

```
<?xml version="1.0" encoding="windows-1252"?>
<files count="3" filemask="*.*">
    <folder>C:\Samples\<file>
            <filename>invoice.pdf</filename>
            <path>C:\Samples\</path>
            <time>2012/06/01 16:14:40</time>
            <size>81452</size>
        </file>
        <file>
            <filename>test1.pdf</filename>
            <path>C:\Samples\</path>
            <time>2013/01/17 09:13:50</time>
            <size>20197</size>
        </file>
    </folder>
    <folder>C:\Samples\manuals\<file>
            <filename>usermanual.pdf</filename>
            <path>C:\Samples\manuals\</path>
            <time>1999/10/06 09:52:04</time>
            <size>644037</size>
        </file>
    </folder>
</files>
```

> **Note**
>
> The <time> tag is independent of the OS locale, language or settings. The format is always *YYYY/MM/DD 23:59:59*.

Task properties

General Tab

- **Input folder**: Enter the path of the folder that contains the files you want listed.
- **Sorted by**: Select either Name or Modified date, depending on how you want the list top be sorted.
- **File mask**: Edit the default file name mask (*.*) if you want only some of the files present in the folder to appear in the list. See "Masks" on page 306.
- **List files in sub-directories also**: Select this option if you want the task to list any files present in subfolders of the selected input folder.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1- Folder**: Contains the full path of the base folder from which the files are listed.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

FTP Input

FTP Input tasks retrieve files from FTP sites using the FTP protocol. Masks are typically used to select multiple files to be retrieved from the server.

Input

FTP Input connects to the specified FTP server and path, and retrieves all files corresponding to the specified mask. These files may be of any format, even formats that are not readable by PlanetPress Workflow.

Processing

Each file capture by the input is sent down through the process, one at a time. When the file is finished, the process goes back to the input which feeds another file down, as long as there are files in the queue. Once all the files are gone, the task polls the FTP folder again to see if new files are present and, if so, the process continues with these files. Otherwise, the process ends.

Output

The output to this task is a series of individual files, one after the other. These files are not modified in any way from when they are captured from the source FTP server.

Task properties

General Tab

- **FTP Server**: Enter the IP address or host name of the FTP server to poll.
- **User name**: Enter the name of a user account on the FTP server.

- **Password**: If account named in the User name box is password protected, enter the password here.
- **Port number**: Set to use a specific port number. Note: There is no validation to ensure the port is available. It is the user's responsibility to ensure the selected port is available and not being monitored by another application or another PlanetPress Workflow task.
- **Directory (optional)**: Enter the path of the folder to poll on the FTP server. If this box is left empty, PlanetPress Workflow will poll the root directory.
- **Mask**: Enter a single file name mask. Multiple entries are not allowed in this box.
- **Search in subfolders**: Select to search in child folders of the source folder as well.
- **Connection mode group**
  - **Active**: Select to prompt the ftp client to use the active mode when retrieving files from the FTP server.
  - **Passive**: Select to prompt the ftp client to use the passive mode when retrieving files from the FTP server.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - User name**: Contains the user name that was used to connect to the FTP server. This is useful if this task is used as a secondary input and the information is defined dynamically.
- **%2 - FTP Server**: Contains the FTP address of the server from which the files were retrieved.
- **%3 - Source file name**: Contains the name of the current file that was retrieved from the server.
- **%4 - Folder**: Contains the FTP folder from which the current file was retrieved.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

HTTP Client Input

HTTP Client Input tasks use the HTTP protocol to issue HTTP GET commands (queries) to HTTP servers. Replies received from the HTTP servers are used as jobfiles and are thus passed on to following tasks.

Input

This initial input task retrieves a single file as specified in the URL option. This file may be of any format, even formats that are not readable by PlanetPress Workflow.

Processing

No processing is done by this task. The file retrieved is not changed in any way.

Output

HTTP Client Input will output a single file which was retrieved from the web. Metadata is not generated by this task.

Task properties

General Tab

- **URL**: Enter the URL of the HTTP server from which the file must be downloaded. Since this is a variable property box, variables may be used, as well as the Get Data and Select Data commands (see "Variable task properties" on page 303). Note that when PlanetPress Workflow connects to a secure page, an SSL (Secure Socket Layer) connection is automatically used.

> **Note**
>
> The connection to remote HTTPS is done through TLS v1 encryption. Prior to version 2019.2, this was done through SSL v. 2.3.
>
> Secure connections (SSL) made with the HTTP Input Client are known to experience issues when connecting to site bindings using the Server Name Indication (SNI). Disabling SNI through the server's site bindings configuration will allow proper SSL connection through the HTTP Input Client.

- **Server requires authentication**: Check this option if the HTTP server requires user authentication. This enables the following options.
  - **User name**: A user name known to the Web server.
  - **Password**: The password associated with the user name entered above.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut

CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - URL address**: Contains the full URL that was requested by the task. This includes any GET variables in the URL.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

HTTP Server Input

HTTP Server Input tasks are used to receive HTTP requests made via GET or POST commands and to send replies to the servers from which the requests were made. The HTTP server supports both HTTP and HTTPS. For HTTPS Support information, see "HTTP Server Input plugin preferences 1" on page 778.

Instead of using the HTTP Server Input task, you should consider using the NodeJS Server Input task which is more secure, more up-to-date and more standardized. For more information see: "NodeJS Server Input" on page 352.

> **Note**
>
> While you can insert the **HTTP Server Input** task anywhere in your process as a secondary input task, in reality the **HTTP Server Input** task will only function when used as the initial input, as it is triggered when PlanetPress Workflow HTTP Server receives a request and passes it on to the correct task.

> **Note**
>
> Athough Workflow can serve both static and dynamic resources to a web browser, it is not meant to be used as a fully featured web server as it is not built for responsiveness nor guaranteed uptime. It is recommended to use a common web server (for example, IIS or Apache) to serve your contents and to let Workflow process things only it can do.
> For more information on how to serve HTML and PDF generated by Connect through IIS, watch the Connect with Evie - IIS series.

> **Warning**
>
> It is highly recommended to make all processes using the **HTTP Server Input** task self-replicating and to reduce their polling interval in the "Process properties" on page 854.

Examples

This task is put into effect in the following example processes:

- HTTP PDF Invoice Request
- HTTP Brochure Request
- Capture Web Manager Workflow

Note that Capture can only be used with PlanetPress Suite.

Known issue

In order to wake up a trigger-based process that starts with the HTTP Server Input task the server issues a signal to *all* trigger-based processes, not just those that start with an HTTP Server Input task. This means that some processes may get woken up when they do not need to. This issue only occurs in version 2020.1 and will be fixed in version 2020.2.

Input

The **HTTP Server Input** task does not, by itself, capture any files. Neither does it directly wait for requests to be received. Actually, it is the HTTP service that receives the requests and places them in a specific location on the drive. When a request is received, the HTTP Server Input polls that location and finds the requests and all attachments. It will always pick up the "oldest" request received.

The request can contain one or more files, one being an XML file containing the request information as well as any GET or POST variables that were received within this request. Other files are POST attachments.

> **Note**
>
> By default, the request XML also contains a **CDATA** section which contains the raw input data, effectively doubling the size of the incoming file. Due to technical restrictions, the incoming XML file cannot be more than 400MB, which because of CDATA is reduced to around 200MB. To help in this situation, you may elect to omit from the attachment, which can be changed in HTTP Server Input User Options. Please note that incoming **binary** files (sent through file upload in a form) can never be larger than 400 MB.

Processing

Depending on the options chosen in the **HTTP Server Input** task properties, the task may choose to ignore some of the files. For example, using the "Do not include XML envelope" means that only the POST attachments will be used in the process, the XML file will be discarded. Attachments are always saved on disk in a specific location, which is accessible either directly in the XML or directly as a data file through the "Loop each attachment as data file" option.

Output

At first, the output inside the process itself is, depending on the selected options, an XML request file, POST Attachments files, either one or both.

If the **Send Immediate Response to client** option is selected, the response file is sent back right away and the involvement of the input task ends then.
However, if this option is not checked, it means there is a second output that comes out of the **HTTP Server Input** task: The last output generated by PlanetPress Workflow is sent back to the initial input, which is returned back to the client (see "Request/process/response cycle" on page 283).
Even if the process ends with a "Delete" on page 644 task, it is still returned to the client; deleting the job file only means you are not doing anything with it locally.

> **Note**
>
> You can serve static resources through PlanetPress, which is especially useful for images, CSS and JavaScript files. See "HTTP Server Input plugin preferences 2" on page 782.

Task properties

General Tab

- **HTTP action**: Enter the name of the action requested of PlanetPress Workflow by the client. This name corresponds to the URL that the client will be accessing. For example, if you enter "MakePDF" here, you could trigger the process by accessing http://127.0.0.1:8080/MakePDF . This is also what your HTML Form's action should be.
- **MIME Type**: Select the MIME type of the file that will be returned by the plugin.
- **Loop each attachment as a data file**: When receiving attachments through a POST request (HTML Form), this option will make the **HTTP Server Input** task loop through each attachment. Each data file is an XML with the accompanied file.
  - **Do not include XML envelope**: Only active when the previous Loop option is checked. When checked, the XML file containing the request data will not be available. Only the attachment itself is sent as a data file.
- **Respond on error**: Enter a message to be sent to the client as the output file if the process encounters an error and is unable to send a reply that includes the actual output file. The information can be in any desired format such as HTML or plain text. However, if it must be displayed in a browser, the format should match the selected MIME type.
  This is a variable property box. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

  > **Note**
  >
  > This option requires every plugin in the process to be explicitly set to "On Error: Stop process" (see), even if the process itself is set to "On Error: Stop process".

- **Send immediate response to client**: Do not wait for the process to finish and send a static HTML or Text file back to the client instead. This prevents any timeout from

occurring. When checking this option, the field under the option is used to select which file to return.

- **Use custom HTTP server response code**: When the process ends and a response is sent to the requesting client, a custom response code can be specified depending on how the process goes. While in previous versions the "200 OK" code was always used, this option overrides it to, for example, "404 Not Found" or "401 Unauthorized".

> **Note**
>
> The response code must start with 3 digits, followed by a space and then the error message. If the first few characters can't be converted to a valid number, the server automatically returns "500 Internal Server Error", regardless of the actual response code provided by the process.

  - **Variable containing the response code**: The contents of the job information or local variable selected in this drop-down, presumed to be a valid response code, will be returned in the response header. This is the value that is present at the *end* of the process, not the beginning.

> **Note**
>
> In order to make the Capture OnTheGo app delete the submitted form from the device's library upon successful transmission of the data, the Workflow process must return status code **291**. The standard 200 response leaves this up to the COTG user or the expiry date of the form.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under

the "Backup" folder.
To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - Client IP Address**: Contains the IP address of the HTTP client requesting a response.
- **%2 - Request Header**: Contains the headers of the request, which can contain information such as the Browser and Operating System, languages, etc.
- **%3 - Filename**: Contains the local file name of the job file created by this task (and XML file). This is equivalent to %o.
- **%4 - Attachment Index**: Contains the index number of the current attachment while looping the attachments as data files (zero based; when processing the request file, the Attachment Index is 0; with the first attachment it is 1, etc.). When the option **Loop each attachment as a data file** is not checked, the Attachment Index is 0.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Input Error Bin

The **Input Error Bin** task is used specifically and only to create error management processes. These processes do not run on their own but are rather triggered by the **On Error** tab of tasks in other processes, when that task fails.

Input

This task receives a data file from a task that generated an error. Accompanying this data file is the current Job Infos of the process that triggered the error. This means that this input does not generate its own job infos!

No Metadata is received by this task, and none is generated.

The following error information is generated by the Input Error Bin starting version 7.5, and is accessible throughout the process:

- **%{error.process}**: the process name where the error occurred.
- **%{error.tasktype}**: the type of the failed task, can be Action, Input, Output, Printer, Comment and Branch.
- **%{error.taskname}**: the name of the plugin (the Display Name as seen in the plugin bar).
- **%{error.taskindex}**: the index of the task in the process (its position in the process).
- **%{error.errormsg}**: the "Message" specified on the **OnError** tab of the failed task.
- **%{error.errorid}**: the error "ID" specified on the **OnError** tab of the failed task.

Processing

No processing is done by this task.

Output

The output of this task is the same as the input - a data file and job infos that are sent from a task that generated an error.

Task properties

General Tab

- The **Input Error Bin** task does not have any specific properties unique to it, since it only receives input directly from tasks in other processes when an error is generated. For more information, see the chapter on "Debugging and error handling" on page 98.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- *This task does not generate any job information.*

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Input SOAP

The **Input SOAP** task is used to answer calls from a remote SOAP client and to return a response to that request. It is similar in functionality to the "HTTP Server Input" on page 330 task.

> **Note**
>
> SOAP communication is non-trivial and requires a certain understanding of XML and the SOAP protocol. Using the SOAP tasks pre-supposes this knowledge and this documentation does not attempt to provide it.

The **Input SOAP** Task only responds to a single SOAP action by the client: SubmitJob. Within this request however, a secondary action (SubmitSOAPActionName) can be specified - this is what the SOAP Action corresponds to in this task properties.

Input

This task does not poll any location by itself. It sits there waiting for requests coming in through WSDL (SOAP communication) and, when it receives a request, runs the process and returns the last output generated by the process to the client.

Processing

No processing is done. The request that is received by this task is XML and it is maintained as such.

Output

As with the **HTTP Server Input**, this task has a dual-output purpose. First, when the initial input task is run, the XML request is output onto the process. Then, when the process is finished, the last job file generated by the process is returned to the requesting client.

Task properties

General Tab

- **SOAP Action**: The SOAP action is used with the SubmitJob action. It’s the equivalent of the process name. The difference is that more than one processes can share the same SOAP action. That way more than 1 CPU can be used to process all the incoming requests however this means that all process sharing the same SOAP action must be identical because there is no way to decide the execution order of all the process.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- *This task does not generate any job information.*

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

LPD Input

LPD (Line Printer Daemon) Input tasks retrieve data in the form of print files sent from remote computers using the LPD/LPR protocol. The PlanetPress Workflow LPD server starts automatically when a configuration that includes at least one active **LPD Input** task is started.

To prevent conflicts between competing LPD servers, you must not run any other LPD server than the PlanetPress Workflow LPD server on PlanetPress Workflow workstation.

LPD Input tasks are configured primarily through user options (see "LPD Input plugin preferences" on page 784). The only LDP information you enter in each LPD task is the queue name.

Input

This task does not poll an input, it sits there and waits for a job file to be sent through the LPR port.

Processing

When the job is received through LPR, it is saved as a job file. No further processing is done on the file.

Output

The task outputs the job file as is, with no evaluation or modification.

Task properties

General Tab

- **LPD queue name**: Enter the queue name specified in the printer queue on the remote computer or computers.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut

CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - User name**: Contains the user name of the user who sent the job to the printer, or the user for which a software sending the job was logged in under.
- **%2 - Host computer**: Contains the name of the computer from which the job was sent.
- **%3 - Job name**: Contains the name of the job as specified by the software that sent the job.
- **%4 - Source file name**: Contains the name of the job file as specified by the software that sent the job.
- **%5 - Sender's IP address**: Contains the IP address from which the job was sent.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Merge PDF Files

The **Merge PDF Files** Input task (formerly named "Concatenate PDF Files") captures all PDF files in a given folder and merges them into a single PDF file.

This task is put into effect in the following example process: "Example: Daily sales report from PDF files" on page 288.

Input

This task captures all of the PDF files present in a specific folder, in one operation.

The **Merge PDF Files** Input task performs just like any other Input task: once the process has completed, control is transferred back to the Input task one last time to check if new files meeting the mask have come in. This means that the merging of PDF files that are not all present at the start of the process may take several passes, which may have an adverse effect on the overall performance and the size of the resulting PDF.

Processing

Once all PDF files are captured, their original copies are deleted from the input folder (or tagged as Archive if this option is selected) and they are merged into a single PDF. This is done in a single operation, not incrementally, meaning the file is built once and, if the option is chosen, optimized once.

Output

A single PDF containing as many pages as all the combined input PDFs is generated. If the option is selected, this PDF is optimized. An optional Metadata file is also created, containing information about the PDFs. This Metadata is divided in such a way that each PDF file is its own document, which can contain multiple data pages.

Task properties

General Tab

- **Folder**: Enter the full path of the folder from which the input files are to be taken.
- **Masks**: Enter a single or multiple file names or use file name masks. See "Masks" on page 306. Since this task only supports PDF files, make sure your extension remains .PDF for all your masks.
- **Sort files by**: Select a given sorting method to prompt PlanetPress Workflow to sort the files in the source folder before taking them (and thus to take them in a specific order). Select **None** to let PlanetPress Workflow take the files without sorting them first.
- **Sort order**: If you selected a sorting method in the **Sort files by** box, select the order in which you want the files to be sorted.
- **Use archive attribute**: Select to turn on the archive attribute of the data files found in the source folder and to leave them in their original location (i.e. to take copies of the source files). Note that PlanetPress Workflow never takes source files that have their archive attribute turned on (so the source files will not be taken again and again). When this option is turned off, PlanetPress Workflow removes data files from the source location.

- **Capture files in sub-directories also**: Select to capture files from child folders of the source folder as well. When this option is selected, the chosen Sort order is applied to each separate folder, not across folders. The subfolders themselves are always processed in alphabetical order, regardless of the sort order.
- **Sort directories first**: If you selected a sorting method in the Sort files by box, and if you want the folders present in the source folder to be sorted first, select this option.
- **Optimize resulting PDF**: Select to specify whether the resulting PDF should be optimized. Optimization can lead to a significant reduction in the size of the PDF, but it may also add a certain amount of time to the process. This option should only be unchecked if the timing of the process is critical and needs to be done quickly, but keep in mind that the resulting PDF may be much larger than it should be and may even be too large for PlanetPress Workflow to handle.
- **Create Metadata**: Select to specify that a basic metadata structure should be created for the resulting PDF file. The metadata structure created will contain a single Job separated by one Document per captured PDF file. Within each Document, one Data Page containing a single Page is created for each page of the PDF file.

> **Note**
>
> Metadata can be manipulated with Metadata tasks; see "Metadata tasks" on page 559.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - PDF Directory**: Contains the folder from which the data was captured.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Microsoft 365 Email Input

The **Microsoft 365 Email Input** task allows the processing of emails from any of the organization's Microsoft 365 accounts, without having to specify a user's credentials. This way, privacy is maintained while allowing a process to handle email messages and attachments for any user. The task communicates through HTTPS. However, the real protection scheme (like certificates) is configured in Azure Active Directory by the IT administrators.

This task uses the **Microsoft Graph API**.
For this task to function correctly, Workflow needs to be granted application permissions for Microsoft Graph in the organization's Azure instance.
It needs read access to the Users category (User.Read.All) so that the task can identify the users in the organization.
In addition, in order to be able to read emails through the Microsoft 365 Email Input task, it needs the Mail.Read permission; the Mail.ReadBasic permission is insufficient as it does not grant access to the email's body or attachments.
For more information on setting application permissions for Microsoft Graph, see https://docs.microsoft.com/en-us/graph/auth-v2-service.

Input

The **Microsoft 365 Email Input** task captures an email and its attachments from the selected inbox when it corresponds to the rules defined in the General tab.
It will process one email at a time (unless the process is self-replicating; see "Process

properties" on page 854) and it will capture the emails as long as there is unread email in the selected inbox.

Processing

The task accesses Inbox folders in the organization through the Microsoft Graph API (subject to that organization's IT policies) .

Filtering is done at the mail server. Only the first unread email matching the conditions is retrieved from the mail server, along with its attachments. Captured emails can either be deleted or marked as read.

Output

Once the plugin is done processing, an XML file is created with the email’s details and location of the body and any attachments. The encoding of the XML file is UTF-8.

The body and attachments are located in the job's Temp folder of Workflow. Within the same process, those files must be moved to another location, otherwise they will be deleted at the end of the process (as expected for all files in Workflow's Temp folder).
Retrieving and moving the body and attachment files may be done using an "XML Splitter" on page 468.

Example output file

```
<?xml version="1.0"?>
<Email>
        <FromName>Anny One</FromName>
        <FromEmail>onea@ca.objectiflune.com</FromEmail>
        <Subject>Your Subscription</Subject>
        <DateTime>2020-01-22T14:03:38Z</DateTime>
        <To>someone@ca.yourcompany.com</To>
        <CC/>
        <BCC/>
        <Files>
                <File>
                        <Type>Body</Type>
                        <Folder>C:\ProgramData\Objectif Lune\PlanetPress Wo
8\PlanetPress Watch\Debug\0106HBKO3IODK3F\</Folder>
                        <Filename>0106HBKO3IODK40.html</Filename>
                </File>
                <File>
                        <Type>Attachment</Type>
                        <Folder>C:\ProgramData\Objectif Lune\PlanetPress Wo
8\PlanetPress Watch\Debug\0106HBKO3IODK3F\</Folder>
                        <Filename
OriginalName="SubscriptionDetails.pdf">0106HBKO3X2KK41.pdf</Filenam
e>
                </File>
                <File>
                        <Type>Attachment</Type>
                        <Folder>C:\ProgramData\Objectif Lune\PlanetPress Wo
8\PlanetPress Watch\Debug\0106HBKO3IODK3F\</Folder>
                        <Filename OriginalName="20171005_
124920.jpg">0106HBKO4J5U342.jpg</Filename>
        </Files>
</Email>
```

The most pertinent information is located at the top level, under <Email>.
The sub node <Files> contains all the files for the email.
For each file, the type (body or attachment), folder and filename is provided. A file of type **Body** is always present and contains the body of the email.

The <Folder> information is the same for all files and is repeated to facilitate the selection when using an "XML Splitter" on page 468.

If multiple attachments have the same name, they will be appended with a numeric suffix, for example: File.pdf, File (1).pdf, File (2).pdf.

Job Information definitions

- **%1 - Date received**. Contains the date of the reception of the email (and not the date of retrieval by PlanetPress Workflow). The format is `YYYY/MM/DD HH:MM:SS`.
- **%2 - Sender's name**: Contains the name of the sender as defined by the sender himself (or, if the sender is using Exchange, by the name defined in his Exchange server).
- **%3 - Sender's address**: Contains the email address of the sender as defined by the sender.
- **%4 - Subject**: Contains the subject of the received email (may be blank).
- **%5 - Recipients**:Contains a list of the names of all the recipients of the email, separated by a semicolon (;).
- **%6 - Attachment count**: Contains the number of attachments of the email. A ZIP file is counted as 1 attachment. Some embedded images may be counted as attachment. The body of the email does **not** count as an attachment.

Task properties

General Tab

Condition

Enter the condition(s) that must be met for an unread email to be captured.

- **First found (no conditions)**: When no conditions are specified, the first unread email that is found will be processed (for each iteration of the plugin). In any other case, **all** conditions must be met for the email to get processed.
- **“From/To/CC/Subject/Body” contains**: Select one or more options and enter the search text. "Contains" means that the search text can be surrounded by other text; for example, when looking for “world” in the “Subject” field, an email with the subject “Hello world, my name is Peter” will be captured.
  These condition fields are variable property fields. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303. The use of the characters ? and * as wildcards is not supported in these fields.
  Note that it is not possible to specify multiple values in any of the fields and that conditions are case-insensitive.

Connection

- **Application ID**: Enter the application ID provided by Azure for this specific application. This value is static and cannot contain variables.
- **Application Password**: Enter the client secret (key) for the Azure app. This value is static and cannot contain variables.
- **Tenant ID**: Enter the Tenant ID as specified in Azure. This value is static and cannot contain variables.
- **User ID**: This is the user's ID or email address. This value is dynamic. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

Post-processing

- Select what to do when an email is processed: **mark as read** or **delete** the captured email from the account's Inbox.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Microsoft 365 OneDrive Input

Microsoft 365 OneDrive Input tasks allow the processing of files from any of the organization's Microsoft 365 OneDrive accounts.

This task uses the **Microsoft Graph API**.
For this task to function correctly, Workflow needs to be granted application permissions for Microsoft Graph in the organization's Azure instance.
It needs read access to the Users category (User.Read.All) so that the task can identify the users in the organization.
In addition, the Files.ReadWrite.All permission is required so that the task can create the folder if it doesn't already exist.
For more information on setting application permissions for Microsoft Graph, see https://docs.microsoft.com/en-us/graph/auth-v2-service.

Input

The Microsoft 365 OneDrive Input task retrieves files corresponding to a specified file mask, from a specified OneDrive folder. These files may be of any format, even formats that are not readable by PlanetPress Workflow.

Processing

The task uses the Microsoft Graph API to access OneDrive folders in the organization (subject to that organization's IT policies).

Each file captured by the input is sent down through the process, one at a time. When the file is finished, the process goes back to the input which feeds another file down, as long as there are

files in the queue. Once all the files are gone, the task polls the input folder again to see if new files are present and, if so, the process continues with these files. Otherwise, the process ends.

Output

The output to this task is a series of individual files, one after the other. These files are not modified in any way from when they are captured from the source folder.

Job Information definitions

- **%1 - User**. This is the OneDrive user's ID.
- **%2 - Source File Name**. Contains the file name (excluding path but including extension) of the file name that is captured. Equivalent to using the %o system variable.
- **%3 - Folder**: Contains the folder from which the data was captured.

Task properties

General Tab

- **Folders**: Enter the full path of a folder from which the input files are to be taken. The first **/** refers to the root folder. For its subfolders, the first **/** is optional.
  This is a variable property field. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.
  Click the **Add** button to add the folder to the list. Note that subfolders of the given folders are not taken into account; if they need to be monitored, they must be added to the list separately.
  When a folder doesn't exist in the system it will be created at runtime.
- **Masks**: Enter a single or multiple file names or use file name masks (separated by a semicolon). See "Masks" on page 306.
  - **Treat as regular expressions**: When ticked, the contents of the **Mask** field are deemed to be a regular expression . You can specify multiple masks based on regular expressions, separating the regular expressions by a semicolon.
    The checkbox is not ticked by default. Please refer to Regular Expressions for more information.

> **Note**
>
> No Variable Data can be used inside this field if the **Treat as regular expressions** option is ticked. The percent sign, the curly brackets and the period are all key elements of the RegEx syntax, therefore they cannot be mixed and matched with Workflow variable data syntax (e.g. %1, ${global.myvar}, etc.). Also, there is no validation of the RegEx being specified.

Connection

- **Application ID**: Enter the application ID provided by Azure for this specific application. This value is static and cannot contain variables.
- **Application Password**: Enter the client secret (key) for the Azure app. This value is static and cannot contain variables.
- **Tenant ID**: Enter the Tenant ID as specified in Azure. This value is static and cannot contain variables.
- **User ID**: This is the OneDrive user's ID. This value is dynamic. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut

CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

NodeJS Server Input

NodeJS Server Input tasks are used to receive HTTP requests and to send replies to the servers from which the requests were made.

Essentially this task does the same as the HTTP Server Input task, but it uses a NodeJS Server (version 12.13.1, installed by Workflow) instead of Workflow's custom server component. The NodeJS Server is more secure, more up to date and more standardized.
For instance:

- PUT and DELETE actions can be posted to the server.
- The NodeJS Server can serve multiple static resources at once.
- Port numbers > 9999 are allowed.
- You can specify a HTTPS port separately.
- A Proxy list can be used to setup end points for redirecting requests to another server. This could be useful if for example the Connect server is on another server which could change; when it changes you'd only have to modify the proxy list instead of the configuration.
- You can enable or disable authentication using users from an Active Directory server.

The NodeJS Server is only started automatically by Workflow when NodeJS input plugins are detected in the configuration. If no NodeJS input plugins are present, the service ("ppNode") is

not started by Workflow; it can still be started manually, but will only serve static resources and redirect requests to other servers.

Before using this plugin

Configure the NodeJS Server using its three settings dialogs in the Preferences (**Workflow button > Preferences**): "NodeJS Server Input plugin preferences 1" on page 785, "NodeJS Server Input plugin preferences 2" on page 787 and "NodeJS Server Input plugin preferences 3" on page 788.

> **Note**
>
> Although Workflow can serve both static and dynamic resources to a web browser, it is not meant to be used as a fully featured web server as it is not built for responsiveness nor guaranteed uptime. It is recommended to use a common web server (for example, IIS or Apache) to serve your contents and to let Workflow process things only it can do.
> For more information on how to serve HTML and PDF generated by Connect through IIS, watch the Connect with Evie - IIS series.

> **Note**
>
> While you can insert the **NodeJS Server Input** task anywhere in your process as a secondary input task, in reality the **NodeJS Server Input** task will only function when used as the initial input, as it is triggered when Workflow's NodeJS Server receives a request and passes it on to the correct task.

> **Warning**
>
> It is highly recommended to make all processes using the **NodeJS Server Input** task self-replicating and to reduce their polling interval in the "Process properties" on page 854.

> **Note**
>
> The NodeJS Server Input plugin is not compatible with PlanetPress Capture.

Input

The **NodeJS Server Input** task does not, by itself, capture any files. Neither does it directly wait for requests to be received. Actually, it is the NodeJS service that receives the requests and places them in a specific location on the drive. When a request is received, the NodeJS Server Input polls that location and finds the requests and all attachments. It will always pick up the "oldest" request received first.

The request can contain one or more files, one being an XML file containing the request information as well as any GET, POST, PUT or DELETE variables that were received within this request. Other files are POST or PUT attachments.

The NodeJS Server Input task supports basic content-types: multipart/form-data, application/x-www-urlencoded, and application/octet-stream, as well as raw body content-types:

- text/plain (.txt)
- application/xml, text/xml (.xml)
- text/html (.html)
- application/xhtml+xml (.xhtml)
- text/css (.css)
- text/csv (.csv)
- application/json (.json)
- application/javascript (.js)

Note that the maximum number of multipart form data fields is 1000 by default.

Processing

Depending on the options chosen in the **NodeJS Server Input** task properties, the task may choose to ignore some of the files. For example, using the "Do not include XML envelope" means that only the POST attachments will be used in the process; the XML file will be discarded. Attachments are always saved on disk in a specific location, which is accessible

either directly in the XML or directly as a data file through the "Loop each attachment as data file" option.

How arrays in input data are interpreted

When the names of Form inputs in an incoming POST request contain two pairs of square brackets: [..][..], the data are interpreted as an array. The value between the first pair of square brackets is expected to consist of two parts, separated by an underscore (e.g. row_0). The first part is considered to be the element's name. All content after the first underscore (preferably an integer) will be used as index, which is given as an attribute of the element (e.g. <row _idx=0>). This makes it easy to select all elements on the same level in a data mapping configuration, and to convert the XML to a JSON object.
For an example see "Incoming HTML" on page 781 and "Resulting XML structure with Enhanced PHP-like arrays" on page 781.

Output

First, the output inside the process itself is, depending on the selected options, an XML request file, POST Attachments files, either one or both.

If the **Send Immediate Response to client** option is selected, the response file is sent back right away and the involvement of the input task ends then.
However, if this option is not checked, it means there is a second output that comes out of the **NodeJS Server Input** task: the last output generated by PlanetPress Workflow is sent back to the initial input, by which it is returned to the client.
Even if the process ends with a Delete task, it is still returned to the client; deleting the job file only means you are not doing anything with it locally.

If the requested HTTP action is not available, a '404 not found' HTML page will be returned.

> **Note**
>
> You can serve static resources through PlanetPress Workflow, which is especially useful for images, CSS and JavaScript files. See "NodeJS Server Input plugin preferences 2" on page 787.

Task properties

General Tab

- **HTTP action**: Enter the name of the action requested of PlanetPress Workflow by the client. This name corresponds to the URL that the client will be accessing. For example, if you enter "MakePDF" here, you could trigger the process by accessing http://127.0.0.1:9090/MakePDF. This is also what your HTML Form's action should be.

> **Note**
>
> The following characters are not allowed in an action name: **$ * ? #**, spaces, and any characters that are not permitted in Windows folder names, such as **\ / : ? ” < > | .**
>
> Action names are not case sensitive.

- **MIME Type**: Select the MIME type of the file that will be returned by the plugin.
- **Form Data Encoding**: Specifies how this endpoint will interpret any form data received by the web server.
  Even though it is strongly recommended to use the `<meta charset="utf-8"/>` element in web pages, some might use another encoding or not have the element at all, affecting the character set used by the browser to send the parameters and file names.
  - **System language**: Sets the encoding attribute in the request XML file to the system codepage (e.g. Windows-1252).
  - **UTF-8**: Causes all parameters as well as file names from the request to be interpreted as a UTF-8 text stream.
    With this option enabled, POST attachment file names will be randomized on disk to avoid misinterpretation. If the original file name is needed, it can be found in the `original` attribute of the file tag in the request XML.

> **Note**
>
> If form data are submitted from HTML files that are made with the OL Connect software, you can expect them to be UTF-8 encoded.

> **Warning**
>
> Don't use any non-ASCII characters in Workflow's working directories path (in the `V8WorkingDirectory` registry key). Combined with the UTF-8 Form Data Encoding setting, this might make it impossible for Workflow to retrieve files from that path, depending on the actual path name and the system locale.

- **Loop each attachment as a data file**: When receiving attachments through a POST request (HTML Form), this option will make the **NodeJS Server Input** task loop through each attachment. Each data file is an XML with the accompanied file.
  - **Do not include XML envelope**: Only active when the previous Loop option is checked. When checked, the XML file containing the request data will not be available. Only the attachment itself is sent as a data file.
- **Respond on error**: Enter a message to be sent to the client as the output file if the process encounters an error and is unable to send a reply that includes the actual output file. The information can be in any desired format such as HTML or plain text. However, if it must be displayed in a browser, the format should match the selected MIME type.
  This is a variable property box. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

> **Note**
>
> This option requires every plugin in the process to be explicitly set to "On Error: Stop process" (see), even if the process itself is set to "On Error: Stop process".

- **Send immediate response to client**: Do not wait for the process to finish and send a static HTML or Text file back to the client instead. This prevents any timeout from occurring.
  - **Response file**: Select which file to return. Note that the file name doesn't have to be static. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.
- **Use custom HTTP server response code**: When the process ends and a response is sent to the requesting client, a custom response code can be specified depending on how the process goes; for example: "200 OK", "404 Not Found" or "401 Unauthorized". Choose a response code between 100 and 599. (See: List of HTTP status codes on

Wikipedia.) If the response isn't currently handled by any HTTP response code, you may use an unused code in that range.

> **Note**
>
> The response code must start with 3 digits, followed by a space and then the error message. If the first few characters can't be converted to a valid number, the server automatically returns "500 Internal Server Error", regardless of the actual response code provided by the process.

  - **Variable containing the response code**: The contents of the Job Info variable or local variable (see "About variables" on page 701) selected in this drop-down, presumed to be a valid response code, will be returned in the response header. This is the value that is present at the *end* of the process, not the beginning.
- **Ignore global authentication settings**: Disable authentication for this particular URL, regardless of the global authentication settings. 'Global authentication settings' refers to the authentication settings of the NodeJS Server, set in the preferences: "NodeJS Server Input plugin preferences 3" on page 788. If authentication is not enabled in the preferences, this option has no effect.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.

- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - Client IP Address**: Contains the IP address of the HTTP client requesting a response.
- **%2 - Request Header**: Contains the headers of the request, which can contain information such as the Browser and Operating System, languages, etc.
- **%3 - Filename**: Contains the local file name of the job file created by this task (and XML file). This is equivalent to %o.
- **%4 - Attachment Index**: Contains the index number of the current attachment while looping the attachments as data files. When the option **Loop each attachment as a data file** is not checked, the Attachment Index is 0.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

PrintShop Web Connect

The **PrintShop Web Connect** Input task allows the use of a PlanetPress Workflow in order to drive PrintShop Mail Web requests. A Send to PlanetPress printer is available to PrintShop Mail Web operators selecting Generate Output in the PrintShop Mail Web Order Manager, providing an easy way to send jobs toward the PrintShop Web Connect Input task, in order to take full advantage of PlanetPress Workflow's built-in automation tasks.

> Note
>
> PrintShop Mail Web and PlanetPress Workflow must be installed on the same server in order to make the **PrintShop Web Connect** Input task available in your PlanetPress Workflow.

Input

This task does not poll an input, it sits there and waits for a job file to be sent by the local PrintShop Mail Web installation.

Processing

When the job is received from PrintShop Mail Web, it is saved as a job file. No further processing is done on the file.

Output

The task outputs the job file as is, with no evaluation or modification. The format of the job is PostScript generated by PrintShop Mail Web.

PrintShop Web Connect Preferences

A PrintShop Web Connect preferences page, accessible via the PlanetPress Workflow Button | **Preferences** | **PrintShop Web Connect**, allows to provide operator credentials to your PlanetPress Workflow configuration.
It is mandatory to fill both the user name and password fields (with the values of an existing user on the PrintShop Web server) in order to use the **PrintShop Web Connect** Input task.

> **Note**
>
> It is also mandatory to send your configuration to your PlanetPress Workflow service since the PrintShop Web credentials are included in the *.cfg file (See "Sending a configuration" on page 37), which is updated every time the configuration is sent to the service via the **Send Configuration** button.

General Tab

- **All documents**: Lists, in a hierarchical view (Company -> Publication Types -> Documents), the PrintShop Mail documents already existing on the PrintShop Web server.
- **Refresh**: Click to update the list of PrintShop Mail documents available on the PrintShop Web server.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Secure Email Input

The **Secure Email Input** task captures a POP3 or IMAP email message with SSL or TLS encryption.

Note that this plugin cannot be used on a Windows instance that uses a multi-byte language (e.g. Japanese, Chinese). The workaround is to either use a different Windows language or use the standard Email Input/Output plugins.

Input

Secure Email Input captures an email and its attachments from the selected inbox when it corresponds to the rules defined in the General tab.
It will process one email at a time (unless the process is self-replicating; see "Process properties" on page 854) and it will capture the emails as long as there is unread email in the selected inbox.

Processing

When using the IMAP protocol, filtering is done at the server level and only the first email matching the conditions is retrieved from the mail server, along with its attachments.

When using the POP3 protocol, filtering is done at the client level. The plugin loops through every single email located in the inbox, retrieves the email's header and applies the conditional logic. The plugin stops that loop when a header corresponds to the conditions. Only at that point the email's body and attachments are retrieved, and the email that corresponds to the conditions is deleted from the mail server.

> **Note**
>
> When using the POP3 method, the plug-in will run very slowly if the inbox contains a large number of emails. Always use IMAP when possible.

Emails retrieved using POP3 are deleted from the server; emails retrieved using IMAP can either be deleted or marked as read.

Output

Once the plugin is done processing, an XML file is created with the email's details and location of the body and any attachments. The encoding of the XML file is Windows-1252.

The body and attachments are located in the job's Temp folder of Workflow. Within the same process, those files must be moved to another location, otherwise they will be deleted at the end of the process (as expected for all files in the Temp Workflow folder).
Retrieving and moving the body and attachment files may be done using an "XML Splitter" on page 468.

Example output file


```
<?xml version="1.0" encoding="windows-1252"?>
<Email>
        <FromName>Peter Parker</FromName>
        <FromEmail>parkerp@ca.objectiflune.com</FromEmail>
        <Subject>Bill of Lading</Subject>
        <DateTime>2018-03-29 15:52:54</DateTime>
        <To>starkt@ca.objectiflune.com</To>
        <CC></CC>
        <BCC></BCC>
        <Files>
                <File>
                        <Type>Body</Type>
                        <Folder>C:\ProgramData\Objectif Lune\PlanetPress Wo
8\PlanetPress Watch\Debug\0103W5GQXZR2F0A\</Folder>
                        <Filename>Body.html</Filename>
                </File>
                <File>
                        <Type>Attachment</Type>
                        <Folder>C:\ProgramData\Objectif Lune\PlanetPress Wo
8\PlanetPress Watch\Debug\0103W5GQXZR2F0A\</Folder>
                        <Filename>Priorities.xlsx</Filename>
                </File>
                <File>
                        <Type>Attachment</Type>
                        <Folder>C:\ProgramData\Objectif Lune\PlanetPress Wo
8\PlanetPress Watch\Debug\0103W5GQXZR2F0A\</Folder>
                        <Filename>Bill of Lading (BOL).pdf</Filename>
                </File>
        </Files>
</Email>
```


The most pertinent information is located at the top level, under <Email>.
The sub node <Files> contains all the files for the email.
For each file, the type (body or attachment), folder and filename is provided. A file of type **Body** is always present and contains the body of the email.

The <Folder> information is the same for all files and is repeated to facilitate the selection when using an "XML Splitter" on page 468.

If multiple attachments have the same name, they will be appended with a numeric suffix, for example: File.pdf, File (1).pdf, File (2).pdf.

Task properties

General Tab

Enter the condition(s) that must be met for an email to be captured.

- **First found (no conditions)**: If this option is selected, the first email that is found will be processed (for each iteration of the plugin). In any other case, **all** conditions must be met for the email to get processed.
- **“From/To/CC/Subject/Body” contains**: Select one or more options and enter the search text. "Contains" means that the search text can be surrounded by other text; for example, when looking for “world” in the “Subject” field, an email with the subject “Hello world, my name is Peter” will be captured.
  These condition fields are variable property fields. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303. The use of the characters ? and * as wildcards is not supported in these fields.
  Note that it is not possible to specify multiple values in any of the fields.

Login Tab

Specify the connection information and options.

- **Login**:
  - Enter the address of the **incoming mail server** (POP3 or IMAP), the **port** (the default port is 993 for IMAP and 995 for POP), **protocol** (POP3 or IMAP), and **encryption method** used.
    The usual server name for an Office365 server is `outlook.office365.com` while the usual server name for GMail is `imap.gmail.com`. Note that these values may be different for some implementations or may change in the future.
    Note that emails retrieved using POP3 are always deleted from the server.
  - Enter the account credentials: the email **account name** on the mail server, and the **password** required to unlock the selected account.

> **Note**
>
> By default, GMail may not allow Workflow to access the account's mail boxes unless that account specifically allows automated systems to access the inbox. Please refer to GMail documentation to learn how to do that (https://support.google.com/accounts/answer/6010255?hl=en).

- **Options**:
  - Enter the name of the **inbox to monitor**. This is useful if the email account has defined rules to automatically store certain incoming messages in a specific mail box.
  - Select what to do when an email is processed: **mark the retrieved item as read** or **delete the retrieved item** from the mail server. Note that when using POP3, you cannot specify the inbox, and a retrieved email is always deleted from the mail server.
  - **Use temporary filenames for attachments**: Check this option to save each attachment in the Temp folder with a unique temporary filename (the system variable %u is used to generate a name). You will still be able to access the original attachment names when processing them.
    If the original filenames are used and multiple attachments have the same name, they will be appended with a numeric suffix, for example: File.pdf, File (1).pdf, File (2).pdf.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.

The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Serial Input

Serial Input tasks receive files sent to a serial port on the computer running PlanetPress Workflow. All the **Serial Input** tasks in a PlanetPress Workflow configuration share the same general properties, which are configured through user options (see "Serial Input plugin preferences" on page 790). Only the properties set in the Other and Error tabs are specific to individual tasks.

Input

This task does not poll an input, it sits there and waits for a job file to be sent through the Serial connection.

Processing

When the job is received through the Serial connection, it is saved as a job file. No further processing is done on the file.

Output

The task outputs the job file as is, with no evaluation or modification.

Task properties

General Tab

- Since **Serial Input** tasks have no specific task configurable properties, this section contains no property information.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - Source file name**: Contains the name of the job file as specified by the software that sent the job.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

SFTP Input

The **SFTP Input** task retrieves files from a secure FTP site through an encrypted connection. Masks are typically used to select multiple files to be retrieved from the server.

The SFTP Input and "SFTP Output" on page 651 tasks are part of a separate installer and are not included in the Workflow installer. The SFTP plugin installer can be downloaded from the Resource Center, under 'Plugins' in PlanetPress Connect.

Input

The SFTP Input connects to the specified FTP server and path, and retrieves a list of all files corresponding to the specified mask. These files may be of any format, even formats that are not readable by PlanetPress Workflow. The files are not deleted from the server when they are downloaded. They are added to a list of processed files for this server. These lists are located under C:\ProgramData\Objectif Lune\.

Processing

Each file captured by the input is sent down through the process, one at a time. When the file is finished, the process goes back to the input which feeds another file down, as long as there are files in the queue. Once all the files are gone, the task polls the FTP folder again to see if new files are present and, if so, the process continues with these files. Otherwise, the process ends.

Output

The output of this task is a series of individual files, one after the other. These files are not modified in any way from when they are captured from the source FTP server.

Task properties

General Tab

- **Server Settings group**
  - **FTP Server**: Enter the IP address or host name of the FTP server to poll.
  - **User name**: Enter the name of a user account on the FTP server.
  - **Password**: If account named in the User name box is password protected, enter the password here.

- **Protocol group**
  - **SFTP**: Select if the FTP server uses SFTP (SSH).
  - **FTPS**: Select if the FTP server uses FTPS (SSL/TSL)
- **Port Number Group**
  - **Use default port**: Check to use the default port used by the protocol selected above.
  - **Port number**: Set to use a specific port number. Note: There is no validation to ensure the port is available. It is the user's responsibility to ensure the selected port is available and not being monitored by another application or another PlanetPress Workflow task.
- **File Options group**
  - **Directory**: Enter the path of the folder to poll on the FTP server. If this box is left empty, PlanetPress Workflow will poll the root directory.

    > Note
    >
    > The given directory will be looked up from the user's home directory. Such a home directory is usually under the server main user directory and generally includes the user's name. For example, if "/tmp/temp/copy_pending" is entered, it does not point to the "/tmp/temp/copy_pending" directory but to the "/users/support/tmp/temp/copy_pending" directory.

  - **Masks**: Enter a single file name mask. Multiple entries are not allowed in this box.
  - **Delete remote file**: Check this option to delete the file after it has been retrieved by Workflow.
- **Connection mode group**: This group is only relevant to the FTPS protocol and appears when it is selected. SFTP uses a single connection to download all files.
  - **Active**: Select to prompt the ftp client to use the active mode when retrieving files from the FTP server.
  - **Passive**: Select to prompt the ftp client to use the passive mode when retrieving files from the FTP server.
- **Reset Download List**:

Security Tab

This tab defines the certificates used to connect to the secured FTP servers.

- **Accept all certificates**: Check this option to automatically accept the certificates returned by the FTP server. Otherwise, in order for a connection to work, you have to establish a connection first and then accept a certificate from the **List of known servers** up to the **Approved server** list.
- **Approved Server list**: Displays a list of servers that were approved for connection:
  - **Server**: The name of the server the certificate belongs to.
  - **Fingerprint**: The RSA fingerprint of the server.
  - **Remove**: Click to remove the server from the approved list.
- **List of known servers**: Displays a list of servers that were connected to, whether they are approved or not.
  - **Server**: The name of the server the certificate belongs to.
  - **Fingerprint**: The RSA fingerprint of the server.
  - **Approve**: Click to add the server to the list of approved servers.
- **Refresh**: Click to refresh the list of known servers

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - User name**: Contains the user name that was used to connect to the FTP server. This is useful if this task is used as a secondary input and the information is defined dynamically.
- **%2 - FTP Server**: Contains the FTP address of the server from which the files were retrieved.
- **%3 - Source file name**: Contains the name of the current file that was retrieved from the server.
- **%4 - Folder**: Contains the FTP folder from which the current file was retrieved.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

SMTP Input

SMTP Input tasks are used to receive SMTP requests made by any email client or other SMTP commands and can act as an SMTP proxy, processing emails before they are sent to another SMTP server. In order for this task to receive files, the SMTP Server (also called "Outgoing Email Server") in the email client must point to PlanetPress Workflow server's IP or hostname.

> **Warning**
>
> Emails received through this task will not reach their intended destination if the process does not end with a Send Email Output Task, or contain the PlanetPress Connect "Create Email Content" on page 597 task.

Example

In this example, the **SMTP Input** plugin is used to capture incoming emails data that must meet certain conditions as the subject that contains "Work to do" and the sender that contains "client@company.com ". The process then redirects the content of those emails to an extraction and finally to a PDF printing.

Input

The SMTP Input task does not, by itself, capture any files. Neither does it directly wait for requests to be received. Actually, it is the SMTP Server service that receives the requests and places them in a specific location on the drive. When a request is received, the SMTP Input polls that location and finds the requests and all attachments. It will always pick up the "oldest" request received.

> **Warning**
>
> Due to a technical limitation the SMTP Input task does **NOT** receive the **BCC** addresses from most emails sent to it.

Processing

The task reads the incoming SMTP request and provides the data within its body.

Output

Depending on the Data Location option, the output is different:

- **Envelope**: The request file in XML format, including all email fields (from, to, cc, bcc, subject, body) as well as additional header fields (email client information, attachments, etc). The message body and attachments are available through specific XML attributes. These files do not have the full path, but you can use the %t%O variable to get the current temporary folder where they are located.

  > **Tip**
  >
  > Suppose we have two files named in the XML file under /ppemail[1]/@rawemail

and /ppemail[1]/body[1]/@html respectively.
With
`%t%O\xmlget('/ppemail[1]/body [1]/@html',Value,KeepCase,NoTrim)`
and
`%t%O\xmlget('/ppemail[1]/@rawemail',Value,KeepCase,NoTrim)`
we get both the body and the whole raw email.

- **Attachments**: The input task loops through each attachment and sends them down through the process. While the Envelope is not available, the Job Infos contain pretty much all of the information you would get from it.

Task properties

General Tab

- **Data location**: Determines what files are sent into the process:
  - **Envelope**: Only the request envelope is sent to the process (see above).
  - **Attachments**: Each attachment is sent down the process (see above).
- **Unzip attached file**: Select to unzip the attached files.
  - **Zip password**: Enter the password required to unzip the attached files (if any). Note that you can use variables and data selections.
- **Conditions**: Defines a filter on capturing files from the SMTP Service's hot folder. When a condition is added, only files that match this filter are captured, the rest remain untouched.
- **"Subject" contains**: Select to limit those messages used by this task to those with a specific subject. The subject you enter in the box below can include variables and wildcards.
  - **Nothing**: Select to limit those messages used by this task to those that do not specify any subject.
  - **"From" contains**: Select to limit those messages used by this task to those that are sent from a specific address. The address you enter in the box below can include variables and wildcards.

- **“To” contains**: Select to limit those messages used by this task to those that are sent to a specific address. The address you enter in the box below can include variables and wildcards.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Telnet Input

The **Telnet Input** task (also known as the Raw Socket Printing Input) receives files sent to a specific port. If you want PlanetPress Workflow to receive data using multiple ports, you must use multiple Telnet input tasks. To turn on or off the Telnet logging option, see the user options (see "Telnet Input plugin preferences" on page 791).

Input

This task does not poll an input, it sits there and waits for a job file to be sent through the Telnet port.

Processing

When the job is received through Telnet, it is saved as a job file. No further processing is done on the file.

Output

The task outputs the job file as is, with no evaluation or modification.

Task properties

General Tab

- **Port**: Enter the number of the port on which PlanetPress Workflow is to listen for Raw Socket communications. The default port number is 9100. Bear in mind that no two input tasks, whatever their type (Telnet, serial, LDP, etc.), should be listening to the same port.
- **Description**: PlanetPress Workflow displays the name of the service or process assigned to the port number entered in the Port box. Note that these are standard Internet Assigned Numbers Authority (IANA) descriptions.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.

The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

This task does not generate any job information.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

WinQueue Input

WinQueue Input tasks capture print jobs received by a Windows printer queue.

> **Note**
>
> Before configuring this task, on the computer running PlanetPress Workflow you will need to create a local printer queue that will be used to receive data files in the form of print jobs. This queue can be shared, so as to be able to receive jobs sent from local as well as remote users.
>
> To ensure that the spooled files created by PlanetPress Workflow remain in the spool folder, the printer queue must be paused.

Input

The WinQueue input regularly polls the selected printer queue for new jobs. When a new job is available, it is captured automatically by this task.

Processing

The print job, by default, is in EMF format. If this option is selected, no action is taken on the data file. However, if the RAW format is selected, the job is converted to RAW. Furthermore, if the Create PDF option is selected, the file is converted to a PDF, including metadata.

Output

Either one of 3 formats is output from this task:

- An EMF job format
- A RAW job format
- A PDF with attached metadata.

Task properties

General Tab

- **Printer queue**: Select the PlanetPress Workflow Printer Queue (the one to which data files are going to be sent; see: "PlanetPress Workflow printer queues" on page 111).
- **Printer properties group**
  - **Spool Print Job ins EMF Format (Advanced printing features)**: Select to create EMF files for Windows Print Converter action tasks (see "Windows Print Converter" on page 446). Note that this option must not be selected when capturing generic text type data.
  - **Spool Print Jobs in RAW Format**: Select to output in RAW format, which is the exact data that the computer receives (and is not converted in any way).
    - **Create PDF (With Metadata)**: Select to output a PDF.
      - **Optimize Resulting PDF**: The resulting PDF is optimized for size and caching options are enabled. This reduces the size of the PDFs (depending on some factors), but may take more time to output the PDF.
- **Include empty files**: Check to process empty incoming jobs. The output will be empty, the job is deleted from the print queue, but the job information is available in the process (sending computer and user name, etc).

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - User name**: Contains the user name of the user who sent the job to the printer, or the user un which a software sending the job was logged in under.
- **%2 - Host computer**: Contains the name of the computer from which the job was sent.
- **%3 - Printer name**: Contains the name of the printer in which the job was received. Is the same for all jobs received on any given printer.
- **%4 - Document name**: Contains the name of the job as seen in the printer queue from which it is captured. This name is defined by the software that creates the print job.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Action tasks

Use action tasks in PlanetPress Workflow to perform a wide variety of operations. PlanetPress Workflow includes more Action tasks then Input and Output tasks combined. Action tasks can even be used to input data and to output data.

The difference between an Action task and an Input task is that an Action task can never be the first task of a process. In the same fashion, the difference between an Action task and an Output task, is that an Action task can never appear at the end of a process. In other words, Action tasks are always placed between other tasks.

This section covers all the Action tasks available in PlanetPress Workflow:

- "Add Document" on the next page
- "Add/Remove Text" on page 381
- "Advanced Search and Replace" on page 383
- "Barcode Scan" on page 385
- "Change Emulation" on page 391
- "Create PDF" on page 396
- "Database Query" on page 400
- "Decompress File(s)" on page 406
- "Digital Action" on page 407
- "Download to Printer" on page 417
- "External Program" on page 418
- "Load External File" on page 421
- "Mathematical Operations" on page 422
- "Open XSLT" on page 423
- "PDF/A-3 Attachments" on page 425
- "PDF to Bitmap" on page 429
- "Push to Repository" on page 430
- "Rename" on page 432
- "Run Script" on page 481
- "Search and Replace" on page 435
- "Send Images to Printer" on page 437

- "Send to Folder" on page 439
- "Set Job Infos and Variables" on page 440
- "SOAP Client plugin" on page 653
- "Standard Filter" on page 443
- "Translator" on page 445
- "Windows Print Converter" on page 446

Add Document

The **Add Document** action task prepares a printer-centric PostScript job by adding a PostScript version of a selected PlanetPress Connect document and the trigger to execute it before the active data file.

For more information about printer-centric printing see "Printer-centric printing" on page 111.

Input

This task can support files in any emulation, however, the actual file that should be used is one that is compatible with the selected PlanetPress Design document.

Processing

This task takes the PostScript version of the document (.ps7), adds the trigger and then the active data file to it. If Metadata is present, the output is based on this Metadata (unselected data pages will not generate output, the sort order will be respected, etc). Otherwise the complete data file is merged.

Output

The output is a PostScript job that can be sent to any output task in "passthrough" mode, for example Create PDF, PlanetPress Image, etc. Metadata is not generated by this task.

Task properties

General tab

- **Documents**: Select a specific PlanetPress Design document if you want all the jobs to be merged with that document (see "PlanetPress Design documents" on page 44).

- **Add job information to the document**: Select to prompt your PlanetPress Workflow to add the available job information elements in the header of the generated file. Note that this option is only enabled if a document was selected.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Add/Remove Text

Add/Remove Text action tasks can be used to perform the following actions on the data file they receive:

- Add or remove characters.
- Add or remove lines of data.
- Add the content of a text file.

Note that the content must be located at the beginning or the end of the data file.

Input

Any text-based file can be used in this task, even formats that are not directly compatible with PlanetPress. As long as the text is visible in a text-based editor (such as Notepad), it is readable and supported by this task.

Processing

The selected operation (adding or removing lines, text or pages) is made on the data file.

Output

The modified data file is output from this task. Metadata is not modified in any way if it is present.

Task properties

General tab

- **Action** group
  - **Add**: Select if you want the task to add content to the job file.
  - **Remove**: Select if you want the task to remove content from the job file.
- **Content**: Select what the task will actually add or remove. Select Text file to add the whole content of a text file to the beginning or end of the job file. Select Characters to add the string of characters entered in the Characters box to the beginning or end of the job file, or to remove a given number of characters from the beginning or end of the job file. Select Lines to add the lines of text entered in the Lines box to the beginning or end of the job file, or to remove a given number of lines from the beginning or end of the job file.
- **Position**: Select whether you want the task to add or remove content from the beginning or end of the job file.
- **Add CRLF after last line**: Select if you want to add a CRLF (carriage return/line feed) character after the last line of text added to the job file. This option is only available when you choose to add lines of text to the job file.
- **ASCII file**: Enter the path and name of the text file to be added to the job file, or use the **Browse** button to navigate to this file. This box is only displayed when the Text file option is selected in the Content box.
- **Characters**: Enter the string of characters to be added to the job file. This box is only displayed when the Characters option is selected in the Content box.
- **Lines**: Enter the lines of text to be added to the job file. This box is only displayed when the Lines option is selected in the Content box.
- **Remove**: Enter the number of characters or lines to be removed from the job file. This box is only displayed when Remove is selected in the **Action** group and when the Characters or Lines option is selected in the Content box.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Advanced Search and Replace

Advanced Search and Replace action tasks are used to locate and replace strings of data within the job file and to replace them with other strings of data. Contrary to **Search and Replace** action tasks, they allow the use of regular expressions.

Using regular expressions, it is possible to search for patterns rather than specific strings. For instance, a pattern can be specified to find all valid email addresses or phone numbers within the data stream.

Input

Any text-based file can be used in this task, even formats that are not directly compatible with PlanetPress Workflow. As long as the text is visible in a text-based editor (such as Notepad), it is readable and supported by this task.

Processing

The appropriate changes are made to the data file (replacing text).

Output

The modified data file is output from this task. Metadata is not modified in any way if it is present.

Task properties

General tab

- **Search mode** group: Select your chosen search mode within this group.
  - **Search line by line**: Select if you want each line in the data stream to be searched separately. When this option is selected, PlanetPress Workflow considers each line as an individual data stream (lines are separated by Line Feed characters). It minimizes memory requirements but may also limit hits, since lines are considered separately. Note that it is not possible to use search expressions that specify multiple data lines when this option is selected.
  - **Search whole file**: Select if you want the entire data stream to be searched as if it were a single string of text. When this option is selected, PlanetPress Workflow loads the entire file in memory. It offers more flexibility, since search expressions

may span across multiple lines and may result in more successful hits. Note that since this option uses more memory, it may affect performance.

  - **String to search**: Enter your search string or regular expression in this variable property box. To enter multiple strings or expressions, press Enter after each one (note that only one string can be entered in the **Replace with** box).

- **Treat as regular expression**: Select to specify that the string or strings entered above are to be interpreted as regular expressions rather than ordinary text strings. This option disables all position options as well as the **Whole words only** option.
- **Search options** group
  - **Case sensitive**: Select to force the plugin to match the character casing of the search string above with the characters found in the file. If this option is selected, “DAY” and “Day” will not be considered as matching the search string “day”.
  - **Whole word only**: Select force the plugin to search only for strings that match the search string from beginning to end (cannot be used with regular expressions). If this option is selected, “DAY” and “DAYS” will not be considered as matching strings.
- **Position options** group: Specify the location where the string must be found using this group. Note that this whole group is disabled when the **Treat as regular** expression option is selected.
  - **Anywhere on the line**: Select to indicate that the search string can be anywhere on the line.
  - **At the beginning of a line**: Select to indicate that the search string must be the first string on the line.
  - **At the end of a line**: Select to indicate that the search string must be the last string on the line.
  - **At column**: Select to indicate that the search string must be in a specific column. Specify the column number (the value must be greater then 0) in the **Column value** box below.
  - **Between specific words**: Select to indicate that the search string must be between specific words. Specify these words in the **Word before** and **Word after** boxes below.
  - **Occurrence related**: Select to indicate that the search string must be found a specific number of times before a string replacement is performed. If the **Search line**

by line option is selected in the **Search mode** group, the search counter is reset for every line. If the **Search whole file** option is selected in the **Search mode** group, the search counter is not reset before the end of the file. Select one of the occurrence options (described below) in the list box below and enter a value in the **Occurrence value** box besides it.

- **At occurrence**: The replacement will take place only when the specified number of occurrences has been reached. Specifying 2 occurrences, for instance, means that only the second occurrence will be replaced.
- **At every specified occurrence**: The replacement will take place every time the specified number of occurrences is reached. Specifying 2 occurrences, for instance, means that the second, the fourth and the sixth (and so on) occurrence will be replaced.
- **All after occurrence**: All occurrences of the search string will be replaced once the specified number of occurrences has been reached. Specifying 2 occurrences, for instance, means that all occurrences after the second one will be replaced.
- **All before occurrence**: All occurrences of the search string will be replaced until the specified number of occurrences has been reached. Specifying 5 occurrences, for instance, means that the four first occurrences will be replaced.

- **Replace with**: Enter the string that must be used as the replacement sting when a match is found.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Barcode Scan

The **Barcode Scan** task is used to convert barcode data from multiple image formats into text-readable information. This information is placed in the Metadata and can be used by the rest of the process.

Input

Image formats supported by the **Barcode Scan** task are:

- Tag Image File Format (TIFF)
- Portable Document Format (PDF)
- Joint Photographic Experts Group (JPEG and JPG)
- Portable Network Graphics (PNG)
- Bitmap (BMP)

Processing

The task reads the image and detects the presence of the selected supported barcode types. When a barcode is detected, the data it contains is read and added to the Data Page level of the Metadata.

> **Note**
>
> This task does not recognize more than one level of the Metadata Document. This means that if you are intending to define separate documents, you should use the **Metadata Level Creation** task after the **Barcode Scan**.

Output

This task outputs the original data file but with modified (or created) Metadata. The format should be the same as the input.

Supported barcode types

The following types of barcodes are supported:

Barcode types	Description
EAN13	EAN13 symbology. Used with consumer products internationally, 13 characters.
EAN8	EAN8 symbology. Short version of EAN-13, 8 characters.
UPCA	UPCA symbology. Used with consumer products in U.S., 12 characters.

Barcode types	Description
UPCE	UPCE symbology. Short version of UPC symbol, 6 characters.
Code11	Code 11 symbology. Used to identify telecommunications equipment
Code39	Code 39 symbology. U.S. Government and military use, required for DoD applications
Code93	Code 93 symbology. Compressed form of Code 39.
Code128	Code128 symbology. Very dense code, used extensively worldwide.
Codabar	Codabar symbology. Used in libraries and blood banks.
Inter2of5	Interleaved 2 of 5 symbology. Used in warehouse, industrial applications.
Add2	2 additional digits code for UPC-based symbologies. Used to indicate magazines and newspaper issue numbers.
Add5	5 additional digits code for UPC-based symbologies. Used to mark suggested retail price of books.
PDF417	Portable Data File is a 2-dimensional barcode (also known as matrix code) used in a variety of applications, including Transport, Identification cards, and Inventory management. It is best suited for cases where information needs to move with an item or document.
DataMatrix	DataMatrix is a two-dimensional barcode which can store from 1 to about 2,000 characters. DataMatrix is being used to encode product and serial number information on electrical rating plates; to mark of surgical instruments in Japan; to identify lenses, circuit boards, and other items during manufacturing.
QRCode	The QR Code (Quick Response Code) is a 2-dimensional matrix code. It can encode up to 2509 numeric or 1520 alphanumeric characters.
PostNet	PostNet symbology. Used by the United States Postal Service to assist in directing mail.

Barcode types	Description
RM4SCC	RM4SCC symbology. Used by the Royal Mail.

> **Note**
>
> The fewer barcode types are selected, the faster the plugin performs. Selecting only the expected barcodes is therefore a good practice.

Barcode orientations

Barcode orientations represent a barcode orientation on an image. For example, when the left-to-right option is checked, the task will try to read the barcode value assuming that the barcode data should be read in a left-to-right fashion.

> **Note**
>
> The fewer orientations are selected, the faster the task performs.

Settings

- **Force checksum validation**: Select to define whether the checksum validation is required for symbologies in which a checksum character is optional. The goal of checksum is to detect accidental modification such as corruption to stored data or errors in a barcode values. By default it is set to false. Note: If barcodes using symbologies with optional checksum do not show the checksum and the option Force checksum validation is checked, no barcode will be detected on the page
- **Process by**: Select to define whether to process the image by page or by file:
  - **Process by Page**: The task is able to handle single or multiple page files (Tiff and PDF) and act as a loop to process each page independently and sequentially. The Metadata file will be created separately for each page if it does not exist or will be enhanced with the values on processed Datapage level if it already exists. All supported images will be converted to tiff format.

    - **Process by File**: The task will process the file once and will insert the barcode information in one Metadata file. Metadata will be created if it does not exist or will be enhanced with the values if it already exists.
- **Replace non-printable character with**: Enter a character that will be used as a replacement for all non-printable characters read from the barcode.Some barcode types like Data Matrix can store non-printable characters that Metadata does not support. The **Barcode Scan** task character replacement option will allow successful barcode reading of all non-printable characters in a given barcode. The value specified in the Replace non-printable character with option will be found in place of any non-printable character in the BarcodeValue and Barcode_x_Value Metadata fields, while the original barcode value (i.e. with non-printable characters) will be available in the BarcodeBase64_x_value Metadata field. This option allows only one printable replacement character. By default, this character is an empty space. Note: Non-printable characters are the first 32 characters in ASCII character table (Ex.: form-feed, newline, carriage return characters)
- **Scan Interval**: Set a scan interval in pixels of image scanning. This property directly affects the performance and quality of the recognition. A greater interval value means better performance, but a lower recognition confidence level, and vice versa. For example, a value of 1 means that every image line will be scanned. By default, the Scan Interval is set to 1.
- **Threshold level [0..255]**: Set to represent the color threshold level in order to distinguish foreground pixels from background pixels in color or gray scale images. Value can be between 0 and 255, corresponding to the pixel intensity value, from 0 (black) to 255 (white). Therefore, defining a threshold value of 128 means that the pixels with an intensity greater than 128 will be considered as white, while those less than 128 will be considered black. The value 0 means that the color threshold level will be calculated automatically depending on the image. By default Threshold level [0..255] is 0. This parameter is ignored with binary images (black and white images).

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Metadata implementation

The **Barcode Scan** task reads each scanned file and outputs the values read from barcode(s) on the page(s) into Metadata depending of the selected Process by option:

- If the selected option is process by page, then the Metadata file is created and overwritten for each new scanned page.
- If the selected option is process by file, then only one Metadata file will be created (or updated).

> **Note**
>
> If Metadata was created previously in the process, the task only adds new fields to the existing Metadata at the datapage level.

Metadata fields

The barcode values are stored at the datapage level of the Metadata. In the following definitions, the first 2 Metadata fields are for standard use, while the next 8 fields contain '_1_' in their name. This number represents the barcode index on the page. If there is more than one barcode on the same page, these Metadata fields will be defined as many times as there are barcodes on the page, except that the middle number (..._X_...) will increment according to the barcode index (e.g. Barcode_2_Value, Barcode_3_Value, etc.).

- **BarcodeValue**: Metadata field representing the value of the barcode. When multiple barcodes are present on the page, this field is present multiple times.
- **BarcodeCount:**: Metadata field representing the number of barcodes on the page.
- **Barcode_1_Value**: Metadata field representing the value of the first barcode on the page. Note that this field (Barcode_1_Value) contains the same value as the first occurrence of BarcodeValue.
- **BarcodeBase64_1_Value**: Metadata field containing the value of the first barcode, encoded in Base64.
- **Barcode_1_Type**: Metadata field containing the type of the first barcode (ex. EAN13, UPCA …).
- **Barcode_1_Orientation**: Metadata field containing the orientation of the first barcode.
- **Barcode_1_Top**: Metadata field providing the distance (in pixels) from the top of the page to the top of the first barcode.
- **Barcode_1_Bottom**: Metadata field providing the distance (in pixels) from the top of the page to the bottom of the first barcode.

- **Barcode_1_Left**: Metadata field providing the distance (in pixels) from the left of the page to the left side part of the first barcode.
- **Barcode_1_Right**: Metadata field providing the distance (in pixels) from the left of the page to the right side part of the first barcode.

Accessing a barcode value from the Workflow tool

One method to access a barcode value from the Workflow configuration tool is to use a VBScript with the **Open Script** task, using the Watch.ExpandString command with a Metadata command as its input parameter, in between double quotes. For example, the following script line gives the value of the first BarcodeValue Metadata field of the first datapage:

```
watch.expandstring("GetMeta(BarcodeValue[0],0,Job.Group[0].Document[0].Datapage[0])")
```

Another method is to use a **Set Job Infos and Variables** task to copy a Metadata field into a Workflow variable.

Limitations

- Some barcodes created with PlanetPress 5 could not be read by the **Barcode Scan** task, so please use PlanetPress version 6 or 7 to create barcoded documents.
- When using a secondary input, a known issue of the Workflow Tool can cause some unexpected behavior, like having the same Metadata file reused instead of a new one being created for each data file captured. To work around this issue, simply add a **Rename** action task to set a unique file name (Ex. %u) to each new file before the **Barcode Scan** task, after each secondary input.

Change Emulation

Change Emulation action tasks are used to tell the tasks that follow them to use a different emulation to format the data they receive (see: "About data emulation" on page 60). These tasks do not perform any operation as such on the data, but rather they modify the way subsequent tasks process the data they receive.

Change Emulation action tasks are typically used when a secondary input task brings new data that is not structured like the initial data into the process. By default, every task included in a process uses the emulation associated with the sample data file to structure the data before processing it. Any task that must use a different emulation must be preceded by a **Change**

Emulation action task. All the tasks that follow on the same branch will use the emulation chosen in the **Change Emulation** task.

Input

Any data file.

Processing

The emulation for the following tasks is changed to the selected emulation.

Output

The original data file, metadata and job infos are not modified. Only the emulation is changed.

Task properties

> **Note**
>
> Note to PlanetPress Suite users: The options of this task are basically the same as the Data Selector in PlanetPress Design; see PlanetPress Design User Guide.

General Tab

Add/remove characters: Enter the number of characters to add to, or remove from, the head of the data stream, or use the spin buttons to increment or decrement the value. Positive values add characters; negative values remove characters. This is useful when one or more characters of input data precede the start of the first data page. Note that certain control characters can be problematic. For example, the NUL character (hexadecimal 00) cannot be removed from the head of the data stream, and a backspace (hexadecimal 08) can cause unpredictable behavior. The Hex Viewer can be useful in helping determine the control characters that appear at the head of the data stream. (To open the Hex Viewer, select Debug > View as Hex, in the menu.) Note that you cannot add characters in a CSV. Further note that if you remove characters in a CSV emulation, you should ensure that you do not inadvertently remove field or text delimiters.

Add/remove lines: Enter the number of lines to add to, or remove from, the head of the data stream, or use the spin buttons to increment or decrement the value. Positive values add lines; negative values remove lines. This is useful when one or more lines of input data precede the

start of the first data page. Note that you cannot add lines in either a CSV or user defined emulation.

Lines per page: Enter the number of lines each data page contains, or use the spin buttons to increment or decrement the value.

Pages in buffer: Enter the number of data pages you want the data page buffer to contain, or use the spin buttons to increment or decrement the value.

Read in binary mode (ASCII emulation only): Select to read the data file in binary mode. You select this if you intend to run a PlanetPress Design document on a printer queue that is set to binary mode. In binary mode, the printer reads the end of line characters (CR, LF, and CRLF) as they appear in the data stream and does not perform any substitution. A printer that does not support binary mode or is not running in binary mode replaces any CR, LF, or CRLF that appears at the end of a line of data with a LF. Note, however, that it replaces a line feed followed by a carriage return (LFCR) with two LFs. Binary mode is the recommended printer mode when you use an ASCII emulation.

Cut on FF character: Select to have a new data page when a form feed character is encountered in the data stream. If you select Cut on FF character, you have two conditions that signal the end of a data page: the form feed character and the number of lines set in the Lines per page box.

View Selector: Click to go to the Data Selector to set the properties of this task.

Emulation. The available emulations are:

- **Line printer**. (Nothing to configure.)
- **ASCII**.
    - **Tab on CR**: Select to have the document insert a tab after each carriage return character it encounters. Set the number of spaces in the tab using the **Number of spaces in the tab** box. This option is available only if you selected the Read in binary mode option. If you cleared Read in binary mode, the printer replaces any end of line characters (CR, LF, or CRLF) it encounters with a LF.
    - **Number of spaces per tab**: Enter the number of spaces you want the document to use for a tab, or use the spin buttons to adjust the value.

- **Remove HP PCL escapes**: Select to have the document remove any Hewlett Packard Printer Control Language (HP PCL) escape sequences it encounters.

- **CSV** (comma separated values).
  - **Text delimiter**: Enter the character that starts and ends the data in each field of the record. If you do not set a text delimiter and the data in a field contains the character you set as the delimiter, the document splits that data into two fields. If you want to use a backslash character (\) as a delimiter, you must precede it with another backslash character (thus you would enter \\). You can also specify an ASCII character using its octal value preceded by a backslash (for example, \041 is the exclamation mark character [!]).
  - **Force one record per page**: Select to force a single record per data page. If you clear the selection, the document fills the data page completely, splitting a record across data pages if necessary. If you want to avoid splitting a record across data pages, yet have several records in the buffer, select Force one record per page, and, when you stabilize your data, set Pages in buffer to the number of records you want the buffer to hold.
  - **Delimiter**: Enter the character that separates the fields of each record in the input data. If you want to use a tab as a delimiter, select Set tab as field delimiter. If you want to use a backslash character (\) as a delimiter, you must precede it with another backslash character (thus you would enter \\). You can also specify an ASCII character using its octal value preceded by a backslash (for example, \041 is the exclamation mark character [!]).
  - **Set tab as field delimiter**: Select to define a tab as the character that separates the fields of each record in the input data. Clear to use the Delimiter box to define that character.

- **Channel skip**.
  - **Skip page**: Enter the channel skip code that, in your data, signals the start of a new data page. In standard channel skip emulation, a 1 (one) signals the start of a new data page. If a 1 appears in the first column of your data, it is likely the channel skip codes are standard, and that only minor adjustments to the other codes, if any, will be necessary.
  - **No line feed**: Enter the channel skip code that tells the document to ignore any line feed character (LF) that appears at the end of the line. This causes the next line to print over the current line, and is a technique impact printers use to print a line, or elements of a line, in bold or with underlining. For example, the input data for an impact printer might underline text by placing the text to underline on one line, and

the underscore characters of the underline on the following line. The first character of the line with the text is a code that tells the printer to ignore the LF at the end of that line. The result is underlined text.
It is important to understand what happens when you tell the channel skip emulation in PlanetPress Design to ignore the LF at the end of a line. Recall that the emulation stores each line of data in the data page buffer, and that each cell of the data page buffer can contain at most a single character. If the emulation ignores the LF at the end of a line, it must determine whether to overwrite the cells of the last line of data it stored. In this case, it compares the character in each cell in the line with the one in the new line destined for that cell. If the character in the cell is a space or an underscore, it overwrites that character with the one from the new line. If the character in the cell is not a space or an underscore, it leaves it intact.

- **Skip x lines**: Use these boxes to enter any channel skip codes in your data that tell the document to skip a specific number of lines. If you want to enter a backslash character (\) as a code, you must precede it with another backslash character (thus you would enter \\). You can also specify an ASCII character as a code using its octal value preceded by a backslash (for example, \041 is the exclamation mark character [!]).
- **Char, Skip to line**: Use these boxes to enter any channel skip codes in your data that tell the document to skip to a specific line. Enter the code in the Char box; enter the line number in the Skip to line box or use the spin buttons to adjust its value. If you want to use a backslash character (\) as a code, you must precede it with another backslash character (thus you would enter \\). You can also specify an ASCII character as a code using its octal value preceded by a backslash (for example, \041 is the exclamation mark character [!]).
- **Go to column**: Use this to enter the channel skip code in your data that tells the document to advance to a specific column. Enter the code in the Char box to the left of the Go to column label, and use the box on the right of the Go to column label to set the column number. This is useful when your data contains redundant lines that were originally created to bold a line on a line printer. By entering a Go to column value that is greater than the width of the data page, you can remove the second line by shifting the contents of the second line outside the data page.

- **Database**. (Nothing to configure.)
- **XML**.
  - **Cache XML data**: When this option is selected, PlanetPress Watch/Server only reloads the data if the size or modified date of the XML file changes. When this option is not selected, the XML data will be reloaded into memory every time that a

plugin works on the data file. Caching the XML data will make subsequent tasks run faster (as loading an XML file can take a long time) but will also use up more memory since that memory isn't released in between tasks. For single runs the performance gain is less noticeable than in loops (either through a splitter, a Loop task or a metadata filter) where the XML file would be loaded repeatedly.

- **PDF**. (Nothing to configure.)

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Create PDF

The **Create PDF** Action task creates simple PDF files using the default quality. It is very similar to the **Digital Action** task (see "Digital Action" on page 407) but is more limited. It does not contain the advanced PDF options that are offered by the PlanetPress **Image** solution (see "About PlanetPress Image" on page 744).

In PlanetPress Suite, this task can be used to merge a data file with a specific Design document and output the result as PDF.
In Connect, merging a data file with a Connect template and outputting PDF is done using OL Connect Print tasks (see "OL Connect tasks" on page 590).

Alternatively this task may be part of a "PDF workflow": a workflow in which both input and output are PDF and in which Metadata tasks are used to group, sort and sequence (split) the PDF data. (See "PDF Workflow" on page 287 for more information on this.) The Create PDF task will apply the active Metadata to the PDF data file.

PDFs created with the **Create PDF** action task will effectively replace the current data file in any given process using such a task.

Input

Any data file supported by PlanetPress Workflow, or a PostScript file.

Processing

A PostScript file can be converted straight into PDF.
A regular data file needs to be merged with a PlanetPress Design document first, except for a PDF file, which may or may not be merged with a PlanetPress Design document.
When a PDF file is used as-is, the Create PDF task will apply the active Metadata to the PDF data file (for more information on this see "PDF Workflow" on page 287 and "Working with Metadata" on page 78).

Output

The output of this task is always, exclusively, a PDF file, optionally optimized and optionally with fresh Metadata.

For the PDF values for files generated with this plugin, see "PDF Values" on page 399.

Task properties

General tab

- **Documents**: Select None to use the job file as-is. Alternatively, select a specific PlanetPress Design document if you want all the jobs to be generated with that document.
- **Run mode group** (only with a PlanetPress Design document):
  - **Printer centric**: Select to send the document along with the trigger and data to the PDF RIP.
  - **Optimized PostScript Stream**: Select to merge the selected document with the data received by this task before sending it to the PDF RIP. Note that some features, such as the Time and Date require that this option be selected.
- **Options group**
  - **Add job information to the document**: Select to add the available Job Info variables in the “header” of the generated output file.
  - **Optimize resulting PDF**: Select to specify whether the resulting PDF should be optimized. Optimization can lead to a significant reduction in the size of the PDF, but it may also add a certain amount of time to the process. This option should only be unchecked if the timing of the process is critical and it needs to be done quickly,

but keep in mind that the resulting PDF may be much larger than it should be and may even be too large for PlanetPress Workflow to handle.

- **Reset Metadata according to new PDF**: The Metadata is updated to include only the selected nodes from the current Metadata, and sequential indexes are re-created.

- **Security group**
  - **Set document permissions**: Select to enter the **Permissions password**.
    - **Permissions password**: Enter a password in this box only if you want to prevent users who does not have this password from changing the security options of the generated PDF files.
  - **Allow printing**: Select to let users print the generated PDF files.
  - **Allow changing the document**: Select to let users edit the generated PDF files.
  - **Allow content copying**: Select to let users copy content from the generated PDF files.
  - **Allow form filling**: Select to let users enter information in the form fields included in the generated PDF files.
  - **PDF open password**: Enter a password in this box only if you want to prevent users who does not have this password from opening the generated PDF files.
  - **Security Level**: The password protection for PDF can be encrypted using one of the available encryption methods (RC4, AES-256 and AES-128). It gives the task the ability to take an existing PDF in input and apply the selected password to the PDF without any change to the quality level of the original PDF.
- **Font group**
  - **Embed all**: Select to embed the entire font of all fonts used in the variable content document within the generated PDFs. Using this option may result in large PDFs, especially if many fonts are used. Note that those fonts installed by default with the Adobe Acrobat and Adobe Reader are never embedded. If a font is not embedded in your PDF, opening it on another computer or printing it may cause it to be substituted by another default font.
  - **Subset**: Select to embed only a subset of the Type 1 and TrueType fonts used in the document. A font subset is in fact composed of only those characters that are actually used in the document. This option can only be used if the Embed all fonts option is selected. Note that if more than 35% of the characters included in a font are

used in the document, the entire font is embedded. This option often produces smaller PDF files and ensures proper PDF display.

- **Initial view group**
  - **Zoom factor**: Select the magnification at which you want Adobe Acrobat or Adobe Reader (or other PDF viewer) to open the generated PDF. Choose the Fit in window option to display the entire page using the available screen space, or choose a percentage of the actual document size.
  - **Show**: Select the information you want Adobe Acrobat or Adobe Reader (or other PDF viewer) to display with the generated PDF. Select Page only to leave the tabs area to the left of the PDF pages empty. Select Bookmarks and page to display the contents of the **Bookmarks** tab (you use data selection objects to create bookmarks in PlanetPress) alongside the PDF pages. Select **Page** tab and Page to display the content of the **Pages** tab (thumbnails of each PDF pages) alongside the PDF pages. Select Full screen to hide all screen contents except the PDF page, and expand the PDF page to the maximum size it can occupy onscreen.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

PDF Values

Here's a list of the hard-coded PDF values for files generated with this plugin. Basically, these settings correspond to Digital Action and PlanetPress Image settings for Standard Quality (see "About PlanetPress Image" on page 744).

- **PDF version**: 1.4
- **Job option**: Standard quality
- **General**:
  - Compress text and line art
  - Auto-rotate pages
  - Optimize for fast web view
- **Author**: PlanetPress

- **Keywords**: PlanetPress; Create PDF plugin
- **Monochrome images**:
  - **Compression**: CCITT
  - **Pixels per inch**: 1200
- **Grayscale images**:
  - **Compression**: Auto
  - **down sampling**: Bicubic
  - **Pixels per inch**: 300
- **Color images**:
  - **Compression**: Auto
  - **down sampling**: Bicubic
  - **Pixels per inch**: 150
- **Security**:
  - Allow printing
  - Allow changing the document
  - Allow content copying
  - Allow form filling
- **Font**:
  - Embed all fonts
  - Subset embedded fonts
- **Open options**:
  - **Zoom factor**: Fit in window
  - **Default view**: Page only

Database Query

The **Database Query** action task retrieves data from various databases to use as input data. The data received by the task may be kept as is or converted to the CSV, Fixed Length Columns or XML format.

Database Query action tasks are not considered input tasks as such, because they cannot be used to start a process. Although they cannot be used to get the process's initial input, they can

be used to gather secondary input (see "Input tasks" on page 309). In cases where all your data comes from databases, you can use a **Create File** input task as a dummy task at the beginning of your process, and then use a PlanetPress Workflow **Database** action task to gather your actual data.

> **Note**
>
> **Database Query** action tasks require version 2.5 or higher of the Microsoft Data Access Components (MDAC), including JET 4.0.

When adding a **Database Query** action task, you have two options:

- You can use static properties (properties that will remain the same regardless of the data processed at run-time). This option lets you use an Open DataBase Connectivity (ODCB) compliant data source. You can also edit the SQL statement that assembles the database table. Note that you can import a database connection configuration that you previously exported from PlanetPress Design (when you created a document) or from PlanetPress Workflow (when you set up a sample data file for a process).
- You can use dynamic properties (properties that include variables or data available at run-time). This option lets you create a dynamic database connection string as well as an SQL statement that changes based on the data processed by PlanetPress Workflow. Note that this option will not let you test the query performed by this task before it is performed with actual data.

Input

Any data file. The data file will be discarded by the task.

Processing

A connection to the selected database is made, the data is retrieved, and an output in the selected emulation format is generated.

Output

The result of the query is output in the selected data format. The current emulation is changed to the selected format. Metadata and Job Info variables are not modified in any way.

Task properties

Database Connection Tab

- **Database group**
  - **Location**: Enter either the path and name of the database or a database connection string in this box. You may click to navigate to the database and paste the database path and name automatically to this box. You may also click create an ODBC connection string to the data source and paste the string automatically to this box. If a login name and password are required to connect to the database, a dialog box is displayed and the information you enter is saved in the configuration of the PlanetPress Workflow **Database** action task.
  - **Table/Query**: Select the table or query containing the information you need as your input data.
- **Range group**
  - **All**: Select this option use all the records included in the database.
  - **Records**: Select this option use only some of the records in the database. Indicate the range by entering the number of the first record followed by a dash and the number of the last record. To use records 50 to 75, for example, enter 50-75. Note that this option is intended mostly for testing purposes, since in real life scenarios, you typically want to use all the records stored in a database.
- **Emulation group**: Use options from this group to customize the data file generated by the PlanetPress Workflow **Database** action task.
  - **Output file emulation**: Select the emulation corresponding to the type of output file you want the PlanetPress Workflow **Database** action task to generate.
  - **CR-LF replacement**: If you want CR-LF (Carriage Return-Line Feed) characters within the data file to be replaced by another character, use this box to indicate which character to use. You may select the replacement character from the list or type your own.
  - **Emulation options group**: Options from this group change based on the selected output file emulation.
  - PlanetPress Workflow **Database Emulation**: If you selected PlanetPress Workflow Database in the Output file emulation box, the following options are available:
    - **Create data pages as follows**: Select the option that will be used to generate the data pages. Each data page created using the table or query selected

above (Table/Query box) can contain a single record, a fixed number of records, or a variable number of records. To choose the last option, select one of the When [field name] changes listed in this box.

- **Sort on conditional field**: Select this option if you want the table to be sorted using the field selected in the Create data pages as follows box before the data page creation process is started.
- **Maximum number of records per page**: For data pages that contain multiple records (a fixed or variable number of records), enter a maximum number of records per page in this box. Note that this value cannot exceed 4,000.

- **CSV Emulation**: If you selected CSV in the Output file emulation box, the following options are available:
  - **Sort on field**: If you want the table to be sorted before the data page creation process is started, select the sort field from this box.
  - **Text delimiter**: Select the text delimiter to be used in the generated file.
  - **Field separator**: Select the field separator to be used in the generated file.
  - **Add a header record with field names**: Select this option if you want the generated file to have a header record (a record that includes the field names only).
- **Fixed Length Columns Emulation**: If you selected Fixed length columns in the Output file emulation box, the following options are available:
  - **Sort on field**: If you want the table to be sorted before the data page creation process is started, select the sort field from this box.
  - **Default width**: This box is used to set the default width for all fields. It is set to 60 by default, but can be set to any value between 1 and 65535. This value is applied to all the fields in the generated file. To set different widths for each field, use the **Configure Width** button. Doing this disables the Default width box.
  - **Configure Width**: Click to set the width of each field in the generated file. The displayed **Configure Width** dialog box lists all the fields in the file that will be generated and indicates their widths. To change the indicated widths, simply click the values displayed in the Width column and enter new values. Click OK when you are done to close the dialog box. You will then no longer be able to use the Default width box.

- **XML Emulation**: If you selected XML in the Output file emulation box, the following options are available:
  - **Create data pages as follows**: Select the option used to generate the data pages. Each data page created using the table or query selected above (Table/Query box) can contain a single record, a fixed number of records, or a variable number of records. To choose the last option, select one of the When [field name] changes listed in this box.
  - **Sort on conditional field**: Select this option if you want the table to be sorted using the field selected in the Create data pages as follows box before the data page creation process is started.
  - **Data encoding**: Select the encoding used in the generated XML file. By default, this option is set to the default encoding of the computer used to create or edit the configuration. You may choose any encoding listed in the drop-down list or enter your own.
  - **Maximum records per page**: Select this option if you want to limit the number of records per page. This option is only available if you indicated that you wanted each data page to contain several records in the Create data pages as follows box.
- **XML for PrintShop Mail**: This emulation is specifically for use with merging your data with a PrintShop Mail document, using the **PrintShop Mail** task (see PrintShop Mail). No options are offered, as this format is static and should not be modified.

- **Alternate syntax**: Select to prevent automatically enclosing the names of any database tables and fields that appear in the SQL query in square brackets when it exits the **Advanced SQL Statement** dialog box. The alternate syntax may be required for some database types.
- **Edit SQL**: Click to create and test an advanced SQL query; see "Advanced SQL Statement Dialog" on page 838.
- **Import Config**: If you previously created and exported a PlanetPress Workflow Database Connection configuration, click this button to import it. This saves you the trouble of configuring the connection every time.
- **Client-side Cursor**: When this option is enabled, the complete result set is downloaded before processing starts, and changing records is done by PlanetPress Workflow. This is generally faster for queries returning a small number of results ; otherwise the start of the record processing can be delayed since the whole record set must be downloaded.

> **Note**
>
> MySQL, using ODBC 5.0, must be set to use a client-side cursor.
> Microsoft Access will always work better when using a Server-Side cursor.

- **Include password in config**: Select to save an encrypted version of the database password (if any) within the exported configuration.
- **Export Config**: Click to export the currently displayed properties of the PlanetPress Workflow action task. The exported configuration can then be reused on other PlanetPress Workflow workstations.

Dynamic SQL Tab

- **Use dynamic values at run-time**: Select to use a dynamic database connection string and / or SQL statement at run-time. Check this box to enable the options included in this group (this disables the corresponding options in the General tab).
  - **Parse normally**: Select to interpret any backslashes included in the database connection string as backslashes. If this option is not selected, any backslash that is not doubled will be disregarded.
  - **Expect record set**: Check if you are expecting a result from the database after executing the SQL query. If the query is expecting a record set in return and does not return one, the task will trigger an error.
  - **Database connection string**: Enter a variable connection string in this box. To do this you may begin by clicking to create an ODBC connection string to the data source and paste the string automatically to this box. Note that if a login name and password are required to connect to the database, a dialog box is displayed and the information you enter is saved in the configuration of the PlanetPress Workflow **Database** action task. Another option, if a database connection string (not a database path and name) was already entered in the Database Connection tab, is ti simply copy and paste it to this box. Bear in mind that if the Parse normally option is not selected, any backslashes included in the connection string that is not doubled will be disregarded. Once your connection string is displayed in this box, you can edit it by adding variables or data selections.
  - **SQL statement**: Enter your SQL statement. Remember that you may use variables and data selections in your statement.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Decompress File(s)

Decompress File action tasks decompress zipped job files (files compressed as zip files).

Input

This task only accepts ZIP files, however it is not necessary that the job file be the ZIP, since this file path and name can be specified in the task itself.

Processing

Every file in the ZIP is extracted to the specified location. If a folder structure exists in the ZIP, it is respected in the output folder.

Output

This task outputs the data file it received with no modification. Metadata and job files are not touched either.

Task properties

General Tab

- **Zip file name**: Enter the name of the zipped file. In this variable property box, you may enter static characters, variables, job information elements, data selections, or any combination of these.
- **Output folder**: Enter the name of the folder in which you want the decompressed files to be stored.
- **File mask**: Enter a file name mask to specify which files must be decompressed. Leave the default value of *.* to decompress all the files found within the zip.
- **Password**: Enter a password if the zip file is password protected.

- **Restore path structure**: Select if you want the complete file structure to be rebuilt from the output folder to the decompressed files.
- **Force directories**: Select if you want to allow the system to create new folders when required. If this option is not select and the **Decompress file** action task tries to save a file to a folder that does not exist, the task will fail.
- **Overwrite existing files**: Select if you want decompressed files that have the same name as existing files to overwrite the existing files.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Digital Action

Digital Action Action tasks generate the same types of documents as generated by PlanetPress **Image** output tasks (see "PlanetPress Image" on page 512). Since **Digital Action** tasks are not Output tasks, the documents they create are typically passed on to the following task. The image files they generate are always saved, along with their index files (if any), to an archive folder.

> Note
>
> The **Digital Action** task requires a PlanetPress **Image** license to be present on the same IP Subnet as PlanetPress Workflow, either on the same server or a different one with PlanetPress Image installed and activated.

Differences between Digital Action and Image tasks

- Digital Action is an Action task and cannot be the last task in a branch or process. Image is an Output task, and has to be placed at the end of a process or branch.
- Digital Action can accept PDF/VT and PostScript (.ps) files as an input, even if they are not generated by any PlanetPress Workflow tools.

Task properties

General Tab

- **Host**: Select the IP address of the PlanetPress Image host to which you want the request to be sent.
- **Refresh**: Click to update the list of IP addresses displayed in the Host drop-down list box.
- **Documents**: Select **None (Do not use a document (passthrough)** in order to generate an image with a PDF/VT or PostScript file in passthrough mode.

  > **Note**
  >
  > For an explanation of how to generate specific tags and indexes for the Image and Digital Action tasks, in a PDF/VT file created with Connect, see the Connect Online Help: Generating tags for Image output.

  Alternatively, select a PlanetPress Design document if you want all the jobs to be generated with that document. To use a document chosen at run-time for each job, enter a dynamic document name using a combination of text, variables and data selections. To enable the dynamic document name box, click inside it. To disable it, press Enter. Note that in the latter case, you must be certain that the documents that will be chosen at run-time will in fact be available locally or at the selected host.
- **List only documents using VDX compilation**: Check to ensure that only documents that are compatible with the VDX compilation method are shown in the list, if producing VDX output.
- **Run mode group**
  - **Printer centric**: Select to send the document along with the trigger and data to PlanetPress Image.
  - **Optimized PostScript Stream**: Select to merge the selected document with the data received by this task before sending it to PlanetPress Image. Note that some features, such as the Time and Date require that this option be selected.
- **Add job information to the document**: Select to add the available job info variables in the “header” of the generated output file.

- **Output type**: Select the output file type that you want.
  - **PDF**: The output will be a PDF file. If you select PDF, the DPI and Color Depth options (see below) are disabled and the options available in the **PDF** tab are enabled.
  - **JPEG**: The output will be a JPEG file. JPEG is a lossy compression image format that creates small files, compressing continuous tone images (such as scanned photographs) well.
  - **TIFF**: The output will be a TIFF file. TIFF is a higher quality format that is one of the standards for document exchange, useful for eventual printing or archiving. You have a choice of the following compressed TIFF formats: TIFF Group 3, TIFF Group 4, and TIFF Packed bits. You can also use the uncompressed TIFF format, which produces the largest files with the highest quality. TIFF is a versatile and platform-independent format. It is used in many digitizing projects as the format of choice for the digital masters. The TIFF Group 3 and Group 4 formats are efficient for document storage.
  - The **AutoStore**, **DocAccel** and **KYOcapture** formats also generate TIFF files along with special XML that are meant for these specialized systems.
  - **VDX**: The output will be a VDX file, which is a PDF file with some PPML code inside of it to enhance performance by doing caching/image reusing. The output can only be used on devices that support the VDX technology.
- **DPI**: Enter the dots per inch (dpi) resolution of the output image. This property is enabled for all output types except PDF.
- **Color depth**: Enter the color depth of the output image in bits per pixel (bpp). The color depth is measured in bits, because each pixel of the output image can be described with a varied number of bits. A higher bit number allows for more colors. It also increases the image file size. A 1-bit color depth produces monochrome images. 8-bits produce grayscale images (in PlanetPress Design you can have 8-bit color images, but these are reduced to grayscale if you select 8-bit here), while 24-bits produce full color images. For JPEG output, you cannot select a monochrome (1 bpp) color depth. For TIFF G3 and TIFF G4, monochrome (1 bpp) is the only Color depth option you can select. This property is enabled for all output types except PDF.
- **Multi-page**: Select to generate a single file containing multiple pages. When this option is not selected, PlanetPress Image creates a file for each page included in the output file. This property is enabled for all output types except PDF and JPEG.
  Add page number: Select to put a page number on each page included in the output file.

This option goes with the Multiple TIFF option and is only visible if either the AutoStore, DocAccel or KYOcapture format is selected.

- **Data Stream group**: Determines what is output by the **Digital Action** task:
  - **Use Digital as new data stream**: Use the file generated by the task for the rest of the process.
  - **Use original data stream (without document)**: Use the same data file as what was input to this task.
  - **Use original data stream (with document)**: Uses the PostScript data generated before image is created.
- **Save a copy**: Optional when the "Use Digital as the new data stream" option is checked, otherwise is always checked. Keeps a copy of the digital output onto the specified folder.
- **Folder and filename**: Enter the path of the folder to which output files generated by this task are to be archived. PDF index files (PDI and XML) are also put in this folder. This edit box is enabled when the Save a copy option is selected. To prevent each new file from overwriting the previous one, you should use variable names. As with any variable property box, you can use any combination of text, variables and data selections. When multiple files are generated for a single job (such as for multiple TIFFs), each file name includes a sequence number, such as in Invoice0, Invoice1, Invoice2. If you use file name masks that include dots, such as Statement.%y.@(1,1,1,1,25,KeepCase,Trim) or Job.%f, for example, you must add quotation marks at the beginning and end of the file name (“Statement.%y.%m.@(1,1,1,1,25,KeepCase,Trim)” or ”Job.%f”). Otherwise, when the file is saved, anything appearing after the last dot is replaced by the file’s extension characters (and the file name thus becomes Statement.2005.pdf instead of Statement.2005.255842.pdf, or Job.tif instead of Job.544872.tif). Failing to add the quotation marks may result in files being overwritten.
- **Automatically Add Extension**: Check if you want the correct extension for the image type to be appended to the filename automatically, rather than having to add it in the Filename box. The Output Type determines the extension to be used.
- **Add PDF to** PlanetPress **Search database**: Check to update the PlanetPress Search database with each new PDF generated.
- **Index group**: This group lets you specify which type of index must be created for each document generated by this task. PDI files are used by PlanetPress Search as indexing information.
  - **None**: Select if you do not want this task to add an index file to the generated document.

- **PDI**: Select if you want this task to add a PDI index file to the generated document.
- **XML and PDI**: Select if you want this task to add both an XML and a PDI index file to the generated document.

- **Use Title as FormName for PDF/VT document**: Check to use the Title (defined on the Job Options tab) as the PDF's FormName in the PDI, instead of the incoming PDF/VT document's `dc.title` meta data tag. If the Title is empty, a warning is logged and the FormName is not changed.

Job Options Tab

If you chose PDF as the output type in the General tab, use this tab to choose the appropriate PDF options. Note that all the options available in this tab are only used with PDF files.

- **Job options**: Select the PDF output option that best describes your needs. This loads all the standard settings for the selected usage scenario. These settings can be changed as required. Note that if you make changes and then select a different output option, your changes will be lost. PlanetPress Image supports numerous PDF standards: Standard, High Quality, Custom, and a variety of PDF/VT, PDF/A and PDF/X formats.

> **Note**
>
> PDF/A output created from a template that uses CMYK colors will be much bigger than PDF/A output created from a template that uses RGB colors, because PDF/A needs to contain a color profile and the CMYK color profile is rather big compared to a RGB color profile. If the output size matters it is recommended to avoid using CMYK colors.

- **General group**
  - **ASCII format**: Select to create the PDF file using ASCII characters (instead of the usual 8-bit binary format). This option produces a file suitable for transmission over a 7-bit ASCII link. This option is useful if the PDFs need to be opened in a text editor, sent across networks, or sent via email using a program that does not support binary files. This option also generates smaller files.
  - **Compress text and line art**: Select to compress the text and line work in the file using the Flate compression filter. Flate is a compression method that works well on

elements with large areas of single colors or repeating patterns, as well as on black-and-white elements that contain repeating patterns.

- **Auto-rotate pages**: Select to automatically rotate pages based on the orientation of the text or DSC comments.
- **Optimize for fast web view**: Select to minimize file size and facilitate page downloading.
- **Title**: Enter a title for the document. If you leave this box empty, the document's name will be used as the document's title. Since this is a variable property box, you may use variables and data selections and let PlanetPress Workflow interpret this information at run-time.
- **Author**: You may enter the name of the author of the document. Since this is a variable property box, you may use variables and data selections and let PlanetPress Workflow interpret this information at run-time.
- **Subject**: You may enter the subject of the document. Since this is a variable property box, you may use variables and data selections and let PlanetPress Workflow interpret this information at run-time. Note that if you use a data selection in this box, you must be sure that the data that will be selected at run-time will not contain any parentheses, as this would cause the task to fail. If you suspect that the data may contain parentheses, you should use a **Run script** action task (see **Run Script Action Task Property**) with a Strip() function to strip them out.
- **Keywords**: You may enter keywords for the document. Since this is a variable property box, you may use variables and data selections and let PlanetPress Workflow interpret this information at run-time.

- **Monochrome images group**
  - **Monochrome compression**: Select the compression to use for the monochrome images. Flate compression is lossless, so no data is lost during compression. Flate Mono works well on images with large areas of solid shades or repeating patterns, such as screen shots and simple images created with paint or drawing programs. CCITT typically yields the best compression of monochrome images. It is the compression method developed for fax transmissions. Note that configurations that were created with an earlier version of PlanetPress Workflow and that included tasks set not to use any compression will by default be set to use the Flat compression method.
  - **Monochrome resolution**: Select the resolution to use for monochrome images.

- **Grayscale images group**
  - **Grayscale compression**: Select the compression to use for the grayscale images. Flate is a lossless compression method, so no data is lost in the process. It works well on images with large areas of single shades or repeating patterns, such as screen shots and simple images created with paint or drawing programs. JPEG removes image data and may reduce image quality, but may be suitable for continuous-tone photographs containing more detail than can be reproduced onscreen or in print. Since JPEG eliminates data, it can achieve much smaller file sizes than Flate compression. Select Auto to let the application choose the best compression method automatically. Note that configurations that were created with an earlier version of PlanetPress Workflow and that included tasks set not to use any compression will by default be set to use the Flate compression method.
  - **Grayscale down sampling**: Select the down sampling option. down sampling reduces image size by breaking images down into small areas in which multiple pixels are replaced by single pixels. The Grayscale resolution you enter in the following box is used to control the down sampling process. Select None to prevent grayscale down sampling . Select Average to average pixel shades in each sample area and to replace the entire area with a pixel of the average shade. Select Subsample to use a pixel in the center of the sample area and replace the entire area with that pixel value. This method is significantly faster, but results in images that are less smooth. Select Bicubic to use a weighted average to determine pixel shades. This method is the slowest but most precise and results in the smoothest tonal gradations.
  - **Grayscale resolution**: Select the resolution to use for grayscale images. Note that this setting has an impact on the grayscale down sampling process.
- **Color images group**
  - **Color compression**: Select the compression to use for the color images. Flate is a lossless compression method, so no data is lost in the process. It works well on images with large areas of single shades or repeating patterns, such as screen shots and simple images created with paint or drawing programs. JPEG removes image data and may reduce image quality, but may be suitable for continuous-tone photographs containing more detail than can be reproduced onscreen or in print. Since JPEG eliminates data, it can achieve much smaller file sizes than Flate compression. Select Auto to let the application choose the best compression method automatically. Note that configurations that were created with an earlier version of PlanetPress Workflow and that included tasks set not to use any compression will by default be set to use the Flate compression method.

- **Color down sampling**: Select the down sampling option. down sampling reduces image size by breaking images down into small areas in which multiple pixels are replaced by single pixels. The Color resolution you enter in the following box is used to control the down sampling process. Select None to prevent grayscale down sampling. Select Average to average pixel color in each sample area and to replace the entire area with a pixel of the average color. Select Subsample to use a pixel in the center of the sample area and replace the entire area with that pixel value. This method is significantly faster, but results in images that are less smooth. Select Bicubic to use a weighted average to determine pixel shades. This method is the slowest but most precise and results in the smoothest tonal gradations.
- **Color resolution**: Select the resolution to use for color images. Note that this setting has an impact on the color down sampling process.

- **Security group**
  - **Set document permissions**: Select to enter the **Permissions password**.
    - **Permissions password**: Enter a password in this box only if you want to prevent users who does not have this password from changing the security options of the generated PDF files.
  - **Allow printing**: Select to let users print the generated PDF files.
  - **Allow changing the document**: Select to let users edit the generated PDF files.
  - **Allow content copying**: Select to let users copy content from the generated PDF files.
  - **Allow form filling**: Select to let users enter information in the form fields included in the generated PDF files.
  - **PDF open password**: Enter a password in this box only if you want to prevent users who does not have this password from opening the generated PDF files.
  - **Security Level**: The password protection for PDF can be encrypted using one of the available encryption methods (RC4, AES-256 and AES-128). It gives the task the ability to take an existing PDF in input and apply the selected password to the PDF without any change to the quality level of the original PDF.
- **Font group**
  - **Embed all**: Select to embed the entire font of all fonts used in the variable content document within the generated PDFs. Using this option may result in large PDFs, especially if many fonts are used. Note that those fonts installed by default with the Adobe Acrobat and Adobe Reader are never embedded. If a font is not embedded

in your PDF, opening it on another computer or printing it may cause it to be substituted by another default font.

- **Subset**: Select to embed only a subset of the Type 1 and TrueType fonts used in the document. A font subset is in fact composed of only those characters that are actually used in the document. This option can only be used if the Embed all fonts option is selected. Note that if more than 35% of the characters included in a font are used in the document, the entire font is embedded. This option often produces smaller PDF files and ensures proper PDF display.

- **Initial view group**
  - **Zoom factor**: Select the magnification at which you want Adobe Acrobat or Adobe Reader (or other PDF viewer) to open the generated PDF. Choose the Fit in window option to display the entire page using the available screen space, or choose a percentage of the actual document size.
  - **Show**: Select the information you want Adobe Acrobat or Adobe Reader (or other PDF viewer) to display with the generated PDF. Select Page only to leave the tabs area to the left of the PDF pages empty. Select Bookmarks and page to display the contents of the **Bookmarks** tab (you use data selection objects to create bookmarks in PlanetPress) alongside the PDF pages. Select **Page** tab and Page to display the content of the **Pages** tab (thumbnails of each PDF pages) alongside the PDF pages. Select Full screen to hide all screen contents except the PDF page, and expand the PDF page to the maximum size it can occupy onscreen.

- **Font group**
  - **Embed all**: Select to embed the entire font of all fonts used in the variable content document within the generated PDFs. Using this option may result in large PDFs, especially if many fonts are used. Note that those fonts installed by default with the Adobe Acrobat and Adobe Reader are never embedded. If a font is not embedded in your PDF, opening it on another computer or printing it may cause it to be substituted by another default font.
  - **Subset**: Select to embed only a subset of the Type 1 and TrueType fonts used in the document. A font subset is in fact composed of only those characters that are actually used in the document. This option can only be used if the Embed all fonts option is selected. Note that if more than 35% of the characters included in a font are used in the document, the entire font is embedded. This option often produces smaller PDF files and ensures proper PDF display.

- **Initial view group**
  - **Zoom factor**: Select the magnification at which you want Adobe Acrobat or Adobe Reader (or other PDF viewer) to open the generated PDF. Choose the Fit in window option to display the entire page using the available screen space, or choose a percentage of the actual document size.
  - **Show**: Select the information you want Adobe Acrobat or Adobe Reader (or other PDF viewer) to display with the generated PDF. Select Page only to leave the tabs area to the left of the PDF pages empty. Select Bookmarks and page to display the contents of the **Bookmarks** tab (you use data selection objects to create bookmarks in PlanetPress) alongside the PDF pages. Select **Page** tab and Page to display the content of the **Pages** tab (thumbnails of each PDF pages) alongside the PDF pages. Select Full screen to hide all screen contents except the PDF page, and expand the PDF page to the maximum size it can occupy onscreen.

PlanetPress **Search Database Tab**

If PlanetPress Workflow is configured to automatically update a PlanetPress Search database (See "PlanetPress Image preferences" on page 796), this tab can be used to override the global settings so that the task updates a different database than the one set in that global configuration. In order for the settings to work, the **Add PDF to** PlanetPress **Search database** must be checked. However, you can override which database will be updating using the option in this window, Override global PlanetPress Search Database settings. The database options then activate.

- **Database type**: Select the type of the database in which you want to create a table (Access, or SQL Server).
- **Connection time-out**: Enter the time, in seconds, that the connection to the database is maintained while no action is taking place before the connection is severed.
- **Database directory**: Enter the path of the directory in which the Access database is located, or use the **Browse** button to navigate to, and select, the directory. This option is available only when you select Access database in the **Database type** box.
- **Data source name**: Enter the name of the computer on which the database runs. This option is available only when you select SQL Server database or Oracle database in the **Database type** box.
- **Use default database**: Select to use the default database associated with your user profile on that SQL Server or Oracle database. Clear to enter the name of the database in the box that appears.

- **Use Windows NT Integrated security**: Select to use your Windows user name and password to log onto the SQL database.
- **User ID**: Enter the user id required to access the database to which you are adding new PDI files from the generated PDF files. If you are using an SQL database, enter the login name you chose when you configured the SQL database (refer to the “Using PlanetPressSearch with an SQL Server Database” section of the PlanetPress Search User Guide).
- **Password**: Enter the password required to access the database.
- **Test Connection**: Click to verify that PlanetPressImage can connect to the specified database.
- **Enforce global table creation**: Select this option, as it ensures that all database users are granted access to the database. This option is available only when you select SQL database in the **Database type** box.

Download to Printer

Download to Printer Action tasks are used to warn printers that the files that will be sent to them are to be stored to a specific location rather than printed. Note that each **Download to Printer** Action task must be followed by a **Printer Queue** Output task set to "pass-through", in order for it to be sent to the printer and not merged with a PlanetPress Design document.

You can use **Download to Printer** action tasks to send various types of files, such as attachments, documents and fonts that are used in PlanetPress Design documents that are executed directly on the printers (see "PlanetPress Design documents" on page 44 and "About printing" on page 109).

For images you should rather use **Send Images to Printer** action tasks (See "Send Images to Printer" on page 437), as they provide image quality and conversion options.

Input

Any file that you wish to upload to the printer. Note that this task does not attempt to verify that the type of file being sent is compatible with the printer, or is in a supported file format.

Processing

The currently active data file is converted into PostScript.

Output

A PostScript file containing the necessary code to save the data file on the hard drive.

Task properties

General Tab

- **Hard disk name and path (as required)**: Enter the name and path of the hard disk to which the file is to be saved (enter “%disk0%/PPFiles/Resources”, for example, to save the file to the folder [ROOT]/PPFiles/Resources located on a hard disk identified internally as “disk0”). Leave blank to save the printer’s default hard disk and path.
- **File name**: Enter the name under which you want the file to be saved. By default, this property is set to “%o”, so the file is saved under its original name (this is often the best choice, for items such as font files, for instance).
- **File name case**:
  - **Do not modify:** keeps the character casing of the file name as is.
  - **All uppercase**: changes all characters to upper case (README.TXT, for example).
  - **All lower case**: changes all characters to lowercase (readme.txt, for example).
- **Keep file extension**: Select to use extensions when saving files. When this option is selected, if the task receives a file with the “txt” extension, for example, it will keep this extension even if it renames the file (as specified in the File name box).
- **Print confirmation page**: Select to print the Variable content document download confirmation page when the download is successful.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

External Program

External Program action tasks are used to launch and execute other programs, which can be useful when you wish to process your job file in a way that is not possible with the standard PlanetPress Workflow tasks.

> **Note**
>
> As with any task that can refer to network resources, it is important to understand the considerations involved with paths and permissions of these resources. Please refer to the "Network considerations" on page 21 page.

There are some important things to consider when using the **External Program** task:

- The executable file **must** accept so-called "command-line options" and be able to run without any sort of user interaction. Only certain programs are able to do this and may refer to it as "command-line" or "automation" features.
- The process will always wait for the executable file to finish before it continues to the next task, and does not have any timeout setting. This mean that if your program fails to exit for any reason, your process will hang.

Input

Any active data file, in any format.

Processing

The external program is executed using the parameters provided. Note that the current data file is not "sent" to the executable file, however you can refer to the full path of the data file using %F.

Output

If the external program modifies the job file using the full path, the modified file is the output of this software. Otherwise, the output is the same as the input. Metadata is not modified in any way. Job Infos may be modified, depending on the options set in the task's properties.

Task properties

General Tab

- **Program group**
  - **Executable file**: Enter the name and path of an executable file (exe or com extension), batch file (bat extension), or command script (cmd extension) that can

run in command mode. Note that the program will be run without user interaction. Although it may display progress information, it is better if the application has no user interface.

- **Parameters**: Enter parameters that will be passed to the external program when it is launched. Each parameter should be enclosed in quotation marks and separated by a space ("Param1" "Param2" "Param3") except command line options (such as -f, /n). The exact parameters accepted are unique to the executable and defined in its documentation if it exists.
- **Start in**: Enter the folder in which the external program is to run. This is important, for example, if the program is to generate files that are to be picked up in a specific location for further processing, or if it requires resources that are located in a specific folder. Leave blank to run the program in the folder of the executable file.
- **Run minimized**: Select to prevent a window (a DOS box, for instance) from being displayed on the desktop. When selected, the program runs in a background window.

- **Program output capture** group
  - **Log the program output**: Check to store the program output (messages generated by the execution of the external program) inside of a job info or variable.
  - **Store the program output in variable**: Use the drop-down to select which variable or job info to will be used to store the program output.
- **Exit Code** group
  - **Store the exit code in job info**: Use the drop-down to select which variable or job info will be used to store the program's exit code. The exit code is a numerical value generated by the program which will indicate whether its execution was a success or if errors were encountered.
  - **Verify return value**: Check to enable the group and react whenever specific exit codes are returned by the software.
  - **If exit code is**: Use the drop-down to select how to compare to the exit code. This numerical comparison is either equal, greater than or lower than.
  - **Value**: The numerical exit code that will be verified.
  - **Return**: Use the drop-down to select whether this exit code should define a success or a failure of the external program. If "Failure" is chosen, exit codes that match the condition set will cause the **On Error** tab to be triggered and any other exit code will be considered a success. Inversily, if Success is chosen, exit codes that match the

condition set will cause be considered a success and any other exit code will cause the On Error tab to be triggered.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Load External File

Load External File action tasks are used to replace the current job file by the designated text file. Loading an external file does not delete the original file or modify it in any way.

This task is put into effect in the following example process:

- "HTTP PDF Invoice Request" on page 284

Input

The current data file in the process will be discarded.

Processing

The external file specified in the task's properties is loaded and replaces the current data file.

Output

The loaded file is output. Metadata is not modified in any way, neither are Job Info variables.

Task properties

General Tab

- **External file**: The path to the file you want the job file to be replaced with. You may browse to the file using the browse button on the right of the field.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Mathematical Operations

The **Mathematical Operations** action task resolves a mathematical expression and stores the result in an existing Job Information or other type of variable (see "About variables" on page 701).

> **Note**
>
> When adding this task to your process, you will be asked if you want to add the task as an Action or a Condition. This task should only be used as an Action. If used as a condition, it will always return False.

The task does not modify the job file in any way, its only output is the change in the specified variable where the result is stored.

Input

Any active data file, in any format. This data file is ignored by the task and is not modified in any way.

Processing

The task executes the mathematical operation and stores the result in the selected job info or variable.

Output

The input data file is returned with no modifications. Metadata is not modified. A single job info or variable is modified by this task.

Task properties

General Tab

- **Mathematical Expression**: Variable data field containing the expression to be evaluated. This expression may combine any combination of standard PlanetPress Workflow

variables and VBScript mathematical expressions. For example, to multiply Job Info 9 by 2, the expression would be %9*2 .

> **Note**
>
> The expression itself must be written in a format understood by the VBSCript scripting language. For more information, please see Mathematical Functions in VBSCript and VBSCript Math Operators.

- **Store result in**: Variable data field containing the job information, local or global variable in which to store the result. For job information use %1 through %9, for local variables use %{variable} and for global variables use %{global.variable}.
- **Use value of Variable/JobInfo # expression**: Use the contents of the variable entered in Store result in:, which is assumed to be a digit between 1 and 9. This digit determines in which job info the result of the mathematical expression is store. For example, if %{myvariable} is equal to 9, job information 9 will store the result of the mathematical operation.

> **Note**
>
> This task was built using a custom plugin system and does not display the On Error tab in the regular view. To access the On Error tab, right-click on the task and select **Advanced Properties...**

Open XSLT

The **Open XSLT** action task takes an XML file as input and executes the XSLT code as parameter to rearrange the content of the XML file.

XSLT (or XSL Transformation) is a style sheet that describes how an XML document is to be transformed into another XML document. The reason to transform an XML document into another XML document is simply to rearrange the information it contains in order to make the data structure more convenient for your needs.

Input

A valid XML file.

Processing

The XSLT is applied to the XML data file.

Output

The modified XML data file is output. Metadata and Job Info variables are not modified.

- **File**
  - **Import**: Lets you open an existing XSLT script from an XSL, XSLT or TXT file.
  - **Export**: Lets you save the current XSLT script as a file.
  - **Print**: Prints the current XSLT script.
- **Edit**
  - **Undo**: Undo the last edit.
  - **Cut**: Cut the current selection (only available if there is selected text in the editor).
  - **Copy**: Copy the current selection (only available if there is selected text in the editor).
  - **Paste**: Paste the last selection that was cut or copied in the location of the cursor in the text editor.
  - **Delete**: Delete the current selection (only available if there is selected text in the editor).
  - **Select All**: Select all of the contents of the editor.
- **Search**
  - **Find**: Brings up the **Find** dialog.
  - **Find Again**: Repeats the previous search and finds the next occurrence.
  - **Replace**: Brings up the **Replace** dialog.
  - **Go To Line**: Brings up the **Go To Line** dialog where you can enter a line number and jump directly to that line.
- **XSLT Version**
  - **XSLT 1.0**: Select if you will be entering or pasting XSLT version 1.0 code.
  - **XSLT 2.0**: Select if you will be entering or pasting XSLT version 2.0 code.

- **Tools**
  - **Editor Options...**: Opens the "Editor Options" on page 801.
- **Help**
  - **Contents and Indexes**: Opens the Editor Help (this page)

The other options of the window are:

- **The script editor text box**: This is where you enter your XSLT Script that will be used. If you use an external script file, this will display the content of the file (note however that modifying the script in this case does not modify the external file and changes are not saved).
- **Script running from**: Choose if the script should be run from the editor text box, or from an external script file.
- **Script filename and path**: Either enter the full path of the XSLT Script, or click the **Browse** button to navigate to the file. This option is only available if you choose **external script file** in the **Script running from** option.

PDF/A-3 Attachments

The **PDF/A-3 Attachments** task is used to add external files as attachments to a PDF/A-3 job file, or to attach files - the job file and/or other files - to an external PDF/A-3 file. Optionally, some e-invoicing metadata can be added.

Several e-invoicing standards, such as ZUGFeRD in Germany and Factur-X in France, require the (XML) invoice data to be attached to a PDF/A-3 file.
PDF/A-3 files with attachments can also be used for *hybrid archiving*: the PDF/A serves as the version that is suitable for long term storage, and alternate forms and/or the source document can be added as attachments.

Licensing

This plugin requires the OL Connect Workflow Imaging license.
Workflow Imaging is an add-on license bundle for OL Connect Workflow that includes the Image and Fax plugins; see "About PlanetPress Image" on page 744 and "About PlanetPress Fax" on page 743.

Without a valid Imaging license, the plugin will fail with an error. In the trial version, the plugin will work, but the resulting PDF file be watermarked.

Input

This task accepts any job file as input.

If the job file is the target file to which the attachments must be added, it should be a PDF/A-3 file. Note, however, that the task doesn't verify that the input file is PDF/A-3 compliant.

Processing

The task reads each of the files that are listed as attachments and adds it to the target PDF with the name that was specified for that attachment.

The target file can be either the job file or an external PDF/A-3 file.

The job file can also be used as one of the attachments.

Output

This task outputs the target PDF/A-3 file, with the attachments added to it, as the job file.

Properties

General Tab

- **Target PDF/A-3**: Specify the file to which the attachments and (optional) metadata must be added.
  - **Job file**: When this option is checked the attachments are added to the current job file. The job file should be PDF/A-3 compliant.
  - **External file**: Adds the attachments to an external file. Use the Browse button to select a PDF/A-3 compliant file.
    Note that the task doesn't verify that the target file is PDF/A-3 compliant. If it is a PDF file that is non-PDF/A-3 compliant, the task will add the attachments to it, but it will not convert the file into a PDF/A-3 compliant file.
- **Attachments**: Specify which files should be attached to the target file. Use the buttons at the bottom to add and delete attachments and to change their order.

> **Note**
>
> All of the Attachments properties can be variable (see "Variable task properties" on page 712). You can right-click on a field to open the contextual menu and select variables, data, and lookup functions. The property will be dynamically determined whenever the process runs.

- **Filename**: The file that should be used as an attachment.
  You can enter `%F` to attach the current job file to the target file (see "System variables" on page 704).

  > **Note**
  >
  > The target file cannot be attached to itself.

- **Attachment Name**: The name by which the attached file will go in the target file. If you want it to have a file extension, include that in the attachment name.

  > **Warning**
  >
  > If the target PDF already has an attachment with the same name, the existing attachment will be replaced without any error.

- **Mime Type**: Enter the mime type of the attachment, e.g. `text/xml`, `image/gif`.
- **Relationship**: Specifies what the attachment is in relation to the (entire) PDF document:
  - **Alternative**: An alternative representation of the PDF document; for instance, an XML version of the invoice in the PDF.
  - **Data**: Data that is visually represented in the PDF; a CSV file with the detail lines of the invoice, for example.
  - **Source**: The source that the PDF was created from. If the target PDF was created from a Word file, that Word file would be the source.
  - **Supplement**: A supplemental representation of the PDF content or data.

- **Unspecified**: The relationship is not known or cannot be described using one of the other values.

e-Invoicing metadata Tab

Optionally, the PDF/A-3 file can be extended with metadata that describe the PDF as an invoice that conforms to a certain standard. This is either the ZUGFeRD 1.0 or the Factur-X/ZUGFeRD 2.0 standard.

The plugin doesn't verify that the resulting PDF/A-3 file and attachment conform to the chosen standard; it is up to you to ensure that it does.

> **Note**
>
> The ZUGFeRD and Factur-X standards require XML invoice data to be attached to the PDF/A-3 document. The name of the XML attachment should be the same as the DocumentFileName in the metadata.

- **Add PDF/A-3 conforming metadata**: Check this option to add XMP metadata to the PDF/A-3 file.
- **Extension schema**: Select the standard to which the PDF and the XML invoice data conform. The standard's extension schema specifies which properties should be added as metadata.
- **Uri**: The value of the namespace URI in the selected extension schema (read-only).
- **Properties**:
  - The **DocumentFileName**, **DocumentType** and **Version** are read-only.
  - **ConformanceLevel**: Each standard specifies a number of different levels a file can conform to. For information about these levels please refer to the specifications of the standard.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

PDF to Bitmap

The PDF to Bitmap plugin converts PDF pages to bitmaps.

Input

The job file. This must be a PDF file.

Processing

The PDF to Bitmap plugin converts PDF pages to bitmaps, optionally scaling them.

Invalid pages or ranges generate an error; in this case, no bitmap is produced.

If the specified output folder doesn't exist, it will be created. If the folder cannot be created, an "Error creating directory" message is logged.

Output

This task outputs the PDF file it received with no modification.

Properties

The **General** tab has the following options:

- **Output format**: The output format can be either PNG or JPG.
- **Resolution**: Specify the resolution of the bitmaps (pixels per inch). The minimum is 12, the maximum is 1200. For example, with the minimum of 12, a PDF page that is 8,5 inch wide is converted into a bitmap of 102 pixels wide, which could be used as a thumbnail on a web page.
- **Page range**: An asterisk (*) means: convert all pages. It can be replaced with a combination of the following, comma-separated values:
  - a single page number
  - a range of pages: n1-[n2]. If n2 is not specified, the range extends to the end of the file. Any value specified after the next comma is ignored.

  Example: 1, 7-10, 13, 15- means the task will convert pages 1, 7, 8, 9, 10, 13, and 15 until the end of the file.
- **Output folder and file name**: Specify where the bitmaps are saved; %t%O means: save the bitmaps to the current temporary folder, using the PDF's original file name. If no

extension is specified, the selected output format is used to add the extension automatically. When multiple pages are saved, the index of each page is appended to the output file name (e.g. mybitmap1.jpg, mybitmap2,jpg, etc.).
If the specified output folder doesn't exist, it will be created. If the folder cannot be created, an "Error creating directory" message is logged.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Push to Repository

The **Push to Repository** Action task adds data to the PlanetPress Workflow "Data Repository" on page 95. The task may only add one KeySet per action. If more than one insert is needed, a loop must be established first.

The Push to Repository task can also be used to update an existing KeySet if a lookup is provided.

Input

Any data file, in any format.

Processing

A new KeySet is added to the Data Repository, or updated, using the data provided.

Output

The unmodified input file. This task does not change the data file in any way. The only modification is a single variable or Job Info variable, if the Store Result option is selected.

Task properties

General tab

- **Group**: Use the drop-down to select into which group the KeySet is inserted, or in which group the KeySet should be updated.
- **Key set**: Displays a list of keys for the selected group.
  - **Key**: Displays the key name in the group.
  - **Value**: Enter a value for the key, which will be inserted in the KeySet. This value can be dynamic, including data selections, metadata selections, variables and other data.
  - **Update**: Check to update the key with new data. For the Update column to be active, the Update base on option must be checked. Key values will only change in the KeySet if the Update checkmark is checked for that key, otherwise it is left unchanged.
- **Create Group and Key(s) if they don't exist**: Check this option to force the creation of a new group and/or keys, if they do not exist. This is useful for portability: if a configuration with this task is sent to a new Workflow server that does not contain this group or is missing keys, the task will create them automatically.
- **Update based on**: Check this option to update an existing KeySet instead of creating a new one. The value of the Condition field is used to filter the KeySets to only obtain one or more. Here are some valid conditions:
  - last_name = 'Jones'
  - id = 237
  - age IS NOT NULL
  - last_name LIKE 'La%'
  - province IN ('QC', 'ON', 'AB')
- **Add KeySet when condition is false**: If the update condition above is false, a new KeySet is added to the group. If unchecked, no data is changed in the repository.
- **Store the result ID in variable**: Select a variable or Job Info in which an array of inserted or updated IDs will be placed. The array of IDs in the form of [1, 2, 3, 4, 2443, 532, 5457, ...]

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Rename

Rename action tasks are used to rename the job files they receive. Note that you can see how each file is renamed via the Object Inspector when stepping through a process in Debug mode.

Input

Any job file, in any format.

Processing

The task renames the job file to the desired name, and changes the value of %f and %F to reflect the new name.

Output

The input data file is output, with the new name.

Task properties

General Tab

- **New file name**: Enter the job file's new name.You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Run Script

Run Script tasks are used to run scripts that typically perform some kind of processing on the job file received by the task. Scripts are often simpler to write than programs added with the External Program action (see "External Program" on page 418). However, they can be slower to execute.

The Run Script task can be used either as an **Action** or a **Condition**. When dragging and dropping a Run Script task on a given process, you select whether to use this task as an Action or a Condition from a contextual menu. (See also: "About branches and conditions" on page 137.)

For more information on scripts, what languages are supported and how to write scripts and conditions, please see the related chapter, "Using Scripts" on page 141.

Input

Any data file, in any format.

Processing

The script is executed. The script can modify anything such as the data file, Job Info variables, Metadata, or even other files on the operating system.

Output

Whatever file the Run Script action generates, Metadata it modifies or creates, etc.

> **Note**
>
> When using Run Script as a Condition, the output of the task can be within the branch or on the main trunk. To control the output, use the "Script.ReturnValue" on page 174 variable in your script.

Properties

The **Script Editor** menu options are as follows.

- **File**
  - **Import**: Lets you open an existing script from an external file. This can be a .vbs, .js, .pl or .py file for language-specific scripts, or .txt for any of them.
  - **Export**: Lets you save the current script as a file.
  - **Print**: Prints the current script.

- **Edit**
  - **Undo**: Undo the last edit.
  - **Cut**: Cut the current selection (only available if there is selected text in the editor).
  - **Copy**: Copy the current selection (only available if there is selected text in the editor).
  - **Paste**: Paste the last selection that was cut or copied in the location of the cursor in the text editor.
  - **Delete**: Delete the current selection (only available if there is selected text in the editor).
  - **Select All**: Select all of the contents of the editor.
- **Search**
  - **Find**: Brings up the **Find** dialog.
  - **Find Again**: Repeats the previous search and finds the next occurrence.
  - **Replace**: Brings up the **Replace** dialog.
  - **Go To Line**: Brings up the **Go To Line** dialog where you can enter a line number and jump directly to that line.
- **Language**: Select the language in which your script is written. Choices are **VBScript**, **JavaScript**, **Perl** or **Python**.
- **Tools**
  - **Editor Options...**: Opens the "Editor Options" on page 801.
- **Help**
  - **Contents and Indexes**: Opens the Editor Help (this page)

The other options of the window are:

- **The script editor text box**: This is where you enter your script that will be used. If you use an external script file, this will display the content of the file (note however that modifying the script in this case does not modify the external file and changes are not saved).
- **Script running from**: Choose if the script should be run from the editor text box, or from an external script file.

- **Script filename and path**: Either the full path of the script, or click the **Browse** button to navigate to the file. This option is only available if you choose **external script file** in the **Script running from** option.

> **Warning**
>
> With the Run Script action, the **On Error** tab is accessible by right-clicking on the action in your process and clicking **Advanced Properties**.
>
> The On Error tab will be triggered if your script has an execution error (such as syntax error, etc) as well as when raising an error from within your script.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Search and Replace

Search and Replace Action tasks are used to locate and replace strings of data within the job file and to replace them with other strings of data. Note that this Action task cannot be used with binary files.

For more advanced search and replace functionality, see "Advanced Search and Replace" on page 383.

Input

Any text-based file can be used in this task, even formats that are not directly compatible with PlanetPress. As long as the text is visible in a text-based editor (such as Notepad), it is readable and supported by this task.

Processing

The appropriate changes are made to the data file (replacing text).

Output

The modified data file is output from this task. Metadata is not modified in any way if it is present.

Task properties

General Tab

- **Find**: Enter the string of data for which to search. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.
- **Replace with**: Enter the string of data to use as a replacement. Since this is also a variable property box, the same as above applies.
- **List of words to find and replace**: Lists each string to find, and its replacement. These are executed in order, from top to bottom.
  - Find: Enter the string of data for which to search. In this variable property box, you may enter static characters, variables, job information elements, data selections, or any combination of these.
  - Replace with: Enter the string of data to use as a replacement. Since this is also a variable property box, the same as above applies.
- **button**: Click to add a new line to the list of words to find and replace.
- **button**: Click to remove the currently selected line from the list.
- **button**: Move the currently selected line up one position.
- **button**: Move the currently selected line down one position.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Send Images to Printer

The **Send Images to Printer** Action task is used to send images to a printer so they can be used as resources by PlanetPress Suite (Design) documents run on the printer. It is comparable to the **Download to Printer** Action task (see "Download to Printer" on page 417), but includes image specific options. Furthermore, this task can be used to send images not only to printers, but also to the virtual drive of other computers running PlanetPress Workflow applications. Note that each **Sent Images to Printer** Action task must be followed by a **Printer Queue Output** task set to 'pass-through' (No document), in order for the images to be actually sent to that printer.

> **Note**
>
> Images sent to a printer are stored in the root folder of the printer's hard disk, while images sent to the virtual drive of another computer are stored in a sub-folder of the PlanetPress Workflow folder.

Input

Any image file that you wish to upload to the printer.

Processing

The currently active image data file converted to PostScript. The image's resolution, scan orientation, and quality can be modified, depending on the selected option. All files are converted into PostScript format for storage on the printer. If a virtual drive, the file is automatically sent to it.

Output

A PostScript file containing the necessary code to save the data file on the hard drive.

Task properties

General Tab

- **Scan orientation**: Select Side to side for images that will be printed in their original orientation on a portrait oriented page, or in a rotated orientation on a landscape page.

Select Top to bottom for images that will be printed in a rotated orientation on a portrait oriented page, or in a rotated orientation on a portrait oriented page. Note that images that are meant to be printed in various ways can be stored twice on the printer as two identical copies of the same file that bear different names (Image_Original.tif and Image_Rotated.tif, for example). The first copy can be processed using a **Send Images to Printer** action task with the scan orientation set to Side to side, the second one with a different **Send Images to Printer** action task with the scan orientation set to Top to bottom, each one typically being included on two different branches of the same process.

- **Color conversion**: Select As is to keep the color information included in the images. Select Grayscale to convert color images to gray scale.
- **Naming convention**: Select 'File name, original' to store the file under its original file name. Select 'File name, no extension' to store the file without its original file name extension. Note that all characters are converted to uppercase and that extended characters (characters, such as é, for example) are not recommended in image file names.
- **Image quality**: Select the same image quality chosen in the PlanetPress Design documents that reference the image files you are sending. In PlanetPress Design, this setting is included in the document's resource options.
- **Image compression level**: Select the level at which you want images to be compressed. Values can range from 1 (compress up to 1% of the image's original size) to 100 (do not compress). For example if you set this box to 75, the Image Downloader compresses all images by 75% when it converts those image to PostScript. The default compression level is 70%.
- **Send to Virtual Drive of**: Select the computers and / or printers to which the images are to be sent.
- **Refresh**: Click to prompt PlanetPress Workflow to look again for available printers and computers.
- **Hard disk name and path**: You may enter the name and path of the hard disk to which you want to send the images. Needless to say that this option is used if the device to which you are sending the images has multiple hard drives.
- **Print confirmation page**: Select to print a confirmation page on each one of the selected printers after an image has been successfully received.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Send to Folder

Send to Folder Action tasks send the files they receive to a local folder. They perform the same function as **Send to Folder** Output tasks, with the only difference being that in this case PlanetPress Workflow will wait for the task to be completed before going on to the next task in the configuration.

> **Note**
>
> As with any task that can refer to network resources, it is important to understand the considerations involved with paths and permissions of these resources. Please refer to the "Network considerations" on page 21 page.

Input

Any data file in any format.

Processing

A copy of the data file is saved on the hard drive at the specified location.

Output

The original data file, Metadata and Job Info variables are not modified, they are passed on to the next task.

Task properties

General Tab

- **Folder**: Enter the path of the folder to which the files are to be saved.
- **File name**: Enter the name of the output files generated by this task. To prevent each new file from overwriting the previous one, you should use variable names. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

- **Concatenate files**: If this option is selected, when PlanetPress Workflow tries to save a file under a given name, if a file under that same name already exists, instead of overwriting it, PlanetPress Workflow will append the content of the new file to that of the existing file. This appending process will go on until the file is removed from the folder.
- **Separator string**: This option is used to add a separator string between the content of each file when the Concatenate files option is selected.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Set Job Infos and Variables

Add **Set Job Infos and Variables** action tasks to set Job Info elements as well as custom variables (see "About variables" on page 701). You can set multiple variables and Job Info values in a single task. Be aware that lines are processed from top to bottom.

Input

Any data file in any format.

Processing

This task assigns the defined values to local or global variables or Job Info variables. It does not modify the data file nor the Metadata.

Output

The original data file, Metadata and other Job Info variables are not modified, they are passed on to the next task.

Task properties

General Tab

- **Var/Info#:** Lists all Job Info variables, local variables in the current process and global variables in the configuration. Click on the variable you want to change.

- **Value**: Enter the value that you want to associate with the selected Job Info variable or custom variable.
- **button**: Adds a new line and lets you define the variable and value to set.
- **button**: Removes the line that is currently selected (highlighted).
- **button**: Moves the line up so it is processed before.
- **button**: Moves the line down so it is processed after.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

SOAP Client plugin

SOAP Client plugin tasks can be used as Input, Output and Action tasks, although their basic function is to generate output. SOAP (Simple Object Access Protocol) is a light protocol that defines a standard XML format used to communicate among systems across different architectures, languages, and operating systems.

A SOAP request is an XML-based Remote Procedure Call (RPC) sent using the HTTP transport protocol. The payload of the SOAP packet is an XML document that specifies the call being made and the parameters being passed.

Web services, a SOAP class of applications, expose their services via the Internet in a manner that lets other applications access them, as well as use and combine them as required.

In order to access and successfully use Web services, client applications must know how to get them, what operations they support, what parameters they expect, as well as what they return. SOAP servers make this information available via WSDL (Web Service Description Language) files.

To configure a given **SOAP Client plugin** task in the PlanetPress Workflow Configuration program, you must first get its WSDL file (note that you cannot download the WSDL file over an HTTPS connection, so you should use an HTTP connection to get the file and then switch back to a secure connection). This lets you know which services the SOAP server provides, as well as each service's methods and name spaces.

If firewalls control communication between the SOAP client and the Web servers, they must be configured so as not to block client-server communication.

In the case of "string" type data, **SOAP Client plugin** tasks normalize all line endings to a single line feed character.

Task properties

General Tab

- **WSDL address**: Enter the URL address of the WSDL file, or choose a previously selected address from the drop-down list.

> **Note**
>
> The WSDL Address of a PlanetPress Workflow SOAP server is the following: `http://127.0.0.1:8080/wsdl/isoapact` (assuming you are on the same machine and did not change the default HTTP port).

- **Get**: Click to get the WSDL file from the SOAP server and populate the Service box below.
- **Service**: Choose an available Web service from this drop-down list to populate the Method box below. You may also enter the service name directly if the WSDL file cannot be found.
- **Method**: Choose an available method from this drop-down list. This populates the Namespace box below. You may also enter the method name directly.

The following three options are only available in the Legacy SOAP Client plugin:

- **Namespace**: You may choose an available namespace to prevent ambiguity between identically named elements or attributes. You may also enter a namespace directly.
- **Resolve**: Click to apply the options you chose above and to display the arguments of the chosen method in the Arguments box below.
- **As script**: Click to apply the options you chose above and to display information on the chosen Web service in JavaScript format in a script viewer. You should use this option if the Web service is too complex to be interpreted correctly by the SOAP Client plugin.

- **Name**: Displays the name of the arguments associated with the selected method. Note that you may also manually enter new arguments, change or delete existing ones, as well as change their order if needed.
- **Type**: Displays the argument type.
- **Value**: Lets you enter fixed or variable values. To exchange variable information between the Web service and PlanetPress Workflow, you must use job information variables %1 to %9 or variable %c (which contains the entire job file). Note that return values (arguments which are used to return information to the SOAP Client) are displayed in bold font.
- **Namespace**: Displays the namespace of the arguments associated with the selected method.
- **Use returned raw SOAP packet as new data file**: Check to use the complete SOAP packet (including the passed parameters) instead of the parameters only. This option overrides any return value set to %c in the Arguments box. You should use this option when the SOAP Client plugin is not able to fully support the syntax of the response.

Advanced Tab

- **Domain**: Enter the domain for the authentication on the SOAP server. The Domain is optional even when authentication is used.
- **Username**: Enter the user name for the authentication, if required.
- **Password**: Enter the password for the above user name.
- **Allow invalid security certificate**: Check to ignore SSL certificates that are invalid.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Standard Filter

Standard Filter Action tasks can be used to remove HP Escape characters from data files, as well as to eliminate spacing problems caused by LF-CR end-of-line sequences.

HP escape characters are used in the Hewlett Packard Printer Control Language (HP PCL) to communicate basic page formatting and font selection information from print jobs to HP or HP-

compatible printers.
These characters, like other printer control characters that control how printers interpret and print jobs, are not meant to be printed.
If your print job is bound for an HP compatible printer, it may include these characters even when printing to a PostScript printer that does not recognize them. PlanetPress Workflow provides an easy way to automatically filter these characters through its Standard Filter task.

Input

Text-based data files such as line printer data (see "Line printer emulation" on page 67) and ASCII data files (see "ASCII emulation" on page 62) data files, which contain HP PCL control characters.

Processing

All HP PCL characters are removed from the data file. Note that these characters are not *interpreted*, only stripped out.

Output

The modified data file, with stripped characters, is output from this task. Metadata, Job Info variables and other variables are not modified.

Task properties

General Tab

- **Process job using ASCII emulation**: Select to use the ASCII emulation to process the job file. This reverses LF-CR end-of-line sequences that may result in unwanted double-spacing.
- **Remove and convert HP escape characters**: Select to filter HP escape character sequences from the job file.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Translator

Translator action tasks can convert your data from its current encoding to a different encoding. The same data may be converted back and forth as required.

The Translator action task is useful for data files using foreign languages, as well as to convert Unicode data files so that they can be manipulated within Workflow.
Note that if Workflow's only job is to pass the data file to a task, there's no need to convert the data file. The OL Connect Server does support Unicode data files.

Codepage 1252 (ANSI - Latin 1) is used for many Latin language documents, since it can be used for Afrikaans, Basque, Catalan, Danish, Dutch, English, Faroese, Finnish, French, Galician, German, Icelandic, Indonesian, Italian, Malay, Norwegian, Portuguese, Spanish, Swahili and Swedish.
Codepage 932 is often used for Japanese.

> **Note**
>
> You can create your own translation matrix files for the Translation action task by adding them to the following folder:
> %COMMONPROGRAMFILES(X86)%\Objectif Lune\PlanetPress Workflow 8\Plugins\Translator
> Two examples are already present, converting ASCII to and from IBMEBCDIC.

Input

Any text-based data file.

Processing

The characters in the data file are converted from the old encoding to the new one.

Output

The data file in its new encoding format. Metadata, Job Info variables and other variables are unchanged.

Task properties

General Tab

- **Source encoding**: Select the current data encoding. Note that the source encoding is not selected automatically and you must therefore select the proper encoding from this list in order for the conversion process to be performed successfully.
- **Target encoding**: Select the encoding to which you want the data to be converted.
- **Include target encoding signature**: This option is only available when converting to UTF-8 (Windows code page 65001) or UCS-4 (code page 12000 or 12001). Select to include the character encoding signature—also known as the byte order mark—at the beginning of the target string.
- **Default character on translation**: You may enter a character to be used to replace all those characters that cannot be found in the source encoding. If you leave this box empty, they will be simply stripped from the data, so you may consider using a space as a place holder for unidentified characters.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Windows Print Converter

The **Windows Print Converter** action tasks are designed to convert Windows print files into Line Printer files, that can then be used in a variety of other PlanetPress Workflow tasks. Typically, Windows Print Converter action tasks are located below WinQueue input tasks (note that the latter include options specific to Windows Print Converter action tasks).

The full conversion process is performed in two phases:

- The Windows print file is first converted into an XML file in which each printable character appears with its horizontal and vertical coordinates.
- The XML file is then converted into a standard Line Printer file.

> **Note**
>
> Although it is more common to perform both phases in a single pass, each phase can be performed selectively, as required.

Input

A print job in EMF format, generally captured from a WinQueue input task.

Processing

The EMF job is converted into a text-only, "Line printer emulation" on page 67 data file.

Output

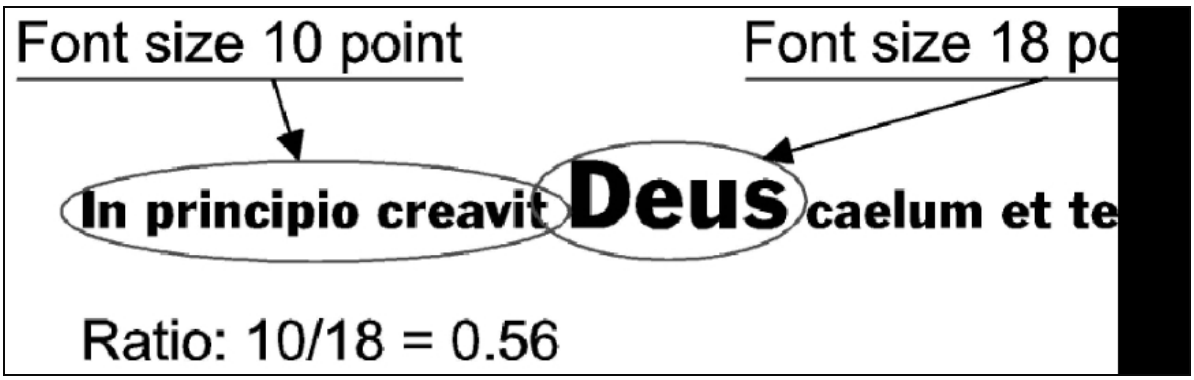
A Line Printer file. Metadata, Job Info variables and other variables are not changed.

Task properties

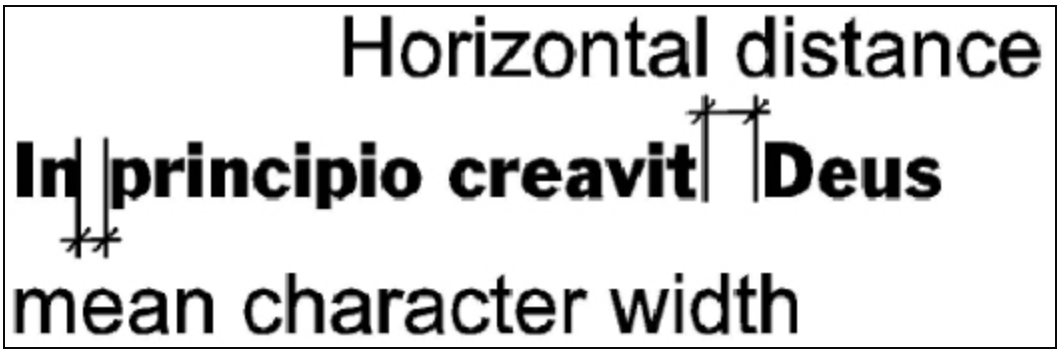
General Tab

- **EMF to XY group**: Select this option if the file received by this task is a Windows print file. This will prompt the task to perform the first phase of the process, and thus convert the file to an XML file. If this option is not selected, the input file will not be converted to an XML file (note that the task will fail if the file it receives is not an XML file). The settings included in this group fine tune the process. They let you control precisely which text blocks are recognized as belonging together in one line. This has particular affect when dealing with font size differences between consecutive passages of text, the distance from one text passage to another (word distance) as well as the base line offset (vertical distance). To find out if one text passage belongs to the one found before it, first the vertical distance, second the horizontal distance and finally, the font size difference are checked. Only if all three values lie within the tolerance are the two blocks recognized as belonging together. Additionally, you can control text passages whose horizontal distance has been recognized as out of the tolerance, but whose type size difference and vertical distance lie within the tolerance, outputting it in one line. At the output, these text passages are separated by a tabulator (ASCII code 9).
    - **Font size difference**: Indicates the smallest acceptable factor between maximum and minimum font size within one line. A value of 0.60 means that with a ratio from

maximum to minimum font size (in points), that is less than 0.60, two text passages are not recognized as belonging together. For example, if two text passages are formatted with different font sizes. Passage 1 with 10, passage 2 with 18 point. The ratio 0.56 is smaller than the adjusted value 0.60. Therefore those two text passages are recognized as not belonging together.

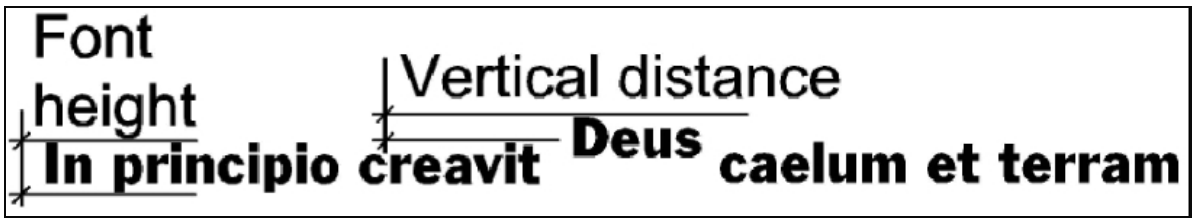


- **Word distance**: Indicates the largest acceptable distance between two text passages, so that they are still recognized as belonging together. This the factor the font's mean character width is multiplied with. The value for the mean character width is taken from the corresponding font's attributes (for texts which are printed justified, it is suggested to raise this value up to about 2). For example, if the mean character width of the font example shown here corresponds to the width of the blank character (for other fonts it may be another sign). There is another text passage found whose horizontal distance is even bigger than the first one's mean character width, multiplied by factor 1.0. The two text passages are found to not belong together.



- **Vertical distance**: Indicates the biggest acceptable vertical distance between two text passages so that they're still recognized as belonging together. This is the

factor the font's height and size is multiplied with. The value for the font's height therefore is taken from the corresponding font's attributes. For example, if the height of that font example in 10 point size is 0.32 cm. There is a passage found that is positioned 0.15 cm above - which means 0.15/0.31 = 0.48 < 0.50 - the previous text passage. So the two passages are not recognized as belonging together.



- **Windows Print Converter**: Select this option if the task is to generate a Line Printer file. This will prompt the task to perform the second phase of the process, and thus convert the XML file to a Line Printer file. If this option is not selected, the output file will thus be an XML file. The settings included in this group determine the format settings of the generated Line Printer file.
  - **Character per inch (CPI)**: The number of individual characters per inch on a line of text.
  - **Line per inch (LPI)**: The number of lines of text per inch.

XML/JSON Conversion

The **XML/JSON** Action task converts an XML job file to JSON or a JSON job file to XML.

This task makes parsing XML/JSON files much simpler in a JavaScript environment and also allows processes to natively send JSON to a Connect template or data mapping configuration.

Input

The current job file.

Processing

The current job file is converted from XML to JSON or from JSON to XML. When converting from JSON to XML, the encoding of the resulting XML file is always set to UTF-8 (which is the default format for JSON).
The converted job file gets the appropriate extension (.JSON or .XML).

If the current job file isn't JSON or XML (depending on the type of conversion requested), or if the conversion fails for any reason, the task raises an error and the current job file and metadata remain unchanged.

JSON to XML conversion

When a JSON source file contains a single JSON object, that object's key will be used as the root node name in the resulting XML file, and the root node will be populated with the data inside of the JSON object. In all other cases, a root node named 'root' will be added to the XML. It has the property "OL" with the value "RootObject" to define it as an array container. This property will be ignored when converting from XML to JSON.

> **Note**
>
> In addition to being valid, the JSON should follow naming rules for XML elements. For example, "adress_line_1:" is a valid key name in JSON, but it cannot be converted to a valid element name in XML because the colon is reserved for namespaces. For XML naming rules and best naming practices, see: XML elements on W3Schools.

Output

The output is the modified job file, which replaces the input job file. The metadata are reset.

Task properties

General tab

- **Automatic detection**: By default, the format of the job file is detected automatically. If the source file is a JSON file, it will be converted to XML. If it is an XML file, it will be converted to JSON.
  Uncheck this option to limit the task to one type of conversion.
- **JSON to XML**: the task only converts JSON files to XML.
- **XML to JSON**: the task only converts XML files to JSON.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Data splitters

Splitter action tasks are used to split single data files into multiple data files.

Splitters initiate a recurring cycle that stops only when the original file has been completely processed. When a given splitter creates a file, it hands it down to the task that follows, and all the tasks on the same branch are performed until the output task. Then the splitter task creates yet another file that is again handed down to the next task, and so forth until the cycle ends (when there is no more data in the original file).

In PlanetPress Suite, such tasks can be used, for example, to split files that contain statements for multiple clients into smaller files that each contain a single client statement. Each statement can then be printed and sent by snail mail, or emailed directly from PlanetPress Workflow, to each individual client.

Note that if the process merges the split data with a PlanetPress Design document, the splitter must not alter the structure of the data file. In other words, each split file must have the same structure as the original files, otherwise the Design documents to which they will be sent will not be able to extract the data correctly and the merging process will fail.

In OL Connect jobs, data is normally extracted from a data file using the "Execute Data Mapping" on page 621 task. That task stores the extracted data in records which can then be merged with a template.

> **Warning**
>
> Splitters do not modify the Metadata that is currently active within your process. This means that, if you are intending to use Metadata along with a process using splitters, you can either use the "Metadata Sequencer" on page 570 instead of a splitter, or (re)create the Metadata after the splitter.

About using emulations with data splitters

An emulation specifies how to interpret a data file (see "About data emulation" on page 60.) When an emulation is used with a splitter action task, the job file is emulated, cut to pieces and

de-emulated. Most times, the emulation/de-emulation process is completely transparent. However, in some cases, there may be minute differences.

When using the ASCII or Channel Skip emulation, if there are missing line feed characters (when lines end with a single carriage return in ASCII, or when lines start with a No line feed channel in Channel Skip), the output data will be different from the input data, but the change will not be significant.

Let us imagine that a splitter action task processes the following data file using the ASCII emulation:

Data line1 of page 1<cr><lf>
Data line2 of page 1<cr>
Last data line of page 1<cr><lf>
Data line1 of page 2<cr><lf>

...and so forth...

Once split, the first file generated by the action task would look like this:

Data line1 of page 1<cr><lf>
Data line2 of page 1<cr>
Data line2 of page 1<cr><lf>
Last data line of page 1<cr>

But when opened with PlanetPress Design or a PlanetPress Workflow using the ASCII emulation, the data in the generated file would look exactly like the data in the original. The same would hold true for the Channel Skip emulation.

Note the following details about emulations and their options:

- With most emulations, if a file is split on a form feed, the form feed will not be appended to the output file.
- With the ASCII emulation, tabs within the input data file are replaced by spaces (the number of spaces is determined within the configuration of the emulation).
- With the ASCII emulation, if the **Remove HP PCL Escapes** option is selected, the data coming out of the splitter will have no escape sequences.
- The **Goto column** option of Channel Skip emulation is not supported.

Database Splitter

The **Database Splitter** is used to split database files into multiple data files that are passed to subsequent tasks in the process.

Input

Database data (see "Database emulation" on page 66).

Processing

The file is separated into multiple chunks according to the rules set in the task's properties.

Output

Multiple data files, sent one after the other to the rest of the tasks in the process. Metadata, job infos and user variables are not modified by this task.

Task properties

General Tab

- **Split group**: Use this group to indicate how you want the file to be split.
- **Field value change**: Select if you want the file to be split based on changes in the values of a selected database field (the value in the ClientID field changes, for example).
- **Field value condition**: Select if you want the file to be split based on a condition set for the values of a selected database field (the value in the Order field equals 1, for example).
- **Field count**: Select if you want the file to be split whenever a given number of pages or data pages has been reached.
  The following options are only displayed when the Field value change or the Field value condition option has been selected at the top of the dialog box.
- **Field**: Enter the name of the field upon which to base the splitter condition. Note that you can use the popup menu's Get Data command to select the field and populate this box automatically.

  The following options are only displayed when the Field value condition option has been selected at the top of the dialog box.

- **Operator**: Select the condition to fulfill for the condition to be true and thus for the splitting process to take place.
- **Value**: Enter the condition value. Note that you can use the popup menu's Get Data command to select the value and populate this box automatically
- **Match case**: Select to force the splitter to match the character casing when resolving the Field value change or Field value condition. If this option is selected, a change from “DAY” to “Day” will be considered as a valid field value change, and “DAY” and “Day” will not be considered as equal values.
- **Where to split group**: Options from this group are used to define a number of pages or records before or after which the file is to be split.
- **Pages or records**: Enter the number of pages or records before or after which the file is to be split. Enter 0 if you want the file to be split right before or after the page or record that matches the set condition.
- **Before or after**: Options from this list box are used to define exactly how the file is to be split. Select Records before if you want the file to be split a given number of records before the field that matches the set condition. Select Records after if you want the file to be split a given number of records after the field that matches the set condition. Select Pages before if you want the file to be split a given number of pages before the field that matches the set condition. Select Pages after if you want the file to be split a given number of pages after the field that matches the set condition.
- **Split when condition is found group**: Use this group if you want the condition to be met a multiple number of times before splitting the file. Leave the default value of 1 in the Times box if you want to split the file every time the condition is met, but enter a value of 2, for example, if you want to split the file every second time the condition is met.
- **Time(s)**: Enter the number of times the condition must be met before the file is to be split. *The following options are only displayed when the Field count option has been selected at the top of the dialog box.*
- **Maximum records per file**: Enter the maximum number of records to include in each file. Enter 0 for no limit.
- **Maximum pages per file**: Enter the maximum number of pages to include in each file. Enter 0 for no limit.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Emulated Data Splitter

Emulated Data Splitter action tasks are used to split emulated data files (with the exception of XML and database data files - refer to "XML Splitter" on page 468 or "Database Splitter" on page 453) into multiple data files that are passed to subsequent tasks in the process.

The data received by the process is typically prepared for a given output device using a pre-set emulation. In some cases, the data's original emulation may also have been changed by a **Change Emulation** action task (See "Change Emulation" on page 391 and "About data emulation" on page 60).

Using an emulation to format the data before splitting provides the most splitting options, but slows down the process. Splitting a data file containing a few hundred thousand pages may take several hours. So you may choose to use non-emulated data to speed up the splitting process (See "In-Stream Splitter" on page 463).

Example

This task is put into effect in the following example process:

- Capture Web Manager Workflow

Note that Capture can only be used with PlanetPress Suite.

Input

Any emulated data file.

Processing

The file is separated into multiple chunks according to the rules set in the task's properties.

Output

Multiple data files, sent one after the other to the rest of the tasks in the process. Metadata, job infos and user variables are not modified by this task.

Task properties

General Tab

- **Split data file on emulated page group**: Select to split the data file based on pages (rather than on a word found within the emulated data) and to activate the option from this group, which is used to tailor exactly how you want the page based splitting process to take place.
  - **Page(s) per output**: Enter the number of pages to include in the file generated by the splitter in this edit box below or use the spin buttons.
- **Split data file on a word group**: Select to split the data file whenever a given word is found within the emulated data file (rather than on based on pages), or whenever the word found at a given location changes, and to activate the options from this group, which are used to tailor exactly how you want the word based splitting process to take place.
  - **Word change**: Select if you want the data file to be split when the word found at a given location changes.
  - **Get**: Click to go to the Data Selector and select the location associated with the Word change option.
  - **Specific word**: Enter the word to use as the splitting criteria. In this variable property box, you may enter static characters, variables, job information elements or any combination of these. You may also use the Get Data button to get a static string of characters from the sample data file. If you use this option, the coordinates of the data you will select will be added to the From line, To line, From column and To column boxes below.
  - **From line**: Enter a value corresponding to the first line on which the splitter must start searching for the word.
  - **To line**: Enter a value corresponding to the last line on which the splitter must start searching for the word.
  - **From column**: Enter a value corresponding to the first column in which the splitter must start searching for the word.
  - **To column**: Enter a value corresponding to the last column in which the splitter must start searching for the word.
  - **Match case**: Select to force the splitter to match the character casing. Note that this setting applies both to the Specific Word and Word change options. If this option is selected, “DAY” and “Day” will not be considered as matching the search string “day”.

- **Trim selection**: Select to force the splitter to strip empty trailing characters. When this option is not selected, blank trailing characters, if any, are considered in the matching process, so the word “DAY” will not be considered as matching the word “DAY”. Note that this setting applies only to the Word change option.
- **Where to split**: By default, the task splits the file at the beginning of the line on which the condition is met (the default value is 0). If you want the task to split the file a certain number of lines before or after that line, enter a value other than 0 in this box. Enter 1, for example, to split the file at the beginning of the line that precedes the line on which the condition is met.
    - **Before**: If you entered a value other than 0 in the Where to split box, select this option if you want to split the file a given number of lines before the line on which the condition is met.
    - **After**: If you entered a value other than 0 in the Where to split box, select this option if you want to split the file a given number of lines after the line on which the condition is met.
- **When condition is found**: By default, the task splits the file every time the condition is met (the default value is 1). If you want the task to split the file only when the condition has been met twice, for example, enter the number 2 in this box.

- **CSV Emulation Group**
    - **Add header to each output file**: This option should only be checked if you are using CSV emulation, and will copy the first line of your data file as the first line of each split file afterward. This is useful only if your first line is a Header line that contains your field names.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Generic Splitter

The **Generic Splitter** is a legacy task which is kept for backwards compatibility. In previous versions of PlanetPress Workflow, it was the only splitter available. While this splitter seems to have more options than the other ones, this is only because it contains combined features from these other splitters.

> **Warning**
>
> The **Generic Splitter**, while seemingly more feature-rich, is slower than the other splitters by an order of magnitude. Whenever encountering the **Generic Splitter,** it is always recommended to replace it with a more appropriate splitter instead.

Input

Any data file.

Processing

The file is separated into multiple chunks according to the rules set in the task's properties.

Output

Multiple data files, sent one after the other to the rest of the tasks in the process. Metadata, Job Infos and other variables are not modified by this task.

Task properties

General Tab

- **Split data file on**: Use this box to choose the item on which top split the file. The options available depend on whether or not the Use emulation box is checked (see below).
- **Use emulation**: Check to emulate the data before splitting the file. This lets you split the file on a word, a word change, a page number, a database field value or a database field change.
  When this option is not checked, you can only split the file on a form feed, a specific number of lines, or a chain of characters. See below for detailed information on any of these splitting methods.
  With this option unchecked, data selections are done with the **File Viewer**. The File Viewer is like a Data Selector (see "The Data Selector" on page 842) without any data related options, such as emulation settings. The only data formatting codes to which the File Viewer responds are line breaks.
- **A word**: If you choose “A word” in the Split data file on list box (the Use emulation option must be selected), the following boxes are displayed:

- **Word**: Enter the string of characters to search for as the splitting criteria. In this variable property box, you may enter static characters, variables, job information elements or any combination of these.
- **Get**: Click to get a static string of characters from the sample data file. If you use this button, the coordinates of the data you will select will be added to the Word is between lines and Word is between columns groups below.
- **Word is between lines**
  - **From and To**: Enter a vertical search region defined as starting from a given line and ending at a given line. If you enter 1 in the From box and 1 in the To box, the Generic Splitter will search for the string of characters entered above only in the first line of every page. If you enter 1 in the From box and 10 in the To box, the Generic Splitter will search in the ten first lines of every page. Note that the actual search region is a combination of the vertical and horizontal search regions.
- **Word is between columns**
  - **From and To**: Enter a horizontal search region defined as starting from a given column and ending at a given column. If you enter 1 in the From box and 5 in the To box, the Generic Splitter will search for the string of characters only in the first five column (five first characters of every line selected above).
  - **Consider case**: Select to force the Generic Splitter to match the character casing of the string of characters entered above with the characters found in the file. If this option is selected, “DAY” and “Day” will not be considered as matching the search string “day”.
- **Where to split group**
  - **Pages**: Enter exactly where to split the file. Enter 1 to split the file 1 page before or after the string, 2 to split the file 2 pages before or after the string, or 0 to split the file immediately before or after the string.
  - **Before or after**: In the previous box, you entered exactly where you wanted to split the file, here is where you specify whether you want the split before or after.
- **Split when word found**: You may not want to split the file every time the string of characters entered above is found, but only every other time, or every third time. If so, enter the number of times in this box.

- **A word change**: If you choose **A word change** in the Split data file on list box (the Use emulation option must be selected), the following boxes are displayed.
  - **Get**: Click to select a search region. The coordinates of the selected region will be added to the Word is in line box and the Word is between columns group below. The Generic Splitter will look for changes in the string of characters appearing in that region.
  - **Word is in line**: Enter the line on which to search for the word change. If you enter 1, the Generic Splitter will consider only in the first line of every page. Note that the actual search region is a combination of the vertical and horizontal search regions.
  - **Word is between columns group**
    - **From and To**: Enter a horizontal search region defined as starting from a given column and ending at a given column. If you enter 1 in the From box and 1 in the To box, the Generic Splitter will search for the string of characters entered above only in the first column of the line selected above. If you enter 1 in the From box and 10 in the To box, the Generic Splitter will search in the ten first columns of the line selected above.
    - **Consider case**: Select to force the Generic Splitter to consider a change in character casing as a word change. If this option is selected, “DAY” will be considered as different from “day”.
    - **Trim selection**: Select to force the Generic Splitter to trim empty characters at the beginning and end of the data found in the search region. If this option is not selected, “DAY” will be considered as different from “DAY”.
  - **Where to split group**
    - **Pages**: Enter exactly where to split the file. Enter 1 to split the file 1 page before or after the string, 2 to split the file 2 pages before or after the string, or 0 to split the file immediately before or after the string.
    - **Before or after**: In the previous box, you entered exactly where you wanted to split the file, here is where you specify whether you want the split before or after.
  - **Split when word changed**: You may not want to split the file every time the string of characters entered above changes, but only every other time, or every third time. If so, enter the number of times in this box.
- **A page number**: If you choose **A page number** in the Split data file on list box (the Use emulation option must be selected), the following boxes are displayed.

- **Pages per output file**: Enter a number of pages after which to split the file. If you enter 3, for example, the Generic Splitter will split the file every time it has counted three pages. A 10 page file would be split in 4 files, the first three being three pages long and the last one only 1 page long.
- **View data file**: Click to view the sample data file and to cycle through the pages.

- **A database field value**: If you choose **A database value** in the Split data file on list box (the Use emulation option must be selected), the following box is displayed.
  - **Field**: Enter the name of the field that the Generic Splitter must check (only alphanumeric fields can be used—selecting a binary field, for instance, will cause the job to fail). If you enter “ID”, for example, the Generic Splitter will only look in the field named “ID” for the value entered below. In this variable property box, you may enter static characters, variables, job information elements or any combination of these.
  - **Operator**: Select the appropriate comparison operator. If you select Equals, the Generic Splitter will only consider that the condition is met when it finds a perfect match (“day“ and “day“, for example). If you select Contains, the Generic Splitter will consider that the condition is met whenever it finds the string of characters entered in the Value box, even if the database field contains additional characters (“day“ and “days“, for example, would be considered a match).
  - **Value**: Enter the string of characters to search for as the splitting criteria. Like the Field box, this is also a variable property box.
  - **Consider case**: Select to force the Generic Splitter to match the character casing of the string of characters entered in the Value box with the characters found in the file. If this option is selected, “DAY” and “Day” will not be considered as matching the search string “day”.
  - **Where to split group**
    - **Pages or records**: Enter exactly where to split the file. Enter 1 to split the file 1 page or record before or after the string, 2 to split the file 2 pages or records before or after the string, or 0 to split the file immediately before or after the string.
    - **Before or after**: In the previous box, you entered where you wanted to split the file. Here is where you specify whether you want the Generic Splitter to split the file X number of pages or records before or after the string. Choose 5 in the Pages or records box and “Records after” in this box, for example, to split the file 5 records after the record that matches the condition.

    - **Split when condition found**: You may not want to split the file every time the string of characters entered in the Value box is found, but only every other time, or every third time. If so, enter the number of times in this box.
- **A database field change**: If you choose **A database field change** in the Split data file on list box (the Use emulation option must be selected), the following box is displayed.
    - **Field name**: Enter the name of the field that the Generic Splitter must check. If you enter “ID”, for example, the Generic Splitter will only look in the field named “ID” for the value entered below. In this variable property box, you may enter static characters, variables, job information elements or any combination of these.
    - **Consider case**: Select to force the Generic Splitter to match the character casing of the string of the values appearing in the selected database field. If this option is selected, “DAY” and “Day” will not be considered as matching the search string “day”.
    - **Where to split group**
        - **Pages or records**: Enter exactly where to split the file. Enter 1 to split the file 1 page or record before or after the string, 2 to split the file 2 pages or records before or after the string, or 0 to split the file immediately before or after the string.
        - **Before or after**: In the previous box, you entered where you wanted to split the file. Here is where you specify whether you want the Generic Splitter to split the file X number of pages or records before or after the string. Choose 5 in the Pages or records box and “Records after” in this box, for example, to split the file 5 records after the record that matches the condition.
    - **Split when condition found**: You may not want to split the file every time the string of characters changes, but only every other time, or every third time. If so, enter the number of times in this box.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

In-Stream Splitter

In-Stream Splitter action tasks are used to split non-emulated data files into multiple data files that are passed to subsequent tasks in the process.

> **Note**
>
> Performing the splitting process on raw, non-emulated data speeds up the splitting process.

Task properties

General Tab

- **Split data file on page group**: Select to split the data file based on pages (rather than on a word found within the data stream) and to activate the options from this group, which are used to tailor exactly how you want the page based splitting process to take place.
  - **Page breaks on form feed**: Select if you want to start a new data page whenever a form feed character is found.
  - **Page breaks on a number of lines**: Select if you want start a new data page whenever a given number of lines has been counted. Enter the number of lines in the edit box below or use the spin buttons.
  - **Page(s) per output**: Select if you want the file generated by the splitter to include multiple data pages. Enter the number of pages in the edit box below or use the spin buttons.
- **Split data file on a word group**: Select to split the data file based on a word found within the data stream (rather than on based on pages) and to activate the options from this group, which are used to tailor exactly how you want the word based splitting process to take place.
  - **Word**: Enter the word to use as the splitting criteria. In this variable property box, you may enter static characters, variables, job information elements or any combination of these. You may also use the **Get Data** button to get a static string of characters from the sample data file. If you use this option, the coordinates of the data you will select will be added to the From column and To column boxes below.
  - **From column**: Enter a value corresponding to the first column in which the splitter must start searching for the word.

- **To column**: Enter a value corresponding to the last column in which the splitter must start searching for the word.
- **Match case**: Select to force the splitter to match the character casing of the string of characters entered above with the characters found in the file. If this option is selected, “DAY” and “Day” will not be considered as matching the search string “day”.
- **Where to split**: By default, the task splits the file at the beginning of the line on which the search word is found (the default value is 0). If you want the task to split the file a certain number of lines before or after that line, enter a value other than 0 in this box. Enter 1, for example, to split the file at the beginning of the line that precedes the line on which the search word is found.
- **Before**: If you entered a value other than 0 in the Where to split box, select this option if you want to split the file a given number of lines before the search word.
- **After**: If you entered a value other than 0 in the Where to split box, select this option if you want to split the file a given number of lines after the search word.
- **When word is found**: By default, the task splits the file every time the search word is found (the default value is 1). If you want the task to split the file only when the search word has been found twice, for example, enter the number 2 in this box.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

PDF Splitter

PDF Splitter Action tasks are used to split emulated PDF data files into multiple data files that are passed to subsequent tasks in the process.

When using a **PlanetPress Design** document, the PDF Splitter will do the job quicker than the Metadata Sequencer task that can also be used to split PDFs. However, when using a PDF as input, the Metadata Sequencer might perform better. For more information and some test results, see this How-to: Performance testing grounds.

In the case of **Connect Print** output, using Print Presets to separate the output is preferable to using the PDF Splitter. How to separate Print output in Connect is explained in the Connect Online Help: How to split print output into multiple files.

Input

A PDF data file (see "PDF emulation" on page 67).

Processing

The file is separated into multiple chunks according to the rules set in the task's properties.

Output

Multiple data files, sent one after the other to the rest of the tasks in the process. Metadata, job infos and user variables are not modified by this task.

> **Note**
>
> The Metadata is **not reset** at the time the next data file is sent to the rest of the process. See also: "Output issues caused by Metadata, and how to avoid them" on page 80.

Task properties

General Tab

- **Split on page**: Select to split the data file based on pages (rather than on a word found within the PDF data) and to activate the option from this group, which is used to tailor exactly how you want the page based splitting process to take place.
  - **Page(s) per output**: Enter the number of pages to include in the file generated by the splitter in this edit box below or use the spin buttons.
- **Split PDF file on a word**: Select to split the data file whenever a given region is found within the PDF data file (rather than on based on pages), or whenever the region found at a given location changes, and to activate the options from this group, which are used to tailor exactly how you want the region based splitting process to take place.
  - **On region content change**: Select if you want the data file to be split when the word found at a given location changes.

- **Get** button: Click to go to the Data Selector and select the location associated with the On region change option.
- **Specific word**: Enter the word to use as the splitting criteria. In this variable property box, you may enter static characters, variables, job information elements or any combination of these. You may also use the **Get Data** button to get a static string of characters from the sample data file. If you use this option, the coordinates of the data you will select will be added to the Left, Right, Top and Bottom boxes below.
- **Left**: Enter a value corresponding to the left coordinate on which the splitter must start searching for the region.
- **Right**: Enter a value corresponding to the right coordinate on which the splitter must start searching for the region.
- **Top**: Enter a value corresponding to the top coordinate on which the splitter must start searching for the region.
- **Bottom**: Enter a value corresponding to the bottom coordinate on which the splitter must start searching for the region.
- **Match case**: Select to force the splitter to match the character casing. Note that this setting applies both to the On region change and Specific word options. If this option is selected, “DAY” and “Day” will not be considered as matching the search string “day”.
- **Trim selection**: Select to force the splitter to strip empty trailing characters. When this option is not selected, blank trailing characters, if any, are considered in the matching process, so the word “DAY” will not be considered as matching the word “DAY”. Note that this setting applies only to the On region change option.
- **Where to split**: By default, the task splits the file at the beginning of the line on which the condition is met (the default value is 0). If you want the task to split the file a certain number of lines before or after that line, enter a value other than 0 in this box. Enter 1, for example, to split the file at the beginning of the line that precedes the line on which the condition is met.
- **Before**: If you entered a value other than 0 in the Where to split box, select this option if you want to split the file a given number of lines before the line on which the condition is met.
- **After**: If you entered a value other than 0 in the Where to split box, select this option if you want to split the file a given number of lines after the line on which the condition is met.

    - **When condition is found**: By default, the task splits the file every time the condition is met (the default value is 1). If you want the task to split the file only when the condition has been met twice, for example, enter the number 2 in this box.
- **Split PDF file based on Metadata** group:
    - **Metadata Level**: Determines on which level of the Metadata the split occurs. This can be Group, Document to Data page.
    - Sequencing based on:
        - **The following number of occurrences of the level**: Determine a sequence based on the number of instances found for the Metadata level currently processed. For example, if the Metadata level is set to Group, and this value is set to 3, each sequence contains 3 groups (except, possibly, the last one, depending on the number of groups left in the last sequence). The next loop starts with the next group after this sequence.
        - **The following number of sequences in the job**: Divides the Metadata into a set number of sequences and equally distributes the number of levels between the sequences. For example, it the Metadata level is set to Document, and this value is set to 5, a 100 document job file will be divided into 5 sequences of 20 documents each.
        - **The following rule**: Determine if a new sequence starts or if the current one ends. For each Metadata level, the current value of the specified Metadata attribute / field is compared with the one in memory. If they are different, either a new sequence starts or the current sequence is ended. The next sequence starts with the next Metadata level being processed. For details see the "Rule Interface" on page 860.
- **Optimize resulting PDF**: Select to specify whether the resulting PDF should be optimized. Optimization can lead to a significant reduction in the size of the PDF, but it may also add a certain amount of time to the process. This option should only be unchecked if the timing of the process is critical and needs to be done quickly, but keep in mind that the resulting PDF may be much larger than it should be and may even be too large for PlanetPress Workflow to handle.
- **Reset Metadata according to new PDF**: Metadata will be recreated according to the new PDF that was created, including page numbering, etc.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

XML Splitter

XML Splitter action tasks use the XSLT language to split XML data files into multiple XML data files that are passed to subsequent tasks in the process. The XML splitter includes options to add a new root node within the generated files, as well as to change the original file's encoding to UTF8. Note that the XML Splitter cannot process files larger than 30 megabytes.

Input

An XML file (see "XML Emulation" on page 70).

Processing

The file is separated into multiple chunks according to the rules set in the task's properties.

Output

Multiple data files, sent one after the other to the rest of the tasks in the process. Metadata, Job Info variables and user variables are not modified by this task.

Task properties

General Tab

This tab lets you choose the splitter settings for the default PlanetPress Workflow XSLT engine. If you want to use your own XSLT engine, click the Alternate XSLT Engine tab.

- **Split method**: Use this box only if you want to edit the standard XSLT script that will be used to split the XML file. First use the Standard XML splitter option to define the standard settings. Then, to change the standard XSLT script, select Advanced XML splitter and edit the script as required.
  - **Standard XML splitter**
    The following options are only displayed when the Standard XML splitter option is selected in the Split method box.
    - **Condition node path**: In the tree view, select the XML node to consider to determine when to split the file. To indicate whether you want the file to be

split whenever this node is encountered or whenever the information in this node changes, see the **Condition** group below.

- **Condition group**: Use this group to indicate whether you want the file to be split whenever this node is encountered or whenever the information in this node changes.
- **When condition node is found**: Select if you want the file to be split whenever the node selected in the Condition node path box is encountered.
- **When condition node content changes**: Select if you want the file to be split whenever the information stored in node selected in the Condition node path box changes. When this option is selected, the split files typically contain more information (all the orders for a given customer, for example).
- **New file root structure group**: Use this group to tailor the structure of the generated XML files.
- **Keep XML structure**: Select if you want the generated files to have the exact same structure as the original XML file (all the way to the root node).
- **Add new root node**: Select this option and enter a root node name in the box to the right, if you want the generated files to have a structure that begins with a new root name and that then goes directly to the node on which the file was split, as indicated in the Split on node box below.
- **Encoding group**: This group lets you indicate whether you want the splitter to use the file's own encoding or the universal encoding UTF8 to process the file. Note that if the file contains no indication as to which encoding should be used, the default system encoding will be used. This may result in errors being generated or split files that contain bad data. Using the UTF8 encoding can prevent such errors.
- **Use UTF8 encoding**: Select if you want to use the UTF8 encoding to process the file.
- **Use file's encoding**: Select if you want to use the XML file's own encoding to process the file.

- **Advanced XML splitter**: The following options and buttons are only displayed when the Advanced XML splitter option is selected in the Split method box. Note that you should not use this option before you have completed all the required settings using the Standard XML splitter option.

- **Refresh XSLT** button: Once you have made all the required settings using the Standard XML splitter option, click this button to display the XML code generated by the XML splitter. You can then use the box below to edit the code as required.
- **{WATCHTEMPFOLDER} file separator:** Use this box to edit the default XML file separator (/).

Alternate XSLT Engine tab

This tab lets you choose the splitter settings for your own XSLT engine. If you want to use the default PlanetPress Workflow XSLT engine, click the General tab.

- **Use alternate XSLT engine group**: Select this option to enable the box and the buttons included in this group.
- **Path and parameters for the alternate engine**: Enter your XSLT engine's absolute path (use quotes for non DOS 8.3 compliant paths) followed by its required operators and parameters (you must know exactly which operators and parameters your XSLT engine requires and in which order they must appear in the command prompt used to launch the engine). Note that you should not enter fixed values for the following parameters: the XSLT stylesheet parameter, the source XML data file parameter or the output file parameter. When you click the buttons below, the corresponding parameters are automatically added at the current cursor position. These variables will be replaced by the correct information at run-time.
- **XSLT file** button: Click to add the {XSLTFILE} variable to the command prompt displayed in the box above.
- **Data file** button: Click to add the {DATAFILE} variable to the command prompt displayed in the box above.
- **Output file(s)** button: Click to add the {OUTPUTFILE} variable to the command prompt displayed in the box above.
- **Browse** button: Click this button and browse to select the XSLT engine you want the XML splitter to use.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Process logic tasks

A process is like a flowchart. The data files captured by the Input tasks become job files (see "Job file" on page 51) that travel down the process. Many processes include multiple process logic tasks.

In the Process area, conditional branches appear with their associated condition, allowing you to understand the logic of the whole process at a glance. When PlanetPress Workflow comes to a condition, it tests the condition and sends the job file down one of the two branches based on the test result. So every time a job file travels down the process, it is either routed down the True or False branch.

A **"Branch" on the next page** is effectively a doubling of your job file (see "Job file" on page 51). As your job file goes down the process, when a branch is encountered, a copy of the job file will go in that branch. In the branch, all tasks up to the Output task will be performed, before returning to the main trunk to continue processes. You can have branches within branches, and all branches must have an Output task. For more information on branches, see "About branches and conditions" on page 137.

A **"Loop" on page 480** is a task that will cause anything after it to repeat a certain number of times. You can indicate a static number of loops or dynamically determine the number via a variable or information from your job file, and store the iteration of the loop in a Job Info variable.

The **"Send to Process" on page 483** and **"Go Sub" on page 478** tasks are used to send the job file to another process or subprocess and, in the case of the **GoSub**, to get information back from the subprocess.

> **Note**
>
> Branches, Loops and other Process logic tasks do not generally modify the job file, though some may change system variables. The only exception is the Run Script action, which can be a condition that also modifies the data.

> **Warning**
>
> Branches, Loops and Conditions do NOT modify metadata in any way. Furthermore,

even if a branch does a backup of Job Info variables and the data file, it does not back up the metadata. Keep this in mind when designing a process.

Available Process logic tasks

- "Branch" below
- "Comment" on the facing page
- "File Count" on page 474
- "File Name Condition" on page 477
- "File Size Condition" on page 478
- "File/Folder Condition" on page 476
- "Go Sub" on page 478
- "Loop" on page 480
- "Run Script" on page 481
- "Send to Process" on page 483
- "SNMP Condition" on page 484
- "Text Condition" on page 487
- "Time of Day Condition" on page 488

Branch

A Branch duplicates your job file along with accompanying information. Branches do not execute in parallel - the branch is executed, and then the trunk (or the following branch) continues.

For more information about branching see "About branches and conditions" on page 137.

Task properties

Backup Tab

- **Backup job file**: Select if you want PlanetPress Workflow to use identical copies of the job file for the main and secondary branches. When this option is not selected, the file generated by the output task located at the end of the secondary branch is used as the job

file for the main branch. Note that if the secondary branch ends with a **Delete** output task, the main branch will receive the job file in the state it was just before the delete. If the secondary branch includes a splitter task, the main branch will receive the last part of the job file (as split by the splitter task). If the secondary branch ends with a PlanetPress **Fax** or PlanetPress **Image** output task, the main branch will receive a PostScript file.

- **Backup job information**: Select if you want PlanetPress Workflow to use identical copies of the job file information for the main and secondary branches. When this option is not selected, the job file information that reaches the output task located at the end of the secondary branch is used for the main branch. Any modification performed on the secondary branch thus has an impact on the main branch.
- **Backup emulation**: Select if you want PlanetPress Workflow to use the emulation selected when the job file reaches the secondary branch for the main branch as well. When this option is not selected, the emulation selected when the job file reaches the output task located at the end of the secondary branch is used for the main branch. If the secondary branch includes a secondary input task or a **Change Emulation** action task, then the last emulation selected in the secondary branch will be the one used for the main branch.
- **Backup local variables**: Select if you want PlanetPress Workflow to use identical copies of the local variables for the main and secondary branches. When this option is not selected, the local variables that reach the output task located at the end of the secondary branch are used for the main branch. Any modification performed on the secondary branch thus has an impact on the main branch.

In case of the failure of a **Branch** task (the branch itself, not the other tasks contained within), by default the process will ignore the branch and simply go down the main trunk. You can overwrite this in the On Error tab.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Comment

Comments can be used to clarify your process either for yourself or others, to explain branches and scripts, or add information for anyone editing the configuration in the future.

Comments do not open, modify or otherwise process the job file in any way, and are simply ignored at run-time. They do not have an **On Error** tab because of this, since they cannot generate an error in any situation.

Comments have a single property in the **General** tab, which is the box where you enter the comment itself. This box does not process variables (it is not a "variable property"), since that would be of no use at run-time.

File Count

File Count tasks check if a target folder contains a specified number of files. They can be used as Condition task or as Input task.

When used as Input task, the task triggers the process to run only when the condition is true. As long as the condition is false, it does nothing (except log any errors).

Setting the file count to 0 allows to take action, for example, when a scheduled process is expected to have files but it doesn't.

> **Note**
>
> When used as an Input task, the File Count task does not apply the process polling interval. Once the condition is true, it triggers the process repeatedly, as if the polling interval were 0.
> To work around this, start the process with a Create File task followed by a File Count as Condition task.
> This issue only occurs in version 2020.1 and will be fixed in version 2020.2.

Processing

At run time, the number of files in the folder is compared to the specified value, using the specified operator.

If the folder or file count value is invalid and the task is used as Input task, the process does not run. If it is a Condition task, it returns False. No error is generated.

Output

Job Information definitions

When used as Input task, the File Count task sets the following Job Info variables.

- **%1 - FolderName**. The target folder.
- **%2 - Mask**. The specified mask.
- **%3 - FileCount**: The specified file count.

Task properties

General Tab

- **Target folder**: Enter the full path of the folder from which the input files are to be taken, or use the **Browse** button to select it. Note that subfolders are not processed.
  This is a variable property field. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.
- **Masks**: Enter a single or multiple file names or use file name masks (see "Masks" on page 306). Multiple filters are separated by a semicolon (e.g. *.csv;.xls*).
  This is a variable property field. (See "Variable task properties" on page 303.)
  - **Treat as regular expressions**: When ticked, the contents of the **Mask** field are deemed to be a regular expression . You can specify multiple masks based on regular expressions, separating the regular expressions by a semicolon.
    Please refer to Regular Expressions for more information.

> **Note**
>
> No Variable Data can be used inside this field if the **Treat as regular expressions** option is ticked. The percent sign, the curly brackets and the period are all key elements of the RegEx syntax, therefore they cannot be mixed and matched with Workflow variable data syntax (e.g. %1, ${global.myvar}, etc.). Also, there is no validation of the RegEx being specified.

- **File count**: Select whether the condition is to check if the file count is equal to, less than, greater than, less than or equal to, or greater than or equal to the specified value.

- **Value**: Enter the desired file count. This is a variable property field. (See "Variable task properties" on page 303.)

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

File/Folder Condition

The File/Folder Condition tasks checks if the specified file or folder exists and returns true if it exists, or false if it doesn't exist.

Task properties

General Tab

- **File or folder to check**: Enter one file or folder name. The name may contain text, variables and data selections (see "Variable task properties" on page 303). The Browse button allows to select a file or folder on disk.

Advanced properties

Right-click the task in the Workflow process and select **Advanced Properties...** to make settings on the On Error and Miscellaneous tabs.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

File Name Condition

File Name Condition tasks test the original name of the job file traveling down the process branch, or in other words, the name of the file received by the last input task appearing above the condition.

Task properties

General Tab

- **File name mask**: Enter one file name mask or multiple masks separated by a semicolon (;). See "Masks" on page 306. The condition will be tested True only in the case of an exact match, so consider using wildcard characters.
- **Invert condition result**: Select to toggle the result of the condition (true becomes false and vice versa).

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

File Size Condition

File Size conditions test the size of the job file they receive. Note that the job file may include data selections, attachments and documents that were added by other tasks. If a file does not exist, it's file size will be 0kb.

This task is put into effect in the following example process:

- "HTTP PDF Invoice Request" on page 284

Task properties

General Tab

- **File size is**: Select whether the condition is to check if the job file is smaller (less than) or larger (more than) than the specified value.
- **Kbytes**: Enter the minimum (more than) or maximum (less than) size setting in kilobytes.
- **Invert condition result**: Select to toggle the result of the condition (true becomes false and vice versa).

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Go Sub

The **GoSub** action task transfers the execution of the calling process to the specified subprocess (see "About processes and subprocesses" on page 125). When a process encounters a **GoSub** action, it halts its own execution, start the subprocess and waits for it to complete before resuming its workflow with the next task.

Every subprocess starts with a **BeginSub** input task and ends with a **EndSub** output task, both of which have nothing to configure and cannot be replaced or deleted. The simply represents entry and exit points for the subprocess.

> **Note**
>
> While it is possible to place a GoSub action within a subprocess, doing so will hide the subprocess from any **GoSub** action, in order to avoid circular referencing (aka an infinite loop).

Task properties

General Tab

- **Subprocess**: Drop down list containing all the available subprocesses in the current configuration.
- **Backup job file**: Select if you want to use identical copies of the job file for the main process and the subprocess.
- **Backup job information**: Select if you want to use identical copies of the job file information for the main process and subprocess. Once the subprocess completes its execution, the main process will retrieve the original job information values.
- **Backup emulation**: Select if you want to use the emulation selected when the job file reaches the subprocess for the main process as well. Note that the emulation is not passed from a main process to a subprocess or vice versa.
- **Retrieve subprocess error**: Select if you want to receive error(s) from the subprocess in order to handle them on its own.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Loop

Loop action tasks are used to repeat those tasks that are located after it on a given process branch. The number of repeats can be fixed or variable, as required.

> **Note**
>
> The Metadata is **not reset** at the start of each iteration. See also: "Output issues caused by Metadata, and how to avoid them" on page 80.

Task properties

General Tab

- **Number of iterations**: The number of times the loop should be repeated. Every task after the **Loop** action task will be repeated this number of times. The number may be static, or use a variable (see "Variable task properties" on page 712).
- **Store current iteration in Job Info #**: The Job Info in which the loop's iteration should be stored. Useful for sequential file names or conditions based on the iteration. The value of this Variable Properties box should be a digit between 1 and 9 (see "Job Info variables" on page 702).
- **Use value of Variable/Job Info # expression**: If the contents of the previous option is a variable, its content (which is assumed to be a number between 1 and 9) will be used to determine which Job Info number to use for the iteration number. For example if %{myvariable} is used and contains the value 9, then Job Info 9 will store the value of the loop's iteration.
- **Use original Data Stream every time**: Select to reuse the original job file received by the **Loop** action task at every iteration. If this option is not selected and if the process ends with a **Printer Queue Output** task, for example, the second time the **Loop** action task will be performed, it will use the PostScript file generated by the output task.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Run Script

Run Script tasks are used to run scripts that typically perform some kind of processing on the job file received by the task. Scripts are often simpler to write than programs added with the External Program action (see "External Program" on page 418). However, they can be slower to execute.

The Run Script task can be used either as an **Action** or a **Condition**. When dragging and dropping a Run Script task on a given process, you select whether to use this task as an Action or a Condition from a contextual menu. (See also: "About branches and conditions" on page 137.)

For more information on scripts, what languages are supported and how to write scripts and conditions, please see the related chapter, "Using Scripts" on page 141.

Input

Any data file, in any format.

Processing

The script is executed. The script can modify anything such as the data file, Job Info variables, Metadata, or even other files on the operating system.

Output

Whatever file the Run Script action generates, Metadata it modifies or creates, etc.

> **Note**
>
> When using Run Script as a Condition, the output of the task can be within the branch or on the main trunk. To control the output, use the "Script.ReturnValue" on page 174 variable in your script.

Properties

The **Script Editor** menu options are as follows.

- **File**
  - **Import**: Lets you open an existing script from an external file. This can be a .vbs, .js, .pl or .py file for language-specific scripts, or .txt for any of them.
  - **Export**: Lets you save the current script as a file.
  - **Print**: Prints the current script.
- **Edit**
  - **Undo**: Undo the last edit.
  - **Cut**: Cut the current selection (only available if there is selected text in the editor).
  - **Copy**: Copy the current selection (only available if there is selected text in the editor).
  - **Paste**: Paste the last selection that was cut or copied in the location of the cursor in the text editor.
  - **Delete**: Delete the current selection (only available if there is selected text in the editor).
  - **Select All**: Select all of the contents of the editor.
- **Search**
  - **Find**: Brings up the **Find** dialog.
  - **Find Again**: Repeats the previous search and finds the next occurrence.
  - **Replace**: Brings up the **Replace** dialog.
  - **Go To Line**: Brings up the **Go To Line** dialog where you can enter a line number and jump directly to that line.
- **Language**: Select the language in which your script is written. Choices are **VBScript**, **JavaScript**, **Perl** or **Python**.
- **Tools**
  - **Editor Options...**: Opens the "Editor Options" on page 801.
- **Help**
  - **Contents and Indexes**: Opens the Editor Help (this page)

The other options of the window are:

- **The script editor text box**: This is where you enter your script that will be used. If you use an external script file, this will display the content of the file (note however that

modifying the script in this case does not modify the external file and changes are not saved).

- **Script running from**: Choose if the script should be run from the editor text box, or from an external script file.
- **Script filename and path**: Either the full path of the script, or click the **Browse** button to navigate to the file. This option is only available if you choose **external script file** in the **Script running from** option.

> **Warning**
>
> With the Run Script action, the **On Error** tab is accessible by right-clicking on the action in your process and clicking **Advanced Properties**.
>
> The On Error tab will be triggered if your script has an execution error (such as syntax error, etc) as well as when raising an error from within your script.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Send to Process

The **Send to Process** task transfers job file(s), job information and all related files (Metadata, sorted Metadata, etc.) to a selected process. This Action task is asynchronous, meaning the current process will continue running in parallel to the process chosen in this task and will not wait for it to finish.

This task is dual-purpose: it can be used either as an Action task, or as an Output task. In either case, it does not directly produce an output, though the process it calls may produce one or more outputs.

In either case, the called process will ignore the input task along with its Job Info variables and schedule, and use the job file, Job Info variables, Metadata and variables from the current process.

Note that a process called through the Send To Process plugin will **not** self-replicate, even if the process' preferences specify that it should. The initial Input task is being bypassed, and since it's the Input task that initiates the self-replication procedure, self-replication cannot occur.

Task properties

General Tab

- **Process**: The name of the target process to send the current job to. Note that startup processes and subprocesses are not available. You can either enter the name of a process (or use variable properties) or use the drop-down to list existing processes.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

SNMP Condition

SNMP is a communication protocol for helping network administrators manage devices and peripherals on their network. It is useful for verifying the status of network printers, as you can retrieve error and other status messages that printers send out, such as being out of paper or having low toner.

PlanetPress Workflow uses the SNMP protocol in the form of an SNMP Condition, in two ways:

- To check the status of printers on your network against values you set in a condition, and to return a true or false value. This is called setting a Printer condition in the SNMP condition's **Properties** dialog box.
- To check different values of printers or other SNMP compatible devices against conditions you set, to return a true or false value. This is called setting a User defined condition in the SNMP condition's **Properties** dialog box. You indicate what is called

management information bases (MIB) and object identifiers (OID) that are extensible and can be vendor specific.

Management Information Base Object Identifiers

A Management Information Base (MIB) is a database of Object Identifiers (OIDs) that can be used to monitor device objects using SNMP. An MIB OID can point be a printer tray, cartridge or hard disk, or to modem mode. Using an SNMP condition, PlanetPress Workflow can communicate with a device located at a given IP address and request the status of the object identified by a given MIB OID number. Object Identifiers are typically assigned and registered by device manufacturers. They are based on a standard known as Abstract Syntax Notation One (often referred to as the ASN.1 standard).

Task properties

General Tab

- **Parameters group**
  - **Community**: Enter the community name for the printer or other SNMP compliant device you want to monitor. A community acts like a combination of a user and password granting you access to an SNMP device. Depending on the community name, the device knows what rights to grant, for example, read-only or read-write. Community names serve as a form of organization and security used with SNMP. The community name must allow sufficient access to the SNMP device to monitor it with the condition. Most SNMP devices come with a public community name that usually gives you read-only and/or read-write access. It is recommended to increase security on your network by entering community names allowing varying levels of access depending on the particular device, its users, etc. The community name tells the device which rights to grant PlanetPress Workflow (required to perform the test).
  - **IP address**: Enter the IP address of the network printer (or other device) whose status is to be checked via SNMP.
  - **Get info**: Click to retrieve information corresponding to the IP address you entered. If the information is successfully retrieved and it corresponds to a printer, the Host name and Description of the printer (or other device) appears in the corresponding boxes.
  - **Host name**: When you click Get info, if PlanetPress Workflow is able to communicate with the device, it displays its name here.

    - **Description**: When you click Get info, if PlanetPress Workflow is able to communicate with the device, it displays its description here.
    - **Condition type**: Select Printer Queue to test a standard printer status condition or User Defined to test a status identified using a printer specific identification code. Bear in mind that the failure to comply with any of the test conditions selected below will make the whole condition False.
- **Printer Queue group** (displayed when Printer Queue is selected in the Condition Type box)
    - **Printer status**: Select Idle or Printing to test whether the printer is currently idle or printing. Select Do not test if you only want to test the printer's alert status (below).
    - **Alert status**: Select No alert to make the condition False whenever an alert situation is detected, regardless of its type or severity. Select No critical alert to make the condition False whenever a critical alert is detected, regardless of its type. Select Non-critical alert to choose a specific non-critical alert in the Detected error box. Select Critical alert to choose a specific critical alert in the Detected error box. Select Do not test if you only want to test the printer status (above).
    - **Detected error**: Select a specific non-critical or critical alert. Note that this box is only displayed if you selected either Non-critical alert or Critical alert in the Alert Status box.
- **User Defined** (displayed when User Defined is selected in the Condition Type box)
    - **MIB OID number**: Enter the Management Information Base Object Identifier corresponding to the object you want to test. Vendors of SNMP compliant devices sometimes list MIB OIDs in their documentation.
    - **Test**: Click to test communication with the device and the MIB OID number.
    - **Operator**: Select the operator used to test the condition.
    - **Value**: Enter a specific object status. Vendors of SNMP compliant devices sometimes list possible object states in their documentation.
    - **Invert condition result**: Select to toggle the result of the whole SNMP condition (true becomes false and vice versa).

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Text Condition

Text Condition tasks can be used to perform two different types of tests:

- **To test the presence of a string within the job file**. You can, for example, search for the string “Gold member” on the first line of the job file. As another example, you could search for a variable string retrieved via a job info variable or a data selection in a given location in the job file.
- **To compare two strings**. As with the test above, this test can also be used to search for a string in a given location. The difference with this test is that it gives you comparison options. Using the “Contains” operator, you can test the presence of the string “Gold member” at a given location in the job file (using a data selection), but the other operators can be used to test whether or not the first string is equal to the second one, whether it is equal or lower than the second one, etc.

The logic of text conditions can sometimes be tricky, especially if it includes variable strings, so you should test it thoroughly.

Task properties

General Tab

- **String**: If you want to test the presence of a given string at a given location, enter the string in this box. If you want to compare two strings or perform a numeric comparison, enter the first string in this box. Note that you can enter either a static string, a variable or a data selection in this box. If you enter a variable, PlanetPress Workflow will retrieve the string from the variable before performing the comparison. If you enter a data selection, PlanetPress Workflow will search the job file and retrieve the string found at the referenced location before performing the comparison.
- **Operator**: Select the desired operator. Note that neither the “Is found” nor the “Is not found” operator can be used to test XML data.
- **Convert data to uppercase before comparison**: This option is only displayed when either “Is found” or “Is not found” is selected in the Operator box. Select to prompt PlanetPress Workflow to convert the string to uppercase before performing the comparison.
- **Numeric comparison**: This option is not displayed when either “Is found” or “Is not found” is selected in the Operator box. Select to convert the strings from the String and Comparison string boxes to their corresponding numeric values before performing the

comparison. If you chose an operator that compares numeric values, you should select this option.

- **On numeric error**: This option is only available when the Numeric comparison option is selected. Select the behavior you prefer when PlanetPress Workflow is unable to successfully perform a numeric comparison. Select ”Return the error”, if you want the Text condition to fail altogether. Select ”Return true”, if you want the condition to be considered True. Select ”Return false”, if you want the condition to be considered False.
- **Location**: You can only enter a location when either ”Is found” or ”Is not found” is selected in the Operator box. If you select “at”, you also have to enter a specific line and column. If you select “on line”, you have to enter a given line. If you select “in area”, you have to enter a range of lines and columns. If you select “on the page”, the search area will cover the whole data page (as defined below).
- **Compare to string**: You cannot enter a comparison string when either “Is found” or “Is not found” is selected in the Operator box. Enter the second string of the comparison in this box. As with the String box, you can enter a static string, a variable or a data selection in this box.
- **Page range**: Select Any page if you do not want to specify a precise data page. Select Pages to specify individual pages or page ranges. The page range setting is only considered when either ”Is found” or ”Is not found” is selected in the Operator box.
- **Range**: Entries must be separated by commas. Page ranges are entered using a starting page and an ending page, separated by a dash. For pages 1, 3 and 5 to 7, you would enter the following: 1,3,5-7.
- **Invert condition result**: Select to toggle the result of the condition (true becomes false and vice versa).

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Time of Day Condition

Time of Day Condition tasks test the current time and day. Using a time and day grid, you can select blocks that correspond to time and day coordinates. Various settings can be used to change time intervals, for instance, that range from 15 minutes to 24 hours. You may choose to use days or dates, and you may also select specific weeks or months.

The Time of Day Condition differs from the process schedule in the fact that you could put this condition after generating some output, and you can also run tasks when the condition itself is false, which is not the case for a process outside of schedule.

You can choose contiguous as well as separate time blocks as required. The condition is tested True every time the current time and date corresponds to a selected time block.

Task properties

General Tab

- **Month**: Select **All months** if you want the selected time blocks to be valid every month of the year. Select a specific month if you want the selected time blocks to be valid only on that month.
- **Week of month / by date**: Select **Date** if you want the selected time blocks to be valid only on specific dates. Select **All weeks** if you want the selected time blocks to be valid every week of the month. Select a specific week of the month if you want the selected time blocks to be valid only on that week (the first, second or last week of the month, for instance).
- **Time division**: Select the desired time interval. Each block in the grid corresponds to the selected time interval.
- **Invert condition result**: Select to toggle the result of the condition (true becomes false and vice versa).
- **Grid**: Select separate or contiguous time blocks. Click a block to toggle it on or off. Click and drag to toggle multiple blocks on or off. Click date or day at the top of the grid to toggle the whole date or day on or off. Click a time interval on the left margin of the grid to toggle the whole time interval on or off.
- **Select All**: Click to toggle all the time blocks on.
- **Clear**: Click to toggle all the time blocks off.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Connector tasks

A Connector, as the name implies, is a task that connects to something outside of PlanetPress Workflow itself. In some cases those are other parts of the PlanetPress Workflow, but in other cases we offer connectors for third-party applications or systems.

Available Connector tasks

- "Create MRDX" below
- "Laserfiche Repository Output" on page 496
- "Lookup in Microsoft® Excel® Documents" on page 498
- "Microsoft® Word® Documents To PDF Conversion" on page 501
- "Output to Capture OnTheGo" on page 504
- "PlanetPress Fax" on page 511
- "PlanetPress Image" on page 512
- "PReS Print Controls" on page 522
- "PrintShop Mail" on page 526
- When installed, the "ZUGFeRD plugin" on page 528 also appears in the Connector category. It is bound to the Connect Workflow Imaging license and provided separately.

Create MRDX

The **Create MRDX** Action task is used to register a job on a SureTrac server using an MRDX file. The MRDX contains information about the job and its finishing, as well as integrity features use by SureTrac. This task requires a PDF file as an input, along with metadata generated through a document that contains PitneyBowes Scan Codes.

Task properties

General Tab

- **Register Job to the SureTrac Server** group: Check this option to enable the group.
  - **Server Name**: The complete URL of the SureTrac server.
  - **Process Verification Job Name**: The SureTrac job that this PDF should fall under. Use the button next to the list to retrieve a list of available SureTrac jobs from the server.

    - **Mailrun ID**: A unique identification for the current job. This ID must never be the same between two mail runs - we suggest using either %f or %u , which are both always unique as they are based on date and time.
    - **Use Job ID**: Check to send the Job ID chosen in the PitneyBowes Scan Code utility along with the job.
- **Use External MRDX and PDF**: Check this option to ignore the MRDX creation and use an existing PDF and MRDX instead.
    - **Files Location**: Enter the path and file name (without extension) of the PDF and MRDX file, or use the **Browse** button to select either. The PDF and MRDX file must have the exact same name apart from the extension.
- **Use MRDX as new data file**: Ignore the PDF file and use the MRDX as a job file after this task. The PDF is discarded. If this is unchecked, the PDF and metadata are used.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Delete Capture OnTheGo Document

The **Delete Capture OnTheGo Document** deletes a document from a Capture OnTheGo Repository, which stores documents that can then be retrieved by the Capture OnTheGo mobile application. It can be used, for example, to delete a document that has its expiration date set in the distant future but needs to be deleted as soon as an app user has submitted it.

This task can be added as an Action task (see "Action tasks" on page 379) or as a Condition Task. When used as a Condition task, the success of the delete operation determines whether the condition returns True or False.

Input

This task doesn't require an input file. It does need a Repository ID and password, and the ID of the document to delete.

Processing

This task connects to a Capture OnTheGo Repository and requests removal of a document with a given document ID.

Output

When used as a Condition task, the success of the delete operation determines whether the task returns True or False.

Task properties

General Tab

The **General** tab is where you enter the connection information necessary to log on to the Repository to request removal of the specified the document.

- **Server URL**: Select the address of the COTG Server that you want the plugin to communicate with. (This option is only available if more than one COTG Server address has been defined.)
- **Repository ID**: Enter a valid Capture OnTheGo Repository ID.
- **Password**: Enter the password that corresponds to the Repository ID entered above.
- **Document ID**: Enter the ID of the document to delete from the Repository.
- **Invert result**: When the task is used as a Condition task, the success of the delete operation determines whether the condition returns True or False. Check this option to invert the result.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Input from SharePoint

The **Input from SharePoint** task can be used to retrieve files from a SharePoint server on your network, filtering on your template fields and creating Metadata to use in your process.

When the **Input from SharePoint** task runs, it first lists all of the files to download then runs the process once for each file in the list. If any new files are added during the process, they will not be touched until the next time the process is scheduled.

This task works with many of the available SharePoint servers:

- Microsoft SharePoint 2007
- Microsoft SharePoint 2010
- Windows SharePoint Services 3.0 SP2
- SharePoint Foundation 2010
- SharePoint 2013

It may work but has not been certified with other SharePoint server versions.

Licensing

This plugin requires the OL Connect Workflow **Imaging** license.

Workflow Imaging is an add-on license bundle for OL Connect Workflow that includes the Image and Fax plugins; see "About PlanetPress Image" on page 744 and "About PlanetPress Fax" on page 743.

Without a valid Imaging license, the plugin will fail with an error. In the trial version, the plugin will work.

Input

Any data file present on a SharePoint document store, even those not compatible with PlanetPress Workflow emulations, and the properties of these files.

Processing

The task connects to the selected Document store and retrieves a copy of files according to the specified rules. The files may be deleted or marked as checked out depending on the options selected, otherwise they are untouched.

Output

The output to this task is a series of individual files, one after the other.

Task properties

General Tab

> **Note**
>
> For this tab to work, you must have entered your SharePoint Connection information in the Connection Tab.

- **SharePoint Site**: The name of the SharePoint site from where you want to retrieve documents. You can click on the **Refresh** button to display a list of sites on your SharePoint server.
- **Document Library**: The document library where you want to retrieve the files. You can click on the **Refresh** button to display a list of libraries on the SharePoint site selected previously.
- **Folder**: The folder in the document library where your files are located. You can click the **Browse** button to display your folder structure. In the **Browse Folders** dialog, click on the folder you want to use and click OK.
- **Input Rule**: Lets you define rules to filter incoming files on certain variables, for example the file name, size, etc. Clicking the **...** button brings up the "Rule Interface" on page 860.
- **Download files from sub-directories also**: Check to also look into subdirectories of the specified Folder.
- **Do not download checked out documents**: If the document is set as "Checked Out" in SharePoint, it will be ignored.
- **Action Group**
  - **Download the document**: Simply download the document and do not modify it in SharePoint.
  - **Download the document and mark it as checked out in SharePoint**: Download the document and mark it as Checked Out in SharePoint. This is useful for preventing files to be downloaded more than once.
  - **Download the document and delete it from SharePoint**: Download the document and delete it from the SharePoint server.

Connection Tab

- **Server Name**: The name of the SharePoint server. This can either be a server name (e.g. http://SharePoint2003) or an IP address (e.g. http://192.168.1.123). Both http:// and https:// (secure) connections are accepted.
- **Domain**: The active directory domain for the logon credentials. This is not necessary if the SharePoint server is not part of a domain.
- **User Name**: A valid user name that has access to the SharePoint site and is able to read and write to document libraries.
- **Password**: The correct password for the user name.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.
- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - Source file name**: Contains the name of the current captured file.
- **%2 - Directory**: Contains the name of the SharePoint director from which the current file was captured.

Laserfiche Repository Output

The **Laserfiche Repository Output** task publishes files - and optionally sets index values - into a Laserfiche server. This task uploads any documents in a Laserfiche repository, optionally filling the index information on the Laserfiche server with dynamic information that can be taken from PlanetPress Workflow PDI files (for PlanetPress Workflow archives only).

> **Note**
>
> The Laserfiche Repository Output requires the Laserfiche run-time version 8.1 or higher and will not work with previous versions. It also requires a valid PlanetPress license.

About Laserfiche

Laserfiche is a provider of digital document and record management systems. Laserfiche has two components: the Laserfiche server, which hosts the repository, and the Laserfiche client, which serves as the user's interface with the repository. For more information see the Laserfiche website: https://www.laserfiche.com/.

Input

Any file that is compatible with Laserfiche (see the Laserfiche user manual for more information on supported files types)

Processing

A connection is established with the Laserfiche server, the file is uploaded and the metadata in the Laserfiche server is generated correctly.

Output

The output from this task is the specified file along with the metadata within the Laserfiche server. The file is not directly modified by this task.

Task Properties

General Tab

- **Laserfiche configuration group**
  - **Folder**: Enter the Laserfiche client repository folder where the documents will be exported. The user can specify the remote folder by clicking the **Browse…** button. Note: If the Folder field is empty, the documents will be exported by default to the root folder
  - **Import Format group**
    - **Laserfiche Pages**: Converts all images files (*.bmp, *.gif, *.jpeg, *.pcx, *.png, *.tif, *.tiff, *.txt) into the Laserfiche internal TIFF format on the server. When double-clicking on the document in Laserfiche the image will be opened in the Laserfiche Image Viewer.
    - **Electronic files**: All files will be stored in their original format in Laserfiche. When double-clicking on the document in Laserfiche the native Windows application associated with the file extension of the archive will be opened.
  - **Force folder creation**: Select to force the folder creation if it does not already exist on the Laserfiche server.
  - **Volume**: A list allowing to choose among available Laserfiche volumes.
  - **Configure Tags**: Click to open the **Configure Tags** dialog. See LaserFiche Repository Output - Configure Tags.
  - **Configure Templates**: Click to open the **Configure Templates** dialog. See LaserFiche Repository Output - Configure Templates.
- PlanetPress **archive folder**: Folder path of the folder capture of the current process. This field is optional and should only be set when publishing PlanetPress Workflow archives that have PDI files.
  - If the PlanetPress Image archive folder field is empty and the option “Use PlanetPress PDF/A” is selected, a warning message will be displayed: "You should insert PlanetPress Image archive folder source".
  - The indexes in the PlanetPress Design document must match the ones in the Laserfiche server.

Connection Tab

- **Server Name**: The server name or IP address of the server you wish to connect to.
- **Repository**: The name of the repository you wish to send the files to.
- **User name**: A user name in Laserfiche that has access to the above repository.
- **Password**: The password for the above user name.
- **Test Connection**: Click to verify that the information entered in this tab is correct and the server accepts it.

Restrictions

- Each **Laserfiche Repository Output** task uses a connection to Laserfiche. You can use as many **Laserfiche Repository Output** tasks at the same time as your Laserfiche license allows. If you see the error message 'The session number was exceeded' in the PlanetPress Workflow Service Console, it means you have exceeded your allowed number of connections.
- To use the "Use PlanetPress PDF/A archives" option, make sure to:
  - Check the field as Multiple, select CHAR type and enter the width fields in Laserfiche administration console as long as your PlanetPress fields.
  - Insert a folder path to your PDI source files in the PlanetPress Image archive folder.
- If a field is checked as Required in Laserfiche administration console, fill the field value.
- If you want to assign an Informational Tag, do not check the Security tag option in the Laserfiche administration console.
- If the output repository folder does not have access rights to read and create documents, the task will not be able to export documents to the selected Laserfiche folder.
- If you intend to use PDI for number type, your decimal separator in both your Regional and Language Options and in PlanetPress Index (PDI) numbers should be a dot (".").
- The Laserfiche output task will only work if an activated PlanetPress **Image** is found, either locally or on the network.

Lookup in Microsoft® Excel® Documents

The **Lookup in Microsoft® Excel® Documents** action task is used to complement your job file's Metadata by retrieving data from a Microsoft® Excel® spreadsheet on your system. The

data retrieved is based on existing data in your Metadata, and it will either be added to your Metadata or will append or replace your existing Metadata if it exists.

Fields on any level (Page, Datapage, Document, Group, Job) can be used, and the result field will be added on the same level as the lookup field.

> **Note**
>
> This task will automatically "loop" through the Metadata and repeat its action for each of your Metadata's data pages. This task should not be placed after a **Metadata Sequencer** task, otherwise it will run as many times as there are Metadata sequences, which will result in decreased performance.

Use cases

Here are some examples of how the Lookup in Microsoft® Excel® Documents task could be used in combination with PlanetPress Design documents.

Use case 1: Send personalized emails with promotional document attached

A PlanetPress Design document takes a PDF file as the input data file, and reproduces it exactly as it enters. The document also contains a custom data selection set to hold an email address. The data selection's value is given by a Metadata Field called 'Email'. The value of this Email Metadata field is a region from the sample data file representing the customer number. At production time, the **Lookup in Microsoft® Excel® Documents** action task will replace the value of this Metadata field with the corresponding customer email.

Use Case 2: Translate a list of line items descriptions into a given language

A PlanetPress Design document takes as input a transactional PDF file, and reproduces it exactly as it enters. Metadata fields called ItemDesc are created, one for each line item description, at the data page level. Each ItemDesc Metadata field is given the value of a line item description as found on a region of the current data page. The line item descriptions appearing on the resulting page produced by the design tool are custom data selections whose value come from the corresponding ItemDesc Metadata fields. The **Lookup in Microsoft® Excel® Documents** action task updates the value of all 'ItemDesc' Metadata fields with their corresponding foreign language descriptions.

Input

Any compatible data file. This task requires Metadata to be present.

Processing

The task parses each level of the Metadata and, for each field of the specified name it finds, a lookup is made. If a field of the same name appears on multiple levels, the lookup will happen for all fields, on all levels, individually.

Output

The original data file is unchanged. Metadata is updated according to the specified criteria.

Task properties

General Tab

- **Excel group**
  - **Excel workbook**: The full path and file name of a Microsoft® Excel® workbook (.xls or .xslx file). You can use the **Browse** button on the right to browse to the file on your computer.
  - **Excel worksheet**: The name of the worksheet you want to use. Once a workbook is open, this drop-down will automatically list all the available worksheets.
  - **Refresh** button: If you have modified the original Microsoft® Excel® workbook to add a sheet, click this button to refresh the list of worksheets.
- **Metadata group**
  - **Lookup Field**: The name of the Metadata field that will be used to determine which row should be returned. The Metadata field can be on any level.
  - **Lookup Column**: The name of the column in the Microsoft® Excel® worksheet that corresponds to the contents of the Lookup Field.
  - **Action**: What to do with the resulting data from the Microsoft® Excel® worksheet. This can be:
    - **Add Field**: Creates a new field with the data. This may cause multiple fields to be created.

    - **Replace field value**: Replaces any existing field with the new content. Only the last result will be displayed. If the field does not exist, it will create it.
    - **Append field value**: Ads the data to the existing field within the same one. No "separator" is added. If the field does not exist, it will create it.
  - **Result Field**: The Metadata field name in which the result should be stored. This field will appear in the same Metadata level as the Lookup Field.
  - **Result Column**: The name of the column where the information you want to retrieve is located. For example, this could be a client email or full name.
  - **button**: Ads a new lookup line. You can have as many lines as you want. The lines will be executed in order from top to bottom, so you can rely on a previous line to bring additional information.
  - **button**: Removes the currently selected (highlighted) line.
  - **button**: Moves the currently selected line up one place.
  - **button**: Moves the currently selected line down one place.
- **Search option group**
  - **Match case**: Will force the lookup column names to be in exactly the same case as the Lookup column name. This means if you type in "CustomerID" in the lookup column and the actual column is named "customerid", it would not return any result.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Microsoft® Word® Documents To PDF Conversion

The **Microsoft® Word® Documents to PDF Conversion** action task can be used to convert a Word® document into a PDF file that can be used in your PlanetPress Workflow process. It can also do a Mail Merge as it runs the task.

Notes

- Microsoft® Word® needs to be installed for this task to be functional and to test the connection.

- Microsoft Word must not be currently opened when the automation task runs.
- Microsoft Word 2003 and up are supported.
- While debugging this task, the printer shows the message that the document can not be printed. This message is normal and will not appear when running a live configuration.
- The task uses a printer queue set with the “PlanetPress Word to PDF Printer” driver, which is created and set by default on-the-fly the first time a Microsoft® Word® Documents to PDF Conversion action task is run. This printer cannot be shared on the network in order to avoid confusion from network users, however it is shared between all Microsoft® Word® Document to PDF action tasks on the same system.
- If using a Microsoft® database such as Access® or Excel®, each software must be installed in the same version. For example, using Microsoft® Word® 2007 with a Microsoft® Access® 2003 database will cause the task to fail.
- If the database path is specified in the Microsoft® Word® document, the mail merge has to be performed with the settings specified in the document, otherwise the database path provided in the task is ignored and can cause different conflicts. To use custom settings, the Microsoft® Word® document should contain only mail merge fields with no database path entered. The Microsoft® Word® to PDF action task allows specifying the path of the database and the query to use. The Use custom settings option is very usefully for using different databases and queries in a single process.
- If the database is the same for 2 processes, one of two processes aborts. Each process has to use different databases, or no more than one process with a Microsoft® Word® to PDF task.

Input

A compatible Microsoft Word Document.

Processing

The Word document is converted into a PDF file. If a Mail Merge is made, the mail merge is done in the document before the document is converted into a PDF file. The conversion is done through the use of a printer queue - the document is printed to this queue and the print job is converted to PDF. This is the same technique as used in the "WinQueue Input" on page 376 when generating PDF files.

Output

The output is either:

- A PDF file accompanied with basic PDF metadata. This is the default output. The Metadata contains one Document level, and one Data page (and Page) level for each PDF page generated by the document. When Mail Merge is not selected, this is the only available choice.

> **Note**
>
> The Objectif Lune Printer Driver will naturally add a margin to the PDF generated by this task. If your PDF is full bleed you will not get the desired results using this option.

- A DOC (Word Document) file which is the result of the mail merge. This output is only available when doing a mail merge.

Task properties

General Tab

- **Microsoft Word Document**: Enter a Microsoft® Word® document or template, or click the browse button to navigate to the location of the document. The supported extensions are: *.doc, *.docx, *.dot and *.dotx.
- **Perform Mail Merge**: Check when providing a Microsoft® Word® document or template configured for mail merge.
    - **Use settings specified in document**: Selected to instruct the task to use the connection string and SQL statements stored in the DOC file. There is no guarantee that the database, connection string or statement are still valid, especially if the DOC file was moved or sent to someone else.
    - **Use custom settings**: Override the mail merge settings in the Microsoft® Word® document and lets you specify your own.
    - **Connection String**: The connection string to any ODBC database supported by PlanetPress Workflow. You can use the Browse button to open an existing File DSN, or use the Database Button to open the ODBC connection interface.
    - **SQL Statement**: An SQL statement that is understood by the database you are using and that will return a series of records that the Microsoft® Word® template is expecting. Note that no validation is made on SQL statements except if they are for

Microsoft Access and Excel data files. You can use the Test Connection button to test the SQL and connection string.

- **Test connection**: Checks if the Connection String and SQL Statement are valid, and if the resulting recordset is understood by the Microsoft® Word® document. This is optional, though highly recommended.

- **Output Type**:
  - **.PDF File (with metadata)**: The result will be a PDF file with the number of pages generated by the combination of the template and record set. Metadata is also included that complement the PDF.
  - **.DOC file**: The result is a Microsoft® Word® document in .doc format. Note that this format is not supported by PlanetPress Workflow as a data file or job file, so this option is only useful if you are simply planning to save the Word document in a specific location.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Output to Capture OnTheGo

The **Output to Capture OnTheGo** task sends document information to the Capture OnTheGo online repository. These documents can then be retrieved by the Capture OnTheGo mobile application.

This task can be added as an Action task (see "Action tasks" on page 379) or as an Output task (see "Output tasks" on page 643). Adding it as an Action task enables the process or branch to continue after this task. An Output task is always located at the end of a process or branch.

Input

This task ignores the input data file and any Metadata unless data selections are used in the variable data fields.

Processing

This task does not process the data or Metadata file. The information entered in the **Deposit** tab of this task is sent to the repository configured in the Repository tab.

Output

The output that this task produces is the information sent to the Capture OnTheGo online repository (the document ID).

Task properties

Repository Tab

The **Repository** tab is where you enter the connection information necessary to create the link between OL Connect or PlanetPress and CaptureOnTheGo.

- **Server URL**: Select the address of the COTG Server that you want the plugin to communicate with. (This option is only available if more than one COTG Server address has been defined.)
- **Repository ID**: Enter a valid Capture OnTheGo Server user name (mandatory).
- **Password**: Enter the password (mandatory) that corresponds to the Repository ID entered above.
- **Show password**: Check this box if you want to see the password you type in the Password box.

Deposit Tab

In the Deposit tab, you enter information regarding the document you are making available to Capture OnTheGo users.

- **Document to Publish group**: This is where you specify the document location and type. It is mandatory to enter valid information in all the boxes included in this group.
    - **USE URL**: Enter a URL corresponding to the document location and name (note that the URL must begin with either HTTP: // or HTTPS: //). The document would typically be available from the PlanetPress HTTP Server or a regular Web server.
    - **File Type**: Select the appropriate document type. HTML for forms that users can fill out, and PDF for documents users can read.

    - **Cover Image**: Enter the path to a cover image that is shown in the repository and library list, as well as the document property. The maximum image size is 512x512 px and it is required to be in JPG or PNG format. Use the **Browse** button to locate an image on the local drive. The Cover Image is optional and, if omitted, displays a default image based on the file type.
- **Document Information group**: In this group, you enter information that will help users identify the document. It is mandatory to enter valid information in all the boxes included in this group.
    - **Title**: Enter the document name that Capture OnTheGo users will see on their device. Choose a name that will let users clearly identify the document.
    - **Author(s)**: Enter a name identifying the document's creator(s).
    - **Description**: Enter a description helping users identify the document.
- **Metadata group**: This group lets you determine which Capture OnTheGo users can see the document and where they will see it.
    - **Recipients**: Enter valid **Capture OnTheGo** user names separated by a semicolon as a group entry, or individual user names as a single user entry in this box. These names determine which users can have access to the document. Click the button marked with a plus sign to add groups of users or individual users to this list box. The list must include at least one entry (otherwise, no one will be able to see the document). Note that a group here is defined by having multiple names on a single line, granted that you use a semi-colon to separate each one. Also note that there cannot be any spaces before or after each group or user name and that the names are case insensitive. Click any given line to edit the information appearing on this line. To remove a group of users or a single user, make a selection in the list and then click the button marked with an X.
    - **Categories**: Enter at least one valid Capture OnTheGo document category in this box. Capture OnTheGo documents are listed by categories (Reference, Delivery bills, Satisfaction Polls, for instance) on Capture OnTheGo app. These categories are typically managed via the Capture OnTheGo Repository Management page. Note that there cannot be any spaces before or after each category name and that the names are case insensitive. Click the button marked with a plus sign to add a category to this list box. To remove a category, make a selection in the list and then click the button marked with an X.
    - **Fail process if any of the categories does not exist**: Check this box if you want the process to fail if any of the categories listed above does not exist on the Capture OnTheGo Server. If this option is not selected, and if some of the listed categories

are not present on the Capture OnTheGo Server, the process will go through and the listed categories will be added to the Server.

Advanced Tab

The **Advanced** tab is where you specify the document's time to live either in the repository or the user's device.

- **Document Handling Options group**:
  - **Customize**: You must check this box if you want the options included in this group to be used. When this option is not checked, the other boxes included in this group are faded.
  - **Auto-Download**: This option determines whether the document is to be automatically downloaded to the users' devices (documents that are not automatically downloaded are first listed on users' devices – users must then tap the **Download** button, if they want to have the document on their device). You may enter 'Yes', 'No', or a variable. The document will be automatically downloaded if the value is 'Yes' (whether entered manually or returned by the variable) and if the recipients list includes only individual user names. In any other case, the document will need to be manually downloaded by the users.
  - **Stored on a User Device for**: Enter the number of days for which the document is to remain on a user's device once downloaded. If you leave this box empty or enter a value of 0, the document will never automatically expire on the devices.
  - **Keep in repository group**: The boxes found in this group let you specify how long the document is to remain in the repository (even if they are not downloaded to the user's device).
    - **For**: If you want the document to remain in the repository for a given number of days, select this option and enter the number of days in the corresponding box. If you leave the box empty or enter a value of 0, the document will not be removed from the repository based on this setting. Note that any positive number you enter will automatically be reflected in the Until box below.
    - **Until**: If you want the document to remain in the repository until a given date, select this option and enter a date in the corresponding box (the date format must be "YYYY-MM-DD" - note that you can use the date picker). The date entered corresponds to the last day of validity (the document is valid until 11:59:59 PM on the date you entered). If you leave the box empty, the document will not be removed from the repository based on this setting. Note

that the date you enter will automatically be reflected in the For box above.

    - **Time zone**: When you enter a number of days in the For box or a date in the Until box above, the computer's time zone appears in this box. You may select a different time zone if required.

  - **Document Tracking**:
    - **Track documents sent**: Check this option to track documents sent to the Capture OnTheGo Server. This tracking is done through the COTGDefaul.mdb database located in %ProgramData%\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\COTG , and includes most of the information set in this task, as well as information returned from the server.
    - **Store the result ID in variable**: Use the drop-down to select the variable in which you want the document ID to be stored, so that it can be used in one of the following tasks (if the Output to Capture OnTheGo task has been added as an Action).

- **Blank Forms group**: Check the **This is a blank form** option to make the form reusable. The Form will not be deleted from the app's form library when it is submitted, so it can be used over and over again. It will only be deleted from the app's form library after the number of days set in **Days to keep each instance**.

Output to SharePoint

The **Output to SharePoint** action task can be used to send files to an existing Microsoft SharePoint server.

Example Workflow process

This task is put into effect in the following use cases and example processes:

- Capture Post Processing Workflow

Note that Capture is only available with PlanetPress Suite.

Licensing

This plugin requires the OL Connect Workflow **Imaging** license.

Workflow Imaging is an add-on license bundle for OL Connect Workflow that includes the Image and Fax plugins; see "About PlanetPress Image" on page 744 and "About PlanetPress Fax" on page 743.

Without a valid Imaging license, the plugin will fail with an error. In the trial version, the plugin will work.

Input

Any data file, with optional Metadata.

Processing

The task connects to the selected Document store and uploads the current data file. If the file already exists, it will be overwritten and, if this option is selected, marked as "checked in". The information accompanying the file (the SharePoint Metadata) is either updated or created.

Output

The output of this task is the original data file.

Task properties

General Tab

- **SharePoint Site**: The name of the SharePoint site where you want to send the files. You can click on the **Refresh** button to display a list of sites on your SharePoint server.
- **Document Library**: The document library where you want to send the files. You can click on the **Refresh** button to display a list of libraries on the SharePoint site selected previously.
- **Folder**: The folder location in the document library where your files will be sent. You can click the **Browse** button to display your folder structure. In the **Browse Folders** dialog, click on the folder you want to use and click OK.
- **Force folder creation**: If the folder does not exist, it will be created.
- **Error if the file name exists**: Task will generate an error if the file name is already there.
- **Mark the document as checked in**: Sets the "Checked in" property of the document on the SharePoint server.
- **Configure Fields**: Opens the **Configure SharePoint Metadata Fields** dialog.

Configure SharePoint Metadata Fields dialog

This dialog lets you setup the information you want to assign to the SharePoint Metadata information. It contains one line for each field present in the SharePoint document library.

- **Field Name**: Name of the field as set in SharePoint Document Library.
- **Field Information**: The information to enter in the SharePoint Document's Metadata for this field.
- **Use PDF/A**: Check to use the information contained within an PDF. This PDF must have been created with PlanetPress Image and contain an Index field (data selection) of which the name corresponds exactly to the Field Name in the SharePoint Document Library. If this option is checked, the Field Information will change to "Use PlanetPress Index (PDF/A)".
- **Field Type**: The type of field as set in the SharePoint Document Library. The following SharePoint field types are supported by the SharePoint output task:
  - **Single line of text**: This type may contain a string of any type of characters. This is the most flexible type of field. Use this type when you are not sure if the constraints of the other types of fields will be appropriate.
  - **Multiple line of text**: This type may contain multiple lines of text.
  - **Choice**: This type contains the menu to choose from.
  - **Number**: This type may contain a number (1, 1.0, 100). The decimal separator is “.” in the plugin.
  - **Currency**: This type contains the currency ($ …).
  - **Date/Time**: Date/Time fields contain a date and time
  - **Yes/No**: Yes/No (menu to choose from). If passing a variable, has to be either "Yes" or "No".
  - **Hyperlink or Picture**: This type contains an html hyperlink or picture.

> **Note**
>
> Document libraries using the *Content Type* system in SharePoint 2007 and higher (as well as Windows SharePoint Services 3.0 and higher) are supported in PlanetPress Workflow 7.4 and higher only.

Connection Tab

- **Server Name**: The name of the SharePoint server. This can either be a server name (e.g. http://SharePoint2003) or an IP address (e.g. http://192.168.1.123). Both http:// and https:// (secure) connections are accepted.
- **Domain**: The active directory domain for the log-on credentials. This is not necessary if the SharePoint server is not part of a domain.
- **User Name**: A valid user name that has access to the SharePoint site and is able to read and write to document libraries.
- **Password**: The correct password for the user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

PlanetPress **Fax**

PlanetPress **Fax** Output tasks are used to make request to PlanetPress **Fax**, which creates faxes and sends them to a faxing program. For more information, see "About PlanetPress Fax" on page 743.

In addition to the job-specific PlanetPress **Fax** properties you configure in the task's **Properties** dialog box, there are configurable options common to all PlanetPress **Fax** outputs processed by a given computer (See "PlanetPress Fax plugin preferences" on page 791). Note that those options are specific to each PlanetPress **Fax** installation and that they are immediately applied.

Input

Any data file with a valid emulation (see "About data emulation" on page 60). Metadata is optional and can be used to specify the fax number and information to send the file. Alternatively, a TIFF file in the proper page size and compression (CCITT Group 4) can be used.

Processing

If a data file with metadata is used, the data file is merged with the selected PlanetPress Design document, converted into a multi-page TIFF file with CCITT Group 4 compression, and sent to

the PlanetPress **Fax** host specified in the properties. If the file is a TIFF file in the proper format and the "Pass-through" option is selected, no processing is done, the file is sent *as-is*.

Output

A TIFF in the CCITT Group 4 compression, and information for the FAX server to know where to send the file.

Task properties

General Tab

- **Host**: Select the IP address of the PlanetPress Fax host to which you want the request to be sent. The Fax configuration is set in the PlanetPress Fax User Options on the target host.
- **Refresh**: Click to update the list of IP addresses displayed in the Host drop-down list box.
- **Documents**: Select a specific PlanetPress Design document if you want all the jobs to be faxed with that document. You must select a document, pass-troughs are not available.
- **Add job information to the document**: Select to add the available job info variables in the “header” of the generated output file.
- **Run mode group**
  - **Printer centric**: Select to send the document along with the trigger and data to the component that generates fax documents.
  - **Optimized PostScript Stream**: Select to merge the selected document with the data received by this task before sending it to the component that generates fax documents. Some PlanetPress Design features, such as the Time and Date functions, require that this option be selected.

PlanetPress **Image**

PlanetPress **Image** Output tasks are used to make requests to PlanetPress Image, which creates image files which it then archives or emails. For more information about this product, see "About PlanetPress Image" on page 744.

Since this task is an Output, it is not possible to immediately act on the generated image before continuing. When necessary to immediately retrieve the generated file, the "Digital Action" on page 407 task should be used instead.

In addition to the job-specific PlanetPress Image properties you configure in the task's **Properties** dialog box, there are configurable options common to all PlanetPress Image outputs processed by a given computer (see "PlanetPress Image preferences" on page 796). Note that those options are specific to each PlanetPress Image installation and that they are immediately applied.

The following describes the properties specific to PlanetPress **Image** Output tasks.

> **Note**
>
> In some combinations of Microsoft Outlook and Windows versions, it is not possible for Outlook to be opened while PlanetPress Workflow is running, so emails are not sent out automatically. To correct this, make sure to log on to Windows on the PlanetPress Workflow server using the same login that PlanetPress Workflow is using, and open Outlook before starting the PlanetPress Workflow services. You could also use a startup process to start Outlook before the rest of the services.

Input

The input file can be:

- Any data file with a valid emulation (see "About data emulation" on page 60).
- A PDF/VT file.
- An *Optimized PostScript Stream* file (.ps) generated by PlanetPress Workflow. The .ps file must be the result of the merge between a PlanetPress Design document and a data file, and can be generated either with the use of "Add Document" on page 380, or a printer queue using a "Send to Folder printer queue" on page 118. Postscript generated using any other way will fail, as PlanetPress Image requires knowledge of the number of pages in the document, which is not available in output generated using any other means. Note however that "Digital Action" on page 407 does have the ability, in most cases, to generate output using third-party PostScript files.

Processing & Output

Multiple things can happen, depending on the options chosen and the type of data this task receives:

- If the data file and a document are selected, and **Printer Centric** mode is used, the data file is sent to the PlanetPress Image host which merges the data and document to produce output.
- If the data file and a document are selected, and **Optimized PostScript Stream** mode is used, the data file is merged with the document and the resulting OPS job is sent to the PlanetPress Image host to produce output.
- If the data file is a postscript file and either mode is used, the postscript file is sent to the PlanetPress Image host which generates output (since this is already Optimized PostScript, it is not regenerated).

Task properties

General Tab

- **Host**: Select the IP address of the PlanetPress Image host to which you want the request to be sent.
- **Refresh**: Click to update the list of IP addresses displayed in the Host drop-down list box.
- **Documents**: Select **None (Do not use a document (passthrough)** in order to generate an image with a PDF/VT or PostScript file in passthrough mode.

  > **Note**
  >
  > For an explanation of how to generate specific tags and indexes for the Image and Digital Action tasks, in a PDF/VT file created with Connect, see the Connect Online Help: Generating tags for Image output.

  Alternatively, select a PlanetPress Design document if you want all the jobs to be generated with that document. To use a document chosen at run-time for each job, enter a dynamic document name using a combination of text, variables and data selections. To enable the dynamic document name box, click inside it. To disable it, press Enter. Note that in the latter case, you must be certain that the documents that will be chosen at run-time will in fact be available locally or at the selected host.
- **List only documents using VDX compilation**: Check to ensure that only documents that are compatible with the VDX compilation method are shown in the list, if producing VDX output.

- **Run mode group** (only with PlanetPress Design document)
  - **Printer centric**: Select to send the document along with the trigger and data to PlanetPress Image.
  - **Optimized PostScript Stream**: Select to merge the selected document with the data received by this task before sending it to PlanetPress Image. Note that some features, such as the Time and Date functions, require that this option be selected.
- **Add job information to the document**: Select to add the available job info variables in the “header” of the generated output file.
- **Output type**: Select the output file type that you want.
  - **PDF**: The output will be a PDF file. If you select PDF, the DPI and Color Depth options (see below) are disabled and the options available in the PDF tab are enabled.
  - **JPEG**: The output will be a JPEG file. JPEG is a lossy compression image format that creates small files, compressing continuous tone images (such as scanned photographs) well.
  - **TIFF**: The output will be a TIFF file. TIFF is a higher quality format that is one of the standards for document exchange, useful for eventual printing or archiving. You have a choice of the following compressed TIFF formats: TIFF Group 3, TIFF Group 4, and TIFF Packed bits. You can also use the uncompressed TIFF format, which produces the largest files with the highest quality. TIFF is a versatile and platform-independent format. It is used in many digitizing projects as the format of choice for the digital masters. The TIFF Group 3 and Group 4 formats are efficient for document storage.
  - The **AutoStore**, **DocAccel** and **KYOcapture** formats also generate TIFF files along with special XML that are meant for these specialized systems.
  - **VDX**: The output will be a PDF file with some PPML code inside of it to enhance performance by doing caching/image reusing. The output can only be used on devices that support the VDX technology.
- **DPI**: Enter the dots per inch (dpi) resolution of the output image. This property is enabled for all output types except PDF.
- **Color depth**: Enter the color depth of the output image in bits per pixel (bpp). The color depth is measured in bits, because each pixel of the output image can be described with a varied number of bits. A higher bit number allows for more colors. It also increases the image file size. A 1-bit color depth produces monochrome images. 8-bits produce

grayscale images (in PlanetPress Design you can have 8-bit color images, but these are reduced to grayscale if you select 8-bit here), while 24-bits produce full color images. For JPEG output, you cannot select a monochrome (1 bpp) color depth. For TIFF G3 and TIFF G4, monochrome (1 bpp) is the only Color depth option you can select. This property is enabled for all output types except PDF.

- **Multi-page**: Select to generate a single file containing multiple pages. When this option is not selected, PlanetPress Image creates a file for each page included in the output file. This property is enabled for all output types except PDF and JPEG.
- **Add page number**: Select to put a page number on each page included in the output file. This option goes with the Multiple TIFF option and is only visible if either the AutoStore, DocAccel or KYOcapture format is selected.
- **Archive output**: Select to archive generated files. If you select this option, you must enter a folder path in the Archive folder box and a name in the File name box.
- **Send Email**: Select to send the generated file via email. You enter the emailing properties in the Login, Recipients, and Attachment(s) tabs. Note that the generated file will only be sent if you select the Attach output file(s) option in the Attachment(s) tab.
- **Archive folder**: Enter the path of the folder to which output files generated by this task are to be archived. PDF index files (PDI and XML) are also put in this folder. This edit box is enabled when the Archive output option is selected.
- **Filename** : Enter the name of the output files generated by this task. To prevent each new file from overwriting the previous one, you should use variable names. As with any variable property box, you can use any combination of text, variables and data selections. When multiple files are generated for a single job (such as for multiple TIFFs), each file name includes a sequence number, such as in Invoice0, Invoice1, Invoice2. If you use file name masks that include dots, such as Statement.%y.@(1,1,1,1,25,KeepCase,Trim) or Job.%f, for example, you must add quotation marks at the beginning and end of the file name (“Statement.%y.%m.@(1,1,1,1,25,KeepCase,Trim)” or ”Job.%f”). Otherwise, when the file is saved, anything appearing after the last dot is replaced by the file’s extension characters (and the file name thus becomes Statement.2005.pdf instead of Statement.2005.255842.pdf, or Job.tif instead of Job.544872.tif). Failing to add the quotation marks may result in files being overwritten.
- **Automatically Add Extension**: Check if you want the correct extension for the image type to be appended to the file name automatically, rather than having to add it in the Filename box. The Output Type determines the extension to be used.
- **Index group**: This group lets you specify which type of index must be created for each document generated by this task. PDI files are used by PlanetPress Search as indexing

information.

  - **None**: Select if you do not want this task to add an index file to the generated document.
  - **PDI**: Select if you want this task to add a PDI index file to the generated document.
  - **XML and PDI**: Select if you want this task to add both an XML and a PDI index file to the generated document.
- **Use Title as FormName for PDF/VT document**: Check to use the Title (defined on the Job Options tab) as the PDF's FormName in the PDI, instead of the incoming PDF/VT document's `dc.title` meta data tag. If the Title is empty, a warning is logged and the FormName is not changed.

Job Options tab

If you chose PDF as the output type in the General tab, use this tab to choose the appropriate PDF options. Note that all the options available in this tab are only used with PDF files.

- **Job options**: Select the PDF output option that best describes your needs. This loads all the standard settings for the selected usage scenario. These settings can be changed as required. Note that if you make changes and then select a different output option, your changes will be lost. PlanetPress Image supports numerous PDF standards: Standard, High Quality, Custom, and a variety of PDF/VT, PDF/A and PDF/X formats.
- **General group**
  - **ASCII format**: Select to create the PDF file using ASCII characters (instead of the usual 8-bit binary format). This option produces a file suitable for transmission over a 7-bit ASCII link. This option is useful if the PDFs need to be opened in a text editor, sent across networks, or sent via email using a program that does not support binary files. This option also generates smaller files.
  - **Compress text and line art**: Select to compress the text and line work in the file using the Flate compression filter. Flate is a compression method that works well on elements with large areas of single colors or repeating patterns, as well as on black-and-white elements that contain repeating patterns.
  - **Auto-rotate pages**: Select to automatically rotate pages based on the orientation of the text or DSC comments.
  - **Optimize for fast web view**: Select to minimize file size and facilitate page downloading.

- **Title**: Enter a title for the document. If you leave this box empty, the document's name will be used as the document's title. Since this is a variable property box, you may use variables and data selections and let PlanetPress Workflow interpret this information at run-time.
- **Author**: You may enter the name of the author of the document. Since this is a variable property box, you may use variables and data selections and let PlanetPress Workflow interpret this information at run-time.
- **Subject**: You may enter the subject of the document. Since this is a variable property box, you may use variables and data selections and let PlanetPress Workflow interpret this information at run-time. Note that if you use a data selection in this box, you must be sure that the data that will be selected at run-time will not contain any parentheses, as this would cause the task to fail. If you suspect that the data may contain parentheses, you should use a **Run Script** action task (see **Run Script Action Task Property**) with a Strip() function to strip them out.
- **Keywords**: You may enter keywords for the document. Since this is a variable property box, you may use variables and data selections and let PlanetPress Workflow interpret this information at run-time.

- **Monochrome images group**
  - **Compression**: Select the compression to use for the monochrome images. Flate compression is lossless, so no data is lost during compression. Flate Mono works well on images with large areas of solid shades or repeating patterns, such as screen shots and simple images created with paint or drawing programs. CCITT typically yields the best compression of monochrome images. It is the compression method developed for fax transmissions. Note that configurations that were created with an earlier version of PlanetPress Workflow and that included tasks set not to use any compression will by default be set to use the Flate compression method.
  - **Resolution**: Select the resolution to use for monochrome images.
- **Grayscale images group**
  - **Compression**: Select the compression to use for the grayscale images. Flate is a lossless compression method, so no data is lost in the process. It works well on images with large areas of single shades or repeating patterns, such as screen shots and simple images created with paint or drawing programs. JPEG removes image data and may reduce image quality, but may be suitable for continuous-tone photographs containing more detail than can be reproduced onscreen or in print. Since JPEG eliminates data, it can achieve much smaller file sizes than Flate

compression. Select Auto to let the application choose the best compression method automatically. Note that configurations that were created with an earlier version of PlanetPress Workflow and that included tasks set not to use any compression will by default be set to use the Flate compression method.

- **Downsampling**: Select the down sampling option. Down sampling reduces image size by breaking images down into small areas in which multiple pixels are replaced by single pixels. The Grayscale resolution you enter in the following box is used to control the down sampling process. Select None to prevent grayscale down sampling. Select Average to average pixel shades in each sample area and to replace the entire area with a pixel of the average shade. Select Subsample to use a pixel in the center of the sample area and replace the entire area with that pixel value. This method is significantly faster, but results in images that are less smooth. Select Bicubic to use a weighted average to determine pixel shades. This method is the slowest but most precise and results in the smoothest tonal gradations.
- **Resolution**: Select the resolution to use for grayscale images. Note that this setting has an impact on the grayscale down sampling process.

- **Color images group**
  - **Compression**: Select the compression to use for the color images. Flate is a lossless compression method, so no data is lost in the process. It works well on images with large areas of single shades or repeating patterns, such as screen shots and simple images created with paint or drawing programs. JPEG removes image data and may reduce image quality, but may be suitable for continuous-tone photographs containing more detail than can be reproduced onscreen or in print. Since JPEG eliminates data, it can achieve much smaller file sizes than Flate compression. Select Auto to let the application choose the best compression method automatically. Note that configurations that were created with an earlier version of PlanetPress Workflow and that included tasks set not to use any compression will by default be set to use the Flate compression method.
  - **Downsampling**: Select the down sampling option. Down sampling reduces image size by breaking images down into small areas in which multiple pixels are replaced by single pixels. The Color resolution you enter in the following box is used to control the down sampling process. Select None to prevent grayscale down sampling. Select Average to average pixel color in each sample area and to replace the entire area with a pixel of the average color. Select Subsample to use a pixel in the center of the sample area and replace the entire area with that pixel value. This method is significantly faster, but results in images that are less smooth. Select

Bicubic to use a weighted average to determine pixel shades. This method is the slowest but most precise and results in the smoothest tonal gradations.

- **Resolution**: Select the resolution to use for color images. Note that this setting has an impact on the color down-sampling process.

- **Security group**
  - **Set document permissions**: Select to enter the **Permissions password**.
    - **Permissions password**: Enter a password in this box only if you want to prevent users who does not have this password from changing the security options of the generated PDF files.
  - **Allow printing**: Select to let users print the generated PDF files.
  - **Allow changing the document**: Select to let users edit the generated PDF files.
  - **Allow content copying**: Select to let users copy content from the generated PDF files.
  - **Allow form filling**: Select to let users enter information in the form fields included in the generated PDF files.
  - **PDF open password**: Enter a password in this box only if you want to prevent users who does not have this password from opening the generated PDF files.
  - **Security Level**: The password protection for PDF can be encrypted using one of the available encryption methods (RC4, AES-256 and AES-128). It gives the task the ability to take an existing PDF in input and apply the selected password to the PDF without any change to the quality level of the original PDF.
- **Font group**
  - **Embed all**: Select to embed the entire font of all fonts used in the variable content document within the generated PDFs. Using this option may result in large PDFs, especially if many fonts are used. Note that those fonts installed by default with the Adobe Acrobat and Adobe Reader are never embedded. If a font is not embedded in your PDF, opening it on another computer or printing it may cause it to be substituted by another default font.
  - **Subset**: Select to embed only a subset of the Type 1 and TrueType fonts used in the document. A font subset is in fact composed of only those characters that are actually used in the document. This option can only be used if the Embed all fonts option is selected. Note that if more than 35% of the characters included in a font are used in the document, the entire font is embedded. This option often produces smaller PDF files and ensures proper PDF display.

- **Initial view group**
  - **Zoom factor**: Select the magnification at which you want Adobe Acrobat or Adobe Reader (or other PDF viewer) to open the generated PDF. Choose the Fit in window option to display the entire page using the available screen space, or choose a percentage of the actual document size.
  - **Show**: Select the information you want Adobe Acrobat or Adobe Reader (or other PDF viewer) to display with the generated PDF. Select Page only to leave the tabs area to the left of the PDF pages empty. Select Bookmarks and page to display the contents of the **Bookmarks** tab (you use data selection objects to create bookmarks in PlanetPress) alongside the PDF pages. Select **Page** tab and Page to display the content of the **Pages** tab (thumbnails of each PDF pages) alongside the PDF pages. Select Full screen to hide all screen contents except the PDF page, and expand the PDF page to the maximum size it can occupy onscreen.

PlanetPress **Search Database tab**

If PlanetPress Workflow is configured to automatically update a PlanetPress Search database (See "PlanetPress Image preferences" on page 796), this tab can be used to override the global settings so that the task updates a different database than the one set in that global configuration. In order for the settings to work, the **Add PDF to** PlanetPress **Search database** must be checked. However, you can override which database will be updating using the option in this window, Override global PlanetPress Search Database settings. The database options then activate.

- **Database type**: Select the type of the database in which you want to create a table (Access, or SQL Server).
- **Connection time-out**: Enter the time, in seconds, that the connection to the database is maintained while no action is taking place before the connection is severed.
- **Database directory**: Enter the path of the directory in which the Access database is located, or use the **Browse** button to navigate to, and select, the directory. This option is available only when you select Access database in the **Database type** box.
- **Data source name**: Enter the name of the computer on which the database runs. This option is available only when you select SQL Server database or Oracle database in the **Database type** box.
- **Use default database**: Select to use the default database associated with your user profile on that SQL Server or Oracle database. Clear to enter the name of the database in the box that appears.

- **Use Windows NT Integrated security**: Select to use your Windows user name and password to log onto the SQL database.
- **User ID**: Enter the user id required to access the database to which you are adding new PDI files from the generated PDF files. If you are using an SQL database, enter the login name you chose when you configured the SQL database (refer to the “Using PlanetPressSearch with an SQL Server Database” section of the PlanetPress Search User Guide).
- **Password**: Enter the password required to access the database.
- **Test Connection**: Click to verify that PlanetPressImage can connect to the specified database.
- **Enforce global table creation**: Select this option, as it ensures that all database users are granted access to the database. This option is available only when you select SQL database in the **Database type** box.

Login, Recipient, Attachments

- For the **Login**, **Recipient** and **Attachment** tabs, please see the "Send Email" on page 664 task properties.

PReS Print Controls

The **PReS Print Controls** task is used for running PReS Classic jobs through Connect Workflow.

Limitations

In order for **PReS Print Control** tasks to be functional, some pre-requisites must first be met:

- PReS Classic 6.3.0 or higher must be installed on the same system.
- A valid PReS Classic license (either dongle or software based) must be available on the same system.

> **Note**
>
> All PReS Classic licenses are issued and controlled by the PReS License Server and not Connect. Thus a separate PReS Classic license is required.

Input

A PReS Classic job and the resources it needs.

These resources include the data file to run against the job, plus any graphic or font resources the jobs needs, along with any required PReS Classic specific resources, such as TRF or PDI files.

Processing

The selected data file is merged with the selected PReS Classic job to create a print output stream.

If the PReS Classic job selected is an uncompiled PReS Classic script (PDS), it will first be compiled on the fly and then run using the selected data file.

If the PReS Classic job selected is a pre-compiled PReS job (PDC) file, then the pre-compiled job will run with the selected data file.

Output

The available output print stream options are AFPDS, GOPReS (Graphic Output), IJPDS, PCL, PDF and PostScript (PS) outputs.

Task properties

General Tab

- **PDC File**: Select either an un-compiled PReS Classic script file (PDS) which will need to be compiled on the fly, or a pre-compiled PReS Classic job file (PDC).
  The job needs to be specified exactly. If you want to compile the job at run time, then you must select a PDS file. If you wish to use a pre-compiled PReS Classic job, then select the PDC file, rather than the PDS.
  If a PReS Classic script file (PDS) is selected, Connect Workflow will use PReS Classic to compile the selected file and then run the resultant PDC file, regardless of whether there was an existing PDC file within the folder already. Any existing PDC file in that folder will be overwritten by the new compilation.
  Note that the PDS or PDC file can be explicitly selected, or it could be set via a Connect Workflow variable; see "Variable task properties" on page 303.

> **Note**
>
> The use of pre-compiled PReS Classic jobs is *heavily* recommended, as this greatly reduces the scope for run-time errors.

- **Data File**: The data file to use in the run. This file can be explicitly selected, or it could be set via a Connect Workflow variable; see "Variable task properties" on page 303.

> **Note**
>
> Note: If the **Data File** selection does not include the data file folder path, then the folder entered into the **Working Folder** entry will be used for determining the path.

- **Working Folder**: Select the folder that contains the PReS Classic job and associated resources.
  This entry can either be explicitly selected or it could be set via Connect Workflow variable; see "Variable task properties" on page 303.
  If the **PDC File** selection contains a full folder path along with the filename, then the **Working Folder** does not need to be selected, as Connect Workflow will use the path contained in the **PDC File** entry.

> **Note**
>
> If the **PDC File** selection contains a folder path *and* the **Working Folder** also has an entry, then the **PDC File** entry will be appended to the **Working Folder** entry.
>
> One should be *very* cautious doing this, as it could easily lead to errors.

- **PDL Type**: Select the desired PReS Classic output type for the job.

> **Note**
>
> Not all PReS Classic jobs can be swapped between output types. Jobs designed for certain output types (such as AFPDS) will likely have settings specific to the original output type.
>
> Changing the output type at this point will likely lead to errors or require job modifications to suit the changed output type.

- **Log level**: Specifies the verboseness of messages returned by job processing. The available levels are Error, Warning, Information and Debug.
  Connect Workflow logs a successful PReS Classic job processing with a "*Job Status: Finished*" status, followed shortly after by "*Exec Status: 1*".
  A successful PReS Classic job usually returns a zero value, but non-zero return values do not necessarily signal job failure, as PReS Classic jobs can be set to return specific values as part of job processing.
  If the job still finishes with a Job Status of "Finished" and Exec Status "1" then the job completed without error.
- **Instance**: Used for specifying the PReS Classic Print Control instance. PReS allows up to four instances of the same Print Control type (license dependent), and any one of those instances can be selected here.
  Selecting 1 would force Connect Workflow to use Print Control PRN1, whilst selecting 2 would launch PRN2, and so on. This is useful if you have a variety of Print Control license speeds, and each license is assigned to a different PRNx instance. This allows for manual load balancing, by selecting specific Print Control speeds for different jobs, based upon your own criteria. Such as the size or urgency of the job being processed.
  The default Auto option lets Connect Workflow choose whichever instance is available.

> **Note**
>
> It is *heavily* recommended that this setting be left as 'Auto', as PReS Classic licenses being assigned to different PRNx instances is extremely rare.

- **Time-out**: The time in seconds that the Connect Workflow waits for a response from the PReS Print Control to make sure it is running. If Connect Workflow does not receive a response in the allotted time it will terminate the Print Control and continue to the next step in the workflow.

PrintShop Mail

Once you have imported PrintShop Mail documents to your PlanetPress Workflow workstation (see "Importing PrintShop Mail documents" on page 49), you can use **PrintShop Mail** action tasks to output the job file with a selected PrintShop Mail document. **PrintShop Mail** action tasks let you print as well as generate PostScript or PDF files. The **PrintShop Mail** and **PrintShop Mail 7** action tasks are essentially the same. The only differences are:

- The version supported: PrintShop Mail only supports 6.1 documents, while PrintShop Mail 7 supports 7.0, 7.1 and 7.2 documents.
- PrintShop Mail 7 can output PDF/VT and PPML/VDX.

Limitations

In order for the **PrintShop Mail** tasks to be functional, some pre-requisites must be met:

- PrintShop Mail version 6.1 or higher must be installed on the same system, and an activated PrintShop Mail production dongle must be plugged in to the system.
- You must have at least one printer using a PostScript driver on your system in order to produce PDF output. It is highly recommended that a PostScript printer be set as the default system printer in order to act as a fallback if the selected printer is unreachable.
- PlanetPress Workflow Service must be configured with a user name and password that have access to the required printer(s). The Local System Account setting will not work.

Input

A data file compatible with a PrintShop Mail Document. Metadata is ignored by this task.

Processing

The data file is merged with the selected PrintShop Mail Design document, producing the number of records selected in the task properties. This merging uses the PrintShop Mail engine (PSMail.exe) to generate the output.

Output

The output produced by this task is dependent on the options selected: it can be PDF, a Windows EMF print job, a PostScript print job or a JPG file. PrintShop Mail 7 can also output PDF/VT and PPML/VDX.
Note that the Preflight output type doesn't actually produce printable or viewable output. The Preflight option does a cursory verification of the job and will generate an XML file that contains a list of all warnings and errors.

Task properties

PSMail Tab

- **File name**: Select a specific PrintShop Mail document if you want all the jobs to be printed with that document.
- **Output type group**
  - **Output type**: Select the type of output you want the task to generate.
    - Select PDF to generate a PDF file.
    - Select **Windows PostScript driver** (PrintShop Mail)/**Direct to printer** (PrintShop Mail 7) to send the output to a printer that is available via Windows.
    - Select **Preflight** to check if the merging of the data file and document would generate warnings or errors. This does not actually produce output, only an XML file containing a list of warnings and errors, including on which record and layout the warning or error occurred, and a description.
    - Select **Produce PostScript** (PrintShop Mail 7 task: **PostScript**) to generate a standard PostScript file that can then be sent to any PostScript printer.
    - Select **JPG** to generate a JPG image file.
  - **Data file type**: Select the data file type that is sent to this task, and used as a database for the PrintShop Mail document.
  - **Distilling options file**: Enter the name and path of a distilling options file (or "joboptions" file) or use the **Browse** button to navigate to that file. This option is only available when PDF is selected in the Output type box.
  - **PDF Type**: Select Preview or Print to select which type of PDF should be generated. This option is only available when PDF is selected in the Output type box.

- **PostScript Driver**: Select which driver to use to generate the job. This should be the same as the printer selected in your PrintShop Mail document when designing it. This option only appears in the PDF and Produce PostScript output types.
- **Windows Printer**: Select the print driver of the printer to which you want the print job to be sent. This option is only available when Direct to Printer/Windows PostScript driver is selected in the Output type box.
- **Print Technology** (PrintShop Mail 7 task): Select the PrintShop Mail print technology to use when generating the output. For a list of available job technologies, consult the PrintShop Mail User Guide. This option is only available when **Direct to printer** is selected in the Output type box.
- **Layout**: Select which layout to use to produce the JPG file (output is limited to a single image). This option is only available when JPG is selected in the Output type box.
- **User generated file as output**: The output from the plugin will be the file generated by the merging (depending on the output type selected). This option is not available in the Direct to printer/Windows PostScript Driver output type.
- **User original data as output**: The output from the plugin will be original data file. When this option is selected, a box is enabled under the option, letting you specify a full path where the output should be saved. This option is not available in the Windows Direct to printer/PostScript Driver output type.

- **Record Range group**
  - **All records**: Select if you want to print all the records included in the job file.
  - **Use Record Range**: Select if you want to print only some of the range included in the job file. Use the From and To boxes to indicate the record range.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

ZUGFeRD plugin

The ZUGFeRD plugin provides a way to enrich German PDF invoices with data specific to the invoice. This is done by embedding the data in a standardized XML format within the PDF itself.

For general information on the Plugin, see "ZUGFeRD" on page 746.

Input

A PDF file that is **PDF/A compliant**. The PDF/A conformity level doesn't matter. It may be 1, 2 or 3.

Processing

The plugin first checks that the PDF is PDF/A compliant, and doesn't already contain ZUGFeRD data. If it is, then the PDF is processed.

Output

A PDF/A-3 file with the selected ZUGFeRD data included.

If the incoming PDF is not PDF/A compliant, the plugin will not touch it but will instead forward the untouched PDF as the Job File.

If the incoming PDF already contains ZUGFeRD data, the plugin will not touch it but will instead forward the untouched PDF as the Job File.

Properties

ZUGFeRD I Tab

The ZUGFeRD data entry options are too large to fit within a single entry tab, so the data entry options have been split over two tabs. **ZUGFeRD I** is the first of these.

All the entry fields with a maroon field name support the use of **variable data**. You can right-click within these fields to insert a Workflow **data selection**. This provides an easy option for including Workflow information that relates to the currently processing invoice (such as Metadata and variables) into the ZUGFeRD fields.

For more information on Workflow context menu data selection options, see this page: Workflow Variable Properties

- **Zu verwendendes PDF** group: Allows selection of the PDF file to process and enrich with the ***ZUGFeRD-XML*** information. Select from:

- **Workflow Jobdatei**: Use the incoming Workflow Job File.
- **Datei**: Specify a specific PDF. Use the browse button to select a file, or paste the file path and name into the edit box.

  The file path and name can be given and defined via variables, so the file selection can be dynamic.

  > **Note**
  >
  > The PDF selected must already be PDF/A compliant. The conformity level doesn't matter (it may be 1, 2 or 3).
  >
  > If the incoming PDF is not PDF/A compliant, the plugin will not touch it but will instead forward the untouched PDF as the Job File.
  >
  > If the incoming PDF already contains ZUGFeRD data, the plugin will not touch it but will instead forward the untouched PDF as the Job File.

- **Rechnung** group contains ***invoice*** related information.
  - **Rechnungsnummer**: The invoice number.
    This field supports alphanumeric strings and can be set via Workflow data and/or variables.
  - **Dokumentenart**: The document type. This field will always be set to "RECHNUNG" (invoice), to cater for BASIC invoices.
  - **Rechnungsdatum**: The invoice date.
    This entry can be set directly, or through the date selection pop-up that appears when the drop down icon is selected.

    > **Note**
    >
    > The date entry *must* be formatted in standardized UTC format: **yyyy-mm-dd**

> Any other formatting will lead to a run-time error.

- **Lieferant** group contains all the required values and information related to the ***seller***, ***delivery*** and/or the ***invoicing party***.
  - **Name**: The individual or company name.
    This field supports alphanumeric strings and can be set via Workflow data and/or variables.
  - **Adresse**: The postal address (sans post code and city entries). Two address lines can be included in this entry.
    This field supports alphanumeric strings and can be set via Workflow data and/or variables.
  - **Postleitzahl**: The postal address post/ZIP code.

    > **Note**
    >
    > No postal code validation is done by the plugin, so it is up to the user to make sure that the postal code entry is valid and in the correct format for the indicated country.

    This field can be set via Workflow data and/or variables.
  - **Ort**: The postal address city/town.
    This field supports alphanumeric strings and can be set via Workflow data and/or variables.
  - **Ländercode**: A 2-letter country code as defined by the industry standard ISO 3166-1 alpha-2.
    The plugin provides some common predefined country codes in the pull-down list. Codes other than those provided can be entered either manually or through variables.
    However, the country code must always follow the standard of exactly two uppercase letters only.

> **Note**
>
> The plugin does not check if a given country code is in the list of valid country codes.
> It is the responsibility of the user to ensure that only valid country codes are entered.

This field can be set via Workflow data and/or variables.

- **Art der Steuernummer**: The two letter code for the tax identity number. Select from the drop down list box.
  The choices are either "VA" (Umsatzsteueridentifikationsnummer (UStID)) or "FC" (Steuernummer (national)).
  This field can be set via Workflow data and/or variables.
- **Steuernummer**: The tax identity number. This number must match with the tax type specified in the "*Art der Steuernummer*" selection.

> **Note**
>
> The plugin does not check if a given tax ID number conforms to any rules. It is the responsibility of the user to ensure that only valid tax ID numbers are entered.

This field can be set via Workflow data and/or variables.

- **Käufer** group contains all the required values and information related to the ***buyer***.
  - **Name**: The individual or company name.
    This field supports alphanumeric strings and can be set via Workflow data and/or variables.
  - **Adresse**: The postal address (sans post code and city entries). Two address lines can be included in this entry.
    This field supports alphanumeric strings and can be set via Workflow data and/or variables.
  - **Postleitzahl**: The postal address post/ZIP code.

> **Note**
>
> No postal code validation is done by the plugin, so it is up to the user to make sure that the postal code entry is valid and in the correct format for the indicated country.

This field can be set via Workflow data and/or variables.

- **Ort**: The postal address city/town.
  This field supports alphanumeric strings and can be set via Workflow data and/or variables.
- **Ländercode**: A 2-letter country code as defined by the industry standard ISO 3166-1 alpha-2.
  The plugin provides some common predefined country codes in the pull-down list. Codes other than those provided can be entered either manually or through variables.
  However, the country code must always follow the standard of exactly two uppercase letters only.

> **Note**
>
> The plugin does not check if a given country code is in the list of valid country codes.
> It is the responsibility of the user to ensure that only valid country codes are entered.

This field can be set via Workflow data and/or variables.

ZUGFeRD II Tab

The ZUGFeRD data entry options are too large to fit within a single entry tab, so the data entry options have been split over two tabs.**ZUGFeRD II** is the second of these. All the entry fields on the **ZUGFeRD II** tab support the use of **variable data**. You can right-click within these fields to insert a Workflow **data selection**.

For more information on Workflow context menu data selection options, see this page:
Workflow Variable Properties

- **Zahlungsinformationen** group contains ***payment*** related information.
  - **Zahlungsreferenz**: The payment reference, purpose, or payment number serving as identifier for the payment.
    This field supports alphanumeric strings and can be set via Workflow data and/or variables.
  - **Währung**: This is a 3-letter currency code, as defined in the ISO 4217 3A standard. The plugin offers some predefined common currency codes in the pull down list box. Other codes can be entered manually or via variables. However, the currency code must follow the ISO standard of exactly three uppercase letters only.

    > **Note**
    >
    > The plugin does not check if a given currency code is in the list of valid currency codes in the mentioned ISO. It is the responsibility of the user to ensure, that only valid currency codes are entered.

    This field can be set via Workflow data and/or variables.
  - **IBAN**: A bank account number following the **I**nternational **B**ank **A**ccount **N**umber (IBAN) standard.
    The IBAN consists of an alphabetical country code, followed by two check digits, and then up to thirty five characters for the bank account number. The bank account number can include the domestic bank account number, the branch identifier, and potential routing information.

    > **Note**
    >
    > The plugin does not validate bank IBAN/BIC codes. It is the responsibility of the user to ensure that valid codes are entered.

    This field can be set via Workflow data and/or variables.
  - **BIC**: This is an international bank code that identifies particular banks worldwide, using the **B**ank **I**dentifier **C**ode (BIC) standard. The standard consists of a 4-letter institution or bank code, a 2-letter country code (following the ISO 3166-1 alpha-2

standard), a 2-character (letter or digits) location code and an optional 3-character (letter or digits) branch code.

> **Note**
>
> The plugin does not validate bank IBAN/BIC codes. It is the responsibility of the user to ensure that valid codes are entered.

This field can be set via Workflow data and/or variables.

- **Allgemeine steuerliche Informationen** group contains ***taxation related*** general information.
  - **Steuerart**: The trade tax code following the international UNCL 5153 standard. Generally this is "VAT" (Umsatzsteuer, value added tax).

    > **Note**
    >
    > The plugin will accept any string. The user needs to take care to only enter valid tax codes as defined in the UNCL 5153 (see http://www.unece.org/trade/untdid/d97b/uncl/uncl5153.htm).

    This field can be set via Workflow data and/or variables.
  - **Steuerprozentsatz**: The tax rate entry. This is the percentage that applies for the taxation calculation.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.
  - **Basisbetrag**: The base amount entry, upon which the tax is calculated.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.
  - **Steuerbetrag**: The taxation amount.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.

- **Detaillierte steuerliche Informationen** group contains ***detailed taxation*** information.
  - **Gesamtbetrag der Positionen**: The total amount.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.
  - **Bruttosumme**: The grand total amount.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.
  - **Gesamtbetrag der Zuschläge**: The charge amount.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.
  - **Steuerbasisbetrag**: The basic amount, upon which tax is drawn.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.
  - **Gesamtbetrag der Abschläge**: The total amount of discounts and allowances.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.
  - **Steuergesamtbetrag**: The total tax amount.
    This entry should be a numeric currency entry, which can be set via Workflow data and/or variables.

Bei Fehler/ On Error Tab

For a description of the options on the **On Error** tab see "Using the On Error tab" on page 99.

Anmerkungen/ Comments Tab

The **Comments** tab is common to all tasks. It contains a text area (**Task comments**) that lets you write comments about the task. These comments are saved when the dialog is closed with the **OK** button, and are displayed in the Task Comments Pane.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

PlanetPress Capture

Note

PlanetPress Capture is only available in version 7.2 and higher of **PlanetPress Suite Production**. It is not available in older versions, nor is it available in the Office and Watch versions of PlanetPress Suite.
PlanetPress Capture is not compatible with OL Connect Designer templates.

PlanetPress Capture is a set of tools available in PlanetPress Workflow that enable output and input for interaction with an Anoto Digital Pen. Anoto Digital Pens are electronic devices containing a camera, processor, memory and communication capabilities and they can recognize their location on any paper where a special Anoto pattern is printed.

For more information on building and using PlanetPress Capture processes, please see "PlanetPress Capture Workflow" on page 289.

	"Anoto" and the Anoto logotype are trademarks owned by Anoto AB. PLANETPRESS CAPTURE is based on Anoto Digital Pen and Paper Technology, which is covered by over 200 patents worldwide, including but not limited to US6663008, US7172131, US7248250, US7281668, JP3872498, JP3842283, CN1595440, SE517445, RU2256225, and AU773011.

Capture Condition

The Capture Condition task checks the status or field contents of a Capture document that has been processed by the **Capture Field Processor** action task.

This task is put into effect in the following use cases and example processes:

- Capture Post Processing Workflow
- Capture Web Manager Workflow

Input

A data file in PGC or PDF format that is accompanied by valid Metadata. This Metadata must contain Capture information and is generally available after a "Capture Fields Processor" on

page 545 or "Find Capture Documents" on page 551 task. However, it is also possible to directly retrieve the required information from a specific Document ID. When a specific ID is used, the data file and Metadata are completely ignored by this task's condition rules, and the database information is used instead.

Processing

The condition is evaluated using the specified rules, combination (condition is true when...) and scope (condition scope).

Output

The original data file and Metadata is output by this task. If the rules used in the condition return True, the data and Metadata is sent down in the condition's branch. Otherwise, this same information is sent in the trunk.

Task properties

General Tab

- **Document Origin**:
  - **Document to process**: Determines where the document information is read
    - **From Metadata**: Select to use the current document available in the Metadata generated by the Capture Field Processor.
    - **From Specific ID**: Select to specify an exact Document ID from the database. This document does not need to be loaded as a data file or its Metadata manually obtained, as this task simply looks up the information directly in the PlanetPress Capture database.
- **Condition based on Document Status**: Select this to base the condition on the state of the document
  - **Document is open**: Condition will be true if the document is open (not all Capture fields are filled).
  - **Document is closed**: Condition will be true if the document is closed (all relevant Capture Fields are filled).
  - **Document is complete**: Condition will be true if the document is still open, but all appropriate Capture Fields are filled.

- **Document is partial**: Condition will be true if the document is still open but only part of the appropriate Capture Fields are filled.
- **Document is empty**: Condition will be true if the document is open but no Capture Field is filled.
- **Document is on error**: Condition will be true if a logical error was triggered while processing the PGC. This can happen, for example, if a field was re-written when it should not, a List Field set to only accept one option contains ink in both options, etc.

- **Condition based on Pattern Availability** : Select to base the condition on the availability or non availability of patterns in a specific pattern sequence.
  - **For Pattern Sequence**: The name or identification of the pattern sequence to check. Leave blank if no pattern sequence is used.
  - **Number of Patterns available are**: The operator for the comparison. Numeric comparison with the number of available patterns in the specified pattern sequence.
  - **This number of Patterns**: The number to use as a comparison to the available number of patterns in the pattern sequence.
- **Capture Field-based condition**: Select to base the condition on the state of one or more fields of your document.
  - **Field Name**: The name of the field on which to base your condition. This is equivalent to the name of the Capture Field Object in PlanetPress Design.

> Note
>
> In this field in particular, the right-click menu displays a unique option, 'Open Document Preview'. This option displays a list of existing documents. When clicking on a document, the "PDF Viewer" on page 849 appears and displays all of the Capture fields. Double-click on a Capture field to automatically add its name to the *Field Name* box.

- **Condition**: Defines what should trigger the condition:
  - **Ink is Present**: Triggered by the presence or absence of ink in the field.
    - **None**: No ink should be present in any field with this name.
    - **Any**: Ink should be present in at least one field of this name in your document.
    - **All**: Ink should be present in all fields of this name in your document.
    - **Index**: The specified index of the Capture Field of this name should contain ink. The Index property is generated when a Capture Field object is repeated or is part of a runpage. This index is 1-based.
  - **Pidget setting**: Triggered by specific pidget settings.
    - Every pidget setting (such as stroke color and stroke thickness) is listed here. If the specific pidget was triggered before ink was applied to the Capture Field, the conditions becomes true.
  - **Start timestamp**: Triggered when the first ink is applied in the field.
    - **Before**: If the first stroke found in the Capture Field was made earlier than the specified date and time, the condition becomes true.
    - **After**: If the first stroke found in the Capture Field was made later than the specified date and time, the condition becomes true.
    - **In the last**: If the first stroke found in the Capture Field was made within the specified number of Hour(s), Day(s) or Week(s) counting backwards from the moment the PGC is received, the condition becomes true.
  - **End timestamp**: Triggered when the last stroke finishes in the field. (see Start Timestamp for detailed options)
  - **Pen Id**: Triggered by the ID (serial number) of the pen. A box provides a way to specify which Pen ID will trigger this condition to be true.
  - **Field List Value**: Triggered only on Field List Capture Fields. A box provides a way to specify which value will trigger this condition to be true.
  - **Content Status**: Triggered when the field is in a specific status. A Drop-down provides a way to select which status will trigger this condition to be true.
    - **Complete**: The field contains ink and no error was detected.
    - **Empty**: No ink was found in the field.

        - **Error**: A logical error was detected in the field. This can happen, for example, if a field was re-written when it should not, a List Field set to only accept one option contains ink in both options, etc.
    - **ICR Value**: Triggered when the value given by the ICR engine compares with the specified value. Operators are available for the comparison (such as Equal, Not Equal, Lower or Higher Than, Contains and etc). It is also possible to select which Index of the field to use (See Ink is Present" above).
    - **ICR Confidence**: Triggered when the confidence percentage the ICR engine gave to the ICR value compares with the value determined in the "Confidence" box, using the chosen comparison operator.
    - **ICR Resemblance**: Triggered then the resemblance percentage the ICR engine gave to the ICR value in relation to its recognition database compares with the value determined in the "Resemblance" box, using the chosen comparison operator. For more information on ICR, see PlanetPress Capture ICR.
- **button**: Add a new field and action line.
- **button**: Remove the currently selected line.
- **The condition is true when**: Specifies how to react when more than one Capture Field based condition is present
    - **All items are met**: The task will return true if *ALL* the combined conditions are true.
    - **At least one item is met**: The task will return true if *ANY* of the combined conditions is true.
- **Condition Scope**: Determines whether the conditions need to be true for all the pages of the document, or any one of them.
    - **In the document (occurrence)**: The task will return true if the condition set it true for any page of the document.
    - **On each pages**: The task will return true only if the condition set is true for all of the pages of the document.
- **Invert condition**: Inverts the result of the task.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Capture Fields Generator

The **Capture Fields Generator** action task is used to generate Capture patterns in your job, which will then be printed for use with an Anoto Digital Pen. It also interacts with the Capture database and does some operations.

> **Warning**
>
> PlanetPress Capture Fields cannot simply be inserted into an existing document as-is and expected to work properly, efficiently or consistently. In order to design a document with Capture Fields, you **must** review and understand the Critical PlanetPress Capture Implementation Restrictions.

This task is put into effect in the following use cases and example processes:

- Basic Functional Capture Workflow
- Capture Web Manager Workflow

Input

The **Capture Field Generator** action task expects to receive a regular data file that corresponds to the Capture-Ready document that uses it, along with Metadata generated using the same data file and document. This means that this task must be preceded by at least the **Create Metadata** task.

This metadata must also be correctly separated at the documents level, either in the Capture-Ready document's properties or through the **Metadata Level Creation** task.

You may also use a **Metadata Sequencer** task in order to split the job into multiple parts. This both creates multiple smaller outputs, as well as multiple smaller PDFs in the Capture database. While it is not recommended to separate each document on its own as it removes all optimization and makes the database much larger, you may split into document batches such as 250, 1000 or 2500 documents.

If using the Metadata Sequencer it is generally recommended to place the Sequencer and the **Capture Fields Generator** tasks within a branch and, within the Capture Field Generator's On Error properties tab, to set it to stop the branch if any errors occur. This is to ensure that if such an error occurs most of your document sequences will get generated and you will not have to start the job over from the beginning.

Processing

The **Capture Fields Generator** action task uses an existing PlanetPress Design document containing Capture fields and assigns a unique Capture pattern to each printed page. The task then locks each pattern that it used so it cannot be reassigned to any other document.

The whole job is then converted into a PDF file which is stored, without the patterns, in the Capture Database. This PDF file is later used by the "Capture Fields Processor" on page 545 to be merged with ink from the pen. At the same time the output is generated, either as a PDF (including the patterns) or an Optimized PostScript Stream file. This means that regardless of the output, a PDF is always generated in the database.

> **Note**
>
> If any error occurs during processing, such as running out of patterns while generating the job, every action made by this task will be rolled back as if they hadn't happened.

Output

The **Capture fields Generator** action task will output either a PDF and Metadata, or an Optimized PostScript Stream file without Metadata.

Task properties

Pattern Generator action task properties are as follows:

- **Capture Document**: Choose the PlanetPress Design capture ready document that will be used to generate the output including the capture fields.
- **Document Title**: Enter a name for the document that will be saved inside the PlanetPress Capture Database. This name should be unique and recognizable and will be used later to retrieve the document form using the **Get Capture Document** action task.

- **Document Title** group: Determines a Title for the document. This title is accessible in the Capture Database and can be used to search for a document or retrieve a list of document using other tasks.
    - **From metadata**: Use the **Document Title** property as set in the **PlanetPress Capture** section of a PlanetPress Design document's properties.
    - **Custom**: Use the title in the input field as set by the user. The field is variable so the title can be set on a per-document basis using data or metadata selections.
- **Output Format group**
    - **Continue process with optimized postscript (no metadata)**: The job file coming out of the task will be a PostScript file that can be sent to any postscript printer or saved locally.
    - **Continue process with PDF (with new metadata)**: The job file coming out of the task will be a PDF with accompanying metadata for that PDF (previous metadata is lost).
- **Override document pattern sequence**: Check to override the pattern sequence as entered in your PlanetPress Design document properties. Once checked, enter a new pattern sequence in the Pattern Sequence box.
- **Fail if document doesn't contain at least one capture field**: If the static or dynamic document that tries to pass through this task does not contain any capture fields, an error will be generated.
- **Simulate pattern area on final document**: When retrieving the document from the database with the Get Capture Document, each Capture Field is simulated using a grey box. This box is not a pattern and cannot be used with the Anoto Digital Pen, however this option can be used to keep the same overall design of your document.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

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	CN1595440, SE517445, RU2256225, and AU773011.

Capture Fields Processor

The **Capture Fields Processor** action task is used to update the Capture database using information received from an incoming PGC file, which generally originates from a communication by the Anoto penDirector.

This task is put into effect in the following use cases and example processes:

- Basic Functional Capture Workflow
- Capture Web Manager Workflow

Input

This task requires a PGC file that has been obtained from an Anoto Digital Pen that was used to write on documents generated from the same PlanetPress Workflow installation.

Processing

The PlanetPress **Capture Fields Processor** action task receives and processes the information sent by the Anoto digital pen and updates all the documents in the PlanetPress Capture Database using the information from the pen. Any ink in the pen is added as an EPS (image) layer on the PDF inside the Capture Database. If a specific document needs to be closed to release its pattern, this task does so.

During processing, ink is always applied to the document first and then the logic is applied for releasing patterns. This means that even if a document is closed by a field set as Final that was checked first, ink present in other fields will still be applied to the document.

From version 7.5 and onwards, ICR is done on the ink, if the "Perform ICR Recognition" option is checked.

Error handling

If the Capture Fields Processor generates a critical error during the processing of any document in the PGC file, all of its actions will be reverted. If your PGC file contains multiple documents, even those documents that were processed before will revert. It is strongly suggested to backup your PGC file before using this task and to create an error handling process to capture these errors.

Logical errors do not cause this task to exit. For example, if a List Item Capture Field is set to only accept a single option but contains ink in more than one option, or if a Capture Field that does not accept re-writing receives more ink, the task will still complete. The inks that are relevant to logical errors are still added to the PDF document, but they are added on a separate "error" layer.

Output

This task outputs the PGC file it received along with Metadata that contains the documents that have been updated by this task. The Metadata can be used to do post-processing of the file using Capture Conditions, or directly through other Metadata tools. The structure of the output Metadata added by Capture is the following:

- **Document Level**
  - **CapCloseDate**: Date at which the document was closed by Capture Field Generator. Blank if the document is still open.
  - **CapDocID**: The database ID of the document. This field is useful especially if using the Capture API since the ID corresponds to the itembyID function.
  - **CapDocName**: The name of the document as specified in the Capture Field Generator.
  - **CapOpenDate**: The date at which the document was created by the Capture Field Generator.
  - **CapPatternSequence**: The value of the pattern sequence assigned to the document.
  - **CapPGCName**: The name of each PGC file that was used to update this document (will repeat for each PGC file)
  - **CapStatus**: Current status of the document:
    - 0: Open
    - 1: Closed by an optional field
    - 2: Closed by a mandatory field
    - 3: Closed by a final field
  - **CapTemplateName**: Name of the PlanetPress Connect document used to generate the document.

- **Page Level**:
  - **CaptureField**: Information on each capture field on the page. Repeated for each capture field that is present.

> **Note**
>
> There is no method of obtaining the information from a PGC except through a successful processing of this task, or via the use of the PlanetPress Capture API within a Script (see "Using Scripts" on page 141).

Task properties

Capture Fields Processor action task properties are as follows:

- **PGC Name**: This value will be added to the output Metadata, as well as the Capture Database, to link the PGC to the document it updates.
- **Pattern sequence group**
  - **Type**: Specify from where the Pattern Sequence should be taken.
    - **None**: Do not use a Pattern Sequence.
    - **Pen Information**: Use the Pattern Sequence assigned to the pen in the PlanetPress Capture Database.
    - **Custom**: Overwrite the pen's information and specify a Pattern Sequence manually or use a data selection.
  - **Custom Pattern Sequence**: If you choose Custom in the Type drop-down, enter a manual Pattern Sequence or a data selection that contains the Pattern Sequence to be used.
- **ICR Settings group**
  - **Perform ICR Recognition**: Triggers the PlanetPress Capture ICR engine. For more information, see PlanetPress Capture ICR.
  - **Engine Language**: Define the language the ICR engine will use for text recognition. This has a major effect on the way text is recognized, as different languages use different databases to recognize letters, numbers and characters. For example, accented letters are not correctly recognized in the English ICR database.

- **Fail if new ink is found on non-rewritable fields**: Check to trigger the **On Error** tab if and when a field set as **Disable Rewriting** receives ink in a new session.
- **Ignore out of bounds ink data**: Check to continue processing even if receiving a PGC that causes ink to be outside of any **Capture Field** to appear. This may happen if updating the wrong document. When out of bounds ink is found, the document will be set in the "Error" status. (see note below)
- **Split PGC by document**: Check to treat each document as a separate PGC file. This removes the need to use a **Capture PGC splitter** before this task, however the **PGC Splitter** remains useful when using self-replicating processes to accelerate PGC processing.
- **Add pattern information to the Metadata**: Adds advanced information in the Metadata for post-processing:
  - At the Document node, timestamp information such as ink start/end time
  - At the Page node, information about each Capture Field such as its name, dimensions, style, index, mask, timestamp and content status.

> Note
>
> When the **Ignore out of bounds ink data** option is checked, this option modifies the way that the **On Error** tab reacts. When a single split is processed and generates an error, only that split triggers the On Error tab. The other splits continue processing as usual. If another split generates an error, it also triggers the On Error tab.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Capture PGC Splitter

The **Capture PGC Splitter** task can be used to separate each document into its own PGC file so they can be processed separately. The splitter then sends each document PGC to the next action, which should be the **Capture Fields Processor** task. Note that using the **Capture PGC**

Splitter will cause your process to take more time, since each PGC must pass through the **Capture Fields Processor** and then the **Get Capture Document** task.

> **Note**
>
> Due to the fact that the **Capture PGC Splitter** task modifies the original PGC, in some cases the legality of the PGC signature may be compromised. This depends on your country or region's laws, so if your implementation of Capture requires signatures to be authenticated please consult a legal advisor for more details.

Input

A PGC file received from an Anoto digital pen.

Processing

The PGC file is split by document, if a document can be matched for each pattern ID found in the PGC. The match is made by comparing each Pattern ID with the information found in the Capture database. If more than one pattern is used in a document (pattern on multiple pages of the document), all of the information for this document (more than one Pattern ID) is sent down as a split. Patterns that do not match any document are sent individually, one Pattern ID per split.

Output

One or more PGC file, separated as described above.

Task properties

General tab

- **Pattern sequence group**: Determines what Pattern Sequence will be assigned to each PGC file.
  - **Type**: Specify from where the Pattern Sequence should be taken.
    - **None**: Do not use a Pattern Sequence.
    - **Pen Information**: Use the Pattern Sequence assigned to the pen in the PlanetPress Capture Database.

- **Custom**: Overwrite the pen's information and specify a Pattern Sequence manually or use a data selection.

- **Custom Pattern Sequence**: If you choose **Custom** in the **Type** drop-down, enter a manual **Pattern Sequence** or a data selection that contains the pattern sequence to be used.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

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Extract ICR Data

The **Extract ICR Data** task retrieves the ICR data from the specified document ID from the Capture Database and adds this information to the current Metadata in the process, at the specified level.

Input

Any data file, but generally one associated with the document in question (either a PGC or a PDF), along with an associated Metadata file.

Processing

A query is made to the Capture database and the ICR data is retrieved. The document that is queried must be available in the database (must not have been closed and retrieved previously).

Output

The original data file is output by this task, along with the original Metadata file that has been enhanced with the ICR data at the selected level.

Task properties

General Tab

- **Document ID**: A variable data field that corresponds to the database ID of the document from which you want to retrieve ICR data. The Document ID is generated by the system through the Capture Fields Generator. The ID must correspond to a document in the Capture database, or the task will fail with an error.
- **Metadata Level**: A drop-down list containing all of the levels of Metadata. Choose the one where the ICR data will be added.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Find Capture Documents

The **Find Capture Document** task retrieves a list of pertinent information about Capture documents present in the Capture database according to a specified set of rules.

This task is most often useful as the beginning of an automated process using a series of Capture documents, for example one that removes old documents to unlock patterns. However, it can also be used as a secondary input in order to retrieve one or more documents after some operations.

> **Note**
>
> The **Find Capture Document** task makes multiple simultaneous statements to the database when requesting a list of documents. For this task to work, the **Allow multiple statements** option must be checked in the ODBC connection setup done in the control

panel.

This task is put into effect in the following use cases and example processes:

- Capture Post Processing Workflow
- Capture Web Manager Workflow

Input

Because this task in an Input task, it does not use the current job file in your process, even when used as a secondary input task.

Processing

This task connects to the Capture database and looks up all available documents that meet the criteria specified in the plugin. Then it does further processing to retrieve relevant information about each document and places the information in the data file it generates.

Output

The data file generated by this task is an XML structure containing the data about each document. It also generates Metadata that is compatible with post-processing tasks such as the "Capture Condition" on page 537 and "Get Capture Document" on page 555 tasks.

Task properties

General Tab

- **Document-ID Based Condition**: Select this option for this task to filter its results using a specific Document ID.
  - **Document ID**: Enter the ID on which you want to filter. The Document ID is a unique identifier of the document when it is stored in the database. It is attributed to the job metadata when the "Capture Fields Generator" on page 542 ads it to the Capture database.
- **Document-Based Condition**: Select this option to set up an advanced filter containing one or more conditions.

- **Condition Grid**: Displays the list of current condition criteria that were set for document retrieval.
  - **Filter**: The selected filter type. This can be any of the following:
    - **Document Name**: The name of the document, as specified in the Document Name property of the "Capture Fields Generator" on page 542.
    - **Date Generated**: The date, in YYYY-MM-DD format, when the document was generated through the Capture Field Generator.
    - **Date Closed**: The date, in YYYY-MM-DD format, when the document was closed by the Capture Field Processor or **Get Capture Document** tasks. This field is empty in documents that are still open.
    - **Pen user (by description)**: The description of the pen, as entered in the "PlanetPress Capture Pen Management Tool" on page 769. Generally, this is the name of the owner of the pen.
    - **Pen user (by serial number)**: The serial number of the pen (aka Pen ID)
    - **Pattern Sequence**: The Pattern Sequence in which a document is entered.
    - **Template name**: The name of the PlanetPress Design document used to generate the Capture document. This is set in the document's properties, in PlanetPress Design.
    - **Pattern ID**: The exact ID of the Anoto Pattern used. This is also called "Pattern Trace Code".
    - **Content Status**: The status of the document as a whole. A document can be Empty (no ink), Partial (some ink but still open), Complete (all mandatory ink is present) or in Error (logical or process error).
  - **Operator**: The choice of the condition operator. The available choices are variable depending on the filter but will be part of the following choices:
    - **Equal**: Inclusive filter, where anything equal (either by string or numeric comparison) is included in the results.
    - **Not Equal**: Exclusive filter, where anything not equal to the condition is included in the results.

- **Less Than**: Numerical comparison, where anything lower than the specified value is included.
- **Greater Than**: Numerical comparison, where anything higher than the specified value is included.
- **Less than or equal to**: Numerical comparison, where anything lower or equal to than the specified value is included.
- **Greater than or equal to**: Numerical comparison, where anything higher or equal to than the specified value is included.
- **Contains**: Inclusive string comparison, documents where the specified value is present within the chosen filter are included.
- **Does not contain**: Exclusive string comparison, documents where the specified value is not present within the chosen filter are included.
- **Before**: Date comparison, documents of which the date is previous to the specified value are included (Date Generated and Date Closed filters only).
- **After**: Date comparison, documents of which the date is closer than the specified value are included (Date Generated and Date Closed filters only).
- **Last**: Date comparison, documents of which the date is within the specified interval are included (Date Generated and Date Closed filters only).
- **Older than**: Date comparison, documents of which the date is older than the specified interval are included (Date Generated and Date Closed filters only).

- **Condition**: The condition or value the document needs to meet. The condition is variable dependent on the chosen filter. It can be a drop-down of values, an alphanumerical or numerical value.

- **Add** button: Click to add a condition row to the grid.
- **Remove** button: Click to remove the currently selected condition from the grid. To select a row, simply click on any of its 3 components.
- **Condition Operator**: Select either "All items are met" to force all conditions to be true for a document to be included, or "At least one item is met" to include documents where a minimum of 1 condition is true.

- **Create Advanced Data File**: Click to retrieve additional information about each document in the result list. These information include each field, the presence of ink on each of them, time stamps, etc. Please refer to Find Capture Document for an example of the XML file.

> **Warning**
>
> The Advanced Data File option will generate a high number of queries into the Capture Database, and will be slower than a regular data file by orders of magnitude. Do not use this option unless you are aware of the loss of performance and actually need to access each field's properties individually!

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Get Capture Document

The **Get Capture Document** action task is used after the **Capture Fields Processor** to retrieve all documents that have been updated.

This task is put into effect in the following use cases and example processes:

- Basic Functional Capture Workflow
- Capture Post Processing Workflow
- Capture Web Manager Workflow

Input

A data file in PGC or PDF format that is accompanied by valid Metadata. This Metadata must contain Capture information and is generally available after a "Capture Fields Processor" on page 545 or "Find Capture Documents" on page 551 task. However, it is also possible to directly retrieve the required information from a specific Document ID. When a specific ID is used, the data file and Metadata are completely ignored by this task's condition rules, and the database information is used instead.

Processing

One PDF, corresponding to the information present either in the Metadata or specified in the task, is extracted from the Capture database.

When retrieving documents from the database, the PDF from which the document is obtained will remain in the database until each document contained in it is retrieved from it. For example, if a 10-page PDF contains 5 documents, the 10 pages remain in that PDF until all 5 documents have received ink, been closed and retrieved from the database. This may mean space issues if too many PDF files remain in your database.

> **Note**
>
> Performance-wise, when this plugin retrieves a document from a 10,000 page PDF in the database, it will take more time then if it retrieved it from a 100 page PDF.

Output

The **Get Capture Document** action task is a loop that outputs a PDF version of the Capture Document. The PDF contains the original document, any ink added by the "Capture Fields Processor" on page 545 action task.

In addition, any ICR information available (when using PlanetPress Capture ICR) will be placed at the **Page Level**, as follows:

- **ICR_[FieldName]_Val** : The value of the text that was recognized by the ICR engine, for the field named [FieldName]. If the field is not and ICR field or if that field contains no ink, the value will be empty.
- **ICR_[FieldName]_Cfd** : The confidence value (in percentage) of the engine for the value provided.

Task properties

General Tab

- **Document Origin group**:
  - **Document to process**: Determines where the document information is read
    - **From Metadata**: Select to use the current document available in the Metadata generated by the Capture Field Processor.
    - **From Specific ID**: Select to specify an exact Document ID from the database. This document does not need to be loaded as a data file or its Metadata manually obtained, as this task simply looks up the information directly in the PlanetPress Capture database.
- **Document Type group**
  - **Get all documents**: Get all the documents that have been updated, according to the Metadata.
  - **Get closed documents only**: Get only the documents that have been closed in this process, according to the Metadata.
- **Close document after retrieval**: Once the task has retrieved the document from the Capture database, the document will be closed even if it is incomplete.
- **Annotate PDF**: Add annotations to the PDF that describe each Capture field and the ink that is included in those fields. Note that not all PDF readers support annotations.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

PGC to PDF Converter

The **PGC to PDF Converter** task extracts the digital ink located in a PGC file and adds it to a blank PDF, creating one page per document in the PGC. It's main use is to process PGCs that generated errors when processing them, as part of an Error Handling process.

> **Note**
>
> When adding this task to your process, you will be asked if you want to add the task as an Action or a Condition. This task should only be used as an Action. If used as a condition, it will always return False.

This task is put into effect in the following use cases and example processes:

- PlanetPress Capture Workflow

Input

A PGC file received from an Anoto digital pen.

Processing

The ink contained in the PGC file is converted into an EPS layer, which is then applied on an blank, empty PDF file of the size specified in the task's properties. If more than one Pattern ID is found in the PGC file, each separate Pattern ID will generate a new page on which its ink is applied.

Output

A PDF file with a blank background and only the ink data found in the PGC file.

Task properties

General Tab

- **PDF page size**: Choose the page size of the output PDF. The default size is A2, and changing the format does not scale the digital ink. Ink appearing outsize of the selected page size will not be visible.

> **Note**
>
> This task was built using a custom plugin system and does not display the On Error tab in the regular view. To access the On Error tab, right-click on the task and select **Advanced**

Properties...

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Metadata tasks

Metadata tasks are plugins that can create or edit metadata for a job file. For more information about the metadata structure and elements, see "Metadata" on page 75.

- "Create Metadata" below
- "Embed/Extract PlanetPress Workflow Metadata" on page 561
- "Metadata Fields Management" on page 562
- "Metadata File Management" on page 565
- "Metadata Filter" on page 566
- "Metadata Level Creation" on page 568
- "Metadata Sequencer" on page 570
- "Metadata Sorter" on page 571
- "Metadata to PDI" on page 573
- "Metadata-Based N-Up" on page 574

Create Metadata

Creates all the Metadata that is either the information about a data file, or the result of the merging between a data file and a PlanetPress Design document.

For more information about Metadata see: "Metadata" on page 75.

This task is put into effect in the following example processes.

- "Example: Daily sales report from PDF files" on page 288
- Basic Functional Capture Workflow
- Capture Web Manager Workflow

Note that Capture can only be used with PlanetPress Suite.

Input

A data file in any supported emulation (see "About data emulation" on page 60).

Processing

If the **Do not use a document (passthrough)** option is used, the Metadata will contain a single Job, Group and Document level, as many data page levels as there are data pages (pages in a PDF, levels in XML, rows in a CSV, etc) in the file, and one page level per data page.

> **Note**
>
> In PlanetPress Design, this step is equivalent to a &metamode variable value of 1.

If a data file and PlanetPress Design document are selected, the Metadata is generated by merging the data file and document and retrieving only the Metadata generated by this merge. The Metadata levels will reflect those defined in the document, including separation for Group and Document, Metadata fields, etc. Note that:

- In PDF emulation, the size and orientation attributes for each page are set in the Metadata. In all other emulations, those attributes remain blank.
- In XML emulation, the Metadata file is always created as if the user had specified the "Second Level" parameter in PlanetPress Design.

Output

The original data file is output, along with the newly generated Metadata file. Job Info variables are not changed.

Task properties

General Tab

- **Documents**: Select the **Do not use a document (passthrough)** option to create Metadata based on the data file alone.
  Alternatively, as a PlanetPress Suite user you can select a specific PlanetPress Design document to be merged with the data file. Only the Metadata generated by this merge will be retrieved.
- **Add job information to the document** (only if a document was selected): Select to prompt PlanetPress Workflow to add the available Job Information elements in the header of the generated file.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Embed/Extract PlanetPress Workflow **Metadata**

Embed the current PlanetPress Workflow Metadata inside the current data file in a PDF emulation. It can also extract PlanetPress Workflow Metadata from the current data file and make the extracted file the new current Metadata file.

For more information about Metadata see: "Metadata" on page 75.

Input

A PDF File, either with no Metadata and along with Metadata that presumably corresponds to the PDF file, or a PDF file with embedded Metadata.

Processing

If the Embed option is used, the Metadata information is embedded directly into the PDF File as binary data. This does not change the way the PDF is viewed by any PDF viewer.

If the Extract option is used, Metadata present inside of the PDF file is extracted from it. If no Metadata is embedded, the task generates an error: W3976.

Output

The PDF file with embedded Metadata (the Metadata is not deleted from the PDF File on extraction, so this task will always output a PDF with embedded Metadata).

Task properties

General Tab

- **Extract Metadata into PDF job file**: the Metadata is extracted from the current data file (which is assumed to be a PDF file in which Metadata has been previously embedded), and it becomes the current Metadata from this point on, overwriting any current Metadata file that may already be set.
- **Embed Metadata from PDF job file**: the current Metadata file is inserted in the current data file, which is assumed to be a PDF file. If the original PDF is PDF/X or PDF/A compliant, the resulting PDF file will also be compliant.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Metadata Fields Management

The **Metadata Fields Management** task can be used to add new fields into your Metadata, either for every element or through conditions.

For more information about Metadata see "Metadata" on page 75.

> **Note**
>
> This task will automatically loop through the Metadata and repeat its action for each of your Metadata's datapages. This task should not be placed after a **Metadata Sequencer**.

Input

Any data file with accompanying Metadata.

Processing

Fields are added, removed, modified, etc, according to the actions defined in the task properties. If the field is present in a level that repeats (for example, the data page level), this task loops so that the action may take place on each of the occurrences of that level.

Updating all nodes

For a given Metadata Field Management action, all nodes of a given level might be updated with a New Field value. To accommodate this, all Metadata/data selection functions accept a wildcard parameter "?", indicating the function operates on all nodes (not just one) of a given level. See: "Data selections" on page 53.

Limitations

- The name of the Metadata field to add must adhere to these syntax rules: start with a letter, followed by zero or more letters, numbers, underscore or dash. The name is not case-sensitive.
- **Metadata Fields Management** actions on the page level are not possible since the entire task execution is based on the data page node.
- The task raises an error if the selected **Metadata Fields Management** action is Sum and if one of the field values is not numeric. The task supports approximately 15 digits of precision in a range from 2.23×10^{-308} to 1.79×10^{308}.

Output

The original data file is outputted, along with the modified Metadata.

Task properties

General Tab

- **Action**: Select the type of Metadata Field Management action to perform. Five action types are available:

- **Add/Replace**: Create a new Metadata field. If the name already exists, the value is overwritten with the new one.
- **Duplicate**: Create a new Metadata field. If the field already exists, a new instance is created.
- **Append**: Append the new value at the end of the current one. If no field with that name exists, a new one is created.
- **Sum**: Calculate the sum of all values found in all fields of a given name, at a given level. The resulting number is formatted by default with the dot decimal separator.
- **Delete**: Delete the Metadata field if it exists and disable the Field information column's Field value option.

- **Field Information**: Specify the Metadata node level, field name and field value of the specified action.
  - **Level**: Choose between **Job, Group, Document, Datapage**. The task will loop through each selected node of the chosen Metadata level.
    - **Job**: Apply the action on the specified field at the Job level.
    - **Group**: Apply the action on the specified field at the Group level.
    - **Document**: Apply the action on the specified field at the Document level.
    - **Data page**: Apply the action on the specified field at the Data page level.
  - **Field Name**: Enter the Metadata field name on which the task will operate.
  - **Field Value**: Enter the Metadata field value. Note that if the chosen action is Delete, this parameter is disabled. For other action types, in order to set the field value, click the **[...]** button. This button opens the Data Selector, which allows to specify a data selection as the field's value.
    Note that when adding a Metadata field, if you perform a multi-line data selection on a PDF region, only the first line of that region will be set to the Metadata field.
  - **Decimal Separator**: Set the decimal separator for the Sum option. 3 possible modes are offered:
    - **Auto-detect**: Interpret automatically the value. This option is ideal for documents using mixed decimal separators. Note that the auto-detect option encountering the value 1,000 (with a comma separator), interprets it as a thousand while interpreting 1.000 (with a dot separator), as one.
    - **.**: Treat every value with the dot (".") decimal separator. Commas (",") are treated as thousand separator.

    - **,**: Treat every value with the comma (",") decimal separator. Dots (".") are treated as thousand separator.
- **Rule**: Define criteria for the Metadata Field Management action execution. The condition must be TRUE for the action to execute. To set up conditions, the Rule Interface is displayed, allowing to edit the condition for the given action. See the "Rule Interface" on page 860 page for more details.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Metadata File Management

The **Metadata File Management** action task is used to execute actions on Metadata files. This task does not modify the data, Job Info variables, other variables or any other part of your process.

For more information about Metadata see "Metadata" on page 75.

Input

This task takes any file as input and does not modify it.

Process

This task does not execute any change to the process, its files or variables. It only executes the selected action on Metadata.

Output

This task outputs the exact same data that was given to it. Its Metadata will either be missing (Delete Metadata), Changed (Load Metadata) or the same (Save Metadata).

Properties

- **Chose an action group**
  - **Load metadata file**: Loads an external Metadata file that was previously saved. This can be useful in Error processes if you have previously saved the Metadata to file (ErrorBin outputs do not transfer Metadata).
  - **Save the current metadata file**: Saves the current Metadata to a specified location. Useful as a backup or for use in Error processes.
  - **Delete the current metadata file**: Removes the active Metadata from the process. Useful when using a secondary input task that does not automatically regenerates Metadata. No Metadata will be available until another task generates it.
- **Metadata Folder**: Use **Browse** to find the location of the folder where to save the files or enter a path using variables. Not active when the *Delete* action is chosen.
- **Metadata Filename**: Enter a static or variable name for the Metadata file to load. Not active when the *Delete* action is chosen.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Metadata Filter

The **Metadata Filter** task allows specifying the Level (Group, Document and Datapage) on which to perform the action and under which condition. At least one level must have the condition set. The action will be performed sequentially beginning with the rule on the Group level, Document level and Data page level. The selection is performed on the node only.

For more information about Metadata see "Metadata" on page 75.

Input

Any data file with accompanying Metadata.

Processing

Any Metadata that does not correspond to the rules set forth by the filter are removed from the active Metadata. Note that the 'removed' Metadata is still present in the file, but is unselected: they are disabled and ignored on all tasks that use Metadata afterward (except the Metadata Sorter task).

Output

The original data file is output, along with the modified Metadata.

Task properties

General Tab

- **Filter levels**: Rules for deselecting nodes at the Group, Document or Data page level. Note that currently unselected nodes are ignored.
  - **Group**: Select the Metadata Group nodes (the nodes only) based on the specified rule(s).
  - **Document**: Select the Metadata Document nodes (the nodes only) based on the specified rule(s).
  - **Datapage**: Select the Metadata Datapage nodes (the nodes only) based on the specified rule(s).
- **Rules**: Define according to which criteria the action must to be performed. The condition must be TRUE to execute the action. All nodes on a specific level with false condition become unselected. The task effectively both selects and deselects nodes based on the condition. To set up conditions, the Rule Interface is displayed, allowing to edit the condition for the given action. See the "Rule Interface" on page 860 page for more details.
- **Select all Metadata nodes**: Check to reset the Selection status of all nodes before performing the filtering, effectively selecting all metadata nodes. This basically undoes the work of any previous Metadata Filter or Metadata Sequencer, so be careful when using this option.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Special Considerations

- The task CANNOT re-select unselected nodes if the condition is false for those nodes.
- Filter rules cannot be based on the following metadata attributes: SelectedIndexInJob, SelectedIndexInGroup, SelectedIndexInDocument and SelectedIndex.

Metadata Level Creation

The Metadata Level Creation task conditionally creates new Metadata groups or documents. This task is only functional if Metadata already exists for the current job.

For more information about Metadata see "Metadata" on page 75.

The task enables users to merge data pages into Documents and/or merge Documents into Groups, based on conditions. Unselected Data pages are ignored, but are moved with other Data pages if the action is applied to the current parent node.

Using the wildcard parameter "?"

Since all metadata data pages, and possibly all physical data pages, are treated by the task at run-time in order to evaluate the condition at each level, it is necessary to dynamically define metadata as well as data selections to check all occurrences instead of a fixed one.
This is done using the wildcard parameter "?". When a question mark is used as a parameter in a data or metadata function, the function operates on all nodes (not just one) of a given level. Used in a rule, it indicates that a dynamic update of the current data page or level is required before evaluating the condition.
For examples of how to use the wildcard parameter, see "Data selections" on page 53.

Example of a process with the Metadata Level Creation task

Given a document input (created with Metadata), this task can be used to regroup the PDF pages of the received print stream in logical (Metadata) documents, based on the keyword “Page 1 of” printed on the pages, and then treat each newly created document individually in the rest of the process

The process begins with the following tasks:

1. WinQueue Input: Intercepts a printed data file sent to a Windows printer queue.
2. Metadata Level Creation: Begins a new document node when “Page 1 of” is found on a data page.
    - Action: Document
    - Delimiter: Begins when
    - Rule: (@(?,1,1,1,9,KeepCase,NoTrim) IS EQUAL TO Page 1 of)
3. Metadata Sequencer: Splits the data file on each Metadata document node level.

With this example, before the **Metadata Level Creation** task, the Metadata structure contains one group containing one document (containing multiple data pages). After the **Metadata Level Creation** task, the Metadata structure contains one group containing multiple documents.

Input

Any data file with accompanying Metadata.

Processing

The Metadata file is split on the selected level.

Output

The original data file is output, along with the modified Metadata.

Task properties

General Tab

- **Document**: Create a new Document level. Note: Attributes and Fields are deleted for all new Document levels created as well as existing Groups.
- **Group**: Create a new Group level.

> **Note**
>
> Attributes and Fields are deleted for all new Group levels created.

- Delimiter defines if the Condition parameter is triggering the beginning or the end of a Group or Document. If the delimiter option is set to None, the action is not performed.
- Rules enable the user to define on which criteria the action must to be performed. The condition must be TRUE to execute the action. If the condition is not met at least once, the rule is not applied. To set up conditions, the Rule Interface is displayed, allowing to edit the condition for the given action. See the "Rule Interface" on page 860 page for more details.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Metadata Sequencer

Although the **Metadata Sequencer** acts as a splitter, the data file itself remains untouched, as neither the data nor the Metadata are actually being split through this task. With each sequence, the entire data file still gets carried from one task to another. Metadata records are simply selected/deselected, which has the same effect.

For more information about Metadata see "Metadata" on page 75.

> **Note**
>
> When using a **PlanetPress Design** document as input, the PDF Splitter will do the job quicker than the Metadata Sequencer task. However, when using a PDF as input, the Metadata Sequencer might perform better. For more information and some test results, see this How-to: Performance testing grounds.

Input

Any data file with accompanying Metadata.

Processing

A loop is established and the Metadata is separated into chunks, as defined in the rules set forth in the task properties.

Output

The original data file is output once per chunk, along with this chunk's metadata. Note that **all** the Metadata is in each of the sequence, but anything not part of the sequence is disabled and is ignored by all tasks using Metadata afterwards.

Task properties

General Tab

- **Metadata level**: Select the Metadata level to process.
- **Sequencing is based on**
  - **The following number of occurrences of the level**: Determine a sequence based on the number of instances found for the Metadata level currently processed. For example, if the Metadata level is set to Group, and this value is set to 3, each sequence contains 3 groups (except, possibly, the last one, depending on the number of groups left in the last sequence). The next loop starts with the next group after this sequence.
  - **The following number of sequences in the job**: Divides the Metadata into a set number of sequences and equally distributes the number of levels between the sequences. For example, it the Metadata level is set to Document, and this value is set to 5, a 100 document job file will be divided into 5 sequences of 20 documents each.
  - **The following rule**: Determine if a new sequence starts or if the current one ends. For each Metadata level, the current value of the specified Metadata attribute/field is compared with the one in memory. If they are different, either a new sequence starts or the current sequence is ended. The next sequence starts with the next Metadata level being processed. For details see the "Rule Interface" on page 860.

Metadata Sorter

The **Metadata Sorter** action task allows Metadata to be sorted sequentially on three different levels, alphabetically or numerically. It also allows sorting in ascending and descending order.

For more information about Metadata see "Metadata" on page 75.

Input

Any data file with accompanying Metadata.

Processing

The order of the Metadata is changed in accordance with the rules set forth in the task's properties.

The Metadata Sorter task works on **all** nodes, regardless of their **selected** state.

Output

The original data file is output, along with the modified Metadata.

General Tab

- **Group**: Sorts the Metadata by group.
- **Document**: Sorts the Metadata by document.
- **Data page**: Sorts the Metadata by data page.

For each parameter, three columns are available: Sort By, Then by, Then by (again). This lets you sort your document level in three different orders sequentially. Sorts are always done from left to right, top to bottom, giving you a total of 9 sorting possibilities.

When you click on either of the sort boxes, a small pop-up displays the following options:

- **Sort by**: The drop down displays a list of available fields and attributes in that level, letting you select on which to sort. The field or attributes must be present for every instance of the level you are searching on, or the task raises an error.
- **Order**: Choose **Ascending** (orders like a,b,c, or 1,2,3) or **Descending** (orders like 3,2,1 or c,b,a) order. If the Numeric sorting option is not checked, numbers are sorted like this: "1, 10, 11, 12, 2, 3, 4, 5, 6, 7, 8, 9".
- **Numeric Sorting**: Check to sort numerically instead of alphabetically (only supports whole numbers. Currency with thousands separator and decimal points will not work). If any non-numeric value is found in the field or attribute, in any instance of the level, the task raises an error.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Metadata to PDI

The **Metadata to PDI** task takes the active metadata and generates a PDI using the information in that metadata. It is generally used in conjunction with a PDF data file and is used to generate the PDI file which is used by PlanetPress **Search** when building, refreshing or rebuilding its database.

For more information about Metadata see "Metadata" on page 75.

Input

This task can use any data file, as long as it is accompanied by metadata. This metadata may have been directly generated or could be extracted from a PDF using the **Embed and Extract** PlanetPress **Workflow Metadata** task.

Processing

The metadata is read and PDF indexes are located. These indexes are defined in the PlanetPress Design document as data selections, in which the Archive / Email / Fax properties define the data as an index with a name.

When all the indexes are collected, a PDI file is generated with those indexes.

Output

The output is the same as the input, no modification is done to either the data file or the metadata. However, a PDI file is generated and saved in the location specified in the task.

Task properties

General Tab

- **Archive Folder**: Specifies where the PDI file should be saved. This should be the same location as the PDF file that the PDI refers to.
- **Filename**: The file name for the PDI. This name should correspond exactly with the name of the PDF that the PDI file refers to.

- **Index Group**:
  - **PDI**: Only generate a PDI file.
  - **PDI and XML**: Generate both the PDI and an XML equivalent (not used by PlanetPress Search).

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Metadata-Based N-Up

The **Metadata-based N-Up** action task works in conjunction with the PlanetPress Design tool's N-Up functionality. It allows to specify how many virtual pages will appear on each physical page of the PlanetPress Design template to be used with the current data file. The task rearranges the Metadata accordingly, which greatly facilitates the set up of the N-Up functionality in the design tool, especially when the solution includes duplex printing with variable data on both sides.

The PlanetPress Design document needs to be properly set up with the N-Up object and proper virtual pages in order to correctly use this task:

- All PlanetPress Design document templates must use the N-Up object on both the front and the back pages of the duplex document.
- Each instance of the N-Up object must have the “change data page with each repeat” option checked.
- The total number of repeats on each page (vertical X horizontal) must correspond to the number specified in the **Number of virtual pages per physical page** option..
- The Alignment setting of each n-up object must be set according to the device’s duplicating capabilities (long-edge or short edge binding).

> **Tip**
>
> To print a Connect template with an N-Up print layout you need an Output Creation Preset with the correct production options. See "OL Connect print jobs" on page 110.

Also see Output Creation Preset and Print Options in Connect's Online Help.

Input

Any data file with accompanying Metadata.

Processing

The Metadata is re-arranged and/or duplicated in order to correspond to the options set forth in this task's properties.

Output

The original data file is output, along with the modified Metadata.

Task properties

General Tab

- **Number of virtual pages that appear on each physical page**: This is equivalent to the N in N-Up. This number should be equal to the total number of virtual pages in your PlanetPress Design document. For example, a 2 horizontal x 3 vertical is 6-up, so this number should be 6.
- **Number of data pages that make up a single duplex virtual document**: Either 1 if your document is duplex (has a front and back), whether the back has variable data or not, or 2 if your document is simplex or the data is already properly duplicated so the front and back already match.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

OL Connect Send

Connect Send allows for PostScript files to be received over the internet from any Windows Desktop application. It is in fact an application with two components. The first is a Windows printer driver while the other is a group of Workflow plugins (Job Processor, Get Job Data and Get Data). These two components work together indiscriminately, each needing the other to function.

Connect Send can be used in unlicensed mode and licensed mode.
The **Unlicensed mode** (default) allows users to push documents to Connect Send. They will receive a pop-up message in the Notification Area confirming whether the job was received or not.
The **Licensed mode** causes the Connect Send Printer Driver to request a web page that will be displayed in the user's browser in order to allow them to enter job specific information. The information from this web page can be used to tell Workflow what to do next.

Workflow processes in Connect Send

For help on the configuration of Workflow processes in a Connect Send solution, see "Workflow processes in a Connect Send solution" on page 298.

OL Connect Send tasks

- "Get Data" below
- "Get Job Data" on page 581
- "Job Processor" on page 585

Get Data

The **Get Data** plugin allows **OL Connect Send** users (admins, accounting personnel, print masters ...) to get information about all jobs received with OL Connect Send on a dedicated machine. It allows queries of the OL Connect Send Database to be made for the production of reports.

All job info that could be retrieved will be written to a temporary results file that is then passed on as the new Workflow job file. It can be used right after the **Get Job data** plugin in the same Workflow configuration. It could for example be saved using a **Send to Folder** plugin.

> **Note**
>
> The **Get Data** plugin gets data from the **OL Connect Send** database which means it only works when Connect is in LICENSED mode.

Properties

General Tab

Filter options

Filters are required for:

- Start and end date (down to minutes)
- Domain(s)
- User(s)
- Machine name(s)

Except for start and end dates, it is possible to pass a list of multiple search criteria, separated with semicolons, containing:

- Workflow variables
- Job variables
- Names.

> **Tip**
>
> No spaces are allowed around the listed names, respectively before or after a semicolon.

Operators

- Searches are case-insensitive.
- Multiple entries in **one** filter field are combined with: OR.
- Entries in **different** filter fields are combined with: AND.

Example 1

A valid user name search string, entered in the Filter Users field, would be:

%\{global.User};helen;%1;george napier

This would look for all entries, where the user name is either:

- as currently stored in the global Workflow variable **User**
- "helen"
- as stored in the job variable number 1
- equals "george napier" (case insensitive).

These search criteria are combined with **OR**.

Example 2

The domain name entered in the Filter Domains field is **objmtl.objectiflune.com** and the user name entered in the Filter Users field is **rentel**.
If search criteria are entered in multiple input fields, all of them are combined with AND. Therefore the result will only contain all the print job information for **objmtl.objectiflune.com** where the user name is **rentel**.

Date and Time Definitions

Both date and time entries must be notated in UTC format. During runtime the dates are checked and if any other date/time notation is used, a Workflow error log entry is created.

UTC notation is described here: https://www.cl.cam.ac.uk/~mgk25/iso-time.html.

Valid date/time entries:

2016-07-12	It is possible to only define a date without a time.
2016-%m-%d	Standard Workflow variables for year, month and day are allowed.
2016-07-12 11:00	**From** and **To** dates may also have a time indicator (24 hour notation, separator from the date is a space character, separator between hour

	and minute is a colon)

It is possible to define the same date for **From Date/Time** as for **To Date/Time**. However, entering the same info (without time information) would lead to getting no entries.

Results

For each job that matches the search criteria, the following information will be put into the resulting data file:

- Job UID
- Date/Time stamp
- Number of Copies
- Number of pages
- User name
- Original file name
- Original file size
- Domain (workgroup) name
- Domain / Workgroup Indicator
- Machine name
- Machine GUID.

Results File Format

The following result file formats are selectable:

- XML
- JSON
- CSV (Separator = semicolon (0x3B), string indicator = quote (0x22)).

> **Note**
>
> This file is not automatically saved to disk. The retrieved job info is written to a temporary results file that will be passed on as the new Workflow job file. To save the results file, use a **Send to Folder** plugin and configure that appropriately.

Returned information

For each job received by the OL Connect Send Job Processor plugin the following values will be available.

- **Job UID**: This is the 10 (ten) character long **Unique Job Identifier** string.
- **Status ID**: The status ID shows in which stage the job currently is:
  0 = undefined; 1 = idle; 2 = transfer; 3 = chunk; 4 = concatenate; 5 = unzip; 6 = done.
  A value of 6 indicates a fully processed job. Any value between 2 and 5 (inclusive) means that the job is still in progress. For a small job, some statuses may be skipped.
- **Date/Time stamp**: This is the time when the matching job was initially created in the database. It is stored in UTC format plus time zone indicator inside the database. It will differ from the time stamp logged by the OL Connect Send Printer Driver as well as by the OL Connect Send Job Processor.

> Note
>
> The **Printer Driver** machine time stamp in the **Printer Driver** log may significantly differ from this value.

- **Number of Copies**: This is the value set by the OL Connect Send Printer Driver for the number of copies (intended number of copies required for the print job). Some applications do not use the general print job information to define the number of copies. In such (rare) cases, the **Number of Copies** sent in the job can differ from what the user entered in the print dialog. For example: "IrfanView" does not use the regular **Copies** indicator, but instead sends the same job as many times as indicated by **Copies** in its print dialog.
- **Number of pages**: This is the number of pages for one copy of the print job. This value is calculated by the Windows spooler, when processing the printing order. Please be aware that some applications do an implicit reformatting of jobs if the intended paper size does not match the paper size as selected in the print dialog. This may lead to the fact that the number of pages, as calculated by the spooler and reported by OL Connect Send, can differ from that value as shown to the user in the application itself.
- **User name**: This is the Windows user name of the user who started the application to produce the print job. It is not - in all cases - the user name of the user who is currently logged into the system.

- **Original file name**: This is the "file name" as sent from the application to the Windows spooling system. It is taken from the name as it arrives in the spooler. Some applications add info to the name (like Notepad++) while others don't (like Adobe Reader). OL Connect Send can only use what it gets from the spooler. It does not interact with the applications itself.
- **Original file size**: The size of the print job - NOT the size of the document file.
- **Domain (workgroup) name**: The name of the domain or workgroup the printing user belongs to. This is not necessarily the name of the domain the machine itself belongs to. For explanations about domains, domain names, users, user names, user domains, logged on users vs. application running users, machine names etc. please refer to the respective Windows help pages or ask your system administrator.
- **Domain / Workgroup Indicator**: Indicates whether the field "Domain (workgroup) name" is a domain name or a workgroup name. The possible values are 0 (false) for a workgroup, or 1 (true) for a domain.
- **Machine name**: The name of the machine the OL Connect Send Printer Driver is running on as retrieved by the respective Windows API.
- **Machine GUID**: The unique machine ID of the machine on which the job was produced. It can be used as an additional identification mark to validate the origin of the job.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Get Job Data

Creating an interactive process for incoming print jobs using **OL Connect Send** requires that the relevant information about the respective job is available and can be used in Workflow. Job Information retrieval is made easy with the **Get Job Data** plugin.

The plugin appears in the Plug-in Bar of Workflow under **OL Connect Send**.
Typically, it is used in the OL Connect Send interaction process, just after the initial **HTTP Server Input** plugin.

The Get Job Data plugin gets all relevant information for the dedicated print job using the **Unique Job ID**. Whenever an **OL Connect Send Printer Driver** is sending a print job to the

OL Connect Send Job Processor plugin, it creates a unique ID string composed of 10 upper- and lowercase letters and digits e.g. “ri0zZdluLp”. This Unique Job ID is used in any communication between the Printer Driver and the plugin and is the leading identification element for this particular job. All job related information is stored in the underlying database and linked together by this Unique Job ID.

> **Note**
>
> The **Get Job Data** plugin gets data from the **OL Connect Send** database which means it only works when **Connect** is in LICENSED mode.

Properties

General tab

Three different settings affect the general behavior of the plugin:

- Where to get the **Print Job ID**.
- When to continue with the next step.
- Where to store the job information details.

Select Job ID Source

The plugin can be used in a generic way. Whenever information about a specific print job is required, it can be retrieved as long as the related job ID is known. However, the plugin has been implemented in a way that it can also be used very easily in the OL Connect Send interaction process. It can get the related job ID from the incoming data of the **HTTP Server Input** plugin.

- **Read from HTTP Input data**: When this option is selected, the plugin analyzes the incoming data and if it can find the Job ID at the expected location, it uses it for further processing.
- **Read from Variable**: When selecting this option, any existing Workflow variable can be chosen via the drop-down field. In this case, the plugin reads the Job ID from that variable.

Select Returning Type

Depending on this setting the plugin gets status information about the job before it has arrived or it gets information after the job has been completely received.

- **Immediately**: By choosing this option, the Get Job Data plugin will return as quickly as it can, providing it can find a matching Job ID in the database. It is important to know that it will wait until any information about the job is available. If no matching Job ID is found, the plugin will wait for 5 seconds and then raise an error, which can be acted upon via the **On Error** tab settings.
  When selecting this option, the Status ID information has to be checked. A Status ID value of 6 indicates a fully processed job. Any value between 2 and 5 (inclusive) means that the job is still in progress.
- **When Job is Processed**: When this option is selected, the plugin will query the database until the Status ID value is 1 or 6. If the status does not become 1 or 6 within the time defined via the Timeout (sec) input field, the plugin will raise an error.

Select Output Type

- **XML Data to Workflow**: This will result in an XML file containing all job related data and becoming the new Workflow job file. In this case, the incoming data file of the **HTTP Server Input** plugin is overwritten and lost.
- **Write to Variables**: This allows print job information to be stored in Workflow variables by using a simple drop-down list. In this case, the **HTTP Server Input** data will be kept as Workflow job file. If the same Workflow variable is assigned more than once, the plugin will give a warning and will not close until the issue is fixed.

Returned information

For each job received by the OL Connect Send Job Processor plugin the following values will be available.

- **Job UID**: This is the 10 (ten) character long **Unique Job Identifier** string.
- **Status ID**: The status ID shows in which stage the job currently is:
  0 = undefined; 1 = idle; 2 = transfer; 3 = chunk; 4 = concatenate; 5 = unzip; 6 = done.
  A value of 6 indicates a fully processed job. Any value between 2 and 5 (inclusive) means that the job is still in progress. For a small job, some statuses may be skipped.

- **Date/Time stamp**: This is the time when the matching job was initially created in the database. It is stored in UTC format plus time zone indicator inside the database. It will differ from the time stamp logged by the OL Connect Send Printer Driver as well as by the OL Connect Send Job Processor.

> Note
>
> The **Printer Driver** machine time stamp in the **Printer Driver** log may significantly differ from this value.

- **Number of Copies**: This is the value set by the OL Connect Send Printer Driver for the number of copies (intended number of copies required for the print job). Some applications do not use the general print job information to define the number of copies. In such (rare) cases, the **Number of Copies** sent in the job can differ from what the user entered in the print dialog. For example: "IrfanView" does not use the regular **Copies** indicator, but instead sends the same job as many times as indicated by **Copies** in its print dialog.
- **Number of pages**: This is the number of pages for one copy of the print job. This value is calculated by the Windows spooler, when processing the printing order. Please be aware that some applications do an implicit reformatting of jobs if the intended paper size does not match the paper size as selected in the print dialog. This may lead to the fact that the number of pages, as calculated by the spooler and reported by OL Connect Send, can differ from that value as shown to the user in the application itself.
- **User name**: This is the Windows user name of the user who started the application to produce the print job. It is not - in all cases - the user name of the user who is currently logged into the system.
- **Original file name**: This is the "file name" as sent from the application to the Windows spooling system. It is taken from the name as it arrives in the spooler. Some applications add info to the name (like Notepad++) while others don’t (like Adobe Reader). OL Connect Send can only use what it gets from the spooler. It does not interact with the applications itself.
- **Original file size**: The size of the print job - NOT the size of the document file.
- **Domain (workgroup) name**: The name of the domain or workgroup the printing user belongs to. This is not necessarily the name of the domain the machine itself belongs to. For explanations about domains, domain names, users, user names, user domains,

logged on users vs. application running users, machine names etc. please refer to the respective Windows help pages or ask your system administrator.

- **Domain / Workgroup Indicator**: Indicates whether the field "Domain (workgroup) name" is a domain name or a workgroup name. The possible values are 0 (false) for a workgroup, or 1 (true) for a domain.
- **Machine name**: The name of the machine the OL Connect Send Printer Driver is running on as retrieved by the respective Windows API.
- **Machine GUID**: The unique machine ID of the machine on which the job was produced. It can be used as an additional identification mark to validate the origin of the job.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Job Processor

The **Job Processor** plugin is an output plugin that appears in the Plug-in Bar of Workflow under **OL Connect Send**.

Input

The **Job Processor** plugin must be added to a **Workflow** job transfer process that starts with an **HTTP Server Input**. The **Job Processor** plugin is the only other task in that process.
The action name of the HTTP Input task must match the last part of the URL for print job submission, set in the OL Connect Send Printer Driver installer. By default this is olcs_transfer.
After the job is processed, the HTTP Server Input returns a reply from the **Job Processor** plugin back to the **OLCS Printer Driver** in order to notify the user that the job has been received successfully (or failed if an error occurred).

> **Note**
>
> It is strongly recommended that a single job transfer process for all OL Connect Send Printer Drivers is created, using the domain or machine’s or user information to divert to any follow-up processes.
> This single transfer process can be set to "Self Replicating", so that parallelization is

possible.

Processing

The Job Processor plugin receives a compressed PostScript file sent by the OL Connect Send Printer Driver and communicates with the Printer Driver to ensure that all data has been received correctly. If the Printer Driver has split the job into multiple chunks, the plugin combines the chunks into one PostScript file.

License mode

Each incoming print job is checked against the license to determine if it can be handled in licensed mode or in unlicensed mode.

If OL Connect Send is **unlicensed**, the plugin stores the incoming job in the target folder using the specified file name, but it does not save any information in the database. The end user will receive a message in the Notification Area (also called "system tray") confirming the unlicensed status, and the printer driver will not request another web page.

In **licensed** mode, the plugin will store all relevant information about each job in the OL Connect Send database. This database is a HSQLDB and is installed automatically. Subsequent Workflow processes can use the information in the database for additional processing (see "Get Job Data" on page 581).

Whether OL Connect Send is licensed can be seen on the General tab of the properties dialog.

Timeout

During a job transfer from the OL Connect Send Printer Driver to Workflow, a timeout could occur (indicated by a log entry like “ERROR: sendBinaryContents: Could not open request. Reason: 12002”). In this case, the timeout for the HTTP service in Workflow needs to be increased. It is recommended to use a value of more than 10 minutes (>600 seconds). Additionally, the timeout in the browser on the client side should be enhanced. Please see the help pages for your browser about how to do this.

Security

In order to provide security when printing over the internet, OL Connect Send includes several protective features.

HTTPS Communication

The OL Connect Send Printer Driver can be set to use HTTPS for any job transfer. To do this, Workflow must also be set to use HTTPS.

Job Origin

Each print job will include unique information about the machine it has been sent from. This unique machine ID is calculated with a proven method and will be transferred, encrypted and enhanced. The enhancement will result in a different encrypted machine ID per print job, so that spoofing can be detected. On the server side, if spoofing is detected a respective message will be created.
Users can set up Workflow processes and filters to accept only specific jobs from known machine IDs, thus enhancing security.

Database connection

The **Job Processor** plugin works with a database to store all relevant job information. This database is a HyperSQL Database (HSQLDB, see https://en.wikipedia.org/wiki/HSQL_Database_Engine). It is installed as a service with the name **OL Connect Send DBServer** (the internal service name is **OLCSServer**).

Communication between the plugin and the database occurs using port 9001 (the default port for HSQLDB). However, there may be situations where this port is already blocked by another application and may need to be changed.
Several database settings can be modified by creating an ini file. This file must be named "OLCSSvc.ini" and stored in the same folder as the executable OLCSSvc.exe, located under "**%CommonProgramFiles(x86)%\Objectif Lune\<Workflow Name>\Plugins\CPD**".
By adding the entry "DBPort = <new port number>" under [HSQLDBSETTINGS] and then restarting the service, the communication port is changed.
Note that Workflow has to be restarted after such a modification.

Output

The plugin stores the incoming print job in the target folder with the file name specified in the plugin.
If no extension is defined by the user for the file name, the default ".ps" extension is added automatically, as the incoming print jobs are PostScript files.

Metadata

In addition to the print job, the plugin creates a metadata file with basic information. The values originate from the client machine.
In unlicensed mode, the user name, machine name and domain/workgroup name will not be available through the metadata.

Properties

General tab

- **Data Output**
  - **Output Folder**: Enter the target folder for the incoming print jobs.
  - **Output File Name**: Enter the file name for the incoming print jobs.

> **Note**
>
> If no extension is defined by the user for the file name, the default ".ps" extension is added automatically, as the incoming print jobs are PostScript files.

Workflow variables

Variables can and should be used to create dynamic file and folder names for each print job. This enables separating licensed and unlicensed jobs and/or storing the files by domain, machine and even user name.
To facilitate using job related information for the creation of the target folder and file name/s, the Job Processor plugin maps job relevant information to the standard Workflow variables (%1 to %8). The following mappings apply:

Information	Workflow Variable	When licensed	When unlicensed
Job ID	%1	Job ID	Job ID
License status for this job	%2	"Licensed"	"Unlicensed"

Information	Workflow Variable	When licensed	When unlicensed
Username [1]	%3	The user name	"na"
IP Address [1]	%4	The IP address	The IP address
No. of Pages [1]	%5	Number of pages of the job	Number of pages of the job
No. of Copies [1]	%6	Number of copies set by the user	Number of copies set by the user
Domain Name [1]	%7	The Domain Name	"na"
Machine Name [1]	%8	The Machine Name	"na"

1) These values originate from the Printer Driver machine.

- **Plug-in Information**
  - **License**: Shows whether a license for OL Connect Send could be found. If not, OL Connect Send will be running in unlicensed (default) mode.
  - **Protocol version**: Here the plugin shows which protocol version is used. The OL Connect Send components communicate with each other by using a well-defined and versioned protocol. As long as these components use the same protocol version, the job transfer will work even if the plugins themselves are changed.
    The protocol version used by the Printer Driver can be found in the third part of the version number of the Printer Driver (i.e. in version number 1.2.5.98-17, the “5” indicates protocol version 1.5, omitting the leading 1).
    Any OL Connect Send Printer Driver can communicate with any plugin, as long as this third version number part is identical.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

OL Connect tasks

OL Connect tasks are available in PlanetPress Workflow **8.0 and up**. They are used specifically to communicate with the Server component of PlanetPress Connect or PReS Connect and for such purposes as creating record sets, generating contents and generating output.

For more information about the Workflow processes in which these tasks are used, see the Connect Online Help.

- "All In One" below
- "Create Preview PDF" on page 607
- "Create Email Content" on page 597
- "Create Job" on page 601
- "Create Output" on page 604
- "Create PDF/VT" on page 606
- "Create Print Content" on page 611
- "Create Web Content" on page 614
- "Download EML Messages" on page 618
- "Execute Data Mapping" on page 621
- "File Store - Delete File" on page 624
- "File Store - Download File" on page 626
- "File Store - Upload File" on page 627
- "Mark Connect Sets for Deletion" on page 629
- "Merge Jobs" on page 630
- "Render Email Content" on page 631
- "Retrieve Items" on page 635
- "Set Properties" on page 640
- "Update Data Records" on page 641

All In One

The **All In One** task extracts data from the job file, merges the data with a Connect Designer template, and creates print output. (See also: "OL Connect print jobs" on page 110.)

This task is a combination of the 4 different OL Connect tasks that are normally used in conjunction to generate Print output: "Execute Data Mapping" on page 621, "Create Print Content" on page 611, "Create Job" on page 601, and "Create Output" on page 604. Combining them in a single task makes creating Print content easier and faster, as the task is optimized for this specific purpose. It exchanges less data with the server than the separate plugins do and it has multi-threading support: it can produce the data set and content items in parallel.

The task is build with 4 tabs that represent the main steps of the creation of a Print Output: Data Mapping, Content Creation, Job Creation and Output Creation.

This task can be added as an Action task (see "Action tasks" on page 379) or as an Output task (see "Output tasks" on page 643). Adding it as an Action task enables the process or branch to continue after this task. An Output task is always located at the end of a process or branch.

> **Note**
>
> When added as an Output task, the All In One plugin works asynchronously to the Workflow process.

Task properties

Data Mapper Tab

The **Data Mapper** step generates a Record Set from a specific source: data mapping on the appropriate source (Current Data File, Database or PDF/VT data file), Retrieving items from the Connect Database (filter setting) or uses the current job Metadata. The resulting Record Set is given to the Content Creation part of the task. In order to optimize the process, blocks of 100 records are sent sequentially to the Content Creation in parallel, instead of waiting for the whole record set to be created.

- **Source**: Indicates the source of the Record Set Metadata:
  - **Data Mapping Configuration**: Executes data mapping on the appropriate source. Select the appropriate data mapping configuration in the list:
    - **"None"**: Select to execute default, basic data mapping on the input PDV/VT file.

- **"%o"**: Select to use a dynamic data mapping configuration name. Click on %o to change the expression that determines the name of the data mapping configuration to use. Right-click it to open the contextual menu that allows to select variables, data and lookup functions (see "Data selections" on page 53).
- **Configuration Names**: Select the appropriate data mapping configuration. Adding configurations is done through the Send to Workflow option in the DataMapper Module.
  Click the **Open data model of selected configuration** button to view the data model attached to the configuration in the Data Mapper module, to verify that the right one is used. Only works for configurations listed (will not work for "None" or "Dynamic" options).
- **No storing or post-processing of the data records (faster)**: This option prevents data from being written to the database. Instead, records are streamed directly into the Content Creation process for immediate merging. Turning this feature on can improve data mapping performance significantly, as well as the time required for the cleanup process. However, since the data is not written to the database, there is no way to do post-processing on the extracted data after the All In One operation has completed. Any post-processors defined in the data mapping configuration will be disabled.
  This option is unchecked by default.
- **Runtime Parameters**: Runtime parameters pass information from the Workflow process to the data mapping configuration (see Properties and runtime parameters in the Online Help of OL Connect). Set the source of the value for any runtime parameters that are defined in the selected data mapping configuration. Right-click to open the contextual menu that allows to select variables, data and lookup functions (see "Data selections" on page 53).
  If the data mapping configuration name is dynamic, you must enter the name (or select a variable that contains the name) and set the value of all the runtime parameters that may occur in the data mapping configuration. If a runtime parameter is defined in a data mapper configuration, but not set in the task properties, an error will be raised.

- **Filter**: Retrieves records from the Connect Database. This is identical to using the "Retrieve Items" on page 635 task.

- **Filter type**: Determines at which level to retrieve the records:
  - **Record**: Retrieves one or more Records, whether or not they are part of a Record Set. Output similar to the "Execute Data Mapping" on page 621 task.
  - **Record Set**: Retrieves one or more Record Sets, including all their records. Output similar to the "Execute Data Mapping" on page 621 task.
- **Filter**:
  - **Add a condition**: Click to add a new condition line. This adds the line to the current condition level, by default with an AND operator.
  - **Switch conditions**: Click to swap two conditions on the same level, or two groups of conditions.
  - **Delete the selected condition**: Click to delete the currently selected conditions in the list.
  - **Clear the rule**: Click to delete all rules in the list. **Note**: This cannot be undone.
  - **Import a rule**: Click to open the **Browse** dialog and load a Rules file. This will load its rules into the list.
  - **Export the rule**: Click to open a **Save** dialog and save the Rules file to disk.
- **Rule Viewer**: Displays a text-based view of the condition using operators and parentheses.
- **Sort contents**: Defines how records are sorted.
  - **Sort items based on**: Displays the current sorting method. To modify the sorting method, click on the **[...]** button at the right of the box to open the "Sort Parameters" on page 597 dialog.

- **Metadata**: Uses existing Metadata, generally the output of a "Execute Data Mapping" on page 621 or a "Retrieve Items" on page 635 task set to retrieve Records or Record Sets. This source has no options as it expects valid Metadata.
- **PDF/VT with Content Creation**: Expects a PDF/VT file as an input and executes basic data mapping on the file. This is the same as using the *passthrough* option in the "Execute Data Mapping" on page 621 task. Content Items are created automatically. When this source is selected, the **Content Creation** tab is disabled.

> **Note**
>
> Once the All In One plugin has been executed with this option selected, any task that attempts to access records in the database will fail.

Content Creation Tab

The **Content Creation** step generates Content Items either by merging a Record Set with a Template, or by processing a PDF/VT file into individual content items.

- **Template**: Select the appropriate template or option to execute it:
  - **"None"**: Select to skip Content Creation completely.
  - **"%o"**: Select to use a dynamic template name. Click on %o to change the expression that determines the name of the template to use.
  - **Template Names**: Select the appropriate template name from the list. Adding templates is done from the Send to Workflow option in the Designer Module.
- **Preview**: Displays a preview of the output generated by the Print context of the selected Template. Not available for the PDF/VT or dynamic template names.

By default the entire Print context is printed. Printing selected Print sections can only be achieved with a Control Script in the template (see Control Scripts in the Designer Help).

Job Creation Tab

The Job Creation step prepares a series of print content items for output generation. A Job is not actual contents but simply a collection of content items ready to be printed.

- **Job Preset file**: Select which Job Preset to use to generate the job.
  - **Default**: The IDs in the Metadata are used instead of a job preset file.
  - **None**: Select this option to prevent the execution of Job Creation and Output Creation. In this case you also have to select 'None' on the Output Creation tab as well.
  - **"%o"**: Select to use a dynamic preset name. Click on %o to change the expression that determines the name of the preset to use. The preset name must be available in the list below.

- **Preset Names**: Select the appropriate Job Preset file. Listed are the Job Presets that are present in the Connect Resources (see "Connect resources" on page 40).
- **Runtime Parameters**: The Runtime Parameters defined in the selected Job Creation Preset are displayed and their values can be edited here. Right-click the field to open the contextual menu that allows to select variables, data and lookup functions (see "Data selections" on page 53).
  Note that it is not possible to change a parameter's type here; that can only be set in the Job Creation Preset itself.
  At runtime, Workflow passes the parameter values as strings, and the type defined in the Job Creation Preset will be used to try and parse the input parameter value. In order to make this work:
  - Boolean values need to be entered as either “true” or “false”. (When the comparison actually occurs, it will be a full Boolean comparison. Thus it can compare this runtime parameter with Boolean data values that are stored as 0/1 in data fields.)
  - Numeric string values need to be parseable as a number (either a whole integer or decimal value).
  - Dates should be in an ISO8601 compatible format (e.g. 2019-10-15) or use the current Windows Locale date settings options.The latter is not recommended as it requires all computers in the cluster have the same locale data format.

  The order of the parameters doesn't affect the way they are handled at runtime.

Output Creation Tab

The **Output Creation** step generates the output for the current job, using the selected Output Creation Preset. Note that the **Job Creation** task normally necessary when using the individual tasks is implicitly executed before output creation.

- **Output Preset**: Select the appropriate Output Creation Preset to use:
  - **"None"**: Select to prevent the execution of Output Creation.
  - **"%o"**: Select to use a dynamic Output Preset name. Click on %o to change the expression that determines the name of the Preset to use.
  - **Preset Name**: Select the appropriate Output Preset to create output with. Listed are the Output Presets that are present in the Connect Resources (see "Connect resources" on page 40).
- **Output Management group**:

- **As defined by Output Preset**: Select to send the output of the job to the location set in the Print Preset (file, printer, etc).
- **Through Workflow**: Select to replace the current job file with the output produced by the server. Every option in the Output Preset is still used, except for the output location.
  Note that when the output is separated, the current job file is not replaced with the actual output files but with a CSV file that lists the paths to the outputted files (e.g. “C:\Users\Administrator\Connect\filestore\3836.2859982401376467470\template_0001.pdf,C:\Users\Administrator\Connect\filestore\3836.2859982401376467470\template_0002.pdf,…”).

- **Wait for completion**: Check this option to make Workflow wait for confirmation that the output creation task was processed, either successfully or unsuccessfully. Otherwise Workflow will only wait for the confirmation that the job was *submitted* correctly to the Output Engine.
  When Output Management is set to "Through Workflow", Workflow always waits for completion of the output creation task.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Sort Parameters

The Sort Parameters define how to sort the entities retrieved from the Connect Database using either the "Retrieve Items" on page 635 task, or the Filter source in the "All In One" on page 590's Data Mapper task.

- **Sort items based on**: Lists the different sorts to apply to the entities.
  - **Name**: Click and enter the name for the Value or the Property to sort on.
  - **Type**: Select whether the Name option refers to a Property or a Value within the entity.
  - **Order**: Select how to sort, either Ascending or Descending alphabetical order.
- **Add**: Click to add a new line to the sort list.
- **Remove**: Click to remove the currently selected line in the sort list.
- **Move Up**: Click to move the currently selected line up one position in the sort list.
- **Move Down**: Click to move the currently selected line down one position in the sort list.
- **Validate Names**: Click to check each line in the sort list against the currently active Metadata. Metadata must be loaded in "The Data Selector" on page 842 or through the use of the Debugging feature (see "Debugging your PlanetPress Workflow process" on page 106).

Create Email Content

The **Create Email Content** task generates a set of email content items from a template's *Email Context*, which are then sent directly to the recipient set in each record.

Input

This task must receive either Metadata containing information regarding a valid Record Set, or JSON data.

Metadata

The "Execute Data Mapping" on page 621 task and the "Retrieve Items" on page 635 task output metadata containing information regarding a Record Set.

JSON

The Create Email Content task supports two types of JSON:

- A JSON object or an array of JSON objects representing records. If a value in a record object is a string, it is considered to be a field value. If a value in a record object is a JSON object, it is considered to be a nested table with detail records. For examples, see "JSON string examples" on page 91.
- A JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93). When the "Execute Data Mapping" on page 621 or "Retrieve Items" on page 635 task is set to output Records in JSON, it outputs this kind of JSON data.

If the input is JSON, the task performs a REST call to the /rest/serverengine/workflow/contentcreation/email/{templateId} endpoint on the Connect Server. For more information see the REST API Cookbook.

Processing

This task loops through each record in a Record Set or through each JSON object in an array. For each record or JSON object, an HTML Email is generated using that record's or object's data. The output generated is then sent via an SMTP server with the email address set by the template.

> **Note**
>
> Content creation may be aborted by a script in a Connect template that raises a fatal error. This triggers the On Error tab of the Content Creation task. See Designer Script API.

Output

Within the Workflow process, the output to this task is only modified metadata indicating that the task is complete. It is the Server component that outputs the emails themselves and sends them to each recipient.

> **Note**
>
> If sending email is not included in the license, the emails will be sent to the sender instead of to the intended recipients.

Properties

General Tab

- **Template**
  - **"%o"**: Select to use a dynamic template name. Click on %o to change the expression that determines the name of the template to use.
  - **Template Names**: Select the appropriate template. Adding template is done through the Send to Workflow option in the Designer Module.
- **Section**: Enter the section name that will generate output. Only one section can be output. If no section is defined or if the section name is invalid, the default section will be output.
- **Data Source** (see "Input" on page 597):
  - **Metadata**:
    - **Update Records from Metadata**: If the process metadata has been modified by any of the "Metadata tasks" on page 559, check this option to update the records in the Connect database with the metadata and use the updated records. Otherwise, only the ID of the current job is sent, and the unchanged records are used.
  - **JSON**:
    - **JSON String**: a JSON object or an array of JSON objects representing records (see "JSON string examples" on page 91) or a JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93).
      This option requires that keys in the JSON data have matching field names in the data model of the template. When they have, the JSON values are passed to the template and the personalization scripts of the template will have access to the values through the record's data fields. (See the Designer help: Adding Variable Data.)

> **Warning**
>
> The JSON format is not validated by the plugin; it is passed as is to the server.

Email Info tab

- **Sender Address**: Enter the email address that appears in the "From" field of the email. Alternatively you may enter the sender's name and email address in the following format: `John Smith <johnsemail@hisserver.com>`. It depends on the email client which information gets displayed: the sender's name or email address, or both.
- **Mail host**: Enter the address of the SMTP server through which emails should be routed. The address can include a port number. This information should be available from your IT staff.
- **Send emails to sender (test mode)**: Check to ignore the email address from each record and send all emails to the address entered in the Sender Address field instead.
- **Precedence to template address**: If the sender's address is given in the template, that address gets precedence over the one specified here.
- **Use encryption (TLS)**: Check to connect to the *SMTP server* using TLS (Transport Layer Security, also called "SSL").
- **Use Authentication group**: Check to enable authentication to the *SMTP server*.
  - **User name**: Enter a user name that has permission to send email through the *SMTP server*.
  - **Password**: Enter the password for the above user name.
- **Attachments**:
  - **Print Context as PDF document**: Check to generate the *Print* context in the template as a PDF and send it with the email as an attachment.
  - **Web Content as HTML page**: Check to generate the active *Web* section in the template as an HTML page and send it with the email as an attachment
- **Test SMTP settings**: Validates the format of the sender's address and mail host and tries to send a test email. This won't work when the option Start TLS is checked.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Create Job

The **Create Job** action task prepares a series of print content items for output generation. A Job is not actual contents but simply a collection of content items ready to be printed.

See also: "About printing" on page 109.

Input

The task expects to have a valid Print Content Set, output from the "Create Print Content" on page 611 task, or the result of the "Retrieve Items" on page 635 task set to retrieve either Content Items or a Content Set.

> **Note**
>
> The result of a Retrieve Items task cannot be used with a Job Creation Preset. Use the IDs in the metadata instead (see the Properties below).

Processing

The task prepares the content items or content sets for printing, tagging them as printable. Only the content items that are part of the job will generate output.

Output

The task outputs a Print Job ready to be sent to the "Create Output" on page 604 task for printing.

Task properties

General Tab

- **Job Preset file**: Select which Job Preset to use to generate the job. To be used in this dialog, a preset must have been sent to PlanetPress Workflow using the Package File function in PlanetPress Connect.
  - **Default**: The IDs in the Metadata are used instead of a job preset file. Select this option if the Print Content Set is the result of the "Retrieve Items" on page 635 task.
  - **"%o"**: Select to use a dynamic preset name. Click on %o to change the expression that determines the name of the preset to use. The preset name must be available in the Connect Resources (see "Connect resources" on page 40).
  - **Preset Names**: Select the appropriate preset to generate output. Listed are the Job Presets that are present in the Connect Resources (see "Connect resources" on page 40).
- - **Runtime Parameters**: The Runtime Parameters defined in the selected Job Creation Preset are displayed and their values can be edited here. Right-click the field to open the contextual menu that allows to select variables, data and lookup functions (see "Data selections" on page 53).
    Note that it is not possible to change a parameter's type here; that can only be set in the Job Creation Preset itself.
    At runtime, Workflow passes the parameter values as strings, and the type defined

in the Job Creation Preset will be used to try and parse the input parameter value. In order to make this work:

- Boolean values need to be entered as either “true” or “false”. (When the comparison actually occurs, it will be a full Boolean comparison. Thus it can compare this runtime parameter with Boolean data values that are stored as 0/1 in data fields.)
- Numeric string values need to be parseable as a number (either a whole integer or decimal value).
- Dates should be in an ISO8601 compatible format (e.g. 2019-10-15) or use the current Windows Locale date settings options.The latter is not recommended as it requires all computers in the cluster have the same locale data format.

The order of the parameters doesn't affect the way they are handled at runtime.

- **Unselect unused Content Items in metadata**: When this option is checked, only Content Items that were actually included in the Job are set to "selected" in the Metadata (see "Metadata" on page 75).

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Create Output

The **Create Output** task generates Print output in a format specified by a Connect Print Preset and sends this output to the appropriate target location.

See also: "About printing" on page 109.

This task can be added as an Action task (see "Action tasks" on page 379) or as an Output task (see "Output tasks" on page 643). Adding it as an Action task enables the process or branch to continue after this task. An Output task is always located at the end of a process or branch.

> **Note**
>
> When added as an Output task, the Create Output plugin works asynchronously to the Workflow process.

Input

The task requires a valid Job Metadata file, normally output from a "Create Job" on page 601 or "Merge Jobs" on page 630 task.

Processing

The job is sent to the OL Connect Server for processing.

Output

Depending on the options set, either a simple metadata file with information about processing is returned, or the actual output file created by the server.

Properties

The **Create Output** task properties are as follows:

General Tab

- **Output Preset file**: Select which Output Preset to use to generate the output. To be used in this dialog, a preset must have been sent to PlanetPress Workflow using the Package File function in PlanetPress Connect.
  - **"%o"**: Select to use a dynamic preset name. Click on %o to change the expression that determines the name of the preset to use. The preset name must be available in the list below.
  - **Preset Names**: Select the appropriate preset to generate output.
- **Output Management group**:
  - **As defined by Output Preset**: Select to send the output of the job to the location set in the Print Preset (file, printer, etc).
  - **Through Workflow**: Select to replace the current job file with the output produced by the server. Every option in the Output Preset is still used, except for the output location.
    Note that when the output is separated, the current job file is not replaced with the actual output files but with a CSV file that lists the paths to the outputted files (e.g. “C:\Users\Administrator\Connect\filestore\3836.2859982401376467470\template_0001.pdf,C:\Users\Administrator\Connect\filestore\3836.2859982401376467470\template_0002.pdf,…”).
- **Wait for completion**: Check this option to make Workflow wait for confirmation that the output creation task was processed, either successfully or unsuccessfully. Otherwise Workflow will only wait for the confirmation that the job was *submitted* correctly to the Output Engine.
  When Output Management is set to "Through Workflow", Workflow always waits for completion of the output creation task.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Create PDF/VT

The **Create PDF/VT**, similar to the "Create PDF" on page 396 task, creates PDF/VT files from a PlanetPress Suite Document (created with PlanetPress Design). This PDF/VT is compatible with the "Create Print Content" on page 611 task directly without the use of a Connect Template (PDF/VT mode).

Input

Any data file supported by the selected PlanetPress Document.

Processing

The input data file is merged with the selected PlanetPress Document.

Output

The output is a PDF/VT with default quality settings. The metadata embedded within the PDF/VT is the one generated by the PlanetPress Document.

Properties

Note that the **Connect Proxy** tab is not present in the **Create PDF/VT** Action task properties, as this task does not communicate with the OL Connect Server.

General Tab

- **Documents**: Select a specific PlanetPress Design document if you want all the jobs to be generated with that document.
- **Recipient Node**: Use the drop-down to select which level of the metadata is used as the "Recipient" node. The Recipient node defines each Record in the output when used with the "Create Print Content" on page 611 task.
- **Add job information to document**: Check to add the 9 Job Info variables to the PDF/VT metadata at the root level.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Create Preview PDF

The Create Preview PDF plugin generates a PDF preview for a single record as fast as possible. This preview is typically used for previews embedded in web pages.

The plugin retrieves the resulting PDF from the file store and makes it available to the process as the job data file. The job file name extension is .pdf.
This file could be written to a publicly accessible location (for example the _iRes folder) so that the path could be served back to the browser, allowing the web page to embed the PDF data for online viewing.

To make the rendering process as fast as possible, the generated PDF isn't optimized for print production purposes.

> **Note**
>
> Content creation may be aborted by a script in a Connect template that raises a fatal error. This triggers the On Error tab of the Content Creation task. See Designer Script API.

Properties

Datamapper tab

The Create Preview PDF plugin gets one record from the source selected on the Datamapper tab. This record is then merged with the template (selected on the Content Creation tab) to create a preview PDF.

The **Datamapper** tab can have one of the following source options:

- **Data mapping configuration** sets the data source to a data mapping configuration.
  - **%o**: Select this to use a dynamic data mapping configuration name. Click on %o to change the expression that determines the name of the data mapping configuration to use.
  - Alternatively, select a **configuration name**. Adding configurations to this list is done through the Send to Workflow option in the Designer module.
    Click the **Open data model of selected configuration** button to view the data model attached to the chosen configuration in the DataMapper module, to verify that the right one is used.
  - **No storing or post-processing of the data records (faster)**: This option prevents data from being written to the database. Instead, records are streamed directly into the Content Creation process for immediate merging. Turning this feature on can improve data mapping performance significantly, as well as the time required for the cleanup process. However, since the data is not written to the database, there is no way to do post-processing on the extracted data. Any post-processors defined in the data mapping configuration will be disabled.
    This option is unchecked by default.

    > **Note**
    >
    > When the data mapping configuration provides multiple records, the preview is created based on the **first record**.

> **Note**
>
> The Create Preview PDF plugin cannot parse **Workflow automation variables**.

Instead it uses the default values set up in the Preprocessor of the data mapping configuration.

To work around this issue you could either convert the posted data file into JSON, add the variables and use the JSON string option in the Create Preview PDF plugin, or you could add the variables to the data file and let the data mapping configuration extract them.
Another alternative would be to use the "All In One" on page 590 task.

- **JSON string** sets the data source to a JSON string (see "Working with JSON" on page 90). A text area is shown allowing the user to enter the JSON string.
  The JSON string may contain local and global variables, Job Infos and data selections (see "JSON string examples" on page 91).
  A single variable can be used, assuming that the respective variable contains a JSON string.
  In case the JSON string is not a valid JSON object, the plugin will error out with an explicit message.

  Note

  This option requires that keys in the JSON string have matching field names in the data model of the template. When they have, the JSON values are passed to the template and the personalization scripts of the template will have access to the values through the record's data fields. (See the Designer help: Adding Variable Data).

- **Metadata** uses existing metadata, generally the output of a Create Record Set or a Retrieve Items task set to retrieve a record.
  Update fields with metadata: when this option is selected, the plugin will update fields in the Connect database based on the metadata content. This is only useful if the Workflow process has modified the metadata and the corresponding fields should be updated in the database before creating the preview PDF.

> **Note**
>
> The **Metadata** option requires that entries in the metadata have matching field names in the data model of the template. When they have, the values are passed to the template and the personalization scripts of the template will have access to the values through the record's data fields. (See the Designer help: Adding Variable Data).

Content Creation tab

The Create Preview PDF plugin creates a preview PDF from a template selected on the Content Creation tab, using the record that results from the data source selected on the Datamapper tab. The record is then merged with the template to create a preview PDF.

Select the appropriate template or option:

- **%o**: Select to use a dynamic template name. Click on %o to change the expression that determines the name of the template to use.
- A **template name**: Select the appropriate template name from the list. Adding templates to this list is done from the Send to Workflow option in the Designer module.
  A preview will be displayed of the output generated by the Print context of the selected template. (Not available for a dynamic template name).

OL Connect Proxy Tab

- **Server Connect Settings**
  - **Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
  - **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*.
  - **User name**: Enter the user name expected by the OL Connect Server.
  - **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Create Print Content

The **Create Print Content** task generates a set of printable content items from a template's Print Context, and saves those content items in the database until output creation is requested.

This task also accepts a PDF/VT file as input (see "Create PDF/VT" on page 606), allowing the task to be used without a Connect Template.

Input

This task can receive either Metadata containing information regarding a valid Record Set, or JSON data, or a PDF/VT File (see "Create PDF/VT" on page 606).

Metadata

The "Execute Data Mapping" on page 621 task and the "Retrieve Items" on page 635 task output Metadata containing information regarding a Record Set.

JSON

The Create Print Content task supports two types of JSON:

- A JSON object or an array of JSON objects representing records. If a value in a record object is a string, it is considered to be a field value. If a value in a record object is a JSON object, it is considered to be a nested table with detail records. For examples, see "JSON string examples" on page 91.
- A JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93). When the "Execute Data Mapping" on page 621 or "Retrieve Items" on page 635 task is set to output Records in JSON, it outputs this kind of JSON data.

If the input is JSON, the task performs a REST call to the `/rest/serverengine/workflow/contentcreation/{templateId}` endpoint on the Connect Server. For more information see the REST API Cookbook.

> **Note**
>
> When JSON data is used as input, the "Create Job" on page 601 plugin (the next task in a print process) **cannot** use a Job Creation Preset. The Create Print Content task doesn't create a record set based on the provided data, like the "Execute Data Mapping" on page 621 task does. Job Creation Presets need such a record set to group, sort and filter items.

Processing

In the case of a record set or a JSON object/array and template, this task loops through each record (or object) in the set (or array). For each record or JSON object, one or more pages are generated using the record's data and these pages are saved as a content item in the database.
In the case of a PDF/VT file, content items are created based on the structure of the PDF/VT metadata and content items are stored using the data for each of those metadata records.

By default, the entire Print Context is used to create print content items. Individual Print sections can be selected dynamically via a Control Script. (For more information see the Designer Help.)

> **Note**
>
> Content creation may be aborted by a script in a Connect template that raises a fatal error. This triggers the On Error tab of the Content Creation task. See Designer Script API.

Output

The output of this task is modified Metadata (see "Note: Metadata in OL Connect jobs" on page 77) with information about the job processing and each created content item. No content item is actually output from the task, they are only saved in the OL Connect Database.

Properties

General Tab

- **Template File**:
  - **"None" File name**: Select to accept a PDF/VT file as an input and automatically create content items based on the PDF/VT.
  - **"%o"**: Select to use a dynamic template name. Click on %o to change the expression that determines the name of the template to use.
  - **Template Names**: Select the appropriate template. Adding a template to the resources is done through the Send to Workflow option in the Designer Module.
- **Data Source** (see "Input" on page 611):
  - **Metadata**:
    - **Update Records from Metadata**: If the process metadata has been modified by any of the "Metadata tasks" on page 559, check this option to update the records in the Connect database with the metadata and use the updated records. Otherwise, only the ID of the current job is sent, and the unchanged records are used.
  - **JSON**:
    - **JSON String**: A JSON object or an array of JSON objects representing records or a JSON Record Data List (see: "Types of JSON in Workflow" on page 91).
      This option requires that keys in the JSON data have matching field names in the data model of the template. When they have, the JSON values are passed to the template and the personalization scripts of the template will have access to the values through the record's data fields. (See the Designer help: Adding Variable Data.)

> **Warning**
>
> The JSON format is not validated by the plugin; it is passed as is to the server.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Create Web Content

The **Create Web Content** task generates the output of the Web Context of a specified template for a single record and returns the HTML code to PlanetPress Workflow for further processing and return to the requester. Generally, this task is placed within an "HTTP Server workflow" on page 279.

This task can be added as an Action task (see "Action tasks" on page 379) or as an Output task (see "Output tasks" on page 643). Adding it as an Action task enables the process or branch to continue after this task. An Output task is always located at the end of a process or branch.

Input

This task must receive either a valid Record ID or a JSON object.

Record ID

A valid Record ID can be retrieved from various data sources. By default, when the Record ID input option is selected, the metadata is used as input. The "Execute Data Mapping" on page 621 task and the "Retrieve Items" on page 635 task output metadata containing information regarding records.

JSON

The Create Web Content task supports two types of JSON:

- A JSON object or an array of JSON objects representing records. If a value in a record object is a string, it is considered to be a field value. If a value in a record object is a JSON object, it is considered to be a nested table with detail records. For examples, see "JSON string examples" on page 91.
- A JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93). When the "Execute Data Mapping" on page 621 or "Retrieve Items" on page 635 task is set to output Records in JSON, it outputs this kind of JSON data.

If the input is JSON data, the task makes a call to the REST `workflow/contentcreation/html/{templateId}` endpoint on the Connect Server. For more information see the REST API Cookbook.
Note that only the first JSON object is processed, as the endpoint generates HTML output for a single record.

Processing

For a single record, this task generates the output for the Web Context of the specified template. Any external resources such as images, CSS style sheets or JavaScript files, are also produced and put aside on the OL Connect Server component.

> **Note**
>
> Content creation may be aborted by a script in a Connect template that raises a fatal error. This triggers the On Error tab of the Content Creation task. See Designer Script API.

Output

The task outputs HTML code as a job file. Within this HTML code, references to external resources point to the local OL Connect Server and are served to the requester directly when the HTML file is opened in a browser.

Properties

General Tab

- **Template File**:
  - **"%o"**: Select to use a dynamic template name. Click on %o to change the expression that determines the name of the template to use.
  - **Template Names**: Select the appropriate template. Adding template is done through the Send to Workflow option in the Designer Module.
- **Section**: Enter the section name that will generate output. Only one section can be output. If no section is defined or if the section name is invalid, the default section will be output.
- **Data Source** (see "Input" on page 614):
  - **Record ID**:
    - Enter a valid **Record ID**, or 0 to provide no data. The record must be valid for the template used. By default, the record ID is pre-filled with the first record in the metadata. Right-click the field to access other data selection methods (see "Data selections" on page 53).
    - **Update Records from Metadata**: If the process's Metadata has been modified by any of the Metadata Tasks, check this option to update the records in the Connect database with the Metadata and use the updated records.
  - **JSON**:
    - **JSON String**: A JSON object or an array of JSON objects representing records (see "JSON string examples" on page 91) or a JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93).
      This option requires that keys in the JSON data have matching field names in the data model of the template. When they have, the JSON values are passed to the template and the personalization scripts of the template will have access to the values through the record's data fields. (See the Designer help:

Adding Variable Data.)

> **Warning**
>
> The JSON format is not validated by the plugin; it is passed as is to the server.

> **Note**
>
> Only the first record or JSON object is processed, since this task can only generate HTML output for a single record.

- **Embed all resources**: Check this option to download the resources and embed them in the HTML file.
- **Do not alter HTML**: Check this option to prevent that the Create Web Content task modifies the HTML. It is recommended to use this option if the template's resources are all hosted outside of the template (for instance, on a CMS repository).

> **Note**
>
> By default, the Create Web Content task inserts a <base> meta tag in the generated HTML, specifying a default URL and target for all links on the web page. By pointing to the Connect Server the job was sent to, the <base> tag enables the HTTP server to retrieve the resources that were saved with the Designer template. Since the <base> tag corrupts local anchors - links to another location in the same web page -, the task also replaces the HREF attribute of local anchors with JavaScript code. With this modification, local anchors will work; however, relative URLs with hashtags still won't work.
> Modifying the HTML this way isn't useful when all resources are either embedded in the HTML file, or hosted outside of the template. So when the "Embed all resources" or "Do not alter HTML" options (or both) are checked, the <base> tag isn't added and local anchors aren't modified.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Download EML Messages

The **Download EML Messages** task downloads one EML file from the Connect File Store. Saving EML messages in the File Store is an option in the "Render Email Content" on page 631 task. EML files can be stored in an ERP/ECM system for archiving purposes.

Use the "Metadata Sequencer" on page 570 plugin, followed by the Download EML Messages plugin and the "Send to Folder" on page 439 plugin, to download multiple EML files and save them to disk.

As an alternative to the Download EML Messages task you could use the "File Store - Download File" on page 626 task to download an EML file from the File Store. In that case you need the folder ID and EML file name found in the output of the "Render Email Content" on page 631 task. This information can be retrieved from the Metadata using the following data

selection methods:
`GetMeta(_vger_prop_folder[0], 10, Job.Group[0].Document[0])`
`GetMeta(_vger_prop_eml[0], 10, Job.Group[0].Document[0])`.

The "Mailjet" on page 694 and "SendGrid" on page 698 plugins offer the possibility to add extra attachments to a rendered email message via Workflow. Note that any such attachments will not be part of the EML file produced by the Render Email Content task.

> **Note**
>
> With PlanetPress Workflow version 2020.1, using the Download EML Messages task requires the version 2020.1 "Mailjet" on page 694 and "SendGrid" on page 698 plugins . They are available for download on the Resource Center (help.objectiflune.com).

> **Tip**
>
> Double-click an .eml to open it in your email client.

Input

This task must receive either Metadata or JSON Job Data containing information regarding a pre-rendered email message that has been saved in EML format in the File Store.

Storing EML messages in the File Store is an option in "Render Email Content" on page 631 task. That task outputs information about the email messages that it pre-rendered either in the current Metadata or in the form of a JSON structure.

The Download EML Messages task expects **UTF-8** encoded JSON job data files.

> **Note**
>
> Make sure that other components in the Workflow configuration working on the job data handle UTF-8 encoded files correctly.

Processing

The plugin communicates with the Connect Server to retrieve the EML file that was stored in the Connect File Store by the "Render Email Content" on page 631.

Output

The task outputs the EML file as the Job File. The Metadata are unchanged.

Properties

General Tab

- **Data Source** (see "Input" on the previous page):
  - **Metadata**: Metadata containing information about an email message. The "Render Email Content" on page 631 task can output information about the email message (s) that it pre-rendered in the current Metadata. Use the "Metadata Sequencer" on page 570 plugin to loop over the items in the Metadata and feed them to the Download EML Messages plugin.
  - **JSON**: A JSON object representing an email message. For an example of such an object, see the "Render Email Content" on page 631 task. That task can output a JSON object (or an array of JSON objects) containing information about email messages.

> **Note**
>
> Information about the Connect Server (host, user name etc.) is taken from the **Workflow Preferences** (see "OL Connect preferences" on page 772).

Advanced Properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Execute Data Mapping

The **Execute Data Mapping** action task generates a record set by executing a data mapping configuration on a data source. It can also automatically create a record set from a PDF/VT file without using a data mapping configuration.

Input

Optional. Both main options can refer to external files, but either one can be the active data file using %F. By default the Data Source is set to use the active data file as input.

> **Note**
>
> To open a Microsoft Access database, you have to use the Load External File task just before the Execute Data Mapping task.

Processing

The task executes the selected data mapping configuration on the appropriate data source, or converts the PDF/VT into a Record Set directly.

If the data mapping configuration expects a database data source, the Data Source option is ignored and the database is accessed instead. If a PDF/VT file is used, the data mapping configuration option is optional - if one is present, it must be able to read the PDF/VT.

Output

The output to this task is twofold. On the OL Connect Server side, a Record Set containing multiple records is created and saved.
On PlanetPress Workflow's side, Metadata is returned with information about each record set (see "Note: Metadata in OL Connect jobs" on page 77). Alternatively, you can either get an XML file or JSON file containing the full Record Set structure, or skip storing the Record Set on the OL Connect Server and run the operation in Validation mode; the validation results are returned via the Metadata.

Properties

General Tab

- **Data Mapping Configuration**: Executes data mapping on the appropriate source. Select the appropriate data mapping configuration in the list:
  - **"None"**: Select to execute default, basic data mapping on the input PDF/VT file.
  - **"%o"**: Select to use a dynamic data mapping configuration name. Click on %o to change the expression that determines the name of the data mapping configuration to use. Right-click it to open the contextual menu that allows to select variables, data and lookup functions (see "Data selections" on page 53).
  - **Configuration Names**: Select the appropriate data mapping configuration. Adding configurations is done through the Send to Workflow option in the DataMapper Module.
    Click the **Open data model of selected configuration** button to view the data model attached to the configuration in the Data Mapper module, to verify that the correct one is used. Only works for configurations listed (will not work for "None" or "Dynamic" options).
- **Output Type group**:
  - **Metadata - IDs only**: Select to only output the Record and Job IDs in the Metadata. This does not permit sorting and filtering, but it enhances performance since only minimal data is exchanged between the OL Connect Server and PlanetPress Workflow.
  - **Metadata**: Select to output the full Record table (no Details table) as Metadata in the task. It is then possible to sort and filter the Metadata using the regular Metadata tools, as long as the **Update Records from Metadata** option is used in further tasks to use the modified Metadata.
  - **XML**: Select to output an XML structure containing the full Record Set including all detail tables. This option cannot be used with other OL Connect tasks.
  - **JSON**: Select to output a JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93). The file contains the full Record Set including all detail tables and boundary information, which can then be processed in a "Run Script" on page 481 task.
  - **None (validate only)**: Select to run the operation in Validation mode and output the validation results in the Metadata. No data is extracted or stored in the Connect Database.
    The task performs a validation REST call and stores the returned JSON object in a

`validationresult` entry on the Group[0] level of the Metadata. (For the structure of the JSON object, see the REST API Cookbook: JSON Data Mapping Validation Result.) The JSON's `result` and `recordcount` fields are also stored at the Group[0] level. Each Document node contains the following fields:

- `index`: The position of the record in the job. This value is 1-based. Note that this is not a record ID, since the record is never stored in the database.
- `error`: The error message, or an empty string when no errors have been reported for this record.

Document nodes with an error are *selected*, while those without an error are *unselected*, to make looping through all errors easy.
By default, if the validation cannot be performed the task fails and logs an error, but if the **Generate error when validation cannot be performed** checkbox is unticked, the task will log a warning and it will generate metadata with a single group containing a single document, with the error message "DataMapper could not process the input file".

> **Tip**
>
> To determine if there were any errors in a job and handle it accordingly, you can use a Condition that checks if
> `GetMeta(SelectedCount[0], 11, Job.Group[0])`
>
> is greater than 0, immediately after the task (see "Conditions" on page 137).

- **Runtime Parameters**: Runtime parameters pass information from the Workflow process to the data mapping configuration (see Properties and runtime parameters in the Online Help of OL Connect). Set the source of the value for any runtime parameters that are defined in the selected data mapping configuration. Right-click to open the contextual menu that allows to select variables, data and lookup functions (see "Data selections" on page 53).
  If the data mapping configuration name is dynamic, you must enter the name (or select a variable that contains the name) and set the value of all the runtime parameters that may occur in the data mapping configuration. If a runtime parameter is defined in a data mapper configuration, but not set in the task properties, an error will be raised.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

File Store - Delete File

The **File Store - Delete File** task deletes a file from the **OL Connect File Store**, using either a file name or File Store ID.

Input

The task requires either the name of the file in the OL Connect File Store or its File Store ID. The name of a file is chosen and its File Store ID is returned when uploading it with the "File Store - Upload File" on page 627 task.

Processing

The task requests removal of the file by performing a call to the `/rest/serverengine/filestore/delete/{fileId}` REST endpoint; see File Store Service: Delete File in the REST API Cookbook.

Output

This task has no impact on the current Job File.

Task properties

General Tab

- **File name/ID**: The name or the ID of the file to delete.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

File Store - Download File

The **File Store - Download File** task downloads a file from the **OL Connect File Store**, using either a file name or File Store ID.

Input

The task requires either the name of the file in the OL Connect File Store or its File Store ID.

Processing

The task tries to download the requested file from the OL Connect File Store by performing a call to the `/rest/serverengine/filestore/file/{fileId}` REST endpoint; see File Store Service: Download File in the REST API Cookbook.

Output

The downloaded file becomes the current job file and retains the file name that it had in the OL Connect File Store.

Task properties

General Tab

- **Filename or File Store ID**: Enter the name of the file in the OL Connect File Store or its File Store ID. The ID is the ID

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

File Store - Upload File

The **File Store - Upload File** task uploads the current Job File to the **OL Connect File Store**.

Input

The task always takes the current Job File as input file. If you want to upload an external file, first use the "Load External File" on page 421 plugin to load that file as the Job File.

Processing

The task tries to upload the current job file to the OL Connect File Store by making a call to the `/rest/serverengine/filestore/DataFile` REST endpoint; see File Store Service: Upload File in the REST API Cookbook.

Output

When a file is uploaded to the Connect File Store, it is automatically assigned a File Store ID.
The task stores the returned File Store ID in the specified variable.
This task does not modify the Job File.

Task properties

General Tab

- **Filename**: Enter the file name or a JobInfo, local or global variable that contains the file name, to use when saving the file in the OL Connect File Store. The default is `%f`, the name of the job file. Right-click the field to select another variable. When you specify `%o` as the file name, the file in the OL Connect File Store will have the same name as the original file.
- **Save File Store ID in variable**: Select the variable in which to store the File Store ID that is returned after a file has been successfully uploaded to the File Store. This ID can be used to download or delete the file from the OL Connect File Store.
- **Mark as permanent**: When this option is checked, the file will never be removed automatically by Connect's Clean-Up Service. Non-permanent files may be removed if there are no remaining references to them in the Connect Database. (See: Clean-Up Service preferences.)

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Mark Connect Sets for Deletion

The **Mark Connect Sets for Deletion** task indicates that an item in the Connect Database should be deleted the next time the Database Cleanup runs. This means that whatever item is set for deletion will no longer be available from the database.

Input

The task requires a valid Metadata file containing items for deletion, including Job Sets, Content Sets and Data Sets. These can be created by the "Execute Data Mapping" on page 621, "Create Print Content" on page 611 and "Create Job" on page 601 tasks. Job Sets, Content Sets and Data Sets are also valid when obtained using the "Retrieve Items" on page 635 task.

Processing

All sets currently active in the Metadata are set for deletion.

Output

The same Metadata that is input.

Task properties

General Tab

- **Set types to mark for deletion based on metadata content**:
  - **Job Set**: Tag any Job set created by the "Create Job" on page 601 task or the "Retrieve Items" on page 635 task set to retrieve Job Sets.
  - **Content Set**: Tag any Content set created by the "Create Print Content" on page 611 task or the "Retrieve Items" on page 635 task set to retrieve Content Sets.
  - **Record Set**: Tag any Record set created by the "Execute Data Mapping" on page 621 task or the "Retrieve Items" on page 635 task set to retrieve Record Sets.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Merge Jobs

The **Merge Jobs** Action task merges an external Metadata file containing an OL Connect Job with the current Job File.

Input

The task must receive a Metadata Job File, which is output from the "Create Job" on page 601 task. The selected Metadata file must also be the output of a **Create Job** task.

Processing

The current Metadata Job File is merged with the selected external Metadata file.

Output

The task outputs a merged Metadata Job File which can be used in the "Create Output" on page 604 task.

Task properties

General Tab

- **Metadata file**: Enter the full path to a valid Metadata file containing an OL Connect Job, or use the **Browse** button to browse to a valid location.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Render Email Content

The **Render Email Content** task pre-renders emails from a template's *Email Context* and stores them in the File Store, along with their attachments.

> **Note**
>
> The **Render Email Content** task works only under PlanetPress Workflows that are licensed for sending emails. It is not available for users with *Demo*, *Test* or *Reseller* licenses.

> **Note**
>
> For the Render Email Content task in PlanetPress Workflow 2020.1 to function correctly, the version 2020.1 SendGrid and Mailjet plugins are required. They are available for download on the Resource Center (help.objectiflune.com).

Input

This task must receive either Metadata containing information regarding a valid Record Set, or JSON data.

Metadata

The "Execute Data Mapping" on page 621 task and the "Retrieve Items" on page 635 task output Metadata containing information regarding a Record Set.

> **Note**
>
> The plugin takes the **entire** Metadata file as its input, even when it is placed after a "Metadata Sequencer" on page 570 task.

JSON

The Render Email Content task supports two types of JSON:

- A JSON object or an array of JSON objects representing records. If a value in a record object is a string, it is considered to be a field value. If a value in a record object is a JSON object, it is considered to be a nested table with detail records. For examples, see "JSON string examples" on page 91.
- A JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93). When the "Execute Data Mapping" on page 621 or "Retrieve Items" on page 635 task is set to output Records in JSON, it outputs this kind of JSON data.

If the input is JSON, the task performs a REST call to the /rest/serverengine/workflow/contentcreation/email/{templateId} endpoint on the Connect Server. For more information see the REST API Cookbook.

The Render Email Content task expects **UTF-8** encoded JSON job data files.

> **Note**
>
> Make sure that other components in the Workflow configuration working on the job data handle UTF-8 encoded files correctly.

Processing

This task loops through each record in a Record Set or through each JSON object in an array. For each record or JSON object, the task generates an HTML email using that record's or object's data.

> **Note**
>
> Content creation may be aborted by a script in a Connect template that raises a fatal error. This triggers the On Error tab of the Content Creation task. See Designer Script API.

Output

The output of this task is twofold.
On the OL Connect Server's side, pre-rendered email messages are saved in the OL Connect File Store along with their attachments (and, optionally, also in EML format).
On Workflow's side, information about the pre-rendered email messages become available to the process via the current Metadata or via a JSON data structure that replaces the active Job File.

Here is an example of the JSON structure. In this case there's only one email message in the Content Set.


```
{"messages":
[
{"attachments":[
        {"name":"att0307c655-e14e-4400-8f90-
365032648aed.png","disposition":"inline"},
        {"name":"myPDF.pdf","disposition":"attachment"},
],
"subject":"Take action now",
"to":"recipient@gmail.com",
"from":"sender@yourdomain.com",
"folder":8768,
```

```
"eml":"c5f97db0-45ca-4f1d-be4d-473d000c92bd.eml",
"body":"07decd87-d03c-4969-bc2a-7527cc594878.html",
"text":"7a4e5217-0103-487f-a4f8-77d37d0c1087.txt"}
],
"contentSet":8769}
```


Properties

General Tab

- **Template**: Click the Browse button to select a template from the resources (see "Connect resources" on page 40), or enter a dynamic template name. Right-click the field to open the contextual menu that allows to select variables, data and lookup functions (see "Data selections" on page 53).
- **Section**: Enter the section name that will generate output. Right-click the field to open the contextual menu that allows to select variables, data and lookup functions (see "Data selections" on page 53).
  Only one section can be output. If no section is defined, an error will be thrown.
- **Data Source** (see "Input" on page 632):
  - **Metadata**: The Metadata must contain information regarding a valid Record Set, or JSON data. This can be the output of the "Execute Data Mapping" on page 621 task or "Retrieve Items" on the facing page task.
  - **JSON String**: a JSON object or an array of JSON objects representing records (see "JSON string examples" on page 91) or a JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93).
    This option requires that keys in the JSON data have matching field names in the data model of the template. When they have, the JSON values are passed to the template; the personalization scripts of the template will have access to the values through the record's data fields. (See the Designer help: Adding Variable Data.)

    > **Warning**
    >
    > The JSON format is not validated by the plugin; it is passed as is to the server.

- **Output Method** (see "Output" on the previous page): Select how to output information about the emails that were created, including the email addresses (to, from, etc.), subject, and the names of the folder, HTML file, attachments, (optional) plain text email file (see

Email output settings in the Email context and sections) and EML file (see below).

- **Metadata**: Write the information to the current Metadata.
- **JSON Data in Job Data File**: Return the information in a JSON structure that replaces the current Job File. This allows you to manipulate the output in a "Run Script" on page 481 task before sending it to an Email Service Provider (ESP).

- **Additional Output:**
  - **Render messages in EML format**: Creates an EML file containing the HTML email, its attachments and (optionally) the text version of the email, and saves it in the File Store. EML files can be used for archiving. You could use the "Download EML Messages" on page 618 plugin to download them from the File Store. Alternatively you could use the "File Store - Download File" on page 626 task; in that case you will need the folder ID and EML file name found in the output of the "Render Email Content" on page 631 plugin.

> **Note**
>
> Information about the Connect Server (host, user name etc.) is taken from the **Workflow Preferences** (see "OL Connect preferences" on page 772).

Advanced Properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Retrieve Items

The **Retrieve Items** Action task locates and extracts items from the **OL Connect Database** so they can be used with further tasks. The items are retrieved using a set of conditions working together. Since this task can retrieve items at any level, it can be used to generate Metadata (see "Metadata" on page 75) or JSON data used in multiple tasks.

Input

The task requires no input file, but any input information such as Metadata, Job Info variables, a data file or a JSON array can be used to specify which items to retrieve.

Processing

The task requests the items on the OL Connect Server using the conditions set in the task properties. Only the condition information and the returned Metadata or JSON are exchanged.

Note that the order in which the requested items are returned cannot be guaranteed.

Output

The task outputs Metadata that is equivalent to the output of the appropriate task that would normally create the items, or a JSON Record Data List (see the REST API Cookbook and "JSON Record Data List example" on page 93).

> **Note**
>
> The result of a Retrieve Items task can be used with the "Create Job" on page 601 task if it is a Content Item or Content Set, but it cannot be used in combination with a Job Preset.

> **Note**
>
> Content Creation tasks accept Metadata as well as JSON data as input.

Task properties

General Tab

- **Entity to retrieve**: Use the drop-down to select which items to retrieve.
  - **Record**: Retrieves one or more Records, whether or not they are part of a Record Set. Output similar to the "Execute Data Mapping" on page 621 task.
  - **Record Set**: Retrieves one or more Record Sets, including all their records. Output similar to the "Execute Data Mapping" on page 621 task.

- **Content Item**: Retrieves one or more Content Items, whether or not they are part of a Content Set. Output similar to the "Create Print Content" on page 611 or "Create Web Content" on page 614 tasks.
- **Content Set**: Retrieves one or more Content Sets, including all their content items. Output similar to the "Create Print Content" on page 611 task.
- **Job**: Retrieves one or more Jobs, including all their content items ready to be printed. Output similar to the "Create Job" on page 601 task.
- **Job Set**: Retrieves one or more Job Sets, including all their content items ready to be printed. Output similar to the "Create Job" on page 601 task.

- **Retrieve by**:
  - **Condition**: Select entities based on one or more conditions, the value of a metadata field for example.
  - **ID**: Depending on the option selected under **Entity to retrieve** this is a Record ID, Record Set ID, Content Item ID, Content Set ID, Job ID or Job Set ID.
    IDs can be entered directly; when entering multiple IDs, put each on a new line. Alternatively, they can be passed via variables (see "Variable task properties" on page 303), or as a JSON array, e.g. `[6001,6002,6003]`. A JSON array may contain variables, e.g. [%1, 75001].
- **Conditions**:
  - **Add a condition**: Click to add a new condition line. This adds the line to the current condition level, by default with an AND operator.
  - **Switch conditions**: Click to swap two conditions on the same level, or two groups of conditions.
  - **Delete the selected condition**: Click to delete the currently selected conditions in the list.
  - **Clear the rule**: Click to delete all rules in the list. **Note**: This cannot be undone.
  - **Import a rule**: Click to open the **Browse** dialog and load a Rules file. This will load its rules into the list.
  - **Export the rule**: Click to open a **Save** dialog and save the Rules file to disk.
- **Rule Viewer**: Displays a text-based view of the condition using operators and parentheses.

- **Output Type group**:
  - **Metadata - IDs only**: Select to only output minimal metadata containing the entity IDs.
  - **Metadata**: Select to output IDs as well as record details in the metadata, useful for further sorting and filtering of the metadata.
  - **JSON**: Select to output a JSON Record Data List (see "Output" on page 636).

Commingling/Batching Tab

Commingling is a method by which Print Content Items are merged together to create mail pieces going to each recipient. For instance, retrieving a letter, an invoice and a notice within the same mail piece, which presumably could be added within the same envelope. Batching is the same principle when all the Print Content Items are generated using the same Template file. This tab is only available if the **Content Item** option is selected in the General tab's **Entity to retrieve** drop-down. To modify any of the following options, click in the Parameters box and then click the **[...]** button that appears.

- **Document contents**: Defines the Document ("Mail Piece") level and how they are built.
  - **Pick items based on**: Use the **[...]** to open the "Pick Parameters" on the facing page dialog and define how to pick which items will be placed in each document. Content items picked using this method will be part of the same mail piece.
  - **Sort items based on**: Use the **[...]** to open the "Sort Parameters" on page 597 dialog and define how Content Items are sorted within the mail piece.
- **Group contents**: Define the Group level (for example, a Mail Route), or how to group mail pieces together in groups.
  - **Pick items based on**: Use the **[...]** to open the "Pick Parameters" on the facing page dialog and define how to pick which documents will be placed in each **Document** group. groups are often used to separate mail routes, provinces, or cities.
  - **Sort items based on**: Use the **[...]** to open the "Sort Parameters" on page 597 dialog and define how documents are sorted within the group, for example by Zip Code.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Pick Parameters

The Pick Parameters define how to pick entities retrieved from the Connect Database using the "Retrieve Items" on page 635 task and place them together in Documents or Groups. Items are picked using either Properties or Values.

- **Name**: Enter the name of the Property or Value that will be used to pick items.
- **Type**: Use the drop-down to select whether the name refers to a Property or a Value.
- **Add**: Click to add a new line to the list.
- **Remove**: Click to remove the currently selected line in the list.
- **Move Up**: Click to move the currently selected line up one position in the list.
- **Move Down**: Click to move the currently selected line down one position in the list.

- **Validate Names**: Click to check the each of line in the list against the currently active Metadata (see "Metadata" on page 75). Metadata must be loaded in "The Data Selector" on page 842 or through the use of the Debugging feature.

Set Properties

The **Set Properties** Action task defines properties for entities saved in the OL Connect Database (Records, Content, and Jobs). These properties are applied to the entities and can then be used to retrieve them using the "Retrieve Items" on page 635 task.

Input

The task must receive Metadata that contains appropriate entities, generally from the "Execute Data Mapping" on page 621, "Create Print Content" on page 611, "Create Web Content" on page 614 or the "Create Job" on page 601 tasks.

Processing

The task sets the chosen properties to all entities present in the Metadata. These properties are added to the entities on the OL Connect Server. Note that the properties are calculated only once, and are applied identically to all entities. If each entity should have different properties (such as record-level properties), the Metadata should be split using the "Metadata Sequencer" on page 570 task first.

Output

The task outputs Metadata that is identical to the input Metadata. Only the entries on the OL Connect Server side change.

Task properties

General Tab

- **Entity**: Use the drop-down to select the entity type of which to set the properties. This task does not auto-detect entities, and so the appropriate selection must be made: Record, Record Set, Content Item, Content Set, Job
- **Properties**: Add all the properties to be added
  - **Name**: The name of the property.
  - **Value**: The value to apply to the property.

- **Add entry**: Click to add another line to the Properties list.
- **Remove entry**: Click to delete the currently selected line in the Properties list.
- **Move entry up**: Click to move the currently selected line up in the Properties list.
- **Move entry down**: Click to move the currently selected line down in the Properties list.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Update Data Records

The **Update Data Records** action task updates records in the OL Connect Database using values from the current Metadata or from JSON.
Each of the OL Connect Content Creation tasks can do the same, if the Update Records from Metadata option is enabled for that task.
The Update Data Records task can be useful when data needs to be updated multiple times

before actually generating content, for instance when Postal Address Cleansing and Sorting is a two-pass process.

Input

The current Job File is not used by this task. In order to update values in the Connect database, the task requires that the current Metadata contains record IDs, or that the given JSON contains a JSON Record Data List (see: "Types of JSON in Workflow" on page 91).

Processing

The records, of which the IDs are found in the source data, are updated either from the Metadata or from JSON.

Output

The Job File is not changed by this task.

Task properties

General Tab

- **Update Source**: Select the data source from which the records in the Connect database will be updated.
  - **Metadata**: Select this option to use the current content of the Metadata.
  - **JSON**: Enter a JSON string, or a variable containing JSON. (See "Variable task properties" on page 303.) The task expects a JSON Record Data List; see: "Types of JSON in Workflow" on page 91.

OL Connect Proxy Tab

This tab is common to all OL Connect tasks and defines where to process the jobs sent through these tasks. When these fields are empty, they use the defaults set in the "OL Connect preferences" on page 772.

> **Note**
>
> Defaults are not used unless the configuration is sent to the Workflow service.

- **OL Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
- **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
- **User name**: Enter the user name expected by the OL Connect Server.
- **Password**: Enter the password expected by the OL Connect Server for the above user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Output tasks

Output tasks are exits from PlanetPress Workflow processes. They can be used to send data to specific devices, such as printers, applications, such as email software, or locations, such as folders. A single process can include multiple branches, each one terminated by an Output task, and so a single process may generate output via a variety of Output tasks.

Typically, whenever a PlanetPress Workflow Output task sends output to an output device, application or location, it considers its job finished. When it sends data to a printer, for example, it does not wait for the document to have finished printing to consider its job done. In the same fashion, an Email Output task is completed once PlanetPress Workflow has sent its message to the email software, not when the email has actually been sent from the software. And in the case of a PlanetPress **Image** Output task, PlanetPress Workflow considers its job done once it has sent its request to PlanetPress **Image**, not once PlanetPress **Image** has finished generating the actual image file.

Other tasks available in PlanetPress Workflow can also be used to generate output, such as **Digital Action**, **Create VDX** and **PrintForm** Action tasks. Unlike Output tasks, Action tasks are only considered completed once the output file has been generated. In the case of a **Digital Action** Action task, for example, PlanetPress Workflow will consider the task completed only once the image file has actually been created. This means that no other task from the same process can be performed in the meantime. For more information on those tasks, refer to "Action tasks" on page 379.

Send to Folder tasks, which are considered as Action and Output tasks, are documented in the current chapter.

Available Output tasks

- "Delete" below
- End Subprocess, see: "Go Sub" on page 478
- "PlanetPress Fax" on page 511
- "FTP Output" on the facing page
- "Microsoft 365 Email Output" on page 646
- "Microsoft 365 OneDrive Output" on page 650
- "PlanetPress Image" on page 512
- "Print using a Windows driver" on page 656
- "Printer Queue Output" on page 658
- "Secure Email Output" on page 661
- "Send Email" on page 664
- "Send to Folder" on page 667
- "SOAP Client plugin" on page 653

The SFTP Output task also appears in the Output category when it is installed. (It isn't installed by default.)

Delete

Delete output tasks simply delete the job files they receive. They are often used after conditions to get rid of those files that did not meet the requirements of the condition.

This task is put into effect in the following example processes:

- HTTP PDF Invoice Request
- HTTP Brochure Request

Note that Capture can only be used with PlanetPress Suite.

Input

Any data file, with optional metadata.

Processing

The data file is either deleted directly or sent to the Windows Recycle Bin.

Task properties

General tab

- **Move to recycle bin**: Select to send the deleted files to the Windows recycle bin. When this option is not selected, files are deleted permanently.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

FTP Output

FTP Output tasks send job files to other computers using the FTP protocol. It is similar to the **Sent To Folder** output task but sends to an FTP connection instead of a local drive.

The following describes the properties specific to **FTP Output** tasks. Note that some FTP settings used for all **FTP Output** tasks are available via the PlanetPress Workflow user options (see "FTP Output Service preferences" on page 795).

Input

Any data file.

Processing

The file is sent to the FTP Server and location defined in the task properties.

Task properties

General Tab

- **FTP Server**: Enter the IP address or host name of the FTP server.
- **Port number**: Set the plugin to use a specific port number.
  - **Use FTP Client default port number**: Use the value as specified in the Preferences (port 21 is the default value).
  - **FTP Port**: Enter the specific port number to use when Use FTP Client default port number is unchecked. Enter a value between 1 and 9999. Note: There is no validation to ensure the port is available. It is the user's responsibility to ensure the selected port is available and not being monitored by another application or PlanetPress Workflow task.
- **User name**: Enter an FTP server user name.
- **Password**: Enter a password associated with the FTP server user name entered above.
- **Directory**: Enter the directory to which the job files are to be uploaded. If you leave this box empty, the job files are sent to the root directory of the FTP server.
- **File name**: Enter the name under which the output job file will be saved. Consider using a dynamic name, since if you use a static name every new file will overwrite the previous one.
- **Connection mode group**
  - **Active**: Select to prompt PlanetPress Workflow to use the active mode when sending files to the FTP server.
  - **Passive**: Select to prompt PlanetPress Workflow to use the passive mode when sending files to the FTP server.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Microsoft 365 Email Output

The **Microsoft 365 Email Output** task can send emails on behalf of any user in an organization's Microsoft 365 accounts, without having to specify that user's credentials. This way privacy is maintained while allowing a process to send email messages and attachments on behalf of any user. The task communicates through HTTPS. However, the real protection scheme (like certificates) is configured in Azure Active Directory by the IT administrators.

Note that this task doesn't merge data records with a PlanetPress Connect template, like the "Create Email Content" on page 597 task does.

This task uses the **Microsoft Graph API**.
For this task to function correctly, Workflow needs to be granted application permissions for Microsoft Graph in the organization's Azure instance.
It needs read access to the Users category (`User.Read.All`) so that the task can identify the users in the organization.
In addition, to send emails on any user's behalf, the `Mail.Send` permission is required.
For more information on setting application permissions for Microsoft Graph, see https://docs.microsoft.com/en-us/graph/auth-v2-service.

Input

Any data file.

Processing

The task uses the Microsoft Graph API to access accounts in the organization (subject to that organization's IT policies).

While an email is always sent by this task (or at least attempted to be sent), the contents of the email and presence of attachments depends on the selected options.

Once the contents of the email and attachments are determined, the email (including any attachments) is sent directly to the selected mail server.

Note that the Windows instance's language setting may affect the output of this plugin. For example, a Workflow setup configured on a Windows-1252 machine will not be able to write Japanese strings. It won't affect the contents of attachments, since they are loaded as binary streams.

Output

This task doesn't have any output other than the email that is sent to the recipient(s).

Task properties

General Tab

Nearly all of the fields on this tab are variable property fields, which means the values may change with each job at run-time. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

Message information

> **Note**
>
> When specifying multiple recipients for the To, CC and BCC fields, separate the e-mail addresses with semi-colons (**;**).

- **To**: Enter the email address(es) of the recipient(s).
- **Cc**: Specify addresses to which a copy of the generated emails are to be sent.
- **Bcc**: Specify discreet addresses (other recipients will not be able to see these addresses) to which a copy of the generated emails are to be sent.
- **Subject**: Enter the subject of the email. Note that if you use a data selection in this field, you must be sure that the data that will be selected at run-time will not contain any parentheses, as this would cause the task to fail. If you suspect that the data may contain parentheses, you should use a **Run Script** action task (see "Run Script" on page 481) with a `Strip()` function to strip them out.
- **Message**: Enter the content of the email message. This may be text or HTML based. Note that since this is a variable property field, its content is parsed at run-time. If HTML code is entered or pasted in this box, percent (%) and slash (/) HTML characters must be doubled, otherwise they will be disregarded.

> **Note**
>
> Different email clients have different support for various features, especially with HTML emails (see HTML Email challenges in the PlanetPress Connect Online Help). In most cases, if you want to send your email as an HTML message, your very first line should start with <html> or <!doctype html>. It should not be any other character.
> PlanetPress Connect has a tool to design HTML email templates: the Designer. To generate email output from a template you would use the "Create Email Content" on page 597 task.
>
> Also note that it is currently not possible to send both an HTML and plain-text version of your message with the Microsoft 365 Email Output task.

Attachments

Use this tab to specify what files to attach to the e-mail.

- **Attach input job file**: Select to attach the current job file to the email that the task sends.
- **Rename to**: Check this option to rename the job file before attaching it to the email, and enter a name.
- **File**: Select additional or more additional files to include as attachments. Enter the file name, or use the Browse button to navigate and select the file. To add the file to the list of files to attach, click the Add file to Attach list button (the downward pointing arrow).
- **List of files to attach**: Lists the files that will be attached to the email. Selecting the Attach output file(s) option adds these files at the top of the list. Any other file that may have been added using the File box (above) is also listed here.
  To **remove** a file from the list, select it, then right-click and select **Remove from the list**.

Connection

- **Application ID**: Enter the application ID provided by Azure for this specific application. This value is static and cannot contain variables.
- **Application Password**: Enter the client secret (key) for the Azure app. This value is static and cannot contain variables.

- **Tenant ID**: Enter the Tenant ID as specified in Azure. This value is static and cannot contain variables.
- **User ID**: This is the user's ID or email address. This value is dynamic and may include variables.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Microsoft 365 OneDrive Output

Microsoft 365 OneDrive Output tasks allows to send files to any of the organization's Microsoft 365 OneDrive accounts.

This task uses the **Microsoft Graph API**.
For this task to function correctly, Workflow needs to be granted application permissions for Microsoft Graph in the organization's Azure instance.
It needs read access to the Users category (User.Read.All) so that the task can identify the users in the organization.
In addition, the Files.ReadWrite.All permission is required.
For more information on setting application permissions for Microsoft Graph, see https://docs.microsoft.com/en-us/graph/auth-v2-service.

Input

Any data file.

Processing and output

The task uses the Microsoft Graph API to access OneDrive folders in the organization (subject to that organization's IT policies).

The file is saved in the location specified, as the file name specified.

When a communication error occurs while uploading a file to OneDrive, some temporary "~." files may remain on the server; however, these files will eventually be cleaned up automatically.

Task properties

General Tab

General

- **Folder**: Enter the path of the folder to which the files are to be saved. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.
- **File name**: Enter the name of the output file generated by this task. To prevent new files from overwriting existing ones, consider using variable names. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

Connection

- **Application ID**: Enter the application ID provided by Azure for this specific application. This value is static and cannot contain variables.
- **Application Password**: Enter the client secret (key) for the Azure app. This value is static and cannot contain variables.
- **Tenant ID**: Enter the Tenant ID as specified in Azure. This value is static and cannot contain variables.
- **User ID**: This is the OneDrive user's ID. This value is dynamic. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

SFTP Output

The **SFTP Output** task sends job files to other computers using a secured FTP protocol. It is similar to the Send to Folder output task but sends to an FTP connection instead of a local drive.

The "SFTP Input" on page 368 and SFTP Output tasks are part of a separate installer and are not included in the Workflow installer. The SFTP plugin installer can be downloaded from the Resource Center, under 'Plugins' in PlanetPress Connect.

Input

Any data file.

Processing

The file is sent to the secure FTP Server and location defined in the task's properties. If the folder in which the file should be placed doesn't exist, it will be created.

Task properties

General Tab

- **Server Settings group**
  - **FTP Server**: Enter the IP address or host name of the FTP server.
  - **User name**: Enter the name of a user account on the FTP server.
  - **Password**: If the account named in the User name box is password protected, enter the password here.
- **Protocol group**
  - **SFTP**: Select if the FTP server uses SFTP (SSH).
  - **FTPS**: Select if the FTP server uses FTPS (SSL/TSL)

- **Port Number Group**
  - **Use default port**: Check to use the default port used by the protocol selected above.
  - **Port number**: Set to use a specific port number. Note: There is no validation to ensure the port is available. It is the user's responsibility to ensure the selected port is available and not being monitored by another application or another Workflow task.
- **File Options group**
  - **Directory**: Enter the directory to which the job files are to be uploaded. If you leave this box empty, the job files are sent to the root directory of the FTP server.
  - **File name**: Enter the name under which the output job file will be saved. Consider using a dynamic name, since if you use a static name every new file will overwrite the previous one.

Security Tab

This tab defines the certificates used to connect to the secured FTP servers.

- **Accept all certificates**: Check this option to automatically accept the certificates returned by the FTP server. Otherwise, in order for a connection to work, you have to establish a connection first and then accept a certificate from the **List of known servers** up to the **Approved server** list.
- **Approved Server list**: Displays a list of servers that were approved for connection:
  - **Server**: The name of the server the certificate belongs to.
  - **Fingerprint**: The RSA fingerprint of the server.
  - **Remove**: Click to remove the server from the approved list.
- **List of known servers**: Displays a list of servers that were connected to, whether they are approved or not.
  - **Server**: The name of the server the certificate belongs to.
  - **Fingerprint**: The RSA fingerprint of the server.
  - **Approve**: Click to add the server to the list of approved servers.
- **Refresh**: Click to refresh the list of known servers

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

SOAP Client plugin

SOAP Client plugin tasks can be used as Input, Output and Action tasks, although their basic function is to generate output. SOAP (Simple Object Access Protocol) is a light protocol that defines a standard XML format used to communicate among systems across different architectures, languages, and operating systems.

A SOAP request is an XML-based Remote Procedure Call (RPC) sent using the HTTP transport protocol. The payload of the SOAP packet is an XML document that specifies the call being made and the parameters being passed.

Web services, a SOAP class of applications, expose their services via the Internet in a manner that lets other applications access them, as well as use and combine them as required.

In order to access and successfully use Web services, client applications must know how to get them, what operations they support, what parameters they expect, as well as what they return. SOAP servers make this information available via WSDL (Web Service Description Language) files.

To configure a given **SOAP Client plugin** task in the PlanetPress Workflow Configuration program, you must first get its WSDL file (note that you cannot download the WSDL file over an HTTPS connection, so you should use an HTTP connection to get the file and then switch back to a secure connection). This lets you know which services the SOAP server provides, as well as each service’s methods and name spaces.

If firewalls control communication between the SOAP client and the Web servers, they must be configured so as not to block client-server communication.

In the case of "string" type data, **SOAP Client plugin** tasks normalize all line endings to a single line feed character.

Task properties

General Tab

- **WSDL address**: Enter the URL address of the WSDL file, or choose a previously selected address from the drop-down list.

> **Note**
>
> The WSDL Address of a PlanetPress Workflow SOAP server is the following: `http://127.0.0.1:8080/wsdl/isoapact` (assuming you are on the same machine and did not change the default HTTP port).

- **Get**: Click to get the WSDL file from the SOAP server and populate the Service box below.
- **Service**: Choose an available Web service from this drop-down list to populate the Method box below. You may also enter the service name directly if the WSDL file cannot be found.
- **Method**: Choose an available method from this drop-down list. This populates the Namespace box below. You may also enter the method name directly.

The following three options are only available in the Legacy SOAP Client plugin:

- **Namespace**: You may choose an available namespace to prevent ambiguity between identically named elements or attributes. You may also enter a namespace directly.
- **Resolve**: Click to apply the options you chose above and to display the arguments of the chosen method in the Arguments box below.
- **As script**: Click to apply the options you chose above and to display information on the chosen Web service in JavaScript format in a script viewer. You should use this option if the Web service is too complex to be interpreted correctly by the SOAP Client plugin.

- **Name**: Displays the name of the arguments associated with the selected method. Note that you may also manually enter new arguments, change or delete existing ones, as well as change their order if needed.
- **Type**: Displays the argument type.

- **Value**: Lets you enter fixed or variable values. To exchange variable information between the Web service and PlanetPress Workflow, you must use job information variables %1 to %9 or variable %c (which contains the entire job file). Note that return values (arguments which are used to return information to the SOAP Client) are displayed in bold font.
- **Namespace**: Displays the namespace of the arguments associated with the selected method.
- **Use returned raw SOAP packet as new data file**: Check to use the complete SOAP packet (including the passed parameters) instead of the parameters only. This option overrides any return value set to %c in the Arguments box. You should use this option when the SOAP Client plugin is not able to fully support the syntax of the response.

Advanced Tab

- **Domain**: Enter the domain for the authentication on the SOAP server. The Domain is optional even when authentication is used.
- **Username**: Enter the user name for the authentication, if required.
- **Password**: Enter the password for the above user name.
- **Allow invalid security certificate**: Check to ignore SSL certificates that are invalid.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Print using a Windows driver

Printing Using a Windows Driver Output tasks task lets you send a job to a local or network printer, using its own drivers. The printer does not need to be a PostScript printer.
Since the printer driver itself is not necessarily PostScript, Workflow cannot optimize the print file, so this task will always generate a larger and slower print job. However, this Output task can work with non-PostScript printers such as HP PCL printers.

The Print Using a Windows Driver Output task requires a PlanetPress Workflow license, otherwise this plugin will cause a watermark.

> **Note**
>
> This type of output task does not support PDF transparency and duo-tone features, so you should not use it with PlanetPress Design documents that use those features.

Input

This task can accept either a data file with a correct emulation (see "About data emulation" on page 60), which is then merged to a PlanetPress Design document, or a PDF file which is to be printed natively.

Processing

Either the data file is merged with the document if one is selected, or the PDF File is printed natively through the PlanetPress Printer driver (which prints the same as if one were to open the PDF in a PDF reader and print it).

Task properties

General Tab

- **Printer queue**: Select the queues to which you want to send the output. Note that this is a variable property box, so you can use various schemes to use printer queue names that change with each job at run-time.
- **Properties**: Click to change the current printer queue properties. Note that PlanetPress Workflow generates the job file and hands it over with the available print options to the Windows print driver, which takes the relay for the actual printing part, so there is no way for your PlanetPress Workflow Tool to ensure that all the settings you make will be applied to the printed document.
- **Job name**: Enter the job's file name. By default, the variable %f (Job File Name) is used. You may use a different variable, but you may not use a data selection. This information may be used for the printer's banner page.
- **Job owner name**: Enter the job owner name. You may use a PlanetPress Workflow variable.

> **Note**
>
> This option is not functional when natively printing PDFs (without a PlanetPress Design document).

- **Documents**: Select a specific PlanetPress Design document if you want all the jobs to be printed with that document.
  - **Natively print PDF file**: This special option can be used if your job file is a PDF. The job will .
- **Add job information to the document**: Select to prompt your PlanetPress Workflow to add the available job information elements in the header of the file that will be sent to the selected printer queues.

Metadata

If no metadata file is found, the from / to page settings from the job and the printer's properties from the task configuration are used, with the job's settings overriding those of the printer where applicable. If a Metadata file is found, it is used to indicate which pages are printed and in which order. Any other Metadata is ignored.

> **Note**
>
> Known issue: If a data file with Metadata is resubmitted to such a process, the from/to page values set by the user in the Resubmit interface are ignored.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Printer Queue Output

The **Printer Queue Output** task dispatches jobs to selected PlanetPress Workflow Printer Queues (see "PlanetPress Workflow printer queues" on page 111). Note that you must have created at least one Printer Queue in PlanetPress Workflow before you can add your first

Printer Queue Output task.
You can select multiple Printer Queues in a Printer Queue Output task and choose exactly how your jobs will be dispatched to the selected printers.

The task can create print output as well, by merging the data file with a PlanetPress Design document (see "PlanetPress Design documents" on page 44). This requires at least one PlanetPress Design document to be associated with a Workflow printer queue (see "Associating PlanetPress Design documents and PlanetPress printer queues" on page 120). This also requires printer licenses, unless you have the “Optimized Output” add-on in your Connect license, which grants you the equivalent of PlanetPress Production in Connect Workflow. (Even then, “printer-centric” output requires a printer license.)

For more information about printing see "About printing" on page 109.

Input

Any data file.

Processing and output

If the data file is in a valid emulation (see "About data emulation" on page 60) and a PlanetPress Design document is selected, the data file and document are merged to produce a PostScript output. The output may be an Optimized PostScript Stream or a Printer Centric stream (data file + trigger).

If no document was selected, the job file is sent as-is to the selected Printer Queue.
Whether the queue will properly output depends on the capabilities of the queue and its target. For example, sending a JPG job file to an FTP or Send to Folder printer queue will simply place the file in the destination. Sending this same file to an LPR or Windows queue will produce no output as these queues expect valid PostScript.

Task properties

General Tab

- **Queues**: Select the queues to which you want to send the output (see "PlanetPress Workflow printer queues" on page 111).
- **Documents**: Select **None** if you want the job file to be printed as is.
  Select a specific **PlanetPress Design** document (see "PlanetPress Design documents"

on page 44) if you want all the jobs to be printed with that document. To use a document chosen at run-time for each job, enter a dynamic document name using a combination of text, variables and data selections. To enable the dynamic document name box, click inside it. To disable it, press Enter. Note that in the later case, you must be certain that the documents that will be chosen at run-time will in fact be available locally or at all the selected printer. Note that PlanetPress Workflow will not specify a given document version number, so the latest version will be used by default. To specify a given document version number, you can use an **Add Document** action task instead of a Printer Queue Output task, and then use an **Add / Remove Text** Action task to add a version number in the document trigger (for more information, refer to the **Control Versions of a Document** section of the PlanetPress Design User Guide).

> **Note**
>
> It is not possible to select a Connect template with this task. It is however possible to send Print output produced by an OL Connect task to a Workflow Printer Queue (see "PlanetPress Workflow printer queues" on page 111). In the All in One task or the Create Output task, on the Output Creation tab, select the Output Management **Through Workflow** option. The Print output file returned to the Workflow process will become the new job file. In the Printer Queue Output task, on the General tab, under Documents, select **None** to send the job file to the Workflow Printer Queue as-is. See also: "About printing" on page 109.

Advanced Tab

- **Copies**: Enter the number of copies to be printed outputs. Since this is a variable property box, you may enter a fixed value or use a data selection. Note that load balancing options have an impact on how copies are printed as well as on the total number of printed copies.
- **Load balancing group** (Options from this group are only valid if multiple Workflow printer queues were selected.)
  - **No balancing**: No load balancing means that all the selected Workflow printer queues get everything.
  - **Split job**: Split job means that jobs will be split according to the criteria set in the **Page delimiter** group (see below) and that an equal share of the job file will be sent

to each one of the selected Workflow printer queues. For a hundred page job, for example, if two queues were selected, each one will get 50 pages.

- **Queue balancing**: Queue balancing means that jobs will be split according to the criteria set in the Page delimiter group (see below) and that a share of the job file corresponding to each printer's capacity (as set in the PlanetPress Workflow **Printer Queue Options** dialog box—See "Print using a Windows driver" on page 656) will be sent to each one of the selected Workflow printer queues. If two queues were selected, the first one sending jobs to a printer that prints 500 pages a minute, and the second one sending jobs to a smaller printer printing 50 pages a minute, the first queue will receive roughly ten times more pages than the second one.
- **Round robin**: Round robin means that complete jobs will be sent in turn to each one of the selected Workflow printer queues. For example, Queue_1 will get the first job, Queue_2 will get the second job, and so forth.

- **Page delimiter group**: These options are enabled when you choose **Split job** or **Queue balancing load** balancing options. They are used to determine how each job is to be split before being sent to the Workflow printer queues.
  - **Form feed**: Cuts the job file at every form feed character.
  - **Lines per page**: Cuts the job file after the specified number of lines.
  - **Keyword**: Cuts the job file after each occurrence of the specified keyword (string of characters).
- **Custom Trigger**: Enter the code of the trigger that will be sent with the data to the selected Workflow printer queues. Note that this box is only enabled if None was selected in the General tab.
- **Add job information to the document**: Includes the current "Job Info variables" on page 702 to the job output. This option is only available if a document was selected in the **General** tab.
- **Use job name as Title**: Uses the Job Name set in the Workflow printer queue's General tab, as the job's title, set as %%Title in the PostScript's job.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Secure Email Output

The **Secure Email Output** task sends SMTP email messages with SSL or TLS.

Note that this plugin cannot be used on a Windows instance that uses a multi-byte language (e.g. Japanese, Chinese). The workaround is to either use a different Windows language or use the standard Email Input/Output plugins.

Also note that this task doesn't merge data records with a PlanetPress Connect template, like the "Create Email Content" on page 597 task does.

Input

Any data file.

Processing

While an email is always sent by this task (or at least attempted to be sent), the contents of the email and presence of attachments depends on the selected options.

Once the contents of the email and attachments are determined, the email (including any attachments) is sent directly to the selected mail server.

Output

This task doesn't have any output other than the email that is sent to the recipient(s).

Task properties

Recipients Tab

The fields on this tab are variable property fields, which means the values may change with each job at run-time. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

> **Note**
>
> When specifying multiple recipients for the To, CC and BCC fields, separate the e-mail addresses with semi-colons (**;**).

- **To**: Enter the email address(es) of the recipient(s).
- **Cc**: Specify addresses to which a copy of the generated emails are to be sent.
- **Bcc**: Specify discreet addresses (other recipients will not be able to see these addresses) to which a copy of the generated emails are to be sent.
- **Subject**: Enter the subject of the email. Note that if you use a data selection in this field, you must be sure that the data that will be selected at run-time will not contain any parentheses, as this would cause the task to fail. If you suspect that the data may contain parentheses, you should use a **Run Script** action task (see "Run Script" on page 481) with a `Strip()` function to strip them out.
- **Message**: Enter the content of the email message. This may be text or HTML based. Note that since this is a variable property field, its content is parsed at run-time. If HTML code is entered or pasted in this box, percent (%) and slash (/) HTML characters must be doubled, otherwise they will be disregarded.

> **Note**
>
> Different email clients have different support for various features, especially with HTML emails (see HTML Email challenges in the PlanetPress Connect Online Help). In most cases, if you want to send your email as an HTML message, your very first line should start with <html> or <!doctype html>. It should not be any other character.
> PlanetPress Connect has a tool to design HTML email templates: the Designer. To generate email output from a template you would use the "Create Email Content" on page 597 task.
>
> Also note that it is currently not possible to send both an HTML and plain-text version of your message.

Attachments Tab

Use this tab to specify what files to attach to the e-mail.

- **Attach input job file**: Select to attach the current job file to the email that the task sends.
- **Rename to**: Check this option to rename the job file before attaching it to the email, and enter a name. You may use text, variables and data selections (see "Variable task properties" on page 303).

- **File**: Select additional or more additional files to include as attachments. You may enter the file name directly and use text, variables and data selections (see "Variable task properties" on page 303). You may also use the Browse button to navigate and select the file. To add the file to the list of files to attach, click the Add file to Attach list button (the downward pointing arrow).
- **List of files to attach**: Lists the files that will be attached to the email. Selecting the Attach output file(s) option adds these files at the top of the list. Any other file that may have been added using the File box (above) is also listed here.
  To **remove** a file from the list, select it, then right-click and select **Remove from the list**.

Login Tab

The fields on this tab are variable property fields, which means the values may change with each job at run-time. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

- Enter the sender's **name**, **organization** (optional), and **email address**, and the **reply address** (optional). This information will be visible to the recipient of the email.
- Enter the address of the **outgoing mail server (SMTP)**, and the **port** and encryption method that will be used. Note that hovering the mouse over the **Port** field will show a list of the most common ports used.
- Enter the account credentials: the **account name** on the mail server, and the **password** required to unlock the selected account.
- Select the level of **priority** and **sensitivity**. The default value is Normal.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Send Email

The **Send Email** output task sends the data files it receives via email.

Note

In some combinations of Microsoft Outlook and Windows versions, it is not possible for Outlook to be opened while PlanetPress Workflow is running, so emails are not sent out automatically. To correct this, make sure to log on to Windows on the PlanetPress Workflow server using the same login that PlanetPress Workflow is using, and open Outlook before starting the PlanetPress Workflow services. You could also use a startup process to start Outlook before the rest of the services.

Example

This task is put into effect in the following example process:

- Capture Post Processing Workflow

Note that Capture is only available to PlanetPress Suite users.

Input

Any data file.

Processing

While an email is always sent by this task (or at least attempted to be sent), the contents of the file and presence of attachments depends on the selected option. Refer to the property descriptions below to know what each option does.

Once the contents of the file and attachments are determined, the email (including attachments) is either sent directly to the selected SMTP server, or is deposited in the "Outbox" folder of the local Microsoft Outlook account.

Task properties

Recipients Tab

- **To**: Enter the email address(es) of the recipient(s). Remember this is a variable property box and you can therefore use various schemes to use email addresses that change with each job at run-time. You can use any combination of text, variables and data selections;

see "Variable task properties" on page 303.

- **Cc**: Specify addresses to which a copy of the generated emails are to be sent.
- **Bcc**: Specify discreet addresses (other recipients will not be able to see these addresses) to which a copy of the generated emails are to be sent.
- **Subject**: Enter the subject of the emails generated by PlanetPress **Image** for this task. Note that if you use a data selection in this box, you must be sure that the data that will be selected at run-time will not contain any parentheses, as this would cause the task to fail. If you suspect that the data may contain parentheses, you should use a **Run Script** action task (see "Run Script" on page 481) with a `Strip()` function to strip them out.
- **Message**: Enter the content of the email message. This is a variable property box, so the text may be personalized using variables and data selections. Note that since this is a variable property box, its content is parsed at run-time. If HTML code is entered or pasted in this box, percent (%) and backslash (/) HTML characters must be doubled otherwise they will be disregarded.

> **Note**
>
> Different email clients have different support for various features, especially with HTML emails. In most cases, if you want to send your email as an HTML message, your very first line should start with <html> or <!doctype html>. It should not be any other character). Also note that it is not currently possible to send both an HTML and plain-text version of your message.

Attachments Tab

Use this tab to add the files received by this task (plus any other file that you may choose to attach) to the emails sent by PlanetPress.

- **Attach input job files**: Select to attach the file received by this task to the emails it will generate. If this option is not selected, the recipients will not receive any data file.
- **File**: Select additional files to include as attachments. You may enter the file name directly and use text, variables and data selections. You may also use the Browse button to navigate and select the file. To add the file to the list displayed in the Attach box, you must the click the downward pointing arrow button.
- **Attach**: Lists the files that will be attached to the messages sent from PlanetPress Workflow for this task. Selecting the Attach output file(s) option adds these files at the top

of the list. Any other file that may have been added using the File box (above) is also listed here.

- **Zip mode**: Select how you want the files checked in the Attach box to be zipped. Select Zip individually to have PlanetPress Workflow create a zip file for each file. Select Archive and Zip if you prefer to have one zip file that contains all the attached files.
- **Zip file name**: Enter the name of the one zip file that will be created if the Archive and Zip option was selected in the Attach box (this box is otherwise not enabled).
- **Password protect Zip file(s)**: Select to force recipients to use a password to open the attached zip files. Note that users will be required to use this password open each one of the generated zip files.
- **Password**: Enter the zip file password.

Login Tab

- **Use Microsoft Outlook**: Select to use Microsoft Outlook to send emails (and attachments). The host computer must be running Outlook, and PlanetPress must have access to Outlook. Emails generated by PlanetPress Workflow appear in the outbox before being sent by Outlook whenever it is set to send emails.
- **Use SMTP mail**: Select to use Simple Mail Transfer Protocol (SMTP) to send the emails (and attachments). To use SMTP you must enter information in the Name, Email Address and Outgoing Mail (SMTP) boxes below.
- **Name**: Enter the sender's name that will be used in emails sent by PlanetPress Workflow for this task.
- **Organization**: Enter the organization name that will be used in emails sent by PlanetPress Workflow for this task (this is optional).
- **Email address**: Enter the sender's email address that will be used in emails sent by PlanetPress Workflow for this task.
- **Reply address**: Enter the reply address that will be used in emails sent by PlanetPress Workflow for this task (this is optional).
- **Outgoing mail (SMTP)**: Enter the IP address of the mail server PlanetPress Workflow is to use to send emails via SMTP.
- **Port**: Specify the outgoing SMTP Port if it is different from the default port (25).

- **Server requires authentication**: Select if the outgoing server mentioned above requires authentication. To use authentication you must enter information in the Account name and Password boxes below.
- **Account name**: Enter the name of the account that PlanetPress Workflow is to use to send emails via the mail server.
- **Password**: Enter the password associated with the account name entered above.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Send to Folder

Send to Folder Output tasks send the files they receive to a local folder. They perform the same function as **Send to Folder** Action tasks, with the only difference being that in this case, PlanetPress Workflow will not wait for the task to be completed before going on to the next task in the configuration.

Input

Any data file.

Processing and output

The file is saved in the location specified, as the file name specified.

Task properties

General Tab

- **Folder**: Enter the path of the folder to which the files are to be saved.
- **File name**: Enter the name of the output files generated by this task. To prevent each new file from overwriting the previous one, you should use variable names. You can use any combination of text, variables and data selections; see "Variable task properties" on page 303.

- **Concatenate files**: If this option is selected, when PlanetPress Workflow tries to save the job file under an existing name, it appends the content of the new job file to that of the existing file, instead of overwriting it.
  In the case of a PDF, this will act like the "Merge PDF Files" on page 341 input task, merging the PDF logically.
- **Separator string**: This option is used to add a separator string between the content of each file when the Concatenate files option is selected.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Document Management tasks

A Document Management task is a connector to a Document Services, ECM or Document Management system outside of PlanetPress Workflow itself.

A few Document Management tasks are included with the installation of Workflow:

- "Input from SharePoint" on page 687
- "Output to SharePoint" on page 691

The following plugins are not initially installed with Workflow but they are available for download on the Resource Center (help.objectiflune.com). Once installed, they appear in the **Document Management** category.

- "Connection tab" on page 671
- "Connection tab" on page 676
- "Advanced properties" on page 684
- "Advanced properties" on page 687
- Therefore2Way (The manual for this plug-in is provided with the plugin's installer and is not available under the Workflow Help.)

DocuWare

DocuWare is an Enterprise Content Management (ECM) system that is widely used in industry. It provides mechanism for storing, versioning and sharing files across an organization. See https://start.docuware.com/ for more details about DocuWare.

The Workflow DocuWare solution is based on two plugins:

- The "Connection tab" on page 671 plugin for downloading files from DocuWare server.
- The "Connection tab" on page 676 plugin for uploading files to DocuWare server.

These plugins are not initially installed with Workflow. available for download on the Resource Center (help.objectiflune.com). After downloading the .PPK files, you will then need to import them into Workflow yourself.
See . See Importing a plugin.

Once installed, the DocuWare plugins will appear in the **Document Management** category in the Plug-In Bar.

> **Note**
>
> To be able to use this plugin you need a working DocuWare user account with appropriate permissions.

Plugin legal notices and acknowledgments

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DocuWare Download

The DocuWare Download plugin Downloads files of any file type from a dedicated DocuWare CRM system.

Installation

This plugin is not installed with Workflow, but it is available for free download from the Resource Center (help.objectiflune.com).

After downloading the .PPK file, you will then need to import it into Workflow yourself. See .
See Importing a plugin.

Once imported, the DocuWare Download plugin will appear in the **Uncategorized** category within the Plug-In Bar.

To be able to use this plugin you need a working DocuWare installation and user account with appropriate permissions.

Input

The input of this plugin can be a file of any type.

Processing

After establishing a connection with the DocuWare system, the plugin will try to Download the specified file from the selected File Cabinet. The plugin won't modify the downloading file in any way. The downloaded file will then become the job data file.

If any issue is detected during a file Download, the log messages and the related file and its index values will be stored.

The Docuware Download plugin is designed to work offline as well as online. Once a Test Connection has been established, the Cabinet and Index data will be downloaded and stored locally. This allows authoring of Workflow configurations without requiring a constant live connection.

> **Warning**
>
> The plugin is not designed to be run in multi-threaded, multi-process or auto-replicate environments.
>
> It has not been designed for parallellization in regards to internal resource usage, file and data access, or logged-on users.

Task properties

Connection tab

The Connection tab fields set the connection parameters. You can use static text and/or Workflow variables, data and lookup functions.

Right-clicking a field opens the contextual menu that allows to add variables, data and lookup functions (see "Data selections" on page 53), where available.

DocuWare Server

Enter the DocuWare Host address. For example *https://mycompany.docuware.cloud*

Organization

Enter registered Organization name. For example *MyCompany*

Platform

Enter the DocuWare platform. For example *docuware/platform*

Username

Enter the DocuWare login Username.

Password

Enter the password associated with the selected DocuWare login Username.
Use the password Hide/Show button to either display or obscure the password.

- Clicking this option will display the password.
- Clicking this option will obscure the displayed password.

> **Note**
>
> When the password is set via a variable, it is important to know that the password might be visible. It is the user's responsibility to protect the passwords in such cases.

Test Connection

This button tests the connection details entered in the Connections tab. If a successful connection is made, then *Connection Success* will appear as the current status.

When a successful connection is made a listing of all the available cabinets and fields for that login will be downloaded and stored locally, for use in the **Download** tab. Once a connection

has been established and the cabinet and file information obtained, the plugin will open upon the **Download** tab when next plugin is next opened.

As different users can have different permissions (such as access to different cabinets) this information is tied to both the *host* and *username*. If either the user or server is changed, then a new Test Connection will be required to re-populate the cabinets and fields for that new connection.

If the Test Connection fails, information about the reasons for failure will be displayed in the status area, if the plugin can determine the reasons for the failure.

Download tab

The **Download** tab provides the controls for defining the file to be Downloaded, included related index values. The plugin window is expandable, which helps to display all the information at once when field names are quite long.

- **Download** section.
  In order Download a file the plugin needs to know to which File Cabinet it must be directed to.
  - **File Cabinet**: If the Test Connection was run successfully, the plugin will have a list of available File Cabinets, extracted from the DocuWare server. Select a File Cabinet from the drop-down list .

    Alternatively, you can enter the File Cabinet entry directly. You may also use variables, data and lookup functions. Right-clicking within the field opens the contextual menu. See "Data selections" on page 53 to assist with this.

    If the File Cabinet specified in the text box does not exist at run time, the plugin will replace it with the first File Cabinet name on the previously extracted Cabinet list.

  The File Cabinet entry is case-sensitive.

- **Retrieve By ID** / **Retrieve By Search** selection: Choose between these two document selection options.

  Depending upon the selection made, one of the two options will become available:
  - **ID** section becomes active if **Retrieve By ID** was chosen.
    Enter the Document ID directly in the **Document ID** entry box.

You may use variables, data and lookup functions. Right-clicking within the field opens the contextual menu. See "Data selections" on page 53 to assist with this.

- **Search** section becomes active if **Retrieve By Search** was chosen.
  It will download a document from the DocuWare server, based upon the following criteria:
  - **Field**. Enter the Field to search on.
    This can be entered directly as static text, or you could use the Field picker (•••) to launch a Field selection pick list that is populated with all the available fields, and them select the desired field from there.

    > **Note**
    >
    > The pick list display can be customized by entering a search string in the entry field atop the Field Picker box. This restricts the listed fields to just those containing the search string.

  - **Value**. Add the value to apply.
    You can use static text and/or Workflow variables, data and lookup functions. Right-clicking in the field opens the contextual menu that allows adding variables, data and lookup functions (see "Data selections" on page 53).

    You can add or remove search criteria using the following options:

    You can populate the table with *all* the available Index Field options at any time by selecting the **Add missing fields** ( ) button. If selected initially this will add all the available fields to the table. If selected after some fields had already been added via the field picker button (•••), it will add any missing fields to the end of the Index data table.

    You can Add (+) or Remove (−) individual entries, as well as move them up (^) or down (v) within the table.

    At any point you can verify the accuracy of the selected Index options by selecting the Validate ( ) button. Index entries that are duplicated appear in

orange text, and index entries that do not match available options appear in red.

> **Note**
>
> If more than one document is found based upon the selected search criteria, the download will fail.

- **Response** section.

  Select which result you wish stored, and which Workflow variable is to be used to store the result.

  Select either **Store Filename in Variable** (the name of the file downloaded), or **Store Response in Variable** (the success/failure response).

  Then select the Workflow variable to be used for the result.

  The DocuWare plugin searches for the variable by name and sets the selected response into the variable.

  So using *dwresponse* as the variable name would mean that DocuWare Download searches for the local variable of that name.

Plugin legal notices and acknowledgments

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DocuWare Upload

The DocuWare Upload plugin uploads a single file of any file type to a dedicated DocuWare CRM system with related index information.

DocuWare is organized in so called "File Cabinets", where each cabinet can have its own, specific set of index fields. This plugin allows defining of the target File Cabinet and respective index values.

Installation

This plugin is not installed with Workflow, but it is available for free download from the Resource Center (help.objectiflune.com).

After downloading the .PPK file, you will then need to import it into Workflow yourself. See . See Importing a plugin.

Once imported, the DocuWare Upload plugin will appear in the **Document Management** category within the Plug-In Bar.

To be able to use this plugin you need a working DocuWare installation and user account with appropriate permissions.

Input

The input of this plugin can be a file of any type.

Processing

After establishing a connection with the DocuWare system, the plugin will try to upload the specified file (either the Job File, or an external file) with the given index values to the selected File Cabinet. The plugin won't modify the uploading file in any way.

If any issue is detected during a file upload, the log messages and the related file and its index values will be stored.

The Docuware Upload plugin is designed to work offline as well as online. Once a Test Connection has been established, the Cabinet and Index data will be downloaded and stored locally. This allows authoring of Workflow configurations without requiring a constant live connection.

Warning

The plugin is not designed to be run in multi-threaded, multi-process or auto-replicate environments.

It has not been designed for parallellization in regards to internal resource usage, file and data access, or logged-on users.

Connection tab

The Connection tab fields set the connection parameters. You can use static text and/or Workflow variables, data and lookup functions.

Right-clicking a field opens the contextual menu that allows to add variables, data and lookup functions (see "Data selections" on page 53), where available.

DocuWare Server

Enter the DocuWare Host address. For example *https://mycompany.docuware.cloud*

Organization

Enter registered Organization name. For example *MyCompany*

Platform

Enter the DocuWare platform. For example *docuware/platform*

Username

Enter the DocuWare login Username.

Password

Enter the password associated with the selected DocuWare login Username.
Use the password Hide/Show button to either display or obscure the password.

- Clicking this option will display the password.
- Clicking this option will obscure the displayed password.

> **Note**
>
> When the password is set via a variable, it is important to know that the password might be visible. It is the user's responsibility to protect the passwords in such cases.

Test Connection

This button tests the connection details entered in the Connections tab. If a successful connection is made, then *Connection Success* will appear as the current status.

When a successful connection is made a listing of all the available cabinets and fields for that login will be downloaded and stored locally, for use in the **Upload** tab. Once a connection has been established and the cabinet and file information obtained, the plugin will open upon the **Upload** tab when next plugin is next opened.

As different users can have different permissions (such as access to different cabinets) this information is tied to both the *host* and *username*. If either the user or server is changed, then a new Test Connection will be required to re-populate the cabinets and fields for that new connection.

If the Test Connection fails, information about the reasons for failure will be displayed in the status area, if the plugin can determine the reasons for the failure.

Upload tab

The **Upload** tab provides the controls for defining the file to be uploaded, included related index values. The plugin window is expandable, which helps to display all the information at once when field names are quite long.

File to upload

This frame holds all the elements on the file which is to be uploaded to DocuWare.
The plugin can upload either the incoming *Job file*, or a file from the file system (*External file*).

Select either:

1. **Job file**: Select this option to upload the current Workflow Job file (the equivalent of using %F).
2. **External file**: Select this option to upload a file from the file system. Selecting this option activates the file selection input field.

   To select a file click the Browse button ( ) to browse for a file, or right-click within the input field to open the context menu which allows the selection of variables, data and lookup functions (see "Data selections" on page 53). Note that the plugin will not verify

the validity of the file name, if it were not browsed for.

If no upload file has been specified, DocuWare will take the name of the uploaded file as the document name. If the Workflow Job File is to be uploaded, it is highly recommended renaming the file, as otherwise the Workflow temporary file name will become the document name.

- **File type**: Enter the type of file, from the list contained in the drop down box. Select Auto-detect if unsure of the file type, and the plugin will then set the content-type based upon the file extension.

  The File type entry is directly editable so your can enter your own file type, should it be missing from the list.

Destination

In order to upload a file the plugin needs to know to which File Cabinet it must be directed to. The details for this are all contained in this Destination frame.

- **File Cabinet**: You can select a File Cabinet from the drop-down list if the Test Connection was run successfully. The plugin will have a list of available File Cabinets, extracted from the DocuWare server.

  Alternatively, you can enter the File Cabinet entry directly. You may also use variables, data and lookup functions. Right-clicking within the field opens the contextual menu. See "Data selections" on page 53, to assist with this.

  If the File Cabinet specified in the text box does not exist at run time, the plugin will replace it with the first File Cabinet name on the previously extracted Cabinet list.

  The File Cabinet entry is case-sensitive.

> **Note**
>
> Each cabinet has a default document name, which is configured in the DocuWare preferences.
> The current document name will be highlighted in the read only **Document name**

field screen entry, whenever a new Cabinet is selected.

- **Create a new document** / **Update existing document** selection: Choose between these two options.
  Each does as the name suggests.

  - **Create a new document** will load the document as a new document to the DocuWare server.
    This document will be named based upon the document name field (as seen highlighted in the **Document name field** screen entry).
  - **Update existing document** will add to an existing document of the same name on the DocuWare server, based upon the following criteria:

    - **Search Field**. Enter the Field to search on.
      This can be entered directly as static text, or you could use the Field picker ( ) to launch a Field selection pick list that is populated with all the available fields, and them select the desired field from there.

      > **Note**
      >
      > The pick list display can be customized by entering a search string in the entry field atop the Field Picker box. This restricts the listed fields to just those containing the search string.

    - **Value**. Add the value to apply.
      You can use static text and/or Workflow variables, data and lookup functions. Right-clicking in the field opens the contextual menu that allows adding variables, data and lookup functions (see "Data selections" on page 53).

  > **Note**
  >
  > If more than one document is found based upon the selected search criteria, the update will fail.

Index Data

Select whatever Index fields you want to add via this index table.

You can populate the table with *all* the available Index Field options at any time by selecting the **Add missing fields** ( ) button. If selected initially this will add all the available fields to the table. If selected after some fields had already been added via the field picker button ( ), it will add any missing fields to the end of the Index data table.

You can Add ( ) or Remove ( ) individual entries, as well as move them up ( ) or down ( ) within the table.

At any point you can verify the accuracy of the selected Index options by selecting the Validate ( ) button. Index entries that are duplicated appear in orange text, and index entries that do not match available options appear in red.

> Note
>
> The **Document name field** entry will appear in italics in the table.

All **index values** must be entered in a **unified format**. This means as follows:

- **Strings**: String values will be uploaded to Docuware "as-is", without modifications. Strings are Unicode-aware, so that non-ASCII characters can be entered as well, like Chinese, Japanese, etc..
- **Numeric values**: Numeric values must be entered using only digits 0-9, a preceding - or + sign and the dot as decimal separator. Any other characters are prohibited and using them will lead to an error. The plugin will convert the value internally to match the respective numerical format as defined inside **DocuWare**.
- **Date values** Any date values must be entered in unified UTC format. Generally allowed formats are:

    - yyyy-mm-dd
    - yyyy-mm-dd HH:MM:SS
- **Yes/No, True/False, 0/1 values**: Such values may be entered as either "Yes", "1", "True" or "No", "0", "False". Any other value will raise an error.

Also note that **index names** are **case-sensitive**.

> **Note**
>
> Fields with empty values will not be saved when the OK button is pressed.

Response

Specify an optional Workflow variable that is used to store the result.

The DocuWare plugin searches for the variable by name and sets the JSON response into the variable.

So using *dwresponse* as the variable name would mean that DocuWare upload searches for the local variable of that name.
If `%{dwresponse}` is used, Workflow will expand the variable and the contents would be used as target variable.

Plugin legal notices and acknowledgments

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M-Files

M-Files is an Enterprise Content Management (ECM) system that is widely used in industry. It provides a metadata driven mechanism for storing, versioning and sharing files across an organization. See https://www.m-files.com for more detail about M-Files.

The Workflow M-Files solution is based on two plugins:

- The "Advanced properties" on page 684 plugin for downloading files from an M-Files server.
- The "Advanced properties" on page 687 plugin for uploading files to an M-Files server.

These plugins are not initially installed with Workflow. available for download on the Resource Center (help.objectiflune.com). After downloading the .PPK files, you will then need to import them into Workflow yourself.
See . See Importing a plugin.

Once installed, the M-Files plugins will appear in the **Document Management** category in the Plug-In Bar.

> **Note**
>
> To be able to use this plugin you need a working M-Files installation and a user account with appropriate permissions.

Plugin legal notices and acknowledgments

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M-Files Download

The M-Files Upload plugin downloads a single file from an M-Files system (see "M-Files" on the previous page).

This Action plugin is not initially installed with Workflow. It is available for download on the Resource Center (help.objectiflune.com).
After downloading the .PPK file, you have to import it into Workflow;see see Importing a plugin.
Once installed, the plugin will appear in the Document Management category in the Plug-In Bar.

> **Note**
>
> To be able to use this plugin you need a working M-Files installation and a user account with appropriate permissions.

Input

The input of this plugin can be any file, since it isn't used by the plugin.

Processing

The M-Files Download plugin starts by sending a login request to the M-Files Server. Once the connection is established, it tries to download a copy of the specified file from the Vault that it is connected to.
If the search for files results in multiple files being found, then only the first file is downloaded.
The downloaded file is not removed from the M-Files Server.
The plugin saves either the file name or the (JSON) response that it gets from the M-Files Server in the specified variable.

Output

The output of this plugin is the downloaded file.

Task properties

General Tab

All of the properties on this tab are dynamic. This means that you can use any combination of text, variables and data selections of which the value will be determined whenever the process runs (see Variable task properties).

- **Connection**: The plugin needs your M-Files Server's credentials and a Document Vault GUID in order to start communicating with the M-Files Server.
  - **M-Files Server**: Enter the address of the M-Files Server (e.g. https://mycloud.sample.com/m-files).
  - **Username**, **Password**: Enter the user name and password that the plugin can use to send a login request to the M-Files Server.
  - **VaultGUID**: Specify the unique identifier (GUID) for the desired Vault. This is required. The uploaded file will be stored in this Vault.
- **Retrieve by ID**:
  - **Document ID**: Specify the Document ID.
  - **Version** (optional): Specify the version of the document (at the root level of the Vault). If the version is not given, the latest version of the document will be retrieved.
  - **FileID** (optional): If the file ID is not given, the first file - the root document - will be retrieved.
- **Retrieve by Property Search**: This section allows the retrieval of files by searching for specific Definition entries.

- **Property Definition ID**: The property to search for. Property Definition IDs can be found in the Metadata Structure of the respective Vault on the M-Files server.
- **Value**: The value to search for.

- **Response**: Select whether to store either the **file name** or the **response** that the plugin gets from the M-Files server in a variable, and specify the name of the variable to use.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

M-Files Upload

The M-Files Upload plugin uploads a single file to an M-Files system (see "M-Files" on page 682).

This Action plugin is not initially installed with Workflow. It is available for download on the (help.objectiflune.com).
After downloading the .PPK file, you have to import it into Workflow; see Importing a plugin.
Once installed, the plugin will appear in the Document Management category in the Plug-In Bar.

> **Note**
>
> To be able to use this plugin you need a working M-Files installation and a user account with appropriate permissions.

Input

The input of this plugin can be any file.

Processing

The M-Files Upload plugin starts by sending a login request to the M-Files server. Once the connection is established, it tries to upload the specified file to the M-Files server, either as a new document or as the new version of an existing document. The plugin saves the (JSON) response that it gets from the M-Files Server in the specified variable.

Output

The output of this plugin is the unchanged Job File.

Task properties

General Tab

All of the properties on this tab are dynamic. This means that you can use any combination of text, variables and data selections. The value of variables and data selections will be determined whenever the process runs (see Variable task properties).

- **Connection**: The plugin needs your M-Files Server's credentials and a Document Vault GUID in order to start communicating with the M-Files Server.
  - **M-Files Server**: Enter the address of the M-Files Server (e.g. https://mycloud.sample.com/m-files).
  - **Username**, **Password**: Enter the user name and password that the plugin can use to send a login request to the M-Files Server. The user should have the appropriate rights.
  - **VaultGUID**: Specify the unique identifier (GUID) for the desired Vault. This is required. The uploaded file will be stored in this Vault.
- **File to Upload**:
  - **Input File Name**: Enter %F to use the current Job File, or specify the full file name (including its extension).
  - **Document Title**: Specify the file's name (including its extension) as it should appear on the M-Files server. When this setting is left empty, the plugin will use the Input File Name as the Document Title.
- **Mode**: Select whether to create a new Document or update an existing one.
  - **Create**: In Create mode, a new document with a single file is created at the root level of the Vault.

        - **Document Class ID**: Document classes are defined (per vault) on the M-Files server. Specify the desired Class by giving its ID (an integer).
    - **Update**: In this mode, the file is added as the new version of an existing document (at the root level of the Vault) and its properties may be changed. To find the existing document, the plugin needs the following data:
        - **Property ID**: Enter the integer that identifies one property of the existing document. Property Definition IDs can be found in the Metadata Structure of the respective Vault on the M-Files server.
        - **Value to be searched**: Enter the value of the given property. Note that this should uniquely identify the document. When multiple documents are found, this will result in an error.
- **Properties**: Specify up to 5 properties that must be set in M-Files as metadata for the uploaded file. Any existing properties will be replaced with the given value.
    - **Property Definition ID**: Enter the ID of the property. Property IDs can be found in the Metadata Structure of the Vault on the M-Files server.
    - **Data Type**: The ID of the Data Type of this property. Supported data types are:

ID	Data Type
1	Text
2	Integer
5	Date
8	Boolean

    - **Value**: The (new) value of the property.
- **Response**:
    - **Store response in a variable** (optional): Specify a variable if you want the plugin to store the JSON response that it gets from the M-Files server.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Input from SharePoint

The **Input from SharePoint** task can be used to retrieve files from a SharePoint server on your network, filtering on your template fields and creating Metadata to use in your process.

When the **Input from SharePoint** task runs, it first lists all of the files to download then runs the process once for each file in the list. If any new files are added during the process, they will not be touched until the next time the process is scheduled.

This task works with many of the available SharePoint servers:

- Microsoft SharePoint 2007
- Microsoft SharePoint 2010
- Windows SharePoint Services 3.0 SP2
- SharePoint Foundation 2010
- SharePoint 2013

It may work but has not been certified with other SharePoint server versions.

Licensing

This plugin requires the OL Connect Workflow **Imaging** license.

Workflow Imaging is an add-on license bundle for OL Connect Workflow that includes the Image and Fax plugins; see "About PlanetPress Image" on page 744 and "About PlanetPress Fax" on page 743.

Without a valid Imaging license, the plugin will fail with an error. In the trial version, the plugin will work.

Input

Any data file present on a SharePoint document store, even those not compatible with PlanetPress Workflow emulations, and the properties of these files.

Processing

The task connects to the selected Document store and retrieves a copy of files according to the specified rules. The files may be deleted or marked as checked out depending on the options selected, otherwise they are untouched.

Output

The output to this task is a series of individual files, one after the other.

Task properties

General Tab

> **Note**
>
> For this tab to work, you must have entered your SharePoint Connection information in the Connection Tab.

- **SharePoint Site**: The name of the SharePoint site from where you want to retrieve documents. You can click on the **Refresh** button to display a list of sites on your SharePoint server.
- **Document Library**: The document library where you want to retrieve the files. You can click on the **Refresh** button to display a list of libraries on the SharePoint site selected previously.
- **Folder**: The folder in the document library where your files are located. You can click the **Browse** button to display your folder structure. In the **Browse Folders** dialog, click on the folder you want to use and click OK.
- **Input Rule**: Lets you define rules to filter incoming files on certain variables, for example the file name, size, etc. Clicking the **...** button brings up the "Rule Interface" on page 860.
- **Download files from sub-directories also**: Check to also look into subdirectories of the specified Folder.
- **Do not download checked out documents**: If the document is set as "Checked Out" in SharePoint, it will be ignored.

- **Action Group**
  - **Download the document**: Simply download the document and do not modify it in SharePoint.
  - **Download the document and mark it as checked out in SharePoint**: Download the document and mark it as Checked Out in SharePoint. This is useful for preventing files to be downloaded more than once.
  - **Download the document and delete it from SharePoint**: Download the document and delete it from the SharePoint server.

Connection Tab

- **Server Name**: The name of the SharePoint server. This can either be a server name (e.g. http://SharePoint2003) or an IP address (e.g. http://192.168.1.123). Both http:// and https:// (secure) connections are accepted.
- **Domain**: The active directory domain for the logon credentials. This is not necessary if the SharePoint server is not part of a domain.
- **User Name**: A valid user name that has access to the SharePoint site and is able to read and write to document libraries.
- **Password**: The correct password for the user name.

"Other" Tab

- **Job Information group**
  - **Information elements**: Indicates what Job Info variables are automatically created by the input task.
  - **Add lines before first data page**: Using the arrows keys you can add any job information directly at the beginning of your data file.
- **Backup input files**: Check this to save a copy of each data file that is captured by your input. These files are saved in the PlanetPress **Workflow Tools** working folders under the "Backup" folder.
  To navigate quickly to the Workflow working folders, press the keyboard shortcut CTRL+ALT+Shift+F4 from within the Workflow configuration tool.
  The number of days to keep backups of jobs processed by input tasks is set per process; see "Process properties" on page 854.

- **Backup filename**: Enter the file name that you wish the input data file backup to be saved under.
- **Delete Existing Metadata**: Check to remove any Metadata from memory. This option is disabled on initial input tasks, and is checked by default on secondary input tasks.

Job Information definitions

- **%1 - Source file name**: Contains the name of the current captured file.
- **%2 - Directory**: Contains the name of the SharePoint director from which the current file was captured.

Output to SharePoint

The **Output to SharePoint** action task can be used to send files to an existing Microsoft SharePoint server.

Example Workflow process

This task is put into effect in the following use cases and example processes:

- Capture Post Processing Workflow

Note that Capture is only available with PlanetPress Suite.

Licensing

This plugin requires the OL Connect Workflow **Imaging** license.

Workflow Imaging is an add-on license bundle for OL Connect Workflow that includes the Image and Fax plugins; see "About PlanetPress Image" on page 744 and "About PlanetPress Fax" on page 743.

Without a valid Imaging license, the plugin will fail with an error. In the trial version, the plugin will work.

Input

Any data file, with optional Metadata.

Processing

The task connects to the selected Document store and uploads the current data file. If the file already exists, it will be overwritten and, if this option is selected, marked as "checked in". The information accompanying the file (the SharePoint Metadata) is either updated or created.

Output

The output of this task is the original data file.

Task properties

General Tab

- **SharePoint Site**: The name of the SharePoint site where you want to send the files. You can click on the **Refresh** button to display a list of sites on your SharePoint server.
- **Document Library**: The document library where you want to send the files. You can click on the **Refresh** button to display a list of libraries on the SharePoint site selected previously.
- **Folder**: The folder location in the document library where your files will be sent. You can click the **Browse** button to display your folder structure. In the **Browse Folders** dialog, click on the folder you want to use and click OK.
- **Force folder creation**: If the folder does not exist, it will be created.
- **Error if the file name exists**: Task will generate an error if the file name is already there.
- **Mark the document as checked in**: Sets the "Checked in" property of the document on the SharePoint server.
- **Configure Fields**: Opens the **Configure SharePoint Metadata Fields** dialog.

Configure SharePoint Metadata Fields dialog

This dialog lets you setup the information you want to assign to the SharePoint Metadata information. It contains one line for each field present in the SharePoint document library.

- **Field Name**: Name of the field as set in SharePoint Document Library.
- **Field Information**: The information to enter in the SharePoint Document's Metadata for this field.

- **Use PDF/A**: Check to use the information contained within an PDF. This PDF must have been created with PlanetPress Image and contain an Index field (data selection) of which the name corresponds exactly to the Field Name in the SharePoint Document Library. If this option is checked, the Field Information will change to "Use PlanetPress Index (PDF/A)".
- **Field Type**: The type of field as set in the SharePoint Document Library. The following SharePoint field types are supported by the SharePoint output task:
  - **Single line of text**: This type may contain a string of any type of characters. This is the most flexible type of field. Use this type when you are not sure if the constraints of the other types of fields will be appropriate.
  - **Multiple line of text**: This type may contain multiple lines of text.
  - **Choice**: This type contains the menu to choose from.
  - **Number**: This type may contain a number (1, 1.0, 100). The decimal separator is "." in the plugin.
  - **Currency**: This type contains the currency ($ …).
  - **Date/Time**: Date/Time fields contain a date and time
  - **Yes/No**: Yes/No (menu to choose from). If passing a variable, has to be either "Yes" or "No".
  - **Hyperlink or Picture**: This type contains an html hyperlink or picture.

> **Note**
>
> Document libraries using the *Content Type* system in SharePoint 2007 and higher (as well as Windows SharePoint Services 3.0 and higher) are supported in PlanetPress Workflow 7.4 and higher only.

Connection Tab

- **Server Name**: The name of the SharePoint server. This can either be a server name (e.g. http://SharePoint2003) or an IP address (e.g. http://192.168.1.123). Both http:// and https:// (secure) connections are accepted.
- **Domain**: The active directory domain for the log-on credentials. This is not necessary if the SharePoint server is not part of a domain.

- **User Name**: A valid user name that has access to the SharePoint site and is able to read and write to document libraries.
- **Password**: The correct password for the user name.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Email Services

Email Services tasks send emails to an Email Service Provider (ESP) using the ESP's Web API.

These OL Connect tasks are not initially installed with Workflow but they are available for download on the Resource Center (help.objectiflune.com).
After downloading a .PKK file, you have to import it into Workflow; see "Importing a plugin" on page 871.
Once installed, these tasks will appear in the Email Services category.

- "Mailjet" below
- "SendGrid" on page 698

> **Note**
>
> In order to use one of these tasks, you will need to have an account that allows you to send email through the respective Email Service Provider.

Mailjet

> **Note**
>
> - The Mailjet plugin is not installed by default. It is available for download on the Resource Center (help.objectiflune.com). Make sure that the version number of Workflow and the plugin are the same, to avoid compatibility issues.
> - To be able to send email using the Mailjet plugin, you need a Mailjet account, API key and Secret API key.

The Mailjet plugin allows you to:

- Specify the emails' campaign name. Each e-mail going through Mailjet is attached to a campaign, which enables you to track a campaign's performance and analyze the results.
- Add headers specifying specific handling instructions for your email. You could set an existing header like the Sensitivity or X-priority header (see https://tools.ietf.org/html/rfc1327), or create a custom header.

Installing the plugin

First unzip the contents of the ZIP file and then install using the wizard. Click **Yes** to replace any previously installed version of the plugin.

1. Open the Workflow Configuration tool .
2. In the Plug-In Bar, click on the two black arrows with the black triangle underneath, at the bottom right area of the window pane.
3. In the popup menu, select “Import Plug-in” and select the PluginFileName file.
4. If an older version of the plugin is already installed, a warning will be shown, asking if you want to overwrite the existing file. Click OK. In this case you must restart Workflow to allow proper reloading of the plugin. If you do not restart Workflow, the plugin will not function correctly. All existing instances of the plugin in Workflow processes must also be replaced by the new version.

You can now find the M-Files in the PluginCategory category of the Plug-In Bar.

> **Note**
>
> No third party system resources are incorporated directly into this OL product. This means that while the plugin was tested against the associated third party systems when initially released, they may behave differently with later versions of that system. Use at your own risk.
>
> Should you encounter any issues, please contact your local Objectif Lune Support team and we will do our best to help.

Testing the plugin

To test the plugin, drag it from the Plug-In Bar into a process. The plugin configuration dialog will open and show the index property page. If that works, the plugin is installed correctly and ready for use.

> **Note**
>
> Further help can be found by pressing **F1** or the **Help** button in Connect Workflow from the “M-Files” dialog or by searching for “M-Files” in the Workflow product documentation at help.objectiflune.com

Input

Extra attachments

To specify an extra attachment, you have to use the key/value pair "disposition":"attachment".

To let the plugin know where it can find the attachment, you can either provide a full **path** ("url"), for example:
`[{"url":"file:///C:/Terms-and-Conditions.pdf","disposition":"attachment"}]`
or
`[{"url":"http://www.example.com/image.png","disposition":"attachment"}]`
or a Connect **File Store ID** ("fileid"), for example:
`[{"fileid":100034, "disposition":"attachment"}]`

Optionally, you may provide a **name** ("name") to override the name that the plugin creates for an extra attachment.
Examples:

```
[{"fileid":100034,"name":"example.pdf","disposition":"attachment"}]
[{"url":"file:///C:/Terms-and-
Conditions.pdf","name":"terms.pdf","disposition":"attachment"}]
```

All attachments should be combined in one array:

```
[{"url":"file:///C:/Terms-and-
Conditions.pdf","disposition":"attachment","name":"Terms.pdf"},{"name":"Take action
Mandie.pdf","disposition":"attachment"}]
```

The order of the key/value pairs is not important.

Processing

The plugin communicates with the Connect Server to retrieve each email message's body, any attachments and the plain text version (if available) from the File Store, using the folder ID and file names specified in the output of the Render Email Content task.
It then transforms the files into email messages as specified by Mailjet and sends the emails via the Mailjet Web API.

Output

This task does not make any changes to the Metadata or the Job File.

Properties

General Tab

- **Mailjet API**:
  - **API Key** and **Secret Key**: The API Key and Secret Key are both generated automatically when you create your Mailjet account. The plugin needs to provide them in order to authenticate its request to Mailjet's Email API endpoint.
  - **Data Source** (see "Input" on the previous page):
  - **Custom Campaign**: Each e-mail going through Mailjet is attached to a campaign. Specify the campaign name here. If the campaign doesn't already exist it will be automatically created in the Mailjet system. When sending email through Mailjet's Web API it is allowed to send multiple emails with the same campaign name to the same contacts.

- **Headers** (optional): A JSON object containing one or more key/value pairs of header names and the value to substitute for them:. For example: `{"Sensitivity":"Company-Confidential","X-Priority":"1"}`
  If they contain Unicode characters, you must ensure that these are properly encoded.
  Custom header names normally start with "x-": `{"x-my-header":"my-value"}`.

- **Debug settings**:
  - **Send all messages to the Test Address**: When this option is checked, Mailjet will only send the emails to the given Test Address. This allows you to review the result and to test ESP specific options like open rates and click through statistics.
  - **Log email messages**: Check this option to get a copy of each message in the Messages window of Workflow. You can use this to verify that the messages match the format required by the ESP.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

SendGrid

> **Note**
>
> - The SendGrid plugin is not installed by default. It is available for download on the Resource Center (help.objectiflune.com). Make sure that the version number of Workflow and the plugin are the same, to avoid compatibility issues.
> - To be able to send email using the SendGrid plugin, you need a SendGrid account and API key.

The SendGrid plugin allows you to:

- Tag the emails with category names, which help organize your email analytics (see About categories).
- Set a time at which the emails should be sent (see Scheduling parameters).
- Add custom headers specifying specific handling instructions for your email. (To get an idea of what these could be used for, see SendGrid's blog post about email headers).

Input

Extra attachments

To specify an extra attachment, you have to use the key/value pair "disposition":"attachment".

To let the plugin know where it can find the attachment, you can either provide a full **path** ("url"), for example:
`[{"url":"file:///C:/Terms-and-Conditions.pdf","disposition":"attachment"}]`
or
`[{"url":"http://www.example.com/image.png","disposition":"attachment"}]`
or a Connect **File Store ID** ("fileid"), for example:
`[{"fileid":100034, "disposition":"attachment"}]`

Optionally, you may provide a **name** ("name") to override the name that the plugin creates for an extra attachment.
Examples:
`[{"fileid":100034,"name":"example.pdf","disposition":"attachment"}]`
`[{"url":"file:///C:/Terms-and-Conditions.pdf","name":"terms.pdf","disposition":"attachment"}]`

All attachments should be combined in one array:
`[{"url":"file:///C:/Terms-and-Conditions.pdf","disposition":"attachment","name":"Terms.pdf"},{"name":"Take action Mandie.pdf","disposition":"attachment"}]`

The order of the key/value pairs is not important.

Processing

The plugin communicates with the Connect Server to retrieve each email message's body, any attachments and the plain text version (if available) from the File Store, using the folder ID and file names specified in the output of the Render Email Content task.

It then transforms the files into email messages as specified by SendGrid and sends the emails via the SendGrid v3 Web API.

Output

This task does not make any changes to the Metadata or the Job File.

Properties

General Tab

- **SendGrid API**:
  - **API Key**: Enter your API key, retrieved from SendGrid. It will be used for authentication with the SendGrid v3 Web API. A valid key is required to send email messages.
  - **Data Source** (see "Input" on page 698):
  - **Categories** (optional): Enter a single category name (e.g. invoice) or an array of category names (e.g. ["invoice","brand1"]) for the messages. The maximum length of each category name is 255 characters. You can specify up to 10 categories per request. See About categories.
  - **Send At** (optional): Enter a UNIX timestamp specifying when you want your email to be sent from SendGrid. This can be left empty if you want the email to be sent at the time of your API request.
  - **Headers** (optional): A JSON object containing key/value pairs of header names and the value to substitute for them. Example: `{"x-my-header":"my-value"}`.
    If they contain Unicode characters, you must ensure that these are properly encoded.
    Custom header names normally start with "x-".
    The following headers are reserved and cannot be used as custom header: `x-sg-id`, `x-sg-eid`, `received`, `dkim-signature`, `Content-Type`, `Content-Transfer-Encoding`, `To`, `From`, `Subject`, `Reply-To`, `CC`, `BCC`.
- **Debug settings**:
  - **Send all messages to the Test Address**: When this option is checked, SendGrid will only send the emails to the given Test Address. This allows you to review the result and to test ESP specific options like open rates and click through statistics.

- **Log email messages**: Check this option to get a copy of each message in the Messages window of Workflow. You can use this to verify that the messages match the format required by the ESP.

Advanced properties

To get access to the following properties tabs, right-click the plugin in the process and select **Advanced Properties**.

Miscellaneous Tab

The **Miscellaneous** tab is common to all tasks.

Check the option **Use as step description** to display the text next to the icon of the plugin in the Process area.

Unknown tasks

An Unknown task is a task location that is not linked to any existing known task. Unknown tasks can have multiple causes:

- Cutting an input or output task will replace it with an Unknown task. See "Cutting, copying and pasting tasks and branches" on page 872.
- Creating a new branch will create an Unknown output task in that branch. See "Adding tasks" on page 301.
- Using Branch From Here... will create an Unknown output task below that branch. See "Adding tasks" on page 301.
- Opening a configuration that contains additional plugins that are not installed on that system will cause these plugins to be replaced by Unknown tasks. Installing the additional plugins and re-opening the configuration will restore the plugins and their properties.
- Opening a configuration that contains plugins only available in PlanetPress Workflow (such as Create PDF) from a PlanetPress Watch installation will cause these plugins to be replaced by Unknown tasks. Opening the configuration in a PlanetPress Production or Office installation or upgrading PlanetPress Watch to PlanetPress Workflow and re-opening the configuration will restore the plugins and their properties.

About variables

A variable is basically a keyword that points to specific location in your computer's memory. This location contains data that you decide to place in it, by assigning that data to the variable name.

There are four types of variables that can be used in PlanetPress Workflow:

- **Global variables** are available to all processes and tasks within the configuration, and any modification made to them affects all tasks and configurations. For more information see "Global variables" on page 710.
- **Local variables** are specific to an instance of a process. That is to say, when a process changes the information in a local variable, it changes it only for that process and only for that specific instance of the process. For more information see "Local variables" on page 708.
- **Job Infos** are also specific to an instance of a process, however their use is different. Just after an initial or secondary input task, Job Infos contain information about the job file itself. They are generally used to gather information from the input task, or to transfer information to a Connect template or PlanetPress Design document. For more information see "Job Info variables" below.
- **System variables** are standard variables, created and managed directly by PlanetPress Workflow. These variables are **read-only** and cannot be modified. They provide information about the job, process, and PlanetPress Workflow environment. For more information see "System variables" on page 704.

All the variables in PlanetPress Workflow are considered strings, even if the information itself can be a number. There are no other types of variables (such as arrays, floating point numerical values or booleans) in PlanetPress Workflow.

Job Info variables

Job Infos contain information on any job file that comes out of the initial input task or any secondary input tasks. There are only 9 Job Infos available numbered from 1 to 9. They can be accessed directly anywhere where variable properties are accepted, by using the number of the variable preceded by a percent sign, for example, `%2` or `%9`.

Not all available Job Infos will actually be used by input tasks. The number of Job Infos as well as their definition can be seen in the **Other** tab of any input task.

The value of a Job Info can also be set:

- Via the Set Job Info and Variable action task. See "Set Job Infos and Variables" on page 440.
- Via a Script task. See the chapter "Using Scripts" on page 141.

Note

- While the initial Job Infos are created by the input task, they can be overwritten by the Set Job Info and Variables Action task, by a Script, or by any secondary input task in the process. Whenever you use a job info in your process, make sure it contains the value that you want, and not one that has been overwritten by another task.
- Job infos are limited in quantity and are slowly being deprecated when transferring data to your documents. You should probably consider using "Metadata" on page 75, or local variables (see "Local variables" on page 708).

Using Job Infos in a Connect template

Workflow variables can be passed to a Connect template via a data mapping configuration. Data mapping configurations are created with the DataMapper module (inside Connect Designer). They contain a data model and instructions on how to extract data from a job file and are used by the All in One task and the Execute Data Mapping task.
Job Infos are passed to the task so the trick is to transfer the value of the Job Info to a field in the data model. To do that, simply add a property-based field to the Data Model and select a Job Info from the list of properties; see Adding a property-based field.

Note that Job Infos don't change whilst the task executes. Consequently, the value of the field that contains the Job Info will be the same in each of the records in the resulting record set.

Using Job Infos in a PlanetPress Design document

Job Infos are transmitted, unless otherwise configured, directly to any PlanetPress Design document used within a process and can be directly accessed by that document, so they can be used to transfer complementary information to a document that is not contained within the

data file.
Job Infos sent to the document are global to that document, meaning the values do not change between data files. This means that if your data file contains multiple data pages for different clients, your Job Infos cannot be used to send information to the document.

Tip

You can also access global and local variables from your document using the ExpandString() function. For more information, please see the PlanetPress Design User Guide.

System variables

System variables are standard variables, created and managed directly by PlanetPress Workflow. These variables are read-only and cannot be modified. They provide information about the job, process, and PlanetPress Workflow environment.

Available system variables

Variable	Name	Example value when interpreted
%a	Job file last modified date. Format: YYYY/MM/DD	2020/08/16
%c	Content of the job file in its original format	n/a
%F	Job file path and name	C:\Program Files\PlanetPress Workflow 7\PlanetPress Watch\Spool\job1D80328.dat
%f	Job file name including the file extension	job1D80328.dat

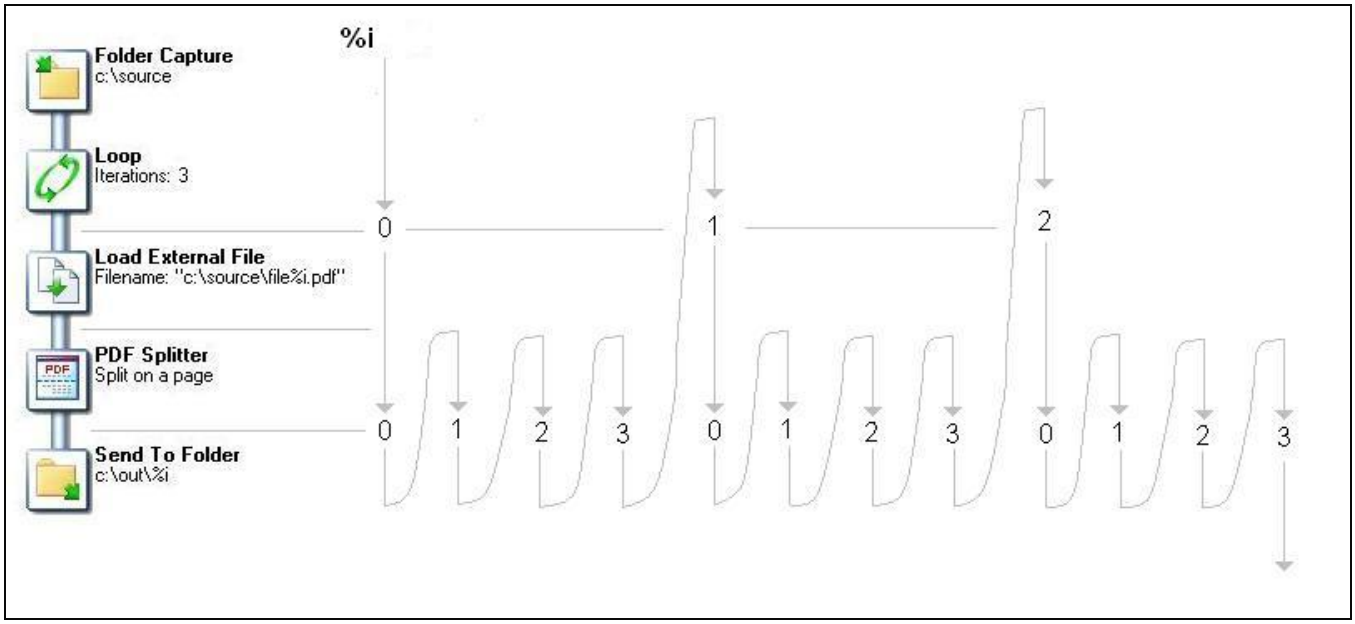
Variable	Name	Example value when interpreted
%z	Job file size in bytes	34134
%o	Original file name	invoice_june2nd.txt
%O	Original file name without extension	invoice_june2nd
%y	Current year	2010
%m	Current month (numeric)	06
%M	Current month (text)	June
%L	Current month (short text)	JUN
%d	Current day (numeric)	16
%D	Current day (text)	Monday
%l	Current day (short text)	MON
%h	Current hour	18
%n	Current minute	03
%r	Run mode (0:	0

Variable	Name	Example value when interpreted
	runtime, 1:debug)	
%s	Current second	41
%v	Current millisecond	24
%u	Unique 13-char string (will be different every time it is used)	0ZIS4CW8U47VI00
%U	Unique 36-character string consisting of 32 alphanumeric, lower case characters and four hyphens. Format: xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx (8-4-4-4-12 characters).	123e4567-e89b-12d3-a456-426655440000
%t	Current temporary folder	C:\Documents and Settings\All Users\Application Data\Objectif Lune\PlanetPress Workflow 7\PlanetPress Watch\Spool\6.tmp\
%e	Current Metadata file name	job00ZAIZ2C4FXON16CE6C566.dat.meta

Variable	Name	Example value when interpreted
%E	Current Metadata path and file name	C:\Documents and Settings\All Users\Application Data\Objectif Lune\PlanetPress Workflow 7\PlanetPress Watch\Spool\5.tmp\job00ZAIZ2C4FXON16CE6C566.dat.meta
%w	Current process name	My Process
%i	Current Loop iteration index (always the innermost loop)	2

The %i Loop Count variable

The value of the %i variable is equivalent to the current iteration of loops inside of a process. It always contains the value of the innermost loop, and only certain tasks trigger the counter to start. The below image shows an example process and the value of %i during this process:



Initial input tasks do not modify the value of %i. However, the following tasks do trigger the variable:

- Barcode scan
- Capture Field Processor
- All Splitters (Including the Metadata Sequencer)
- Get Capture Document
- Loop
- Capture PGC Splitter
- PrintShop Mail

Error handling variables

The error handling variables are read only and are filled by the On Error mechanism.
They can be accessed anywhere, but they only appear in the contextual menu of a task property field when the current process is an error-handling process (that starts with the Error Bin Input task). See also: "Variable task properties" on page 712.

Variable	Name
%{error.process}	Name of the process where the error was triggered.
%{error.tasktype}	The type of task that triggered the error
%{error.taskname}	The name of the task that triggered the error
%{error.taskindex}	The position of the task in the process
%{error.errormsg}	The error message, as entered in the **OnError** tab of the task. This is the same message as appears in PlanetPress Workflow Log file.
%{error.errorid}	The error ID, as entered in the **OnError** tab of the task. This is the same ID that appears in the Windows Event Viewer.
%{error.errorlog}	A string containing the logged error message(s) from a task. Multiple error messages are delimited by a "|" (vertical bar) character.

Local variables

Local variables are set at the level of a process and are not shared with any other process or instance of that process. Local variables can be used anywhere where a variable is accepted by using its name, surrounded by curly brackets and preceded by a percent sign, for example: `%{myLocalVariable}`.

When the process ends, the local variable forgets whatever value was given to it by the process and goes back to its default value. Local variables are generally used to keep information that is useful for the process itself but not to any other process or instance of the process. For example, you could store the current order ID for the process, a name, or an email. You can have as many local variables as you want in any given process.

Adding a local variable

To add a local variable:

1. Select the process where you want to add the variable.
2. Now you can use one of two methods:
    - Click on the **Home** tab of the PlanetPress Workflow **Ribbon**, then click **Local Variable** in the **Variables** group.
    - Right-click on the process in the **Configuration Components** area, then click on **Insert Local Variable**.

Deleting a variable

- Right-click on the variable name in the Configuration Components pane and click **Delete**.

> **Note**
>
> Deleting a variable does not delete any reference to it. In both the case where a script refers to a variable and it is renamed, and the case of deleting a variable, any task or script that refers to it will cease to function and will generate an error.

Renaming a variable

- Right-click on the variable name in the Configuration Components pane.
- Click **Rename**.
- Type in the new name of the variable, then press **Enter** on your keyboard.

> **Note**
>
> While renaming a variable will correctly rename all references to it in task properties or wherever else it is used in a task, it will not change the references in any script within a **Run Script** task.

Setting a variable value within a process

You can set the value of a variable within your process in two ways:

- Use the **Set Job Info and Variable** action task. See "Set Job Infos and Variables" on page 440.
- You can use **Scripts**. See the chapter "Using Scripts" on page 141.

> **Tip**
>
> Variables may be used as variable properties in Task Properties (see "Variable task properties" on page 712).

Global variables

Global variables are set at the level of the configuration file and are shared between all processes and tasks.

To refer to a global variable, for example in a variable task property (see: "About Tasks" on page 300), use its name preceded by "global." and surrounded by curly brackets, for example: `%{global.myGlobalVariable}`.

Global variables are generally used to keep information that applies to multiple locations but needs to be changed easily. For example, a lot of users use them to set a server's IP, a printer

name, or folder location that is used by multiple processes. This is useful when moving the configuration file to another installation of the Workflow tools where this information is different, or to quickly modify specific information if something changes on the server. You can have as many global variables as you want in any given configuration.

Adding a global variable

To add a global variable from the **Configuration Components** pane:

1. Right-Click on **Global Variables**.
2. Click **Insert**, then **Insert Global Variable**.
   The new variable will appear as `GlobalVar` or `GlobalVarX` (the name is automatically incremented).

To add a global variable from the **Ribbon**:

1. Click on the **Home** tab of the PlanetPress Workflow **Ribbon**:
2. Click **Global Variable** in the **Variables** group.
   The new variable will appear as `GlobalVar` or `GlobalVarX` (the name is automatically incremented).

To **set the value** of a global variable from the **Configuration Components** pane:

1. Double-click on the global variable in the **Configuration Components** pane. (Right-clicking then clicking **Properties** also works.)
2. Enter the new value for your global variable.
3. Click **OK** to save the new value.

Deleting a variable

- Right-click on the variable name in the Configuration Components pane and click **Delete**.

> **Note**
>
> Deleting a variable does not delete any reference to it. In both the case where a script refers to a variable and it is renamed, and the case of deleting a variable, any task or script that refers to it will cease to function and will generate an error.

Renaming a variable

- Right-click on the variable name in the Configuration Components pane.
- Click **Rename**.
- Type in the new name of the variable, then press **Enter** on your keyboard.

> **Note**
>
> While renaming a variable will correctly rename all references to it in task properties or wherever else it is used in a task, it will not change the references in any script within a **Run Script** task.

Setting a variable value within a process

You can set the value of a variable within your process in two ways:

- Use the **Set Job Info and Variable** action task. See "Set Job Infos and Variables" on page 440.
- You can use **Scripts**. See the chapter "Using Scripts" on page 141.

> **Tip**
>
> Variables may be used as variable properties in Task Properties (see "Variable task properties" below).

Variable task properties

When you edit tasks, you may notice that some of the properties that you can modify have a red (or more precisely, a maroon) title. This means that the property can be dynamically determined whenever your process runs, that is to say it will not remain static. This can be extremely useful when, for example, you want to determine how many copies you will print out depending on your data, or what document will be used in the printout depending on the department it came from.

Variable properties may include:

- Static data.
- System variables. See "System variables" on page 704.
- Local and Global Variables. See "Local variables" on page 708.
- Job Infos. See "Job Info variables" on page 702.
- Data and Metadata Selections. See "Data selections" on page 53.
- Printer Control Characters. See "Shared printer queue properties" on page 113. These are normally only used in printer outputs.

Variable properties can also be used in these special locations:

- In the Set Job Infos and Variables Action Task. See "Set Job Infos and Variables" on page 440.
- In Scripts. See the chapter on "Using Scripts" on page 141.
- In the Create File Input Task. See "Create File" on page 312.
- Within a PlanetPress Design Document, using the ExpandString() function. See the PlanetPress Design User Guide and PlanetPress Talk Reference Guide.

Variable properties can also be mixed, meaning you can combine, within a single variable property box, any number and order of variable types. You can, for example, do the following for an output file name: *%O_@(1,1,1,30, KeepCase,Trim)_%y-%m-%d.txt*. This would translate in the original file name, followed by part of the first line of a text data file, then the current date.

Inserting variables in task properties

In any variable properties box, you may use the contextual (**right-click**) menu to add variables and control characters, as well as to get data and make data selections. The lower part of the contextual menu is divided into 4 items that provide variable properties:

- **Variables**
  - **System**: Contains standard system variables, see "System variables" on page 704.
  - **Job Info**: Contains Job Info variables from %1 to %9
  - **Local Variables**: Contains a list of local variables in this process. If no local variables exist, this item is disabled.
  - **Global Variables**: Contains a list of global variables in this configuration. If no global variables exist, this item is disabled.
- **Control Characters**: Contains a list of control characters that can be used in printers.

- **Get Data Value**: Brings up the **Data Selector**, retrieves the value you select and places it in the variable properties box. This information becomes static and does not change between each datapage and job file.
- **Get Data Location**: Brings up the **Data Selector** and records your selection. The data selection is dynamic, meaning it will get the data located in the area you choose, every time a new data file passes through it. This is indicated by a data selection (see "Data selections" on page 53).
- **Get Metadata Value**: Brings up the **Data Selector** with only the **Metadata** tab visible and lets you select the value (contents) of a Metadata attribute or field. The result is static and does not change between jobs.
- **Get Metadata Location**: Brings up the **Data Selector** with only the **Metadata** tab visible and lets you select the location of the data. The result is variable and changes between jobs.
- **Get Repository Value**: Brings up the "Data Repository Manager" on page 839 dialog to select the value (contents) of a specific key. The result of the lookup is static.
- **Get Repository Location**: Brings up the **Data Repository Manager** dialog to select the location of the key to lookup every time this task is executed.

You can quickly identify variable information that is already present in your variable properties as such:

- A **percentage** sign identifies system variables, as well as standard and custom job info variables — %f, for example.
- A **backslash** indicates a control character — \004, for example.
- An at sign (**@**) indicates a data selection for emulations other than database — @(1,1,1,1,17,KeepCase,Trim), for example.
- **Field** indicates a data selection for a database emulation — field(1,0,0,'Billing_Email',KeepCase,NoTrim), for example.
- The **lookup()** function indicates a lookup in the "Data Repository Manager" on page 839.

Workflow add-ons

Here's a list of add-ons that can be used with Workflow:

- **Capture** (only compatible with PlanetPress Suite): a set of tools that enable output and input for interaction with an Anoto Digital Pen. See "PlanetPress Capture" on the facing page.
- **Capture OnTheGo** (only compatible with OL Connect): a mobile app to capture and send data. See Capture OnTheGo.
- **DocuWare**. See "DocuWare" on page 669.
- **Fax**. See "About PlanetPress Fax" on page 743.
- **Image**. See "About PlanetPress Image" on page 744.
- **M-Files**. See "M-Files" on page 682.
- **OL Connect Send**. See "OL Connect Send" on page 745.
- **ZUGFeRD**. See "ZUGFeRD" on page 746.

PlanetPress Capture

Note

PlanetPress Capture is only available in version 7.2 and higher of **PlanetPress Suite Production**. It is not available in older versions, nor is it available in the Office and Watch versions of PlanetPress Suite.
PlanetPress Capture is not compatible with OL Connect Designer templates.

PlanetPress Capture is a set of tools available in PlanetPress Workflow that enable output and input for interaction with an Anoto Digital Pen. Anoto Digital Pens are electronic devices containing a camera, processor, memory and communication capabilities and they can recognize their location on any paper where a special Anoto pattern is printed.

For more information on building and using PlanetPress Capture processes, please see "PlanetPress Capture Workflow" on page 289.

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PlanetPress Capture Glossary

This topic describes the specific terms used in the PlanetPress Capture set of tools within PlanetPress Workflow.

Anoto Digital Pen

A digital pen compatible with the Anoto system. These pens contain a camera, processor and memory chip which record each stroke of the pen on a printed Anoto Pattern, and are able to send this information back to PlanetPress Workflow. This document specifically refers to the Anoto DP-201 Digital Pen, not other equipment has been tested.

Anoto Functionality Statement

Statement ('Paper featuring Anoto functionnality') that is automatically placed on the page when a PlanetPress Capture field is present. The statement can also include the Trace Code

Anoto Pattern

A series of dots placed in a pattern that is unique to each page where the pattern is printed. The Anoto Digital Pen identifies this pattern and its location on the page. PlanetPress Capture contains 20,000 patterns (8 in demo mode, See "PlanetPress Capture License Management" on page 771) which can be used to generate documents.

Capture Condition

PlanetPress Workflow task that is used for post-processing of documents after they have been processed by the Capture Fields Processor. Conditions can be made on the document status or the presence (or absence) of ink on any of the Capture Fields on the document.

Capture-Ready Document

A PlanetPress Connect document (*.pp7) that contains at least one Capture Field on at least one page.

Capture Document Manager

A tool that lets a user search through the available documents in the Capture Database. The documents can be search through a few different criteria and can be displayed as PDF files, individually or as a group. Documents can also be closed or deleted from this interface.

Capture Field

The PlanetPress Connect object that acts as a placeholder for the Anoto Pattern. The pattern is only applied when using the Capture Field Generator in Workflow.

Client/Server Architecture

A multi-server setup where more then one PlanetPress Workflow server are connected as clients to a single PlanetPress Workflow server which has a Capture Database. In this architecture, the Server contains the licenses for the pens, however the Client contains the database of documents and patterns. The Clients communicate with the server to authenticate pens. This architecture is only provided to simplify pen licensing for users with a large number of pens.

Closed Document

A document still within the PlanetPress Capture Database of which all the required fields have been filled by the Capture Field Processor from a PGC. A closed document will only remain in the database until it is retrieved with the **Get Capture Document** task, after which it is deleted.

Contamination

The act of writing on a "wrong" document, aka one that has a Pattern Sequence different that the one for which it was produced.. This can happen in architectures with more than one sequence being used such as when a pen is docked in the wrong location or if two pens are swapped.

ICR (Intelligent Character Recognition)

Recognizing text that has been hand-written with the Anoto Digital Pen. This feature is currently not implemented in PlanetPress Capture, but will be in the (near) future.

Ink Data

The pen stroke information contained within the PGC file. This is the actual data applied to the document (lines, signatures, text, etc).

Open Document

A document in the Capture Database that does not yet have any ink data on it, or of which not all mandatory fields (or final field) have ink present on them. Such a document is waiting for a

new PGC file to complete it so it can be closed.

Pattern ID

The ID of the Anoto pattern. Represents the pattern on the page. Can be used to retrace the document to which the pattern belong.

Pattern Sequence

Pattern Sequences enable the multiplication of the number of available pattern by adding an extra identification to the document. A Pattern Sequence is also attributed to each Anoto Digital Pen, such as an incoming PGC file will contain the Pattern, on which the Pattern Sequence is added from the pen database. The pattern and pattern sequence refer to a specific document in the database. Signing a document with a pen of which the Pattern Sequence does not match that of the document causes Contamination, which can cause errors or ink to be placed on the wrong document.

Pen ID

The serial number of the Anoto Digital Pen. It is registered in the PlanetPress Capture database and is present in each PGC file.

PGC File

Pen Generated Coordinates; PGC File containing all ink processed while the pen was undocked along with the Pen ID. It is possible that a single document requires multiple PGC, just as it is possible that a single PGC have multiple documents.

Pidget

Type of PlanetPress Capture object. Page element used to give instructions to the Anoto pen, as opposed to recording ink.

PlanetPress Capture Database

A database containing the list of patterns, sequences, registered pens and documents. The Capture Database can be used by a single server, or by multiple servers in a Client/Server architecture.

Session

The time spent by the pen between events that trigger a new session. Generally a session refers to any ink in a single page containing a Capture Pattern. A session can contain ink from multiple fields in any order. A new session starts whenever a PGC is sent for processing (which erases the data from the pen).

General considerations

Here are some general considerations in regards to PlanetPress Capture, its environment, the hardware and the software that interacts with it. Please review these considerations carefully as they may impact PlanetPress Capture and its functionality.

> **Warning**
>
> PlanetPress Capture Fields cannot simply be inserted into an existing document as-is and expected to work properly, efficiently or consistently. In order to design a document with Capture Fields, you **must** review and understand the Critical PlanetPress Capture Implementation Restrictions.

Database considerations (ODBC)

> **Note**
>
> On 64-bit operating systems, the ODBC Data Sources created by the Data Source (ODBC) icon in the Administrative Tools will not appear here, as PlanetPress Suite is 32-bit and cannot access the 64-bit data sources. In order to create an ODBC connection visible by PlanetPress, you will need to access the 32-bit version of the ODBC manager, available in **C:\Windows\SysWOW64\odbcad32.exe** .

The following considerations should be kept in mind while working with ODBC Databases in PlanetPress Suite.

- **All databases**
  - **User Rights**: During normal operation, Read/Write to tables should be sufficient. However, during the initial setup, the Create/Drop tables rights is necessary.

    - Minimum 100MB of database size is required as a minimum, but the space requirement depends on the implementation. The more active documents in the database, the more space is used - note that this progression is rather linear.
    - Regular database maintenance is required, such as database compacting, is required by a system administrator.
    - It is recommended to create an IT process that backs up the database regularly.
    - The recommended ideal setup is a dedicated SQL Server PC, accessed by PlanetPress Workflow through an ODBC connection on the local network.
- **Microsoft Access**
    - Database file (mdb) must be local to the PlanetPress Workflow computer. It cannot be located on a network drive or another server.
    - Total database size is limited to 4GB of data.
    - Total size of a single table is 2GB.
    - May be unstable in large implementations.
- **MySQL**
    - Database can be in any location, but performance will depend on the speed of the connection between PlanetPress and the MySQL server.
    - MySQL's performance has been slower than SQL Server and SQL Server Express during our tests.
    - By default, MySQL is configured not to allow any SQL request larger than 16 megs.
    - In the event where 2 requests are made simultaneously on the same record, MySQL will queue one of the requests and execute it once the first one is done. In extremely rare cases this may cause a timeout on very large requests.
- **MSSQL (Microsoft SQL Server)**
    - All versions of the SQL Server are supported, including all Express versions.
    - Database can be in any location, but performance will depend on the speed of the connection between PlanetPress Production and the SQL server.
    - In the event where 2 requests are made simultaneously on the same record, SQL Server will drop the most complex request. Resubmitting the PGC for processing should resolve this issue. This, however, should happen only rarely.
    - When configuring the ODBC connection, your must use the *Microsoft* version of the driver, and not the *Native SQL* version of the driver. This is due to a technical

limitation of the native driver that interferes with the PlanetPress Suite database requests.

Specifically for PlanetPress Capture, these considerations mean the following:

- In **Microsoft Access**, the total size of stored document cannot be larger than 2GB and this database will be very unstable in implementation with more than a few thousand pattern sequences being used simultaneously. It is only suggested for small implementation with less than 10 pens, or for demos.
- In **MySQL**, the 16 megs packet size limit can be an issue if the PDFs created by Capture are larger than this size; An error saying "*MySQL Server has gone away*" would appear in this case. This can be fixed by configuring the *max_allowed_packet* setting in the MySQL Configuration (Reference).
- Also in **MySQL**, if a timeout occurs on simultaneous record access, resubmitting the PGC for processing should resolve the issue.
- In **SQL Server**, if one of your requests is dropped because of simultaneous accesses, resubmitting the PGC should resolve the issue.

Security Considerations

PlanetPress Capture introduces new and efficient methods for digitally capturing the contents of ink laded out on physical paper. However, because of its nature, some end users may voice concerns about security and privacy. Are signatures secure? Could their transmission be intercepted? How can the contents of the Anoto digital pen be protected from malicious users?

Before addressing these concerns, it must be pointed out that these security issues are not introduced by this new technology. In fact, they are essentially the same concerns that arise with plain pen and paper: if the signed document can be scanned, then any markings on the page can be extracted and reused by anyone with even limited technical skills. In addition, the signed document has, by definition, a longer life span than the temporary storage location of the digital pen. Consequently, it is still the most vulnerable piece of the workflow and as such, it should be the first objective of any security effort.

In other words, as long as the physical piece of paper bearing markings is accessible to malicious users, no amount of security protocols can protect the signed contents. It is only after the paper trail has been secured that the security and privacy issues specific to PlanetPress Capture should be addressed.

Because PlanetPress Capture relies on external data and communication and because it may be used to process sensitive and legal information, it is important to understand the security implications of any PlanetPress Capture implementation. Most of the security concerns regarding Capture are external to it. This means the security that is implemented both on your network and physical premises are critical to the security of your PlanetPress Workflow implementation.

Here are a few notable points with the security of PlanetPress Capture on a network:

- PGC Files, while not written in plain text, are not encrypted and are readable through either PlanetPress Workflow (even a server that did not generate the document associated with it), or through third-party applications using the Anoto SDK. This means if someone gains access to your PGC storage folder, they may be able to read the signatures, checkmarks and other information contained in it and reproduce them on a document of their choice. It is always better to secure this folder properly. You could also use third-party encryption software to secure the files, and decrypt them as necessary for reprocessing.
- The transfer between the Anoto penDirector and PlanetPress Workflow is not encrypted due to a limitation of penDirector which does not support SSL connections. This means someone located anywhere between penDirector and PlanetPress Workflow could use software such as a packet sniffer to retrieve its parts and recreate the PGC files. This may be resolvable by create a secure VPN tunnel for each location where penDirector is installed instead of going through regular remote HTTP server.
- The PlanetPress Capture database, since it can be external to PlanetPress Workflow such as on a MySQL server, will be dependent on your own database security.
- The Anoto Digital Pens, since they may contain critical information, are just like physical sheets of signed paper and must be kept secured. This is best done through training employees handling the pens to be aware of its value and contents and act accordingly. This means that the security of the pen is just as important as the security of any existing physical documents you may handle at the moment.
- The same rules apply to PDF files as with PGC files, especially when they contain a signature from the pen. If you are already securing digital scanned copies of signed documents, the PDFs should be secured in similar ways.

However, remember that as with most security concerns, in order to be a “threat”, someone would have to have a high level or working knowledge of either the Anoto SDK (which is not easily obtainable) or PlanetPress Workflow and PlanetPress Capture. In some situations this may be enough (security through obscurity) but we always recommend having the same level

of security for Capture files and documents as you would the rest of your sensitive information. *In most cases, the procedures in place are enough for this purpose.*

20,000 Patterns

When reading or learning about PlanetPress Capture, you may have seen a number pop up here and there: "20,000 Patterns". In order to better understand what this number means and what it entails for you, the user, this document will first present an overview of a typical PlanetPress Capture implementation and then explain how the 20,000 patterns limitation can be circumvented in some cases. We will also touch upon the potential pitfalls of these workarounds as they are used.

The Numbers

First and foremost, the 20,000 patterns is a fixed number - PlanetPress can only generate 20,000 unique patterns as this is the number of patterns that we license through Anoto.

The 20,000 patterns are, however, not all available when generating documents. There are 8 "demo" patterns that are used to generate documents when PlanetPress Capture is in demo mode (no license activated), and react the same way that the bulk of the 20,000 patterns. Another single pattern is used to register pens in the database, and one last single pattern is used when printing a "Preview" from PlanetPress Design. So in reality, the number of available patterns for document generation is 19990, but for simplicity's sake this FAQ uses the round number "20,000".

In a typical PlanetPress Capture implementation, a process in PlanetPress Workflow generates output (generally, this output is directly printed) and, at the same time, will "lock" one pattern for each page that it generates, if that page contains a pattern. PlanetPress Workflow also stores a copy of each document in the Capture Database, in PDF format.

While a document is printed, and while this printed document has not received any ink or signature, the document is deemed "open", the pattern it uses remains locked in the database and cannot be re-used. Then, when someone writes on the document and sends the pen data to PlanetPress Workflow (through a docking station or through Bluetooth), if the required conditions have been met, the document will be "closed", its pattern released and available to be used immediately.

An open document can also be called a "live" document, in the sense that it is only active between the time where it is printed and the time where ink from the Anoto Digital Pen is

processed and the document is closed. This duration is called "time to live" or "TTL", and it is the second very important number: how long is the pattern actually needed.

The third important number is based on your actual output needs. In other words, how many documents do you intend to print on a regular basis that will contain a pattern?

These three numbers, together, represent an easy way to determine if the 20,000 patterns are actually enough for you. Basically, if you generate X documents within a specific time frame but N of these documents are closed through regular process (writing on them with a pen and docking it) during that period, does the difference between both ever reach 20,000?

Example

Say you print 19,000 pages containing a pattern, every day. You may think you'll "run out of patterns" after a single day. But if 18,900 of these documents are being written to and processed within the day, at the end of the day you only have a 100 page difference, possibly due to mistakes, lost pages, or errors during processing. In this specific example, you would run out of patterns only after 10 days, assuming the numbers remained completely static. Since there are easy ways to deal with these remainders (a simple automated process that, once a day, closes any document that is older than 48 hours, for example), a correct implementation like this one would be perfectly functional and not be affected by the 20,000 page limit. Remember however that this means that 19,000 physical sheets of paper are printed every day, and those 19,000 documents are written on using one or more Anoto Digital Pens, which are then processed back into the system.

The example above actually uses numbers that are much higher than our typical PlanetPress Capture user. That is to say, a vast majority of our users will never have to worry about reaching the pattern limitation, unless their implementation is missing important parts, such as the "cleanup" process. But this also means a smaller minority of our users may require more than 20,000 patterns, so let's deal with this now.

Extending

There are actually 2 ways of dealing with extending the number of patterns using the currently available tools, each with its own advantages and disadvantages.

Using separate PlanetPress Workflow **servers and licenses.**

In a scenario where there are multiple locations that use PlanetPress Capture and where neither pen nor paper has any risk of being moved from one location to another, the easiest (but

costlier) solution is to have a separate installation of PlanetPress Workflow in each location. Each installation would be responsible for its own documents and pens. The limitation here is that it would not be directly possible to send a page with an existing pattern to another location (either via email in PDF or via courier), sign it there and send it back - this would cause errors that would be hard to prevent and correct. In this scenario however, it's possible to centralize the activation of pen licenses to one server, while keeping the pattern generation systems separate.

Using Pattern Sequences

In the event where a single location generates all the patterns and this output *can* be split into multiple logical zones, Pattern Sequences can be used. A Pattern Sequence is basically a "tag" that is added after the pattern's identification (Pattern ID). When a Pattern Sequence is used, each Pattern Sequence can re-use each of the 20,000 available patterns. "Zones", in this case, could refer to a specific region within a city, or a whole city or a province, whatever fits your needs.

Pattern Sequences can be handled in 2 different ways: by attaching a Pattern Sequence to a specific pen, or by attaching it to a specific PlanetPress Workflow process. Here is an example for each cases, using a typical situation of a shipping company that uses PlanetPress Capture to simplify the archiving of the client's signature on a "Confirmation of Reception" slip.

- **Pen-Based Sequences**: In this case, each pen is attributed a specific pattern sequence. When documents are printed, they are set to attribute a pattern sequence to each document in relation to which pen it will be signed on. For example, the shipping company may have decided to print each "route" using the route number as a pattern sequence, and each pen is tagged (with a label) as being for use with a specific pattern sequence also. Each morning, as drivers are attributed a route, they pick up the correct pen and stack of paper that belong to their route before leaving.

> **Note**
>
> It's very important to note here that the Anoto Digital Pen has absolutely no concept of Pattern Sequences. When "attributing" a sequence to a pen, this is fully on the PlanetPress Workflow side, in the Capture Database. This means that if a pen is mislabeled or someone picks up the wrong pen, this pen has absolutely no way to know that it is writing on the wrong paper. more about this in the **Contamination** section below.

- **Process-Based Sequences**: In this case, while documents are still printed and their route number attributed to their pattern sequence, the pens do not have this distinction. However, the docking station where the pens are placed at the end of the day are set to send the pen's data to a specific process which will only handle processing for that specific route number. In this case, one physical computer (and, presumably, printer) is used for each route, and the driver must dock the pen in the proper docking station which corresponds to his router number, at the end of the day.

As you may have figured out by now, we are still not actually printing more than 20,000 patterns. The only distinction here is that we are re-using patterns in separate "zones" (or, well, sequences) and as long as pens and pages using capture patterns are not exchanged between these zones, they act independently with their own 20,000 pattern limitation.

> **Note**
>
> The mobile phone application, "PlanetPress Mobile", which uses Bluetooth communication to receive pen data and transmit it to PlanetPress Workflow, can still be used with both pattern sequence methods, as it is the equivalent of a docking station on the web. PlanetPress Mobile was added to PlanetPress Capture in version 7.4.

Contamination

The single but critical danger with any implementation that deals with PlanetPress Capture is "Contamination". Basically, contamination happens when an Anoto Digital Pen writes on a "wrong" document or is docked in the wrong location. This can happen any number of ways and in different situations, and can have devastating effects in some of those cases so please pay special attention to this section.

First, contamination is not limited to implementations that extend their patterns through methods 1) and 2) above. Any time that a pen writes on a "wrong" document, it is considered contamination. A simple example in a basic implementation would be to print a document with a pattern on it, put this paper aside (or lose it on a desk somewhere) and forget about it. Assuming proper processes were put in place, this document would eventually be closed by a manual or automatic procedure. However, the physical document with the pattern still exists even if it is closed in regards to the PlanetPress Capture database. Contamination would happen if a new document is printed with the same pattern, but somehow the "old" document re-surfaces and someone writes ink on it and docks the pen. When this happens, neither the pen nor PlanetPress Workflow can understand that the data does not belong on that document and will happily update the "current" document, possibly closing it. Because the "old" document

relates (presumably) to a different client, this means the "current" document has invalid information.

This can be prevented through simple methods such as printing a date on each sheet and ensuring that users never sign a document that is older than a certain time, for example 48 hours. These sheets should simply be destroyed.

Second, contamination can happen in method 1) above if a pen or paper is moved from one location to another. Similarly to the previous contamination example, if there exists a document in the Capture Database where the "wrong" data is processed, it will update a document where it does not belong. Again, neither the pen nor PlanetPress Workflow have any idea that this causes an error until it's too late.

Third, contamination (the most common one) can happen if pattern sequences get mixed up, if pens or paper gets swapped between users, etc. For example, again using a shipping company (with example 2-A), if two of the drivers were to meet for a coffee and exchange their pens inadvertently (we hope, anyways), the pens would be signing the "wrong" documents all day and, when docked, would update the wrong documents in the database.

In all of these cases, the errors often do not appear when the wrong document is updated - it actually occurs when the "right" data is processed. This happens precisely because the Pen and Production have no idea that the wrong data is received and will generally close the document after that "wrong" data has been processed - this often works with no error. However, when the "right" data is processed, then it tries to update a document that has already been closed by the "wrong" data, and thus fails.

Safeguards

There are certain safeguards against contamination:

- PlanetPress Capture checks for pattern size and placement. If the data contains ink for a specific pattern but the ink location does not correspond to the Capture Fields of the document it's updating, it will fail.
- Errors can be set to stop and revert the whole current batch. If a single error occurs during the pen data processing, it is possible for this processing to be stopped and all changes the Capture Database reverted. In implementations where the pen signs high number of documents, this can especially be an easy way to do this, as chances are the data will not match in at least one case.

Conclusion

- PlanetPress Workflow can only generate 20,000 unique patterns
- One pattern is used (locked) for each page containing a pattern.
- Processing the ink data from a pen and closing the document releases the pattern
- Most implementations will not need more than 20,000 patterns
- When necessary, patterns can be extended using multiple servers or Pattern Sequences (as long as these are used in separate physical locations).
- It is extremely critical that contamination be avoided at all costs.
- Whenever possible, always avoid using pattern sequences unless it is absolutely necessary to do so.

Anoto penDirector

The **Anoto penDirector** is a software driver provided as a download by Objectif Lune Inc. The penDirector creates a bridge between the Anoto Digital Pen and a PlanetPress Capture workflow in PlanetPress Workflow.

In order to use penDirector, it needs to be downloaded from the Objectif Lune website, on this page. This software **must** be installed **after** PlanetPress Workflow. The setup will install a pre-configured version of penDirector which can be immediately used with PlanetPress Capture.

The communication between penDirector and PlanetPress Workflow is either through a folder transfer or HTTP Post communication.

To configure this communication:

1. Open penDirector setup by right-clicking on its icon in the Windows System Tray, and selecting penDispatcher.
2. Double-click on the PlanetPress Capture entry.
3. Change the PGC Storage folder or PGC POST URL settings to your liking.
4. Click OK, then OK again.

The PGC POST URL should correspond to your server name or IP, Port and the **HTTP Action** task of your **HTTP Input,** if that is what you are using.

Example: **http://127.0.0.1:8080/ProcessPGC**

Bluetooth Connectivity

The Anoto penDirector program can also connect directly to the pen via wireless Bluetooth and receive PGC files directly through the Bluetooth link, without needing to dock the pen.

To pair penDirector with an Anoto Digital Pen:

1. Make sure that a Bluetooth dongle is present and enabled on the computer where penDirector is installed.
2. Note down the PIN of the Anoto Digital Pen, by docking the pen and going in the **Pen settings** tab of penDirector and looking at the **Pen access** group at the bottom of the dialog. The default PIN is **0000**.
3. Undock the pen, or remove its protective cap if it is not docked. Make sure the power light on the pen is turned on and green in color.
4. Go in the **Bluetooth** tab of penDirector and click on **Add Pen**.
5. Click on **Search** while the cap is off on the pen.
6. When the pen is found, click on it and then click **Add**.
7. When asked for the PIN, enter the one noted above.
8. Click **OK** to save the settings.

The settings for **Bluetooth PGC** handling are separate from the ones used when docking. Through Bluetooth, only a single storage and PGC Post URL location can be set for all PGCs.

> **Warning**
>
> Because the Bluetooth configuration only handles a single route, it is not possible to use the Design preview patter, or the special registration pattern, using Bluetooth connectivity. To use the preview Pattern in PlanetPress Design or use the special registration pattern, the pen's docking station must be used.

To specify where to send the PGC files received through Bluetooth:

1. Open penDirector.
2. Go to the Bluetooth tab
3. Click on the paired pen that you want to configure

4. Specify a PGC Storage folder
5. Check the PGC POST URL option
6. Enter the URL of your PGC handling process in the box
7. Click OK to save.

PlanetPress Mobile Application

The PlanetPress Mobile application can be installed on some mobile phones and enable fast and direct connectivity between the Anoto Digital Pen and PlanetPress Workflow. The connectivity between the pen and the mobile phone is done through Bluetooth, while the connectivity between the mobile phone and PlanetPress Workflow is through the currently active data plan (either wifi or the cell phone company's data plan, such as 3G).

PlanetPress Capture Implementation Restrictions

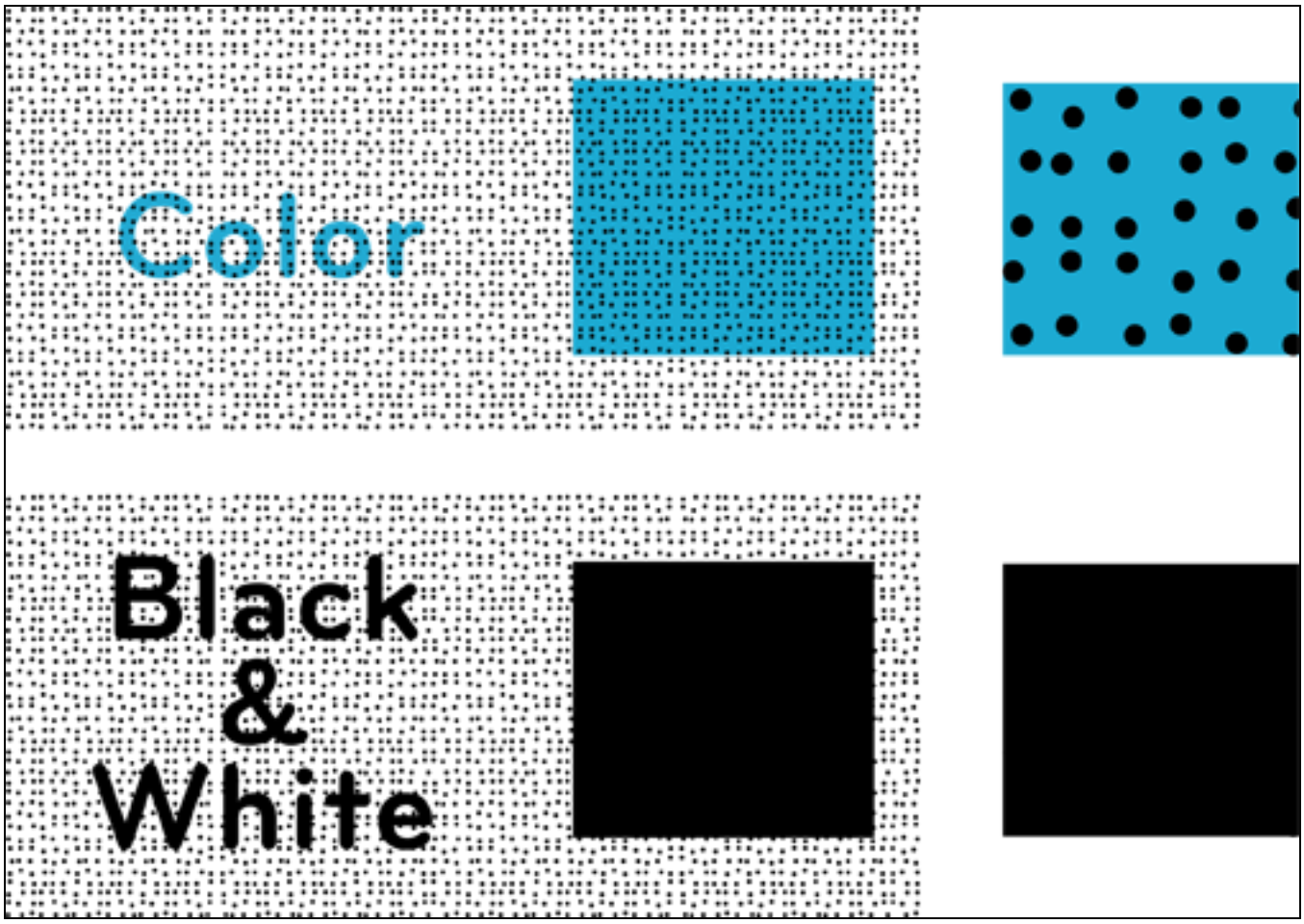
This document describes the limitations of the Anoto Digital Pen & Paper Technology, especially in regards to using it within a PlanetPress Workflow implementation. Note that these limitations apply to any Anoto technology implementation and not just our own.

Printer limitations

Any document printed with Capture Fields (aka Anoto Patterns) must be sent through a Laser printer. Bubble jet printers are not supported and will most likely cause reading errors with Anoto Digital Pens. Thermal printers will not work either due to the low quality printout and the absence of actual blank ink on the paper.

Black ink close to patterns

Because the Anoto Pen & Paper technology relies on infrared to read pure-black dots on the paper, it is imperative that no other black ink interfere with this reading. Though it is possible to print Capture documents on a black & white laser printer as long as there is no other ink on top of, or close to, the patterns, this is not recommended. A color laser printer should be used, and any elements placed close to, or on top of, the Capture Patterns should be printed in color. Black ink can be simulated using composite colors, but should never be pure black.

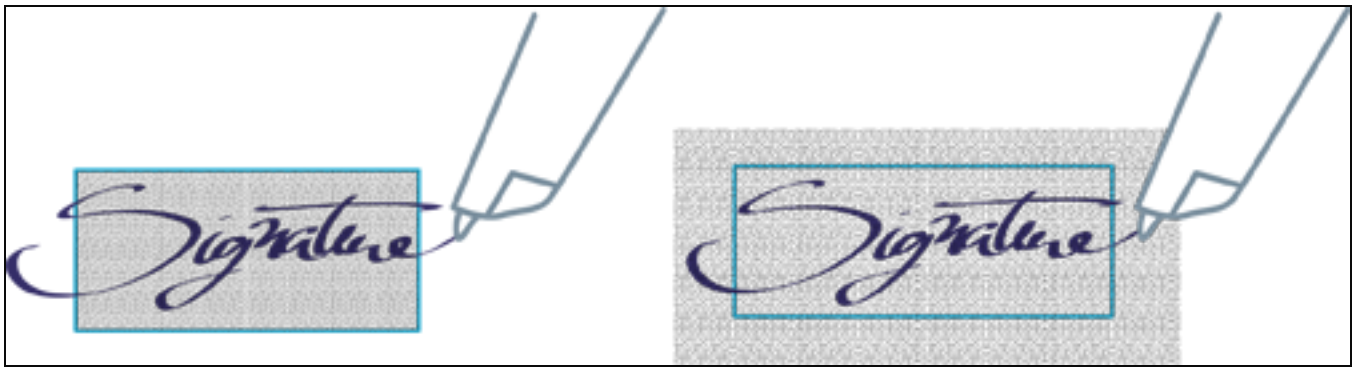


Paper quality

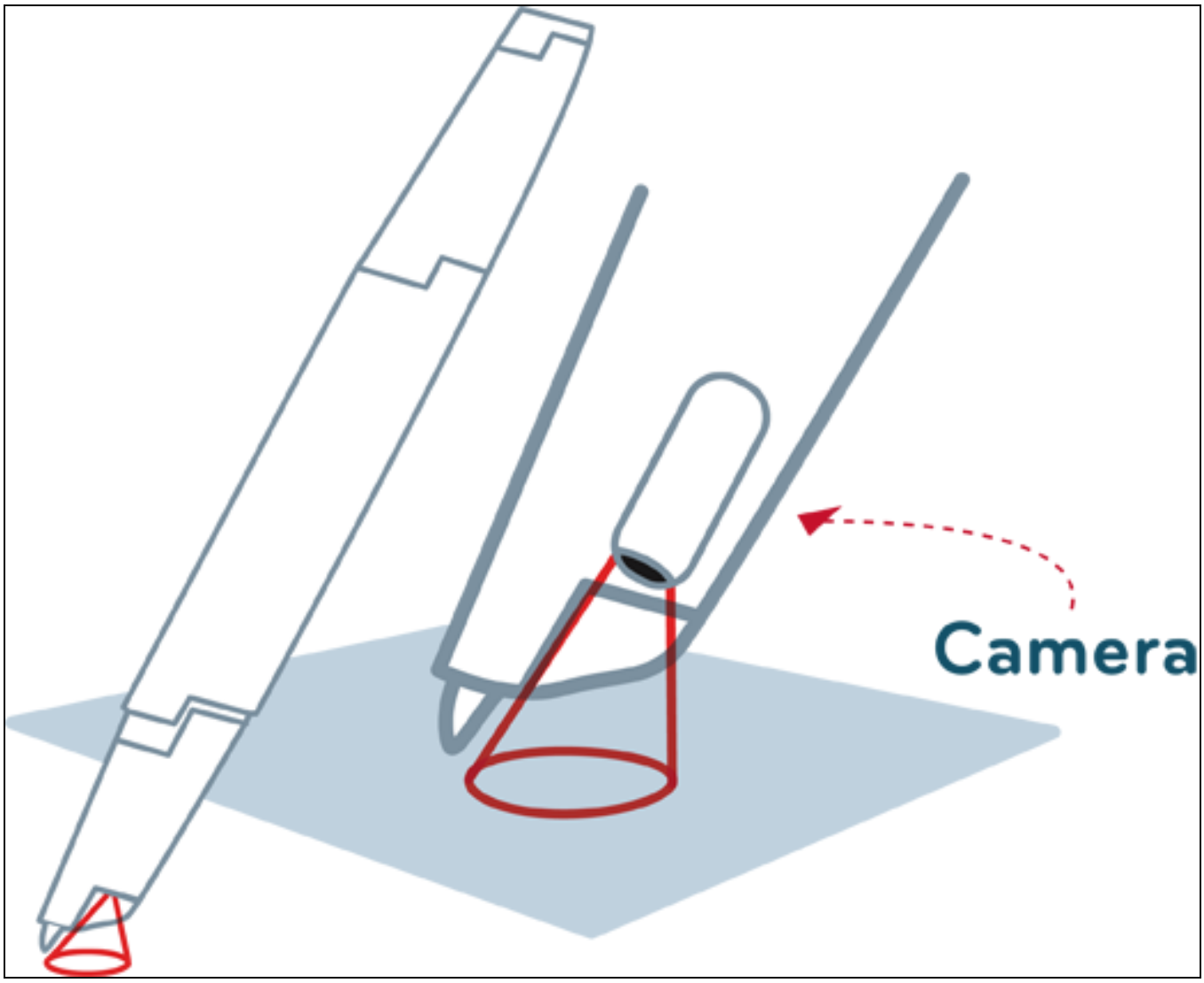
The PlanetPress Capture technology, when generating the Anoto Pattern, already accounts for ink dispersion on laser printers and on general-use laser paper. Therefore, using paper that is not of the same quality (for example, one where the dispersion rate is much higher) or the same type (reflective paper) may not permit the pen's camera to read the pattern properly.

Pattern sizes

The absolute minimum required for an Anoto Digital Pen to read the pattern and know it's position on the page is 7mm (1/4"). Any pattern smaller than this will not be readable. However, at 7mm width and height, the pen can only recognize a single dot within that pattern, at the top of the field.



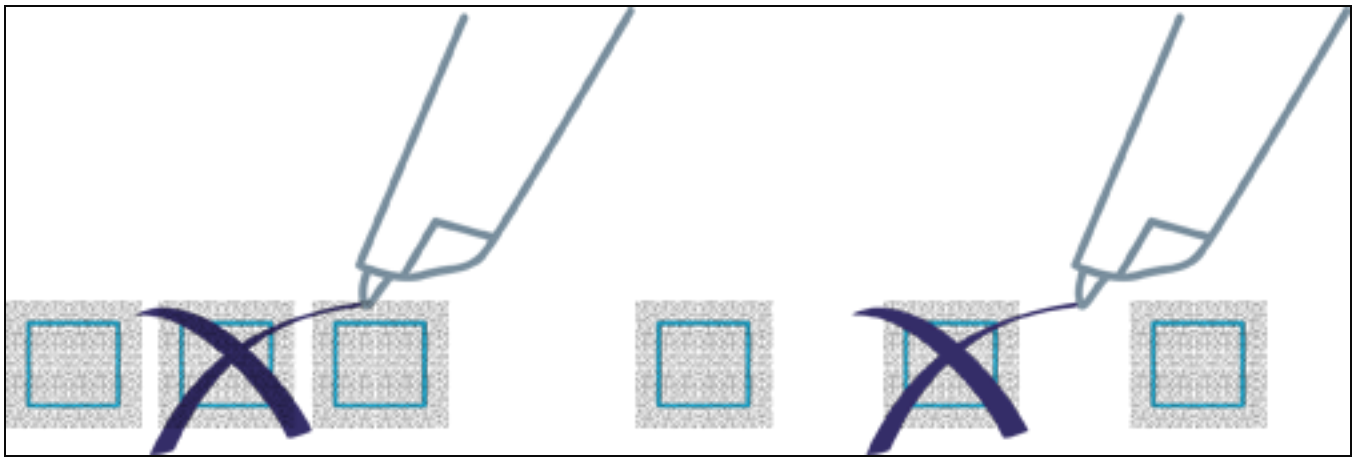
This is because the pen's camera (which captures the position of the pen) is located under the pen tip and must fully see the pattern. The following image illustrates how the pen reads its position:



Knowing this, the best practice when creating fields is that they have, at the very least, a 7mm margin on each size of the actual area you want to capture from. For example, an effective 30mm wide pattern will actually be 44mm wide using these margins. The margin should be for both the vertical size and the horizontal size.

Distance between patterns

In implementations where a lot of patterns need to be close together (a questionnaire, multiple choice question, checkmarks, etc) it is important to understand the risk of then pen writing across multiple fields on the paper. People using the pen may, for example, make a very broad checkmark which would bleed over to the next field. This can cause PlanetPress Capture to detect the ink as being present, and thus trigger whatever that field does.



PlanetPress Capture ICR

The term "ICR", which means "Intelligent Character Recognition" is an evolution on the popularly-known "OCR", which is "Optical Character Recognition". The difference between the two is easily explained: While OCR can only recognize characters using the finished shape (for example, in scanned documents and pictures), ICR relies on much more data which is provided by the Anoto Digital Pen: the path that the pen takes, the exact timing of this path, start and stop points, etc. This extra information boosts the recognition rates of characters by a wide margin.

It's important to note that both OCR and ICR are relatively loose terms - that is to say, they can have different specific meanings depending on the technology used, but in their general sense mean the same thing. When using the term ICR, we use the above definition for convenience.

> **Note**
>
> The PlanetPress Capture ICR engine is only available with PlanetPress Workflow version 7.5 and higher.

An ICR Workflow

The ICR engine in PlanetPress Workflow is used in conjunction with PlanetPress Capture, translating the ink from the Anoto Digital Pen into separate characters, or text, that is readable by the suite. Multiple components are required in order for the ICR to work:

- In PlanetPress Design, a *Capture Field Object* must be added and the Perform ICR option must be activated (See the Capture Field page in the PlanetPress Design User Guide). This must be either a **Multi-Area Field** or a **Text Field**.
- The Capture Fields Processor must have the *Perform ICR Recognition* option checked, and language needs to be selected.
- Once the ICR data is available, do something with it. This is done by reading the ICR data that is available in the metadata generated by the Get Capture Document task.
- The metadata is also readable by the Capture Condition task, including the captured text and the reliability of this text.

The Workflow as such is the following:

- A Capture field is setup for ICR in a PlanetPress Design document.
- The document is sent to PlanetPress Production
- The Capture Field Generator is used to produce one or more print-outs using this document.
- The physical sheets are written on using an Anoto Digital Pen
- The pen is docked and the data is sent to PlanetPress Production
- The pen data goes through the Capture Field Processor, where the Capture Field ink is sent through the ICR engine.
- The captured ICR data is retrieved with the document using the **Get Capture Document** task.
- Conditions are applied if necessary with the **Capture Condition** task.

> **Warning**
>
> ICR, just like OCR, has its limitations. Please refer to the PlanetPress Capture ICR Best Practices page for more information.

Terminology and Definitions

In regards to our ICR technology specifically, the following terminology applies:

- **ICR**: "Intelligent Character Recognition", or the engine that will read the pen data and attempt to recognize the text written using the pen itself. The ICR engine uses the path of

the pen, its movement speed as well as the overall shape of each character to determine which character was written.

- **ICR Value**: The alpha, numeric or alphanumeric value that was determined by the ICR engine.
- **ICR Confidence**: A percentage value that the ICR engine gives to any specific value, when comparing the pen data with it's character database.
- **ICR Resemblance**: A percentage value that defines how closely the value resembles the "average" character shape. Both the Confidence and Resemblance can be used together to make an informed decision on the contents received by ICR.

PlanetPress Capture ICR Best Practices

From Workflow 7.5 onwards, PlanetPress Capture supports Intelligent Character Recognition (ICR). However, this technology comes with certain limitations. A successful integration of ICR within a business requires the application of best practices by all parties involved: Form designer, Workflow designer and User.

Here we present a list of recommended best practices. Each of these guidelines aim at maximizing the likelihood that the characters are recognized; and minimize the risk of errors due to an incorrect analysis.

You will find the following information, when applicable, for each best practice:

- **Target**: The targeted audience. There are 3 possibilities: Form designer, Workflow designer and User.
- **What**: A brief description of the best practice. This could include an explanation of the concepts that are addressed.
- **Why**: A brief explanation of the reasoning behind the relevance of this guideline.
- **How**: How to apply this best practice.

This section describes a list of the best practices to implement. They are listed in no particular order of importance. Pay attention to the targeted audience to know if this rule applies to you.

Using the Most Restrictive Mask

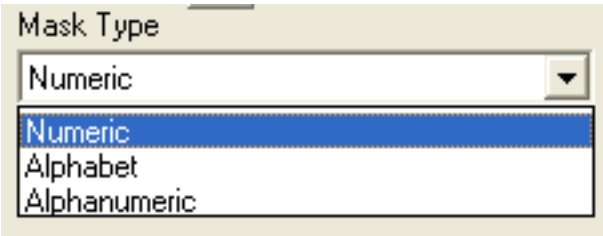
- **Target**: Form designer.
- **What**: In the **Capture Options** tab of a Capture object, the mask type indicates the type of character to be recognized. There are 3 possible selections: numeric, alphabet and alphanumeric. The alphabetic mask type allows you to select the letter case.

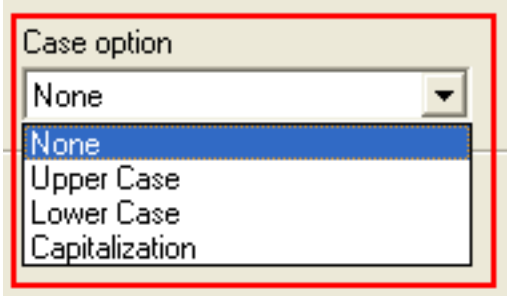
The following guidelines are applicable when configuring a PlanetPress Capture object that utilizes ICR:

- The collected data is expected to be a number, therefore the numeric mask type must be selected, or
- The collected data is expected to be a letter, therefore the alphabet mask type must be selected,
- If upper case letters are expected, select Upper case in the **Case option** menu. The captured characters would be immediately converted to capital letter i.e. the ICR engine will recognize a lower case a but will display it in upper case.
- If lower case letters are expected, select Lower case in the **Case option** menu. Same as for upper case letters, the captured characters would be converted to lower case and displayed as such.
- If proper names or nouns are expected (i.e. only the first letter must be a capital letter), select Capitalization in the **Case option** menu. Only the first letter would be converted to a capital letter.
- If no specific format is expected, select None in the **Case option** menu. The letters will be interpreted as written, no conversion will be done i.e. characters in lower case will be displayed as such.
- The collected data is expected to be a combination of numbers and letters, therefore the alphanumeric mask type must be selected.

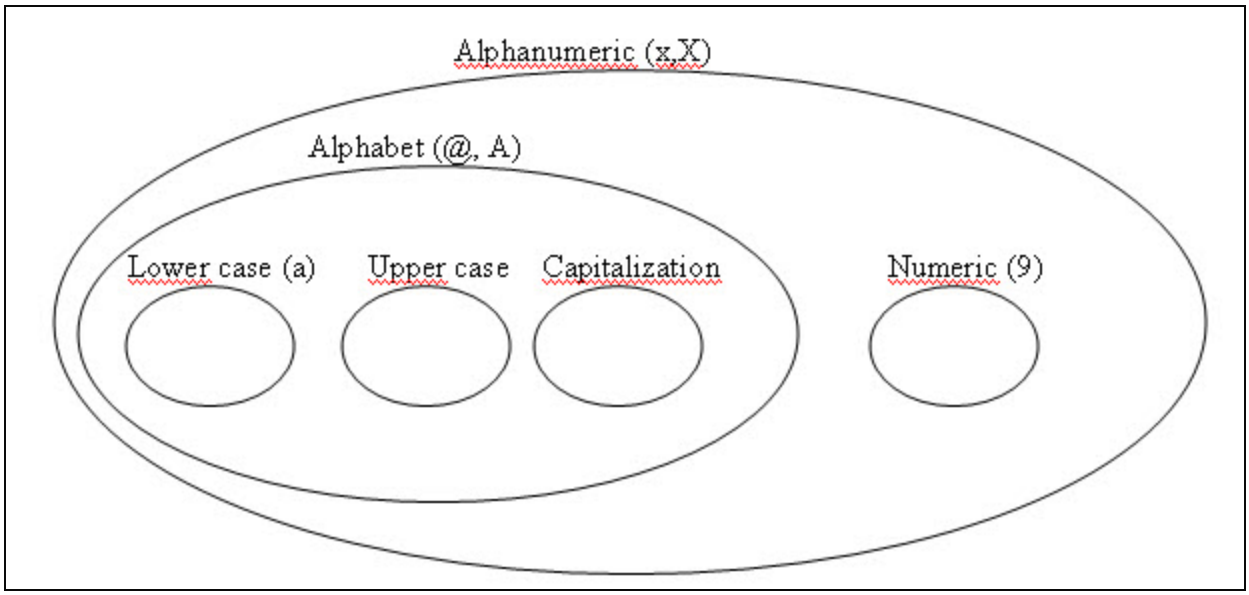
Why: Reducing the number of expected characters increases the probability that the correct one is matched. This allows us to avoid that the letter l (a lowercase L) is not recognized as the numeric value 1 (one) and vice versa. Or, if the mask type is identified as alphanumeric, there's a possibility that the letter a is recognized as 2; since Capture will also interpret how the movement was traced.

How: Use the following options from the **Capture options** tab under **Mask Type** and **Case** option to filter the expected data.



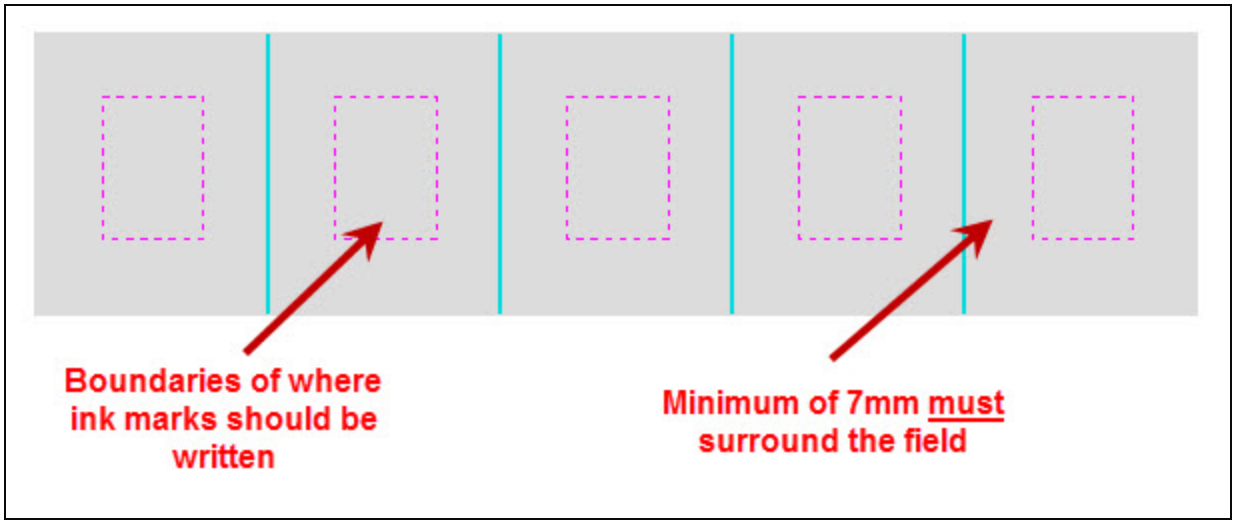


The following diagram illustrates the available mask types. It is recommended to select the mask type that is the closest to the desired result. An alphanumeric field should be used as a last resort.

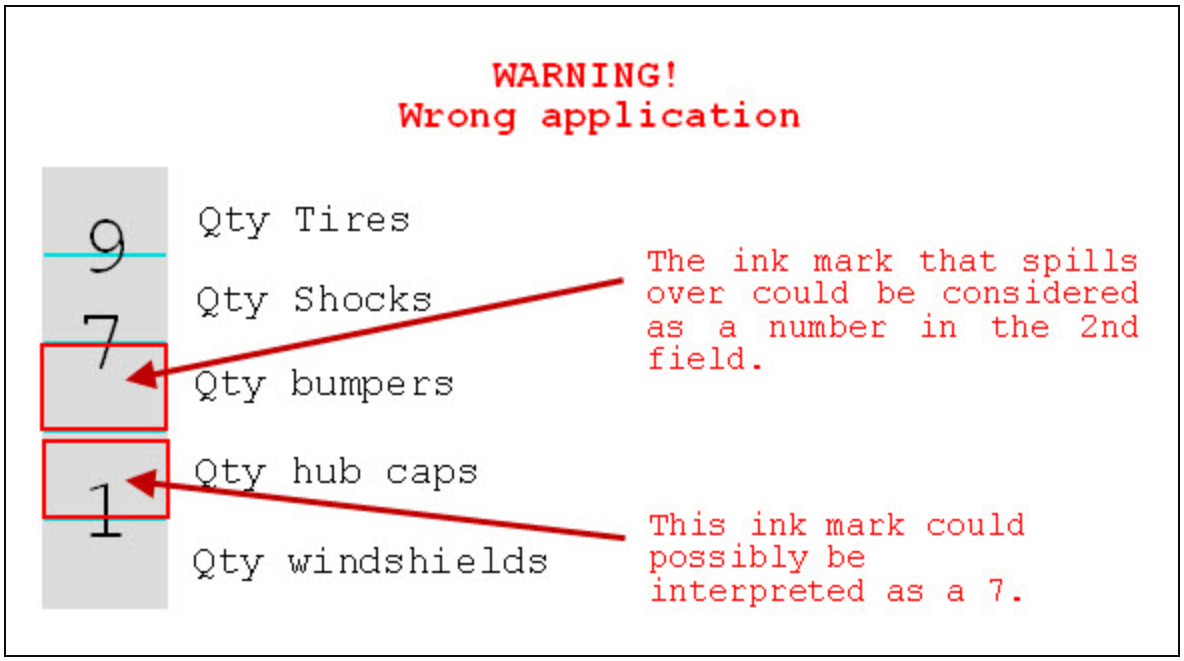


Guidelines for Capture-Ready Fields

- **Target**: Form designer
- **What**: Only one character per Capture field can be recognized. When expecting multiple characters making up a word or phrase, you must make sure that the user only writes one character per field. In order to do so, you must make sure that the fields are big enough and have enough space between each one. The best practice is to make sure that there is a boundary surrounding the field where ink marks are to be written.



Why: To avoid any ink marks that would spill over from one field to another. If both fields A and B are to close in proximity and the ink marks from field A spill over to field B, then the marks captured on field B would be considered as being part of a character written on field B. For example, if a number spills over and is written over two fields like numbers 9, 1 or 7; then the bottom tip of these numbers could be considered as number 1 in the second field. (Refer to the example below)



How: Make sure there's enough space between each field. You must re-design the document if that's the case. There's no minimum value that is required as the distance between 2 fields, except for the 7mm border that is required in order for the Anoto digital pen to recognize the pattern being used.

Writing in a Legible Way

- **Target**: User.
- **What**: It is important to write in a legible way i.e. applying yourself by writing well defined numbers and letter that are easily interpreted.

> **Warning**
>
> You must write on a flat and smooth surface i.e. a delivery person should use a clipboard.

Why: Some numbers can create some confusion, like numbers 7 and 1. 7 can be interpreted as a 1 and vice versa. The letter i, where the dot on top is a circle, can possibly cause a conflict because the dot can be considered as an o.

How:

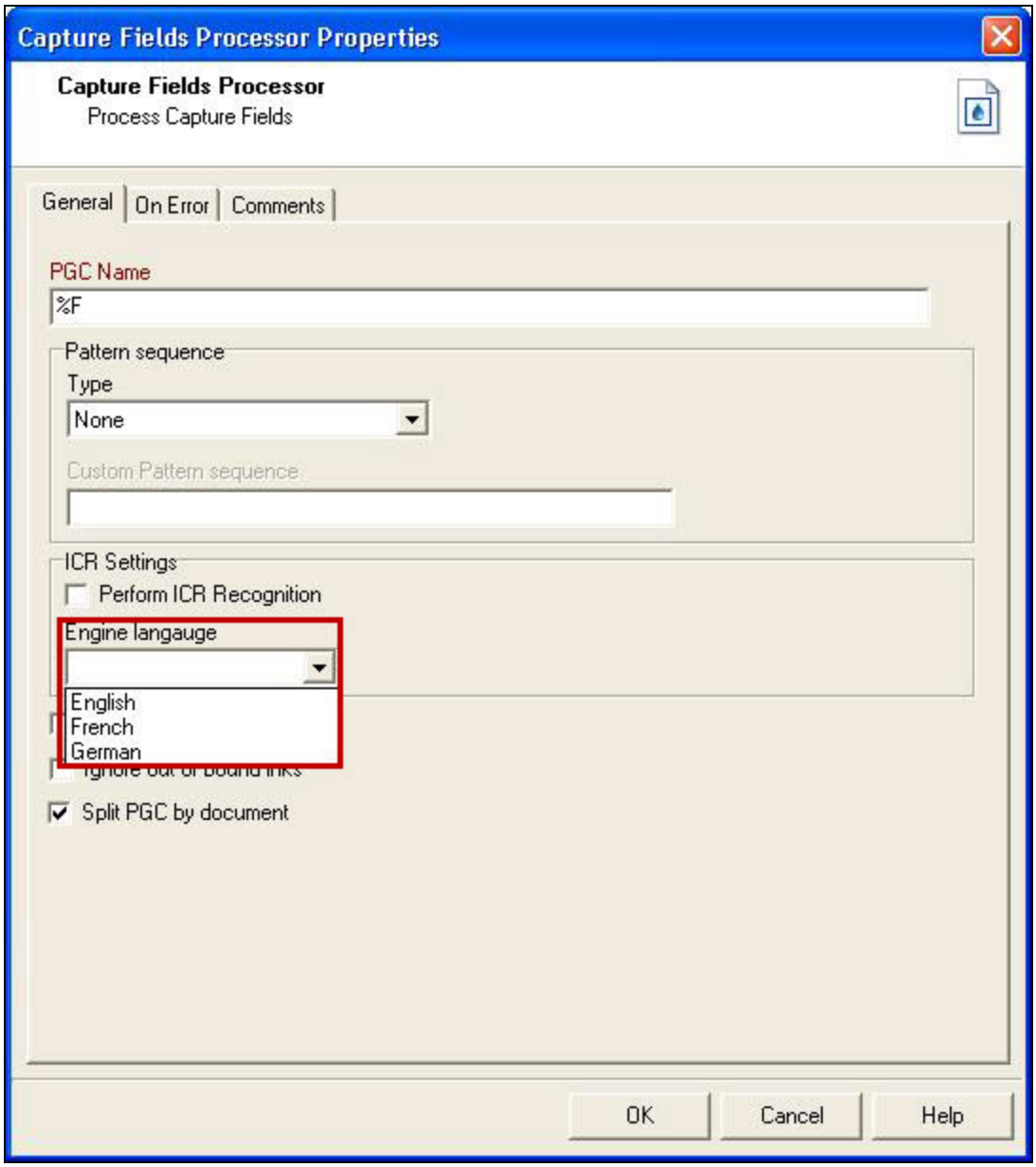
- Write an additional line under the number 1.
- Write an additional line across the number 7.
- The ICR functionality of PlanetPress Capture cannot recognize dotted letters where there are circles instead of dots (like i , j). This would be analyzed as an i AND o. Therefore, dots should be as such and not circles.
- In French, the ç is somewhat sensitive. You must apply yourself and draw the letter carefully. In most cases, it is recognized, but attention must be paid.
- Number 8 is also sensitive. It is recommended that the number is traced as one movement instead of drawing 2 circles on top of each other.

Selecting the Correct Language When Using the Capture Field Processor Task

- **Target**: Workflow designer.
- **What**: It is crucial that the correct language is selected when using the ICR recognition option. This will affect how the captured data is interpreted.

Why: The available filters to interpret the ink marks done with the Anoto digital pen, allow you to select the engine language to be used. Doing so will give you results that are the closest match to the captured data. Multiple cultural characters can be interpreted with ICR once the correct language is selected such as û, à, é, etc.

How: This option is available from the **Capture Fields Processor** task.



Possibility of Interpretation Error in an Automated Process

- **Target**: Workflow designer
- **What**: We cannot be 100% sure that a character would be recognized by PlanetPress Capture as it should. Therefore, the analysis of a value interpreted with ICR should only occur if the level of confidence is superior to a determined level.

Why: An automated process can treat the characters incorrectly due to an incorrect interpretation of a value. This occurrence should be minimized as much as possible.

How: Allow for a special process (possibly manual handling) in the case the automated process didn't reach a high confidence level in its analysis of the ink marks. Use the plugin Capture condition that includes the ICRContent option. This can be configured to be a true condition if the confidence level is greater than a certain value.

Capture OnTheGo (COTG)

Capture OnTheGo (COTG) is a mobile app to capture and send data. A COTG solution creates e-forms that you can download to your mobile device (iOS, Android or Windows 10). You can then add text, pictures, annotations, numbers, dates, signatures, etc., as well as validate the forms, whether online or offline. Next, you can send the collected information back to your office via the internet.
COTG also lets you distribute and manage PDF documents, such as guides or disclaimers.

Capture OnTheGo is only compatible with **OL Connect**.

For more information on building and using PlanetPress Capture OnTheGo processes, please see Capture OnTheGo user guide.

About PlanetPress Fax

PlanetPress Fax is a service that can be used to output data and documents via a faxing software, such as Windows Fax (available with Windows 2000, XP, and Microsoft Windows Server™ 2003) or Symantec WinFax PRO, as well as via a faxing server, such as Captaris RightFax. Note that it is these applications that do the actual faxing.

- **Windows 2000**: PlanetPress **Fax** Output tasks set to use Windows Fax under Windows 2000 may fail when no one is logged on to the system running PlanetPress Fax.
- **Windows XP**: Windows Fax may not work properly after the Windows XP Service Pack 2 (SP2) has been installed (refer to Microsoft Customer service for more information on this issue). Also note that Windows Fax may take as much as three times more time to send faxes under Windows XP.

PlanetPress Fax can be installed on any computer on your network and process all requests coming from tasks performed by PlanetPress Workflow on other workstations. You may choose

to run it on every computer where PlanetPress Workflow is running, but you may also choose to run it on computers more or less dedicated to PlanetPress Fax.

Since the faxing program must always be running and ready to receive requests from PlanetPress Workflow, it should be included in the **Windows Startup** group.

PlanetPress Fax can associate a different fax number with each page it sends via the faxing software. For this to happen, two things are required: each record must have a fax number specified in the job file and that fax number must be tagged as such in PlanetPress Design (in the PlanetPress Design User Guide, refer to the section documenting Data Selections, which includes explanations on the available PlanetPress Fax options). When the data and the document are merged, the fax number associated with each record becomes available to PlanetPress Fax that can then pass it on to the faxing software.

Note

Because of technical limitations, the minimum time required to generate a PlanetPress Fax document is approximately 10 times longer on Windows 2000 than on Windows XP/2003.

About PlanetPress Image

PlanetPress Image is a multi-threaded service that can generate image files in PDF, JPEG and TIFF format. As PlanetPress Workflow and PlanetPress Image are compliant with AutoStore, DocAccel and KYOcapture, these formats can also be used.

The generated files can be archived and, depending on whether you use a PlanetPress **Image** Output task or a **Digital Action** task, sent via email. Note that you can use PlanetPress Search, another program included in PlanetPress Workflow, to search through archived PDF files.

Note

All raster images, such as GIFs or JPEGs, generated by PlanetPress Image are **portrait oriented**.

PlanetPress Image can be installed on any computer on your network and can process requests coming from tasks performed by PlanetPress Workflow on other workstations. You may choose to run it on every computer where PlanetPress Workflow is running, but you may also choose to run it on computers more or less dedicated to PlanetPress Image. Note that in the case of **Digital Action** tasks, PlanetPress Workflow and the PlanetPress Image service must be running on the same computer.

> **Note**
>
> The minimum time required to generate a PlanetPress Image document is approximately 10 times longer on Windows 2000 than on Windows XP/2003.

Preferences

In addition to the job-specific PlanetPress Image properties that you configure in the task's **Properties** dialog box, there are configurable options common to all PlanetPress Image Outputs processed by a given computer; see "PlanetPress Image preferences" on page 796. Note that those options are specific to each PlanetPress Image installation and that they are immediately applied.

OL Connect Send

Connect Send allows for PostScript files to be received over the internet from any Windows Desktop application. It is in fact an application with two components. The first is a Windows printer driver while the other is a group of Workflow plugins (Job Processor, Get Job Data and Get Data). These two components work together indiscriminately, each needing the other to function.

Connect Send can be used in unlicensed mode and licensed mode.
The **Unlicensed mode** (default) allows users to push documents to Connect Send. They will receive a pop-up message in the Notification Area confirming whether the job was received or not.
The **Licensed mode** causes the Connect Send Printer Driver to request a web page that will be displayed in the user's browser in order to allow them to enter job specific information. The information from this web page can be used to tell Workflow what to do next.

Workflow processes in Connect Send

For help on the configuration of Workflow processes in a Connect Send solution, see "Workflow processes in a Connect Send solution" on page 298.

OL Connect Send tasks

- "Get Data" on page 576
- "Get Job Data" on page 581
- "Job Processor" on page 585

ZUGFeRD

The ZUGFeRD plugin provides a way to enrich German PDF invoices with data specific to the invoice. This is done by embedding the data in a standardized XML format within the PDF itself.

ZUGFeRD is an acronym for ***Z**entraler **U**ser **G**uide des **F**orums **e**lektronische **R**echnungen **D**eutschland*. In English this translates to *Central User Guidelines of the Forum for Electronic Billing in Germany*.

The ZUGFeRD standard describes three different levels of embedded information. The “BASIC” profile is the lowest level, and is the level supported by the Workflow plugin. It holds structured data which is enough to cater for most requirements of the Federal Ministries and industries (such as the software and taxation sectors) participating in the standard.

For more information, please see the ZUGFeRD website: https://www.ferd-net.de/zugferd/definition/index.html.

Licensing

The ZUGFeRD plugin is bound to the **Connect Workflow** Imaging license.

Workflow Imaging is an add-on license bundle for **Connect Workflow** that includes the Image and Fax plugins.

Without a valid Imaging license, the plugin will create a valid ZUGFeRD PDF file at design time and in debug mode, but will not apply ZUGFeRD data to the PDF in runtime/production mode.

An unlicensed plugin will simply pass through any incoming PDF files untouched.

Plugin language

The plugin is only available in German, as its application is only really relevant to documents created for the German market.

Plugin usage

For help on how to use the ZUGFeRD plugin, see "ZUGFeRD plugin" on page 528.

Plugin Legal Notices and Acknowledgments

Copyright © 2021**,** Objectif Lune Inc. **All rights reserved.**

The ZUGFeRD name and logo are protected under copyright and used with permission of the Arbeitsgemeinschaft für wirtschaftliche Verwaltung e.V. in Germany.

The Objectif Lune Inc. ZUGFeRD plugin uses the following third party component: **Intarsys ZUGFeRD Toolkit**

About related programs and services

Services are programs that run in the background and automatically perform tasks that often do not require any user interaction. With the exception of the PlanetPress Workflow Configuration tool, all the programs used by PlanetPress Workflow are run as service applications. PlanetPress Workflow can thus use them as required without the need for any user interaction.

Although you can manually start and stop any service running on your computer, most of the basic services used by the system are started and stopped automatically. In the case of PlanetPress Workflow and their related services, you typically use a command included in your PlanetPress Workflow Configuration program to start and stop most services. Opening and closing your PlanetPress Workflow Configuration program has no effect on these services. The PlanetPress Workflow **Service Console**, included in the PlanetPress Workflow Tools ribbon, can be used to monitor, start and stop PlanetPress Workflow services (see "Users and configurations" on page 750 and The PlanetPress Workflow Service Console).

Services must use an account to be granted the permission to use the system’s resources and objects. This information is included in the service's configuration and most services use the **Local System Account**, which is granted access to all the system’s resources. All input and output services used by PlanetPress Workflow run under the same account. For more

information on services and system permissions, refer to Windows documentation. For more information on how to configure the account used by the services, see "Workflow Services" on page 752.

Available Input services

Input services are used to pull in data files. The input services used by PlanetPress Workflow are:

- **LPD (Line Printer Daemon) Input service**: Inputs data sent from an LPR client. The LPD/LPR printing protocol is a common way to send print jobs that, in turn, use the TCP/IP protocol to communicate through the network.
- **PrintShop Mail Web Capture service**: Monitors print requests from a PrintShop Web server.
- **Serial Input service**: Monitors a single serial port for incoming data. Note that all Serial input tasks use the same serial port (set in the user options of the PlanetPress Workflow Configuration program).
- **Telnet Input service**: Monitors multiple telnet ports for incoming data. Note that each Telnet input task has its own telnet port number (set in each task).
- **HTTP/SOAP Server service**: Monitors web pages and web sites as well as SOAP servers.

Available Output services

Output services are used to output jobs. The output services used by PlanetPress Workflow are:

- **FTP Output service**: Places output jobs on a server via the FTP protocol.
- **LPR (Line Printer Requester) Output service**: Sends jobs to an LPD server or LPD compatible printers. The LPD/LPR printing protocol is a common way to send print jobs that, in turn, use the TCP/IP protocol to communicate through the network.
- PlanetPress **Image**: Outputs jobs as PDF files or in a variety of image formats. You can also use PlanetPress Image to archive and/or email the files it creates. You can use PlanetPress Search to search the PDF files PlanetPress Image creates. You can install multiple instances of the PlanetPress Image service on your network, and have PlanetPress Workflow send jobs to one or more of these instances. Each instance of

PlanetPress Image can generate PDFs or images and dispatch them from the host on which it runs. See "About PlanetPress Image" on page 744.

- PlanetPress **Fax**: Outputs jobs as faxes. You use PlanetPress Fax as an interface to WinFax PRO or Windows Fax, to send faxes you create from documents. You can install multiple instances of the PlanetPress Fax service on your network, and have PlanetPress Workflow send jobs to one or more of these instances. Each instance of PlanetPress Fax can generate faxes and dispatch them from the host on which it runs, using a local faxing program, such as WinFax PRO, Captaris RightFax or Windows Fax. See "About PlanetPress Fax" on page 743.
- **PrintShop Mail**: Used to generate documents using PrintShop Mail databases and documents. Communicate with it through the PrintShop Mail and PrintShop Mail 7 Connector Tasks. See "PrintShop Mail" on page 526.
- **Laserfiche**: Used as a repository for electronic documents. Communicate with it through the Laserfiche Repository Output Task. See "Laserfiche Repository Output" on page 496.
- **PlanetPress Capture**: Used to generate and process files using Anoto patterns. Communicate with it through the PlanetPress Capture tasks such as the Anoto Ink Processor and the Anoto Pattern plugins.

Start and stop PlanetPress Workflow Service

As with most Windows services, PlanetPress Workflow can be started and stopped automatically when a Windows session is opened and closed. The other option is to start, stop or pause PlanetPress Workflow manually using the PlanetPress Workflow Configuration program.

> **Note**
>
> The current PlanetPress Workflow status is always displayed in the lower-right corner of the PlanetPress Workflow Configuration program window.

Click **Tools** in the PlanetPress Workflow Ribbon.
Then, in the **Services Status** group:

- Click **Start Service** to **start** the service. A progress bar is displayed while your PlanetPress Workflow is being started.

- Click **Stop Service** to **stop** the service.
  When you stop or pause PlanetPress Workflow, it immediately stops bringing new files into its processes, but it keeps on performing tasks until all the files which are currently under process have been completely processed.
- Click **Pause** to **pause** the service. The PlanetPress Workflow service temporarily stops performing jobs.

> **Note**
>
> If you send a new configuration when PlanetPress Workflow is paused, it will continue using the old configuration when you resume processing until you stop and restart it. See also: "Saving and sending a Workflow Configuration" on page 36.

- Click **Resume** to **resume** the service after pausing it. The PlanetPress Workflow Tool service starts performing jobs again.

Users and configurations

When a user opens a session on a computer, they typically need to log in. When they do so, a session is opened and customized for them on that computer (certain drive letters and network shortcuts may be mapped, local and network printers may be made available, etc.). Furthermore, local and network rights may be granted to them: the right to get documents from - and to put documents in - local or network folders, for example, or the right to print on such or such printer.

Local and network rights

Programs, such as PlanetPress Workflow and all their services, must identify themselves in order to be granted permission to perform operations on the computer on which they run as well as on other computers accessible via a network connection. On a given workstation, you can configure your PlanetPress Workflow to use either the local system account or any specific user account (see "Workflow Services" on page 752). When you do this, you grant the PlanetPress Workflow and all its services the same rights associated with the selected account. It is important to note that PlanetPress Workflow and its services require administrator rights to run on any given computer and that they must therefore be associated with an account that has such rights.

When you are running the PlanetPress Workflow Configuration program on a workstation, if it is associated with an account that is different from your account, the following icon is displayed in the lower right corner of the PlanetPress Workflow Configuration program: . This is to draw your attention to the fact that your PlanetPress Workflow may have rights that differ from your rights, and that this application and its services may therefore not be able to perform some of the actions you can perform when you create or edit a given configuration.

The simplest thing to ensure that rights are the same across your whole network is to create an administrator network account especially for PlanetPress Workflow Tools. This will ensure that the PlanetPress Workflow and all its services have the same rights on all computers and that it is therefore able to perform all the actions defined it needs to on every computer on your network. A less permissive solution is to create an administrator local account for PlanetPress Workflow and to replicate it on each computer where PlanetPress Workflow and its services are likely to perform operations, such as get files, store files, or run applications and perform operations.

Local settings

Different users may create different printer queues. Let us say you have a big HP printer in your office. User A creates a printer queue on his system called “Big HP” for that printer, and user B creates one called “My printer” for the same printer. A configuration created on user A’s system and then used on user B’s system would generate errors trying to print to the “Big HP” printer queue.

Different users may also map network drives differently. Let us say this time that you have a server in your office. User A maps that server’s main drive using drive letter “y:” while user B maps it using drive letter “z:” A configuration created on one system and then used on the other would both get and save the wrong files from the wrong drives. Note that such situations may be avoided by using the Universal Naming Convention option.

User specificity

PlanetPress Workflow configurations are not user specific as such. If you make sure that all the user accounts have adequate network rights, that printer queues are defined the same way on all systems, and that all network drives are mapped using the same drive letters (or that the UNC option is selected in the network options), then you should have no problems running configurations on different systems using different user accounts.

Workflow Services

To be able to run and to have access to local files as well as to files available on other computers in your network, PlanetPress Workflow applications and services must identify themselves using a local or network account.

The first time you start the PlanetPress Workflow Configuration program, the application automatically asks you to choose an account (see below).

You can also manually start this procedure from the PlanetPress **Workflow Tools** by following this procedure: click on the **Tools** tab in PlanetPress Workflow Ribbon, then click **Configure Services**.

Set the PlanetPress Workflow applications permissions as required:

- **Local System account**: Select to run all the PlanetPress Workflow Services (including PlanetPress Workflow, PlanetPress Fax, and PlanetPress Image) under the Local System account. The Local System account is distinct from the Administrator account. It requires no user name or password, and its privileges may exceed those of the user currently logged in. Running under this account rather than a user account prevents problems that may arise if the user lacks a permission the service requires. If a configuration relies on any resources mapped to a particular user, such as mapped network drives or shared printers, they are unavailable. It is recommended that you create a configuration for a particular user. Clear the Local System account checkbox to run all the PlanetPress Workflow Services under the account you specify. Use the options that become available when you clear Local System account to enter the account information—you must enter a valid user name and password to use Microsoft Outlook as your email client for Email input and Send email output tasks.
- **This Account**: Provide a domain, user name and password to use instead of the Local System Account.
    - **Browse**: Opens the default Windows dialog for selecting users/groups/etc. from a domain.
    - **User**: Enter the name of the user account.
    - **Password**: Enter the password for the user account you specified in the user name box.
    - **Confirm password**: Enter the password you entered in the Password box.

- **Services start automatically**: Select to start the required PlanetPress Workflow automatically.

PlanetPress Workflow applies the user account information to all the services (PlanetPress Workflow, PlanetPress Fax, PlanetPress Image, LPD input, Serial input, Telnet input, FTP output, LPR output, and PlanetPress Messenger), that run on this computer.

The PlanetPress Workflow Configuration program does not test user names and passwords, but merely associates them with the services that require them. If you enter a bad user name or password, these services will be denied access to the selected account.

The account you choose will be used by PlanetPress Workflow and all its services, as well as by PlanetPress Fax and PlanetPress Image. If you install PlanetPress Fax or PlanetPress Image on the same computer after performing this procedure, you will have to perform it once again, so as to choose the same account for all the installed applications.

Preferences

PlanetPress Workflow Configuration program lets you configure a variety of options, from how the application itself looks or behaves, to plugin specific options.

Most of PlanetPress Workflow preferences are located in the PlanetPress Workflow Preferences window, accessible through the **Preferences** button in the PlanetPress Workflow button, or the key combination **Ctrl**+**Alt**+**P**. Those preferences are:

- Appearance:
  - "General appearance preferences" on the facing page
  - "Object Inspector appearance preferences" on page 756
  - "Configuration Components pane appearance preferences" on page 757
- Behavior:
  - "Default configuration behavior preferences" on page 758
  - "Notification Messages behavior preferences" on page 759
  - "Sample Data behavior preferences" on page 762
  - "Network behavior preferences" on page 762
  - "PlanetPress Capture preferences" on page 763
  - "OL Connect preferences" on page 772
  - "PDF text extraction tolerance factors" on page 773
- Plug-in:
  - "General and logging preferences" on page 775
  - "Messenger plugin preferences" on page 777
  - "HTTP Server Input plugin preferences 1" on page 778
  - "HTTP Server Input plugin preferences 2" on page 782
  - "LPD Input plugin preferences" on page 784
  - "NodeJS Server Input plugin preferences 1" on page 785
  - "NodeJS Server Input plugin preferences 2" on page 787
  - "NodeJS Server Input plugin preferences 3" on page 788
  - "Serial Input plugin preferences" on page 790
  - "SMTP Input" on page 371

- "Telnet Input plugin preferences" on page 791
- "PlanetPress Fax plugin preferences" on page 791
- "FTP Output Service preferences" on page 795
- "PlanetPress Image preferences" on page 796
- "LPR Output preferences" on page 799
- "PrintShop Web Connect Service preferences" on page 801

Note

Preferences are saved automatically and applied immediately.

Other preferences and settings

- The PlanetPress Workflow **Services** dialog lets you select the account that PlanetPress Workflow Service uses to communicate on the server and the network. See "Workflow Services" on page 752.
- You can change the appearance of the Run Script and XSLT Editor through the **Editor Options** dialog.

General appearance preferences

Ribbon Color Scheme

- **Blue**: Sets the general interface color scheme to a blue color.
- **Silver**: Sets the general interface color scheme to a silver (gray) color.
- **Black**: Sets the general interface color scheme to a black (coal) color.

Colors

- **Variable properties**: Select a color for the labels identifying variable property boxes.
- **Debug**: Select the color applied to the PlanetPress Workflow **Process** area background when in debug mode.

- **Highlighted tasks and branches**: Select the background color for highlighted tasks and branches in the Process Area's invisible grid.
- **Disabled tasks and branches**: Select the background color for disabled tasks and branches in the Process Area's invisible grid.

Inactive process

- **Color**: Select the color to use to identify inactive processes in the **Configuration Components** pane.
- **Bold**: Select to use a bold font to display inactive processes.
- **Underline**: Select to use an underlined font to display inactive processes.
- **Italic**: Select to use an italic font to display inactive processes.
- **Strikethrough**: Select to use a strikethrough font to display inactive processes.

Object Inspector appearance preferences

Colors

This window lets you set the color of individual Object Inspector elements. To change the color of a given element, select it in the list box above and then choose a color from the drop-down list below.

Options

- **Vertical line 3D**: Select to display the vertical line between property names and their values using a 3-dimensional effect.
- **Use groups**: Select to organize the display of properties into groups. Clear the selection to display properties in alphabetical order. When the Object Inspector displays properties in groups, it displays an expand/collapse button to the left of the name of the group for expanding or collapsing the group.
- **Sunken active property**: Select to use a recessed effect to display the currently selected property.
- **Border active property**: Select to display a border around the currently selected property.
- **Show lines**: Select to display lines between elements.
- **Line style**: Select a style for the lines.

- **Reset to default** button: Click to reset all the Object Inspector options to their default values.

Configuration Components pane appearance preferences

Colors

This window lets you set the color of individual **Configuration Components** pane elements. To change the color of a given element, select it in the list box above and then choose a color from the drop-down list below.

Options

- **Line Style**: Select the style (dotted or solid) of the line that connects the different objects in the **Configuration Components** pane.
- **Selection rectangle**: Select whether your selection rectangle (used to select multiple objects by dragging a rectangle around multiple objects) will be displayed as a dotted line rectangle, or a blended rectangle (normally a blue rectangle with darker blue border).
- **Button Style**: Select whether to show the expansion links as either an arrow (points right for a closed tree, down for an open tree) or a square (shows a minus symbol for an open tree, plus symbol for a closed tree).
- **Show Tree Lines**: Check to choose whether or not to display the lines that connect the different objects in the **Configuration Components** pane.
- **Show Grid Lines**: Check to choose whether or not to display grid lines between each object in the **Configuration Components** pane.
- **Hot track**: Check to choose whether or not to display the object in the **Configuration Components** pane under the mouse cursor as being underlined.
- **Reset To Defaults** button: Click to reset all the **Configuration Components** pane appearance options to their default values.

Default configuration behavior preferences

- **Use default configuration**: Check to use default input and output tasks when you create a new process. If this group is not selected, each new process you will add will begin and end with unknown tasks.
    - **Default input task**: Select an input task to use as the default input task when you add a new process. Click the **Configure** button located to the right of this box to set the properties of the selected input task.
    - **Default output task**: Select an output task to use as the default output task when you add a new process. Click the **Configure** button located to the right of this box to set the properties of the selected output task.
    - **Default output task for conditions/branches**: Select an output task to use as the default output task when you add a new branch or condition. Click the **Configure** button located to the right of this box to set the properties of the selected output task.
- **Open the current configuration on startup**: When this option is selected the Workflow Configuration tool automatically starts with the configuration that was last sent to the server. Otherwise no configuration will be opened at the start.
- **Enable Undo/Redo functionality**: Select this option to enable or disable the **Undo** functionality. Disabling the **Undo/Redo** functionality frees up a lot of memory and may thus speed up your system. The maximum number of steps performed is set in the box below.
- **Auto Save every**: Select to enable the **Auto Save** functionality. The auto save delay is set in the box below (in minutes).
- **Enable printer information validation when opening a Watch configuration file**: If one of the processes in the configuration file contains a Print using a Windows printer driver plugin, the printer information (printer name, driver size and version) will be checked and the update process will be performed as required.
- **Default scripting language**: Specify which scripting language the Run Script plugin expects by default. This preference is saved in the registry, not in a configuration file.

Note

- The **JScript** engine is Microsoft's JScript 5.8, which is the equivalent of JavaScript 1.5 (ECMA-262 3rd edition + ECMA-327 (ES-CP) + JSON). **Enhanced JScript** allows the use of more recent JavaScript syntax. Many methods - basic methods like `Date.now()`, `String.trim()`, `btoa()`/`atob()` and more advanced methods like `Array.forEach()` - are added to the JScript engine via the polyfill.js library.
- While JavaScript and VBScript are natively available on Windows operating systems, Python and Perl require third-party tools to be functional. For Perl, ActivePerl can be installed. For Python ActivePython (version 2.7.13) can be installed.

Notification Messages behavior preferences

Notification Messages behavior preferences control the display of certain messages and prompts within PlanetPress Workflow.

Preferences

- **User mismatch**: Select to have PlanetPress Workflow display a prompt when a different user opens the application.
- **Task deletion**: Select to prompt for confirmation when deleting a task.
- **Document deletion**: Select to have PlanetPress Workflow prompt for confirmation when deleting a document.
- **Prompt on Document deletion when service is running**:
- **Group of documents deletion**: Select to have PlanetPress Workflow prompt for confirmation when deleting a group of documents from the **Configuration Components** pane.
- **Empty group deletion**: Select to have PlanetPress Workflow prompt for confirmation to delete a group when you remove the last of its member objects. If you clear this option, groups are automatically deleted when their last members are removed.

- **Invalid name**: Select to have PlanetPress Workflow warn you when you try to rename an object in the Configuration Components incorrectly. Names can include letters, numbers, and underscores; the first character of a name cannot be a number.
- **Printer queues update**: Select to have PlanetPress Workflow prompt you when adding a document to a group under the Documents category in the **Configuration Components** pane. You are only prompted if the group of documents is assigned to one or more printer queues. PlanetPress Workflow can add the new document to all assigned groups under the Printer Queues category automatically.
- **Configuration save with wrong user**: Select to have PlanetPress Workflow prompt for confirmation when you are saving a configuration while logged onto the computer as a user other than the one associated with the PlanetPress Workflow service.
- **Configuration save**: Select to have PlanetPress Workflow prompt to save the current configuration when exiting the software or before opening another configuration file.
- **Configuration send**: Select to have PlanetPress Workflow prompt to send the current configuration to run in the PlanetPress Workflow service when exiting software or before opening another configuration file.
- **Nothing to configure**: Select to have PlanetPress Workflow notify you when you try to set properties for a task that does not have any properties. For example, the Error Bin input has no properties because it only inputs jobs sent to it through On Error properties of tasks in other processes. When you attempt to edit its properties, it displays the "nothing to configure" message when this option is selected.
- **No registry**: Select to have PlanetPress Workflow notify you if it cannot find an install location in the registry. In such cases, the path of the currently running software executable is used as the install path.
- PlanetPress **Watch 3 documents and job commands transfer**: Select to have PlanetPress Workflow display a prompt when you import a configuration from PlanetPress Watch 3 that allows you to transfer documents and job commands.
- **Plugin not found**: Select to have PlanetPress Workflow display a prompt when you import a configuration, and one or more of the plugins used in the configuration are not found on the computer running the software.
- **Prompt on configuration overwrite**: Select to have PlanetPress Workflow prompt for confirmation when a configuration is about to overwrite a file with the same name.
- **Prompt on no active process to send**: Select to have PlanetPress Workflow prompt for confirmation when attempting to send a configuration although no processes are active.

- **Prompt on overwrite of a document**: Select to have PlanetPress Workflow prompt for confirmation when a document that is being imported using File | Import Document is about to overwrite an existing document.
- **Prompt on Document overwrite when service is running**: Select to have PlanetPress Workflow prompt for confirmation when a document that is being imported using File | Import Document is about to overwrite an existing document. The only difference between this option and the previous one is that this option will warn the user that the document about to be overwritten may currently be used by the PlanetPress Watch service.
- **Prompt on Importing a non** PlanetPress **Document**: Select to have PlanetPress Workflow prompt for confirmation when a document that is not a valid PlanetPress Connect document is about to be imported. This may occur if a non-PlanetPress Connect document will inadvertently have a PPX or PSI file extension.
- **Prompt on Resetting Document Attributes**: Select to have PlanetPress Workflow prompt for confirmation when importing a hidden or read-only document using the File | Import document command. By confirming the import, you allow PlanetPress Workflowto reset the document's attributes to 'Visible' and 'Read and Write'.
- **Prompt on Document Instance Deletion**:
- **Prompt on Emulation Change**: Select to have PlanetPress Workflow prompt when the default process emulation is being changed. The last emulation selected when debugging a process is the one the process begins with.
- **Prompt on Form Refresh**: Select to have PlanetPress Workflow prompt for confirmation when recompiling the PostScript (PSx) version of a PlanetPress Connect Document. Refreshing PlanetPress Connect Documents that are currently in use can lead to unexpected results.
- **Prompt on Saving with Unknown Task**: Select to have PlanetPress Workflow prompt for confirmation when saving a configuration file or sending the configuration to the PlanetPress Watch service, when any process contains "Unknown tasks" on page 701. If an **Unknown Task** is present, such as when a process was created with a PlanetPress Workflow license that is not the same as the current one, the settings for this task will be lost when saving or sending to the service.
- **Display Generic Splitter Found Message**: Select to have PlanetPress Workflow prompt when a **Generic Splitter** task is found in any of the configuration's processes. The **Generic Splitter** task is maintained because of its historical purpose but should no longer be used since it can almost always be replaced by more specialized and efficient splitters.

- **Warn on Component Rename**: Select to have PlanetPress Workflow prompt for action when configuration components, such as processes, are imported from an external configuration file. Imported components can overwrite existing components, or be renamed automatically with unique names.

Sample Data behavior preferences

Sample Data behavior preferences control the way the**Data Selector**displays the sample data file.

Preferences

- **Select Font** button: Click to access the **Font** dialog box to select the font in which the Data Selector displays the sample data file.
- **Default text editor**: Contains the complete path and name of the executable file of the application used as the default text editor. For Windows Notepad, only the executable name (**Notepad.exe**) is required.
- **Browse** button: Click the **Browse** button to navigate to your executable instead of typing the path and executable name, then click OK.

Network behavior preferences

Network behavior preferences let you configure NetWare® Login user options, so that PlanetPress Workflow can access your Novell® NetWare network. The following procedure also lets you choose the Universal Naming Convention (UNC), which removes inconsistencies when accessing paths on Novell and other networks.

Preferences

- **NetWare Login**: Check to enable the options PlanetPress Workflow requires to access NetWare resources. When you select this option, you must enter values in the Username and Password fields, and in the **NDS** options group (these properties are optional) below to properly log in to NetWare.
    - **Username**: Enter your NetWare user name. This is the user the PlanetPress Workflow service uses to log in to NetWare at run-time. The service accesses

resources as configured for this user.

- **Password**: Enter the NetWare password corresponding to the user name you entered in the previous text box.
- **Tree**: Enter the NetWare Directory Services (NDS) tree where the user resides. This is the user you entered in the user name text box. Click Trees to navigate to the desired tree. You must enter a value for the Tree text box.
- **Context**: Enter the context on the NDS tree where the user you enter in the user name text box resides.
- **Server**: Enter the server where the NDS tree you entered in the Tree text box resides. You do not have to specify a server if there is only a single configured server on your network. Click Servers to navigate to the desired server on which the NDS tree containing the user resides.

Expand folder paths in UNC (Universal Naming Convention) format: Select to expand all paths used in the configuration to UNC. This converts map drives such as “f:\, to absolute paths referenced from a server in the format “\\server-name\shared-resource-pathname”. When you select this option, the next time you configure a task after editing properties and clicking OK in its properties dialog box, entered paths are expanded to UNC format.

> Note
>
> You can leave the Context box empty if there is a single root context on your NDS tree, if you can perform a context-free log in, or if you enter a server name in the Server box. PlanetPress Workflow and PlanetPress Image use the same security context when connected to a NetWare server and they each use one connection. Also note that using erroneous Tree or Context information may cause PlanetPress Workflow and its services to crash.

PlanetPress Capture preferences

PlanetPress Capture behavior settings lets you change the PlanetPress Capture options relative to your Workflow server. This is where you set up your server and database and where you manage pens, documents and licenses.

The available PlanetPress Capture user options are:

- **Mode**: Choose between **Server** and **Client** mode. Client and Server mode are used for multi-server architectures. See PlanetPress Capture Server/Client.
- **Port**: Select the port used to connect two servers together. The default value is 5864.
- **Document and Pattern Database group**
  - **Status**: Displays the status of the database.
  - **Use ODBC Database**: Check to ignore the default location for the Microsoft Access database (MDB) and use an ODBC connection to your own database location instead.
  - **ODBC Settings**: Click to open the "PlanetPress Capture ODBC Settings" on page 767 dialog.
  - **Test Connection**: Click to verify the connection to the ODBC Database.
  - **Reset Database**: Click to reset the database to its original status.
  - **Manage Documents...**: Click to open the " PlanetPress Document Manager" on the facing page.
- **Pen Database group**
  - **Register pens on first use**: Check if you want any new pen that sends a PGC to be added to the pen database. Newly registered pens will not have any Pattern Sequence or owner information.
  - **Manage Pens...**: Click to open the "PlanetPress Capture Pen Management Tool" on page 769 dialog.
  - **License Manager...**: Click to open the "PlanetPress Capture License Management" on page 771 dialog.

PlanetPress Capture Server/Client

PlanetPress Capture can be set to be either in Server or Client mode from the PlanetPress Capture User Options.

In Server mode, all pen licenses are stored locally. Other clients can connect to this server to validate pens. This allows all pen licenses to be managed locally.

In client mode, no pen license information is stored locally. All pens are therefore validated against the server specified in the **Host address** field displayed when the **Client** option is

selected. Note that this validation occurs for every ink file (i.e. PGC file) the local system processes, which may cause a slight delay for the operation depending on the connection speed and latency between the two systems.

> **Note**
>
> The Server/Client mode is only used for managing pen licenses and has no impact on the Capture Database itself. The database can be stored locally or remotely, regardless of the Server/Client mode specified.

PlanetPress Document Manager

The **PlanetPress Capture Document Manager** dialog is used to manage all the documents present in the PlanetPress Capture database that are currently open.

Options and Controls

Documents Lookup Group

- **Filter by**: Select what information you want to look for in the documents database.
  - **Document ID**: Search using the Document ID, a unique and automatic identifier attributed to each document by the **Capture Field Generator** task.
  - **Document Title**: Search in document title as specified in the **Capture Field Generator** task.
  - **Production date (YYYY-DD-MM)**: Search using the date at which the document was generated using the **Capture Field Generator** task.
  - **Pen user (by description)**: Search using the description field in the Pen Database.
  - **Pen user (by serial number):** Search using the pen's serial number in the Pen Database.
  - **Pattern Sequence**: Search using the Pattern Sequence in the Document Database.
  - **Template Name**: The name of the document, corresponding to the name entered in the PlanetPress Design document properties.
  - **Pattern ID**: Search using the pattern's identification number. This can be printed on each document next to the Anoto Statement (see PlanetPress Design User Guide).

    - **Content Status**: Search using the status of the document, whether it is Open, Closed, Complete, Partial or in Error.
- **Operator**: Select how to do the comparison
    - **Equal**: The mask and database information are exactly the same.
    - **Not equal**: The mask and database information are different.
    - **Less than**: If the mask and database information are both numbers, the mask will be a smaller number.
    - **Greater than**: If the mask and database information are both numbers, the mask will be a larger number.
    - **Less than or equal to**: If the mask and database information are both numbers, the mask will either be smaller or equal to the database information.
    - **Greater than or equal to**: If the mask and database information are both numbers, the mask will either be larger or equal to the database information.
    - **Contains**: The mask is contained within the database information, at any location within the information.
    - **Does not contain**: The mask is not contained within the database information.
- **Mask**: Enter the text or number to compare with the database information.
- **Search**: Click to start the search.

Manage Documents Group

- **Document list**: Displays the results from the search in 3 columns:
    - **Document Title**: Displays the title of the document as specified in the **Capture Field Generator** task
    - **Production date**: Displays the date and time on which the document was added to the Capture Database.
    - **More info**: A variable column that displays additional information about the search results, such as the Pen ID or Pattern ID.
- **Select all**: Click to select all the documents in the list.
- **Select none**: Click to deselect all of the documents in the list.
- **View documents**: Click to view all the documents along with any ink already present on them. Each PDF is opened, in sequence, in the "PDF Viewer.

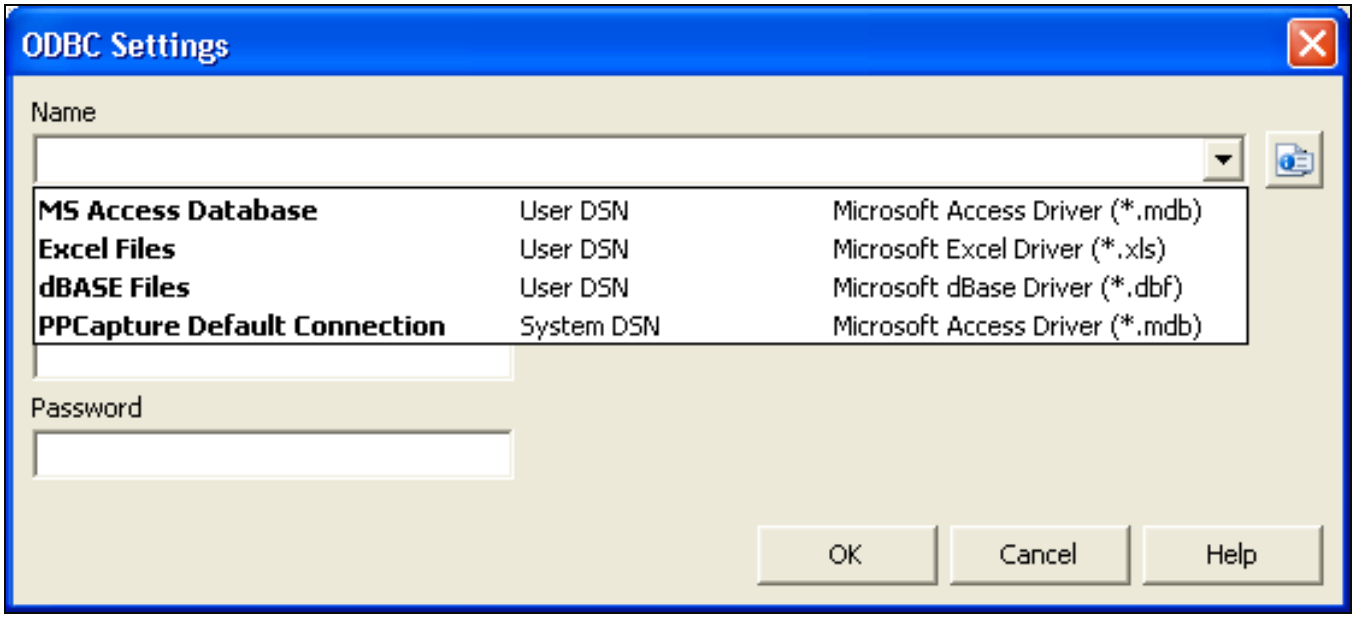
- **Close documents**: Click to close the document and release the pattern it uses.

> **Warning**
>
> This will prevent the document to be further updated, may cause errors when docking any pen that signed the printed version of the document. This cannot be undone.

PlanetPress Capture ODBC Settings

This dialog is used to set up the connection to a PlanetPress Capture Database through an ODBC connection.

To access this dialog, See "PlanetPress Capture preferences" on page 763.



Settings

- **Name**: Click to displays and choose from a drop-down of each DSN (Data Source Name) available on the system, along with it's source (User DSN or System DSN) and the driver it uses (database type).

- **Type**: Click to display a drop-down of supported database types. This must correspond to the database type of the DSN chosen in the previous option.
- **user name**: If the database is secured with a user name and password, enter the user name here.
- **Password**: If the database is secured with a user name and password, enter the password here.

> **Note**
>
> In order for the database connection to be functional, you must ensure that the database Type correspond exactly to the one used by the DSN, and is part of the supported database types.

Database considerations (ODBC)

> **Note**
>
> On 64-bit operating systems, the ODBC Data Sources created by the Data Source (ODBC) icon in the Administrative Tools will not appear here, as PlanetPress Suite is 32-bit and cannot access the 64-bit data sources. In order to create an ODBC connection visible by PlanetPress, you will need to access the 32-bit version of the ODBC manager, available in **C:\Windows\SysWOW64\odbcad32.exe** .

The following considerations should be kept in mind while working with ODBC Databases in PlanetPress Suite.

- **All databases**
  - **User Rights**: During normal operation, Read/Write to tables should be sufficient. However, during the initial setup, the Create/Drop tables rights is necessary.
  - Minimum 100MB of database size is required as a minimum, but the space requirement depends on the implementation. The more active documents in the database, the more space is used - note that this progression is rather linear.
  - Regular database maintenance is required, such as database compacting, is required by a system administrator.

    - It is recommended to create an IT process that backs up the database regularly.
    - The recommended ideal setup is a dedicated SQL Server PC, accessed by PlanetPress Workflow through an ODBC connection on the local network.
- **Microsoft Access**
    - Database file (mdb) must be local to the PlanetPress Workflow computer. It cannot be located on a network drive or another server.
    - Total database size is limited to 4GB of data.
    - Total size of a single table is 2GB.
    - May be unstable in large implementations.
- **MySQL**
    - Database can be in any location, but performance will depend on the speed of the connection between PlanetPress and the MySQL server.
    - MySQL's performance has been slower than SQL Server and SQL Server Express during our tests.
    - By default, MySQL is configured not to allow any SQL request larger than 16 megs.
    - In the event where 2 requests are made simultaneously on the same record, MySQL will queue one of the requests and execute it once the first one is done. In extremely rare cases this may cause a timeout on very large requests.
- **MSSQL (Microsoft SQL Server)**
    - All versions of the SQL Server are supported, including all Express versions.
    - Database can be in any location, but performance will depend on the speed of the connection between PlanetPress Production and the SQL server.
    - In the event where 2 requests are made simultaneously on the same record, SQL Server will drop the most complex request. Resubmitting the PGC for processing should resolve this issue. This, however, should happen only rarely.
    - When configuring the ODBC connection, your must use the *Microsoft* version of the driver, and not the *Native SQL* version of the driver. This is due to a technical limitation of the native driver that interferes with the PlanetPress Suite database requests.

PlanetPress Capture Pen Management Tool

The Pen Management Tool screen is used to manage the pens that are registered in the PlanetPress Capture Database. The number of Anoto Digital Pens you may register on this

screen depends on the licenses available within your PlanetPress Capture License.

Options and Controls

Top Toolbar

- **Read PGC File**: Click to display a **File Open** dialog. Browse to an existing PGC file, and open it. PlanetPress Capture will read the serial number from the PGC file and register the pen.
- **Print Pen Activation File**: Click to print a page containing a special pattern. Any pen that writes on this pattern and is then docked will be registered in the database.
- **Save Pen Data into Database**: Once all your pens are entered in this window, click to save the list of pens in the database.

Pen Data List: Displays a list of registered pens and those pens you just added.

- **Pen ID**: The serial number of pen, as written on the Anoto Digital Pen. You can double-click this area to edit the Pen ID if necessary.
- **Pattern Sequence**: The pattern sequence the pen is assigned to. You can double-click this area and edit the pattern sequence as required.
- **User ID**: The name of the user assigned to this pen. You can double-click this area to edit the user ID. This can also be custom information.

Bottom Toolbar

- **Button**: Click to add a new line in the Pen Data List, then edit the information on this new line.
- **Button**: Place a checkmark on the line of any pen you wish to remove from the database, then click this button.
- **Search in column Pen ID**: Enter a search term for a Pen ID, then click the **Search** button. The Pen Data List will highlight any pen containing your search term.

To register a new pen manually

1. Click on the icon
2. Enter the Pen ID (located on the pen after the word "Serial: ")

3. If necessary, enter an optional pattern sequence and User ID (identifier of who will use the pen).

To register a pen using the registration pattern

1. Click on the **Print pen activation file** button in the top toolbar of this dialog.
2. Use the **Windows Print** dialog to print to the desired printer.
3. Write or make a line on the printed pattern.
4. Dock the pen in its cradle.
5. Click on the **Read PGC File** button in the top toolbar of this dialog.
6. If necessary, enter an optional pattern sequence and User ID for each pen.

Multiple pens can be registered at once simply by writing on the registration pattern and then docking each pen before clicking the **Read PGC File** button.

If the pen that is being registered already exists in the pen database, the **Replace User ID (Description)** dialog appears, with the following options:

- **Pen ID**: Displays the Pen ID (serial number) to identify the pen
- **Old desc**.: Displays the content of the User ID field for the pen as it is now.
- **New desc.**: Type the new description to identify the pen
- **Replace**: Click to save the modification to the description
- **No Change**: Click to save the registration without modifying the description.
- **Modify**: Click to enable edits in the **Old desc.** field. The current information can then be modified. After modifications, click **Apply** to save the changes and exit the dialog.
- **Cancel**: Click to cancel any modifications to the pen registration.

PlanetPress Capture License Management

The **PlanetPress Capture License Management** window is used to manage the pen pack available in the installation of PlanetPress Capture. Each Pen Pack contains a limited number of pens that can be registered in the Capture Database. When the number of pens have been reached, new pens can no longer be registered.

If no pen pack is available, PlanetPress Capture functions in **Demo Mode**. In Demo mode, only one (1) pen can be registered in the pen management window. Also, the "Capture Fields Generator" on page 542 will be unable to produce more than 8 documents with a pattern instead of the full 20,000 patterns.

> **Technical**
>
> To add a pen pack, PlanetPress must be activated using a PlanetPress Production license. if PlanetPress Production is in trial mode, no pen pack can be added because the Pen Pack uses the serial number.

Options and Controls

PlanetPress Capture Pen Licenses Group

- **Import License...**: Click to open the **Import License** dialog. Browse to a PPLIC (PlanetPress License) file on your computer and open it to import the license. The PPLIC overwrites your current license, however it may contain more than one Pen Pack (your previous one and one you just purchased) and will display them individually.
- **License List**: Displays the licenses that have been added to this system.
  - **Pen License**: The identification of the Pen Pack.
  - **Quantity Of Pens**: The number of pens that can be registered with this pack.

PlanetPress Production Group

- **Server Type**: The type of server installed, normally *PlanetPress Production Server*.
- **Total pens**: The total number of available pens on this server, each Pen Pack being added together.

OL Connect preferences

These options control some of the features in the "OL Connect tasks" on page 590. This is valid both for PlanetPress® Connect and PReS® Connect.

> **Warning**
>
> OL Connect User Options are not applied immediately. In order for these changes to be applied, the Workflow Configuration must be submitted to the Workflow Service. Otherwise, these options will not be accounted for in Debug mode.

The available OL Connect user options define the default behavior of **OL Connect** tasks' **OL Connect Proxy** tab. These values are used unless they are overwritten in a task's properties:

- **Server Connect Settings**
  - **Connect Proxy Address**: Enter the machine name or IP Address where the OL Connect Server resides.
  - **Port**: Enter the port to use to communicate with the OL Connect Server. *Default: 9340*
  - **User name**: Enter the user name expected by the OL Connect Server.
  - **Password**: Enter the password expected by the OL Connect Server for the above user name.
- **Email Creation Settings**
  - **Mail Host**: Enter the default SMTP Server host or IP Address.
  - **Sender address**: Enter the default email address used as the sender (FROM) address.
  - **User name**: Enter the default user name for the SMTP Server if it requires it.
  - **Password**: Enter the password for the above user name.

PDF text extraction tolerance factors

When extracting text from a PDF (for example, through a data selection), a lot more happens in the background than what can be seen on the surface. Reading a PDF file for text will generally return text fragments, separated by a certain amount of space. Sometimes the text will be shifted up or down, spacing will be different, etc. In some cases, every letter is considered to be a different fragment.

Text formatting features such as kerning, bold, exponential, etc, may cause these fragments to be considered as separate even if, to the naked eye, they obviously belong together.

The PDF Text Extraction Tolerance Factors is used to modify the behavior of data selections made from PDF data files from within PlanetPress Workflow. Each factor available in this window will determine if two fragments of text in the PDF should be part of the same data selection or not.

> **Warning**
>
> The default values are generally correct for the greatest majority of PDF data files. Only change these values if you understand what they are for.

Delta Width

Defines the tolerance for the distance between two text fragments, either positive (space between fragments) or negative (kerning text where letters overlap). When this value is at 0, the two fragments will need to be exactly one beside the other with no space or overlap between them.

When this value is at 1, a very large space or overlap will be accepted. This may case "false positives" and separate words and text blocks may be considered as a single word if the value is too high.

Accepted values range from **0** to **1**. The default value is **0.3**, recommended values are between **0.05** and **0.30**.

Delta Height

Defines the tolerance for the height and position difference between two target fragments. The higher the number, the more difference between the fragment's height (the tallest font character's height) will be accepted and the more vertical distance between fragments are accepted. Exponents, for example, are higher and lower.

When this value is 0, no vertical shift is accepted between two fragments. When the value is 1, the second text fragment can be shifted by as much as the height of the first fragment.

Accepted values range from **0** to **1**. The default value is **0.15**, recommended values are between **0.00** and **0.50**.

Font Delta Height

Defines the tolerance for the difference in average height of fonts in the two target fragments. The higher the number, the more difference in average font heights will be accepted. The average font height is bigger in text written in uppercase than text written in lowercase.

At 0, the font size must be exactly the same between two fragments. At 1, a greater variance in font size is accepted.

Accepted values range from **0** to **1**. The default value is **0.65**, recommended values are between **0.60** and **1.00**.

Gap

Defines how spaces between two fragments are processed. If the space between two fragments is too small, the text extraction will sometimes eliminate that space and count the two fragments as a single word. To resolve this, the Gap setting can be changed. The lower this value, the higher the chance of a space being added between two characters. A value too low may add spaces where they do not belong.

Accepted values range from **0** to **0.5**. The default value is **0.3**, recommended values are between **0.25** and **0.40**.

General and logging preferences

General plugin preferences control the level of detail added to the PlanetPress Workflow log file. Since log files cover 24 hours of operation, choosing to log every task performed by PlanetPress Workflow may result in the creation of excessively large files.

Changing the plugin preferences also affects the logs displayed in the PlanetPress Workflow Service Console.

Note

Each individual process has the option to produce 'minimal logs' (see "Process properties" on page 854). This means the process will only log its Start time and the End time (along with the Time Spent), if no error was encountered during execution of the

process.

- **Log level group**
  - **Startup and shutdown**: Select to only track when the PlanetPress Workflow service is started and stopped.
  - **Task failure**: Select to only track when tasks in the processes running in a PlanetPress Workflow configuration fail.
  - **Task success and failure with details**: Select to track when the tasks in processes running in PlanetPress Workflow succeed and fail, with details. Details can include why tasks fail and how successful tasks are executed.
  - **All events with details**: Select to log everything that happens in PlanetPress Workflow. This includes when it starts and stops, the success and failure of tasks, and details on the success and failure of tasks.
- **Add time stamp to all processes events**: Adds a time stamp to each log entry for a process event.
- **Delete log files after**: Select how many days log files are kept before being deleted.
- **Maximum numbers of replicated processes**: Set the maximum number of times a process may be replicated.

Note

The **index** number of a task is logged immediately after the time stamp, between square brackets. For example:

INFO : 00:00:21.534 [0015] Plugin Create File completed successfully - 12:00:21 AM (elapsed time: 00:00:00:001)

The index number corresponds to the row number of the task in the Process Area (see "The Process area" on page 871).

Tip

The proper RegEx to parse a log entry should be:
`^([A-Z]{4}[A-Z\s]):\s(\d\d:\d\d:\d\d\.\d{3})\s\[(\d{4})\]\s(.+)`

Messenger plugin preferences

Apart from enabling communication between the various parts of PlanetPress Workflow, the PlanetPress Workflow Messenger also manages local instances of the PlanetPress Workflow Alambic.

Preferences

- **PlanetPress Alambic options group**
  - **Let me set up how many instances to run**: Select this option if you want to limit the number of instances of the Alambic that PlanetPress Workflow can run. Then enter the number of instances, a value ranging from 1 to 32, in the box below. When this option is not selected, PlanetPress Workflow starts a minimum of three instances and a maximum of eight, based on the number of CPUs available on the server. Note that this does affects self-replicating processes. Self-replicating processes will create threads in PlanetPress Workflow service, while Alambic threads are under the PlanetPress Messenger service.
  - **Close inactive instances after**: If you want the PlanetPress Workflow Messenger to close inactive instances of the Alambic after a given number of minutes, enter a value in this box. Enter a value of ”0” if you do not want the Messenger to terminate idle instances of the Alambic.
- **Logging options group**
  - **Delete log files after**: Enter the number of days after which to delete the Messenger service logs. Each log covers a 24-hour period and is kept in the Log folder, which is located in the installation folder.
  - **Verbose log**: Select this option if you want the log to contain a maximum amount of information.

HTTP Server Input plugin preferences 1

The first set of HTTP Server Input plugin preferences controls the **server protocol** aspects of the PlanetPress Workflow **HTTP Server Input** tasks. This is where you enable and configure secure communication for the HTTP Server.

To open the Preferences dialog, click the PlanetPress Workflow button and then the **Preferences** button, or use the key combination **Ctrl+Alt+P**. The HTTP Server Input 1 plugin preferences can be found under **Plug-in**.

Preferences

- **Port**: Select the port to use. The default port is 8080, the official HTTP alternate port, so as not to interfere with the standard HTTP port (80). To block any regular HTTP traffic (for example if only using HTTPS connections) the port can be set to 0.
  Note that it is possible to use both the NodeJS Server and the standard HTTP Server simultaneously, provided that they are not set to listen to the same port. See "NodeJS Server Input plugin preferences 1" on page 785.
- **Time out**: Set the timeout period in seconds. The default value is 120 seconds.
- **Enable server for SSL requests**: Check this option to enable secure data exchange over the Web. This enables the boxes below and lets you specify your secure communication settings.

> **Note**
>
> The Root certificate, Certificate and Key files must be in the **PEM** format (ASCII base64 encoded). Files in DER format, the binary encoded version of the PEM format, cannot be used to configure Workflow, although they may have the same file extension (e.g. .crt, .cer). Please check the format of your files, using a tool like: https://www.httpcs.com/en/ssl-converter.

  - **Root certificate**: Enter the absolute path to the public key certificate identifying the root certificate authority. The file generally has a .crt extension and is obtained from a *Certificate Provider* such as Thawte or Verisign. If the Root Certificate and

Certificate file are identical, this is considered a *self-signed certificate*, which is considered unsecured by most browsers.

- **Certificate**: Enter the absolute path to the public key certificate identifying the certified server. The file generally has a .crt extension and is provided by a certificate provider, or through the use of certificate generators such as openssl or makecert.com.
- **Key**: Enter the absolute path to the Private Key file. This file generally has a .key extension.
- **Password**: Enter the password (or passkey) for the Private Key file. The maximum length of this password is 64 characters.
  This password is encrypted within PlanetPress Workflow server and is not saved in plain text.
- **Encryption protocol**: Choose your cryptographic protocol (SSL or TSL). This is determined by the software that generated the keys. The service uses SSL 2.3 or TLS 1.0.

> **Note**
>
> When SSL is enabled and a user sends a query prefixed with **https://**, then this specific communication will be sent through port 443, which cannot be changed in Workflow. However, **http://** requests will still be received on the port specified in http server preferences.

> **Note**
>
> SSL is used to accept secured, encrypted requests from web clients and requires a certificate delivered by an approved authority. When a website is secured by an SSL certificate, "https" appears in the URL.
> For more information on SSL and how to purchase a certificate, see for example Q10694 on SSL.com.

- **Disable SOAP Server**: Check to disable all SOAP Server functionality.

- **Verbose log**: Select to enable to keep a verbose log. Note that a communication log is generated whether or not this option is selected. If you use a secure connection, the log will contain extra information.
- PHP Arrays: This option defines how incoming POST requests with arrays are processed.
  - **None**: No special processing is applied.
  - **Use PHP-like Arrays**: When the name of form inputs contains two pairs of square brackets, the data are interpreted as an array. The result is a single XML node (named after the value between the first pair of square brackets) with each part of the array as children. See: "PHP arrays example" below.
  - **Use enhanced PHP-like Arrays**: Like the previous option, but in this case, the value between the first pair of square brackets is expected to consist of two parts, separated by an underscore (e.g. row_0). The first part is considered to be the element's name. All content after the first underscore (preferably an integer) will be used as index, which is given as an attribute of the element (e.g. <row _idx=0>; also see "PHP arrays example" below).
    This option makes it much easier to select all elements on the same level in a data mapping configuration, and to convert the XML to a JSON object.
- **Omit attachments as CData node in the XML envelope**: By default, the request XML has a CDATA node that contains the raw input data, effectively doubling the size of the incoming XML file, which due to technical restrictions cannot be larger than 400 MB. This option allows for much larger (non-binary) attachments by removing them from the XML data file. Generally attachments are both saved on disk and included as a CDATA node within the XML envelope. This option removes them from the envelope, but they remain accessible through their direct path.

> **Note**
>
> Incoming **binary** files (sent through file upload in a form) can never be larger than 400 MB.

PHP arrays example

This example shows how incoming HTML is converted to XML with the two different **PHP-like Arrays** options.

Incoming HTML

```
<input type="hidden" name="user_account"
value="email@example.com">
<input type="text" name="name" value="Peter Parker">
<input type="text" name="company" value="Objectif Lune">

<input type="number" name="pinElm1[pin_0][left]" value="122">
<input type="text" name="pinElm1[pin_0][top]" value="253">
<input type="text" name="pinElm1[pin_0][type]" value="dent">

<input type="text" name="pinElm1[pin_1][left]" value="361">
<input type="text" name="pinElm1[pin_1][top]" value="341">
<input type="text" name="pinElm1[pin_1][type]" value="dent">
```

Resulting XML Structure with PHP-like arrays

```
<values count="4">
  <user_account>email@example.com</user_account>
  <name>Peter Parker</name>
  <company>Objectif Lune</company>
  <pinElm1>
    <pin_0>
      <left>122</left>
      <top>253</top>
      <type>dent</type>
    </pin_0>
    <pin_1>
      <left>361</left>
      <top>341</top>
      <type>dent</type>
    </pin_1>
  </pinElm1>
</values>
```

Resulting XML structure with Enhanced PHP-like arrays

```
<values count="4">
  <user_account>email@example.com</user_account>
  <name>Peter Parker</name>
  <company>Objectif Lune</company>
```

```
  <pinElm1>
    <pin _idx=0>
      <left>122</left>
      <top>253</top>
      <type>dent</type>
    </pin>
    <pin _idx=1>
      <left>361</left>
      <top>341</top>
      <type>dent</type>
    </pin>
  </pinElm1>
</values>
```

HTTP Server Input plugin preferences 2

The second set of HTTP Server Input plugin preferences is used to enable serving **static HTTP resources**, as part of an HTTP Server workflow. These resources are referred to within the HTML response file and do not pass through a process to get served so the process is very quick. Static resources are especially useful for additional formatting of HTML files such as JS (JavaScript) scripts, CSS files and images, since they are not dynamic and generally shared between multiple dynamic files.

- **Serve HTTP resource**: Check to activate static resource serving.
  - **Resource action name**: Enter a name that will be simulated as a folder in your HTTP structure. For example, if you enter **images** in this box, you would refer to any files in this folder as **href="images/file.ext"** .
  - **Resource folder**: Type the path of the folder where your resources are located, or click the **Browse** button and choose the folder in the browse dialog.

> **Note**
>
> Subfolders are accepted in the structure, so if your resource folder contains a folder called **faces**, you could refer to a file in this folder as

href="images/faces/johnsmith.jpg".

- **Capture OnTheGo group**
  - **Authentication Key**: Enter the authentication key for the COTG repository. This key can be found in the **Settings** section of the COTG Web Administration Panel.
- **Cross-Origin Resource Sharing** (CORS)
  - **Allowed Origins**: Enter an origin (everything in a URL before the path, e.g. http://www.example.com). The Workflow server will add this value to the `Access-Control-Allow-Origin` header, which signals to the browser that it is allowed to make the request. This enables cross-origin resource requests, such as AJAX requests.
    The default setting "*" is a wildcard that allows **all** cross-origin resource requests.
- **Form Data Encoding**: Specifies how form data, which was sent to the web server, should be interpreted.

  Even though it is strongly recommended to use the `<meta charset="utf-8"/>` element in web pages, some might use another encoding or not have the element at all, affecting the character set used by the browser to send the parameters and file names.

  - **System language**: Sets the encoding attribute in the request XML file to the system codepage (e.g. Windows-1252).
  - **UTF-8**: Causes all parameters as well as file names from the request to be interpreted as a UTF-8 text stream.
    With this option enabled, POST attachment file names will be randomized on disk to avoid misinterpretation. If the original file name is needed, it can be found in the `original` attribute of the file tag in the request XML.

    > **Note**
    >
    > If form data are submitted from HTML files that are made with the OL Connect software, you can expect them to be UTF-8 encoded.

> **Warning**
>
> Don't use any non-ASCII characters in Workflow's working directories path (in the `V8WorkingDirectory` registry key). Combined with the UTF-8 Form Data Encoding setting, this might make it impossible for Workflow to retrieve files from that path, depending on the actual path name and the system locale.

LPD Input plugin preferences

LPD input plugin preferences control certain functions of the PlanetPress Workflow LPD Server service, which in turn has an impact on **LDP input** tasks performed by PlanetPress Workflow on a given computer. The **LPD Server** service receives jobs using TCP/IP from LPD servers.

For information on the preferences set in individual **LDP input** tasks, refer to LPD Input Task Properties.

Preferences

- **Protocol options group**
  - **Log all Winsock and network messages**: Select to have PlanetPress Workflow keep a log of all Winsock and other network messages that occur through the LPD service. These are messages related to jobs being sent from other systems through LPR, and being received by PlanetPress Workflow via LPD. Since these messages can accumulate, you have the option of not logging them. Log files are kept in the Log folder, which is located in the PlanetPress Workflow installation folder. They are named lpddate.log, where date is the current date in the yyyymmdd numerical format. Note that changing this option also affects the log displayed in the PlanetPress Workflow Service Console.
  - **No source port range restriction**: Select to remove any restrictions on the port of the LPR client computer that PlanetPress Workflow accepts data files from. Clear to have PlanetPress Workflow only accept data files sent from ports ranging between 721 and 731 on the LPR client computer.

- **Strict RFC 1179 control file**: Select to disable control file extensions the LPD service implements for some flavors of UNIX and LPR. This enforces the basic Line Printer Daemon protocol.
- **Enable BSD compatibility mode**: Select to have the LPD service emulate a BSD UNIX server. Although RFC 1179 is supposed to describe the BSD LPD/LPR protocol, and the LPD input in PlanetPress Workflow is RFC1179-compliant, there are some incompatibilities between the RFC and the BSD implementation. This option compensates for some of these incompatibilities. If you are not sure about the source of your output, clear this option.

- **LDP settings group**
  - **Time-out (sec)**: Set the time in seconds the process waits for the transfer of bytes in the data file before ending the transfer of this file. The default value for the Time-out property is 7200 seconds (2 hours). On a time-out, partially received data files are not passed to the rest of the process; the LPD input resets and is ready to receive further data files. Log messages include the time-out duration.

NodeJS Server Input plugin preferences 1

The first set of NodeJS Server Input plugin preferences controls the **server protocol** aspects of the PlanetPress Workflow **NodeJS Server Input** tasks. This is where you enable and configure secure communication for the NodeJS Server.

Click the PlanetPress Workflow button and then the **Preferences** button, to open the Preferences dialog. The **NodeJS Server Input 1** preferences page can be found under **Plug-in**.

> **Note**
>
> Workflow's NodeJS and ppNode folders can be found in %PROGRAMFILES%\Objectif Lune\.

- **Port**: Select the port to use. The task's default port is 9090. Port numbers > 9999 are possible.
  Note that it is possible to use both the NodeJS Server and the standard HTTP Server simultaneously, provided that they are not set to listen to the same port. See "HTTP

Server Input plugin preferences 1" on page 778.

- **Time out**: Set the timeout period in seconds. The default value is 120 seconds.
- **Enable server for HTTPS requests**: Check this option to accept secured, encrypted requests from web clients. The encryption protocol is **TLS**.

> **Note**
>
> HTTPS requires two certificates: a Root Certificate and an accompanying Certificate. These are obtained from a Certificate Provider such as Thawte or Verisign, or through the use of certificate generators such as openSSL. When the Root Certificate and Certificate file are identical, this is called a *self-signed certificate*, which is considered unsecured by most browsers.

  - **Forward all HTTP traffic to HTTPS**: When the server is enabled for HTTPS requests it doesn't listen on the port specified for HTTP anymore. However, you can enable this option to forward all HTTP traffic to HTTPS.
    Note that this option does not affect proxies. All routes set as proxy in Workflow will be forwarded to the target specified in the proxy list (see "NodeJS Server Input plugin preferences 2" on the facing page).
- **HTTPS Port**: Select the port to use. The task's default HTTPS port is 8443, so as not to interfere with the standard HTTPS port (443). Port numbers > 9999 are possible.
- **Root certificate**: Enter the absolute path to the Root Certificate, or click the Browse button and select the file in the Browse dialog. The file generally ends with a .crt extension.
- **Certificate**: Enter the absolute path to the site Certificate, or click the Browse button and select the file in the Browse dialog. The file generally ends with a .crt extension.
- **Key**: Enter the absolute path to the Private Key File. This file generally ends with a .key extension.
- **Password**: Enter the password (or passkey) for the Private Key File.
- **Verbose log**: Select to enable to keep a verbose log. Note that a communication log is generated whether or not this option is selected. If you use a secure connection, the log will contain extra information.
- **Disable SOAP Server**: Check to disable all SOAP Server functionality.

NodeJS Server Input plugin preferences 2

The second set of NodeJS Server Input plugin preferences is used to enable serving **static HTTP resources**, as part of a NodeJS Server workflow. These resources are referred to within the HTML response file and do not pass through a process to get served so the process is very quick. Static resources are especially useful for additional formatting of HTML files such as JS (JavaScript) scripts, CSS files and images, since they are not dynamic and generally shared between multiple dynamic files.

- **Static HTTP resources**:
  - **Mount point**: Specify a path name that should refer to a directory in the currently accessible file system, for example: /img. Different mount points can point to the same directory. Use the buttons below the list to add or delete mount points and to change the order of the mount points in the list.
  - **Directory**: Type the path of the local folder where the resources for the mount point on the left are located, or click the **[...]** button and choose the folder in the browse dialog.

- **Proxy List**: The proxy list is used to setup end points for redirecting requests to another server.
  - **Mount point**: Specify a path name for which requests should be redirected to another site, for example: /myrest. Different mount points can point to the same remote site. Use the buttons below the list to add or delete mount points and to change the order of the mount points in the list.
  - **Remote site**: Type the address of the server to which the request should be redirected.

> Note
>
> The 'Forward all HTTP traffic to HTTPS' option (see "NodeJS Server Input plugin preferences 1" on page 785) does **not** affect proxies. All routes set as proxy in Workflow will be forwarded to the target specified in the proxy list.

- **Cross-Origin Resource Sharing** (CORS)

Allowed Origins: Enter an origin (everything in a URL before the path, e.g. http://www.example.com). The Workflow server will add this value to the
- `Access-Control-Allow-Origin`
header, which signals to the browser that it is allowed to make the request. This enables cross-origin resource requests, such as AJAX requests.
The default setting "*" is a wildcard that allows **all** cross-origin resource requests.

NodeJS Server Input plugin preferences 3

The third HTTP Server Input plugin preferences page provides an authentication mechanism for ActiveDirectory by LDAP.

The LDAP port is **389**.

- **Enable authentication**: Check to enable authentication for ActiveDirectory via LDAP. Any process that starts with a NodeJS input task will then require the user to authenticate before it can run. Until the user has been successfully authenticated, the Workflow process is never triggered. After a certain number of failed attempts, the NodeJS server will lock out the user for a certain length of time, to discourage denial of service attacks.
- **ActiveDirectory Server**: Enter the address of the ActiveDirectory Server.
- **Domain**: Enter the domain for authentication.

> **Note**
>
> In the address of the server and in the domain name the following characters should not be used: **, + $ @ # < > ' ; | { } ~ [ ] * " :**

> **Tip**
>
> If you don't know what your LDAP server and domain names are, you can *usually* obtain them by opening a CMD window and typing the following:
>
> - For the domain name: `echo %USERDOMAIN%`
> - For the LDAP Server name: `echo %logonserver%`

Testing the server

- To test the server address and domain, enter a **username** and **password** and click the **Test server** button.

> **Note**
>
> The user name and password aren't part of the plugin preferences. Users will have to provide their credentials themselves and will be presented with an HTML page for that purpose.

Changing the Log in page

You can change the look and feel of the login window if you are familiar with the EJS templating syntax.
Explaining this syntax falls outside the scope of this documentation, but there are plenty of tutorials available online.

The two files that you need are located here: `C:\Program Files (x86)\Objectif Lune\ppnode\src\html`

Be careful; errors in these files can lead to unpredictable behavior!

Setting the duration of the authentication

When a user has logged in, that user's authentication is valid for the duration of the session. There is no option in the Workflow Preferences that allows you to set a different behavior for the duration of the authentication. However, you can manually edit the file named: `C:\Program Files (x86)\Objectif Lune\ppnode\src\constants\default.js`.
Look for the line `exports.DEFAULT_SESSION_TTL = 0;` and change the value to the number of milliseconds that you want the authentication to last.
Note that editing any other value in this file may result in unpredictable behavior.

Serial Input plugin preferences

Serial input plugin preferences control certain functions of the PlanetPress Serial Capture service, which in turn has a direct impact on all **Serial input** tasks performed by PlanetPress Workflow on a given computer.

Preferences

- **Serial settings group**
  - **Serial port**: Select the port of the computer where the Serial input is connected to (COM1 through COM8).
  - **Baud rate**: Select the baud rate of the Serial input. The baud rate is the number of bits transferred per second. The transferred bits include the start bit, the data bits, the parity bit (if defined), and the stop bits.
  - **Data bits**: Select the number of data bits defining the incoming data file on this serial port. The data bits transferred through a serial port represent the data content. This excludes the start, parity, and stop bits: these are bits defining the beginning and end of each unit of transferred data, as well as error detection provided by the parity bit. The majority of serial ports use between five and eight data bits. Binary data is typically transmitted as eight bits. Text-based data is transmitted as seven bits or eight bits. If the data is based on the ASCII character set, a minimum of seven bits is required. If an eighth bit is used, it must have a value of 0. If the data is based on the extended ASCII character set, eight bits must be used.
  - **Parity**: Select the type of parity used for error detection. The parity transfers through the serial connection as a single bit. It is used to verify that each set of data bits transfers correctly. It is then stripped away before the data file passes through the rest of the PlanetPress Workflow process. Select **None** to ignore all parity bits; no error detection occurs.
  - **Stop bits**: Since most serial ports operate asynchronously, the transmitted byte must be identified by start and stop bits. The start bit indicates when the data byte is about to begin and the stop bit(s) indicates when the data byte was transferred. The start bit is always 0 to mark the beginning of the byte, but the stop bit can be a single 1, or two bits each with a value of 1.
  - **Time-out**: Set the time in seconds the PlanetPress Workflow process waits for the transfer of bytes in the data file before ending the transfer of this file. On a time-out,

partially received data files are not passed to the rest of the process; the Serial input resets, ready to receive further data files.

- **Job delimiters**: Enter the strings that tell PlanetPress Workflow the data file being retrieved through the Serial input is complete. Each line in the Job delimiters text box is a different delimiter. You can enter as many delimiters as you want, one per line. The three default delimiters that appear are three of the most commonly recognized end of a file delimiters.
- **Log (verbose)**: Select to keep a log of errors and other information related to the Serial input. Since these messages can accumulate, you have the option of not logging them.

Telnet Input plugin preferences

The Telnet input plugin preferences control the log of the PlanetPress Workflow Telnet Capture service. Since PlanetPress Workflow lets you monitor multiple Telnet inputs simultaneously, the port setting for all Telnet input tasks cannot be set in the Preferences.

Preferences

- **Log all Winsock and network messages (very verbose)**: Select to have PlanetPress Workflow keep a log of all Winsock and other network messages that occur from the Telnet input. These messages are related to files sent from other systems using a telnet connection. Since these messages can accumulate, you have the option of not logging them.
- **Use Job Delimiters**: Check this option if your Telnet input is a single stream that can contain multiple jobs. The box lets you enter one or more possible delimiters (separated by a line return), either a direct string (such as %%EOJOB) or an ASCII character (\001). For a list of ASCII characters, see http://www.asciitable.com/.

PlanetPress **Fax plugin preferences**

PlanetPress Workflow Fax plugin preferences control certain functions of the PlanetPress Fax service, which in turn has a direct impact on all PlanetPress Workflow **Fax** output tasks performed on a given computer. Bear in mind that PlanetPress Workflow **Fax** output tasks included in a given PlanetPress Workflow configuration can be performed by a PlanetPress Fax installation running on a different computer, typically one that runs only PlanetPress Fax

and the faxing application that actually sends the fax. When you change the user options on a given computer, only that computer is affected. So you should consider changing the PlanetPress Fax user options on the computer that actually performs the PlanetPress Workflow **Fax** output tasks.

The changes you make to the PlanetPress Workflow Fax plugin preferences are stored in the PlanetPress Fax configuration file. They will be applied when PlanetPress Fax is started.

Preferences

- **Delete log after**: Enter the number of days after which to delete the PlanetPress Fax service log. Each log covers a 24-hour period and is kept in the Log folder, which is located in the PlanetPress Workflow installation folder (on the computer that actually performs the PlanetPress **Fax** output tasks).
- **Fax service**: Select the faxing program to which PlanetPress Fax sends its documents for faxing. Each faxing program has its own options and changing this option also changes the options below to reflect the following:
  - **WinFax Pro**
    - **Dialing format**: Select how you want PlanetPress Fax to read the fax number in the data selection and send it to WinFax PRO. The dialing format you select here must be identical to the one you set in WinFax PRO; a discrepancy between the two may result in WinFax PRO dialing incorrect fax numbers. Select Default to have PlanetPress Fax set the dial prefix, long distance prefix, area code, and fax number according to the content of the data selection, and send the result to WinFax PRO. WinFax PRO sets the dial prefix, long distance, prefix, and area code, and fax number to the ones it receives from PlanetPress Fax. If any of the values it receives from PlanetPress Fax are empty, it uses its own default values. For example, if the data selection did not contain a dialing prefix, WinFax PRO uses its default dialing prefix. Select Dial as entered to limit PlanetPress Fax to removing any spaces or parentheses that appear in the data selection, and sending the result to WinFax PRO. WinFax PRO dials the result exactly as it receives it from PlanetPress Fax.

> **Note**
>
> WinFax Pro scales fax pages with the following minimum settings:
> - Raster width: 1728 dpi
> - Raster height: 2158 dpi
> - Raster resolution: 196 dpi

- **Windows Fax Service**
  - **Report Failures**: Select to have PlanetPress Fax generate a report whenever the maximum number of retries for a single fax is exceeded. The error generated by the Windows Fax Service is also logged in the report. Note that when PlanetPress Fax is unable to send a fax because an empty fax number is used as the only recipient for a document, a failure will not be reported but an error will be logged.
  - **Report Successes**: Select to have PlanetPress Fax generate a report whenever one of the faxes in the PlanetPress Fax Job reaches its destination successfully or at least as far as the Windows Fax service is concerned.
  - **Folder**: Enter or select the location of the report file. PlanetPress Fax generates report file names automatically with the file name extension PFX. The report file is copied to the specified Report folder only after all fax transmissions in a PlanetPress Fax job are completed or have exceeded the maximum number of retries. This folder can then be used as an input for a PlanetPress Workflow process for monitoring the status of PlanetPress Fax jobs. The postscript (PS) file for the job is also copied with the report file and can be printed, sent by e-mail, or archived as specified by the PlanetPress Workflow process.
  - **Expand folder paths in UNC (Universal Naming Conventions) format**: Select to have PlanetPress Fax use complete network server path names (\\servername\sharename\path\filename). This naming convention works well with Windows operating systems, Novell NetWare, and other operating systems when using a local naming system (such as the DOS naming system in Windows) would result in “File not found” error messages.
  - **Dialing options** button: Click to set the appropriate options as required. Since these options are specific to the faxing program, refer to the faxing program’s documentation for more information.

- **Captaris RightFax**
  - **Report Failures**: Select to have PlanetPress Fax generate a report whenever the maximum number of retries for a single fax is exceeded. The error generated by the Windows Fax Service is also logged in the report. Note that when PlanetPress Fax is unable to send a fax because an empty fax number is used as the only recipient for a document, a failure will not be reported but an error will be logged.
  - **Report Successes**: Select to have PlanetPress Fax generate a report whenever one of the faxes in the PlanetPress Fax Job reaches its destination successfully or at least as far as the Windows Fax service is concerned.
  - **Folder**: Enter or select the location of the report file. PlanetPress Fax generates report file names automatically with the file name extension PFX. The report file is copied to the specified Report folder only after all fax transmissions in a PlanetPress Fax job are completed or have exceeded the maximum number of retries. This folder can then be used as an input for a PlanetPress Workflow process for monitoring the status of PlanetPress Fax jobs. The postscript (PS) file for the job is also copied with the report file and can be printed, sent by e-mail, or archived as specified by the PlanetPress Workflow process.
  - **Expand folder paths in UNC (Universal Naming Conventions) format**: Select to have PlanetPress Fax use complete network server path names (\\servername\sharename\path\filename). This naming convention works well with Windows operating systems, Novell NetWare, and other operating systems when using a local naming system (such as the DOS naming system in Windows) would result in “File not found” error messages.
  - **Dialing options** button: Click to set the appropriate options as required. Since these options are specific to the faxing program, refer to the faxing program’s documentation for more information.

Captaris RightFax options

- **RightFax Printer**: Select a RightFax printer. A RightFax printer is a fax driver that makes it possible to send faxes automatically. This printer will output faxes without prompting the user for fax addressing information. For more information, refer to Captaris RightFax documentation.

- **Activation**: Click to enter activation codes for the PlanetPress Image service installed on the same computer as PlanetPress Workflow. If you have already activated the PlanetPress Image service from its Control Panel applet, this is reflected when you open the **Activation** dialog box by clicking this button.
- **Check for updates**: Click to access the Objectif Lune website to search for updates to PlanetPress Image. You are guided through the updating process with the PlanetPress Workflow Update Service wizard.
- **About**: Click to display an **About** dialog box for PlanetPress Fax. This dialog box contains information such as the version number, whether the software is activated or the number of days remaining in the trial.
- **Select Language**: Click to select a different interface language for the PlanetPress Fax Configuration applet. Note that this button is not displayed if you edit the PlanetPress Fax options directly (not via PlanetPress Workflow Configuration program).

FTP Output Service preferences

FTP output user options control certain functions of the FTP Client service, which in turn has a direct impact on all **FTP** output tasks performed by PlanetPress Workflow on a given computer.

Options

- **Protocol Options Group**
    - **Log all Winsock and network messages**: Select to have PlanetPress Workflow keep a log of all Winsock and other network messages that occur through the FTP output. These messages are related to jobs sent from PlanetPress Workflow to a server via an FTP output, which in turn uses the FTP output service. Log files are kept in the Log folder, which is located in the PlanetPress Workflow installation folder. They are named ftpdate.log, where date is the current date in yyyymmdd numerical format. Note that changing this option also affects the log displayed in the PlanetPress Workflow Service Console.
    - **Interval**: Select the interval (in seconds) at which the FTP service is to dispatch jobs from the ftpPut folder to the FTP sites.
    - **Back up job on error**: Select to move the job file to a local folder ftpPut\error if an error occurs while sending a job via the FTP output. This folder is relative to your install folder.

- **FTP Port**: Select the port number that you want PlanetPress Workflow to use for all **FTP** output tasks. The recommended port is 21 (the default setting).

PlanetPress **Image preferences**

PlanetPress Image user options control certain functions of the PlanetPress Image service, which in turn has a direct impact on all PlanetPress Image Output tasks performed on a given computer. These include error and logging options, PlanetPress Search database options, as well as networking and email options.

Bear in mind that Image Output tasks included in a given PlanetPress Workflow configuration can be performed by a PlanetPress Image installation running on a different computer, typically one that runs only PlanetPress Image. When you change the user options on a given computer, only that computer is affected. So you should change the Image user options on the computer that actually performs the Image Output tasks.

The changes you make to the PlanetPress Image user options are stored in the PlanetPress Image configuration file (ppimage.cfg). They will be applied when PlanetPress Image is started.

The available PlanetPress Image user options are separated in four different sections.

PlanetPress Image 1 or logging tab

- **Administrator's address(es)**: Enter one or more system administrator email addresses to which error and other messages related to the creation of PDFs/images by PlanetPress Image are sent. Separate multiple email addresses with semi-colons (;).
- **Send to the administrator group**
  - **Daily log**: Select to send an email to the administrator every day at midnight (according to the local system clock) reporting the daily activity of PlanetPress Image. The log is sent to all addresses you enter in the Administrator's address(es) text box.
  - **Error log**: Select to send an email that includes the current error log to the administrator when an error occurs. The error log is sent to all addresses you enter in the Administrator's address(es) text box.

    - **Error file**: When enabled, sends an e-mail with an attachment of the offending file when an error occurs in the PlanetPress Image output task. Additionally, a backup of the job is created in the Error folder, which is located in the PlanetPress Workflow installation folder.
- **Name or address not resolved**: Select to send an email to the administrator when a name or address in the document selected to be used in PlanetPress Image cannot be resolved.
- **Delete log after**: Enter the number of days to wait before deleting the log of the generated PlanetPress Image output. Each log file covers a single 24-hour period and is kept in the Log folder, which is located in the PlanetPress Workflow installation folder. This log may be on the local computer running PlanetPress Workflow or on another computer on your network.
- **Activation**: Click to enter activation codes for the PlanetPress Image service installed on the same computer as PlanetPress Workflow. If you have already activated the PlanetPress Image service from its Control Panel applet, this is reflected when you open the **Activation** dialog box by clicking this button.
- **Check for updates**: Click to access the Objectif Lune website to search for updates to PlanetPress Image. You are guided through the updating process with the PlanetPress Workflow Update Service wizard.
- **About**: Click to display an **About** dialog box for PlanetPress Image. This dialog box contains information such as the version number, whether the software is activated or the number of days remaining in the trial.
- **Select Language**: Click to select a different interface language for the PlanetPress Image Configuration applet. Note that this button is not displayed if you edit the PlanetPress Image options directly (not via PlanetPress Workflow Configuration program).

PlanetPress Image 2 or database tab

Add PDF to PlanetPress **Search database group**: Select to populate a PlanetPress Search database using the documents created by PlanetPress Image and to activate the related options. Refer to the PlanetPress Search User Guide for more information on this PlanetPress Workflow software.

- **Database type**: Select the type of the database in which you want to create a table (Access, or SQL Server).

- **Connection time-out**: Enter the time, in seconds, that the connection to the database is maintained while no action is taking place before the connection is severed.
- **Database directory**: Enter the path of the directory in which the Access database is located, or use the **Browse** button to navigate to, and select, the directory. This option is available only when you select Access database in the **Database type** box.
- **Data source name**: Enter the name of the computer on which the database runs. This option is available only when you select SQL Server database or Oracle database in the **Database type** box.
- **Use default database**: Select to use the default database associated with your user profile on that SQL Server or Oracle database. Clear to enter the name of the database in the box that appears.
- **Use Windows NT Integrated security**: Select to use your Windows user name and password to log onto the SQL database.
- **User ID**: Enter the user id required to access the database to which you are adding new PDI files from the generated PDF files. If you are using an SQL database, enter the login name you chose when you configured the SQL database (refer to the “Using PlanetPressSearch with an SQL Server Database” section of the PlanetPress Search User Guide).
- **Password**: Enter the password required to access the database.
- **Test Connection**: Click to verify that PlanetPressImage can connect to the specified database.
- **Enforce global table creation**: Select this option, as it ensures that all database users are granted access to the database. This option is available only when you select SQL database in the **Database type** box.

PlanetPress Image 3 or network tab

The options in this section are identical to the ones in the **Network User Options** section. However, they determine how PlanetPress Image will interact with your Novell NetWare system, not the PlanetPress Workflow Service.

PlanetPress Image 4 or login tab

- **Use Microsoft Outlook**: Select to use Microsoft Outlook on the host computer running PlanetPress Image to send the error messages to the administrators. The host computer must be running Outlook, and PlanetPress Workflow must have access to Outlook.

Outgoing emails appear in the outbox of Outlook, and is sent whenever Outlook is set to send email.

- **Use SMTP mail group**: Check to activate this group's options and to use Simple Mail Transfer Protocol (SMTP) to send the error messages to the administrators. Note that if you select this option, you will be required to enter information in the Name, Email address and Outgoing mail (SMTP) boxes.
    - **Name**: Enter the name of the user sending the error messages to the administrators.
    - **Organization**: Enter the name of the organization of the user sending the error messages to the administrators.
    - **Email address**: Enter the email address of the user sending the error messages to the administrators.
    - **Reply address**: Enter the reply address that recipients use to reply to the error messages.
    - **Outgoing mail (SMTP)**: Enter the IP address of the server that PlanetPress Workflow uses to send the emails via SMTP.
    - **Server requires authentication**: Select if the outgoing server used to send the emails via SMTP requires authentication. Note that if you select this option, you will be required to enter information in the Account name and Password boxes below.
        - **Account name**: Enter the account name of the user on the server to be able to send emails via SMTP. You must select Server requires authentication to enable this field.
        - **Password**: Enter the password corresponding to the Account name of the user on the server to be able to send email via SMTP. You must select Server requires authentication to enable this field.

LPR Output preferences

LPR output user options control certain functions of the LPR Client service, which in turn has a direct impact on all **LPR output** tasks performed by PlanetPress Workflow on a given computer.

Options

- **Protocol options group**
  - **Log all Winsock and network messages**: Select to have PlanetPress Workflow keep a log of all Winsock and other network messages that occur through the LPR output. These messages are related to jobs being sent from PlanetPress Workflow to an LPD or LPD-compatible printer. Logs are kept in a Log folder relative to your install folder. They are named lprdate.log, where date is the current date in yyyymmdd numerical format. Note that changing this option also affects the log displayed in the PlanetPress Workflow Service Console.
  - **Print banner pages between jobs:** Select to print banner pages between each job processed and output from the LPR output. The banner page includes details of the job being printed, including the job file name and the user name on the host computer running the LPR output client.
  - **No source port range restriction**: Select to remove any restrictions on the port PlanetPress Workflow uses to send the job file via the LPR/LPD protocol. Clear to restrict the port used to send the job to one in the range between 721 and 731.
  - Print up to: Select the maximum number of files that can be simultaneously sent to print by the LPR output service.
- **Error handling group**
  - **Max. retry period**: Select the maximum time period, in hours, within which PlanetPress Workflow attempts to dispatch the job using the LPR output before giving up. Note that entering a maximum retry period of 0 hours disables retries altogether.
  - **Retry interval**: Select the interval, in seconds, at which time PlanetPress Workflow attempts to dispatch the job using the LPR output. This takes place only within the Max. retry period, after which the attempt ends.
  - **Keep a backup when error occurs**: Select to move the job file to a local folder relative to your install folder called pplpr\error in the case of an error.
- **LPR settings group**
  - **Time-out**: Set the time in seconds the PlanetPress Workflow process waits when it sends jobs using the LPR protocol. The default value for the Time-out property is 7200 seconds (2 hours). On a time-out, partially sent data files are not passed to the rest of the process; the LPR output resets and is ready to send further data files. Log messages include the time-out duration.

- **Polling interval (seconds)**: Select the period of time—the default is 4 seconds—for which PlanetPress Workflow is to wait when it finishes dispatching jobs to the LPR printer queues before polling the LPR output folder again.

PrintShop Web Connect Service preferences

PrintShop Web Connect service preferences control the credentials to log into the PrintShop Web server.

The available preferences are as follows:

- **User name**: Enter the user name of a valid PrintShop Web user, mostly operators.
- **Password**: Enter the password associated with the user name on the PrintShop Web server.

> **Note**
>
> It is also mandatory to send your configuration to your PlanetPress Workflow service since the PrintShop Web credentials are included in the *.cfg file (See "Sending a configuration" on page 37), which is updated every time the configuration is sent to the service via the **Send Configuration** button.

Editor Options

The Script Editor is used to edit scripts used in **Run Script** tasks and the XSLT Editor is used to edit scripts used in **Open XSLT** action tasks (see "Using Scripts" on page 141 and "The Script Editor and XSLT Editor" on page 143).

There are a number of options for the editors, which you can set via the menu: **Tools > Options**, in the editor. Most of the options listed below are valid for both editors. Those options which are only valid for a specific editor are identified as such.

- **Editor**
  - **Auto indent mode**: Select to automatically position the insertion pointer under the first non-blank character of the preceding line when you press ENTER.
  - **Insert mode**: Select to use Insert mode and clear to use Overwrite mode. In Insert mode, when you enter text, existing text shifts to accommodate it. In Overwrite mode, text you enter overwrites existing text. You can also press INSERT to toggle between the two modes.
  - **Use tab character**: Select to use the tab character instead of spaces to represent tabs in the program file. Clear to use spaces to represent tabs. You must clear the **Smart** tab option to use this option.
  - **Smart tab**: Select to use smart tabs. A smart tab advances with reference to the preceding line. It advances to align with the first non-blank character it encounters on the preceding line, from its current position forward. You must clear the **Use tab character** option to use **Smart** tabs.
  - **Optimal fill**: Select to optimize the indent of every auto-indented line by minimizing the number of space and/or tab characters it uses. You must select both Auto indent mode and use tab character to use this option.
  - **Backspace unindents**: Select to move the insertion pointer to the previous indentation level when you press BACKSPACE. This is useful when you enter a block of code such as a for loop; you enter the for statement, advance one indentation level to enter the body of the for loop, then press BACKSPACE to enter the end for statement. You must select Auto indent mode to use this option.
  - **Cursor through tabs**: Select to move one by one through the spaces of tabs using the left or right arrow keys. Clear to have the arrow keys treat the tab as a single character. You must select **Use tab character** to use this option.
  - **Group undo**: Select to set the undo feature of the Editor to undo the last group of editing commands entered. An editing command is defined as a mouse click, a press on ENTER, or a press on any other key. A group of editing commands is a sequence of a single type of editing command. Clear to set the undo feature to undo only the last command entered.
  - **Cursor beyond EOF**: Select to make it possible to position the pointer beyond the end of the program file. Clear to prevent this. If you clear **Insert mode** and select **Cursor beyond EOF**, you can only overwrite the existing lines of the program; you cannot add lines to it.

- **Cursor beyond EOL**: Select to make it possible to position the pointer beyond the end of the line. Clear to prevent this.
- **Keep trailing blanks**: Select to preserve any blank spaces occurring at the end of a line. Clear to remove those blank spaces.
- **Persistent blocks**: Select to have any text you enter immediately after selecting a block of code appended to that block of code as part of the selection. When you select this option, you can also use the arrow keys to move within the code without affecting the selected code. You must select the **Enable selection** option to use the **Persistent blocks** option.
- **Overwrite blocks**: Select to have any text you enter immediately after selecting a block of code replace that block of code. You must clear **Persistent blocks** and select **Enable selection** for this option to have an effect.
- **Enable selection**: Select to permit the creation of selections in the **Code** area. If selected, you can create a selection by clicking and dragging the pointer over a portion of code, or by double-clicking to highlight the word or line under the pointer (the Double click line option determines whether a word or line highlights). You may also press Ctrl + A to select all text. You can cut, copy, paste, and print selections.
- **Enable dragging**: Select to permit dragging and dropping a selection to reposition it in the code. This option works only if you also select **Enable selection**.
- **Enable search highlight**: Select to highlight the search term match found in the code when you perform a search. Clear to prevent the highlighting. In both cases, the pointer appears after the last character of the search term match.
- **Double click line**: Select to highlight the complete line of code when you double-click that line. Clear to highlight only the word under the pointer.
- **Find text at cursor**: Use to set the behavior of the **Find** dialog box. Select to automatically copy the word under the pointer into the **Text to find** box when you open the **Find** dialog box. Clear to prevent the copy. If no previous search terms appear in the Text to find drop-down list, the Editor performs the copy regardless of whether this option is selected or cleared.
- **Block indent**: Enter the number of spaces to jump for each block indent. The default is 2 and the maximum is 16. The Block indent typically should agree with the tab stops in the Tab stops option. Perform a block indent by selecting a region of code and pressing CTRL+SHIFT+I (to indent the code to the right) or CTRL+SHIFT+U (to move the code to the left).

- **Tab stops**: Use to set the number of spaces to advance when you enter a tab character or to set a series of tab stops. Enter a single integer to set the number of spaces to advance with each tab. Enter a sequence of two or more integers, each separated by a space, to specify tab stops. The sequence must be in ascending order. Tab stops are measured in number of space characters. For example, a value of 20 places the tab stop at the 20th space character. You can also use the drop-down list to select a previously entered value.

- **Display**
  - **Display Options Group**
    - **Editor font**: Use to select the font the Editor uses to display the program code. Select the Use monospace fonts only option to restrict the fonts available to fixed width fonts. A preview of the selected font, at the selected Size, appears in the Sample box.
    - **Size**: Use to select the font size the Editor uses to display the program code. A preview of the selected font, at the selected size, appears in the Sample box.
    - **Use monospace fonts only**: Select to display only fixed width fonts in the Editor font drop-down list. Every character in a fixed width font occupies the same amount of space.
    - **Sample**: Displays a preview of the font selected in the Editor font option, at the size selected in the Size option.
  - **Margin and Gutter Group**
    - **Right margin**: Select to display a vertical gray bar as a right margin indicator. Use the Right margin position drop-down list to set the position of this indicator. This indicator is an on-screen visual reference only. It does not print, and does not enforce word wrap on lines that exceed the number of characters set for it. It can be useful to indicate the right margin of the printed page, making it easy to determine whether a line of code extends beyond the printable area of the page.
    - **Right margin position**: Enter the position of the right margin indicator, in number of characters, relative to the left margin. For example, if you enter 80, the distance from the left margin to the right margin indicator is 80 characters. Use the drop-down list to select a previously-entered margin position.
    - **Gutter**: Select to have the Editor display a gutter between the Commands and Code areas. Use the Gutter width option to set the width of the gutter. Select the Line numbers on gutter option to display line numbers in this area.

    - **Gutter width**: Enter the width, in pixels, of the gutter. Use the drop-down list to select a previously-entered gutter width.
    - **Line numbers on page**: Select to display code line numbers at the left edge of the Code area. If you clear both this and the Line numbers on gutter option, no line numbers appear alongside the lines of code.
    - **Line numbers on gutter**: Select to display code line numbers in the gutter between the Commands and Code areas. Selecting this option has effect only if you selected the Gutter option. If you clear both this and the Line numbers on gutter option, no line numbers appear alongside the lines of code.
- **Color**
  - **Mapping**: Select a mapping for the content of the script in the script editor—the mapping is used as well when the script appears in the text box of the **Run Script Actions Properties** dialog. Each mapping (Default, Classic, Ocean, Twilight) includes pre-set color values and attributes for each script element as listed in the Elements list box. After selecting a mapping, you can edit individual elements to change their pre-sets by selecting them in the Element list box and editing their values.
  - **Element list box**: Select a script element in the Element list box, then edit the background and foreground color with which it is displayed, and/or its formatting attributes. Each element recognized for each scripting language, for example, a URL in a JavaScript script, is displayed with the properties you set.
  - **Foreground**: Select the color that the element highlighted in the Element list box is displayed with in the Script Editor.
  - **Background**: Select the background color that the element highlighted in the Element list box is displayed with in the Script Editor. The color is used to highlight the element as if it was selected with the cursor.
  - **Attributes Group**
    - **Bold**: Select to bold the element highlighted in the Element list box when it is displayed in the Script Editor.
    - **Italic**: Select to italicize the element highlighted in the Element list box when it is displayed in the Script Editor.
    - **Underline**: Select to underline the element highlighted in the Element list box when it is displayed in the Script Editor.

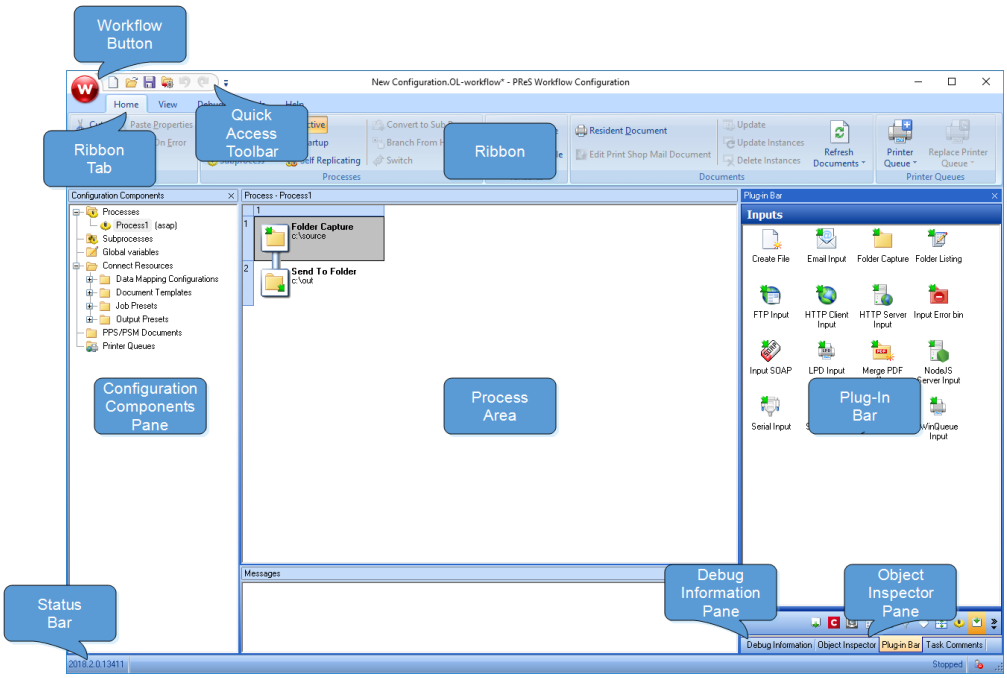
The user interface

This chapter centers on the PlanetPress Workflow Configuration program, which you use to create and edit your configurations.

The basic user interface elements are as follows:

- "PlanetPress Workflow Button" on page 816.
- " The Quick Access Toolbar" on page 879. This toolbar is customizable.
- The ribbon tabs; see "The PlanetPress Workflow Ribbon" on page 880.
- "The Process area" on page 871
- "Configuration Components pane" on page 817.
- The dockable panels including "The Plug-in Bar" on page 869, " The Object Inspector pane" on page 867 and "The Debug Information pane" on page 865.
- " The Message Area Pane" on page 866.
- The status bar. This displays your current software version and status of the PlanetPress Service.

You can customize the appearance of the PlanetPress Workflow Configuration programs to your needs. See "Customizing the Workspace" on the facing page.



Customizing the Workspace

You can combine and attach the **Configuration Components** pane, **Messages** area and **Object Inspector** into a single secondary window that can be docked to and undocked from the main PlanetPress Workflow Configuration program window.

Combining and attaching areas can facilitate the management of your screen real estate. It lets you reposition multiple areas in a single operation.

> **Note**
>
> Since the Process area must remain in the main PlanetPress Workflow Tools Configuration Program window, it cannot be combined and attached in this fashion.

Dock and undock areas of the Program Window

The **Configuration Components** pane, the **Object Inspector**, and the **Messages** area can be displayed in windows that are attached to the Program window (docked position) or that float

above it (undocked position). You dock a window when you attach it to the Program window, and you undock it when you detach it from the Program window.

The **Configuration Components** pane, the **Object Inspector** and the **Messages** area can each be displayed inside its own window, whether docked or undocked, but they can also be displayed attached or combined inside the same window.

- When separate areas are displayed simultaneously, they appear in different sections of the Program window.
- When attached areas are displayed simultaneously, they appear side-by-side or above one another inside sub-windows.
- When combined areas are displayed simultaneously, they overlap one another inside the same window. Tabs let you switch from one area to the other.

To undock an area of the Program window, do one of the following:

- Click either a title bar (separate or attached areas) or a tab (combined areas) displaying the name of the **Configuration Components** pane, the **Object Inspector** or the **Messages** area and move the mouse pointer so as to drag the area away from its docked position. As you drag, a rectangle is displayed to show the landing position. Release the mouse button when the rectangle is in a floating position (not attached to the Program window).
- Double-click either a title bar (separate or attached areas) or a tab (combined areas) displaying the name of the **Configuration Components** pane, the **Object Inspector** or the **Messages** area. The area will jump from a docked to an undocked position and vice-versa.

To dock an area of the Program window, do one of the following:

- Click either a title bar (separate or attached areas) or a tab (combined areas) displaying the name of the **Configuration Components** pane, the **Object Inspector** or the **Messages** area and move the mouse pointer so as to drag the area away from its current undocked position. As you drag, a rectangle is displayed to show the landing position. Release the mouse button when the rectangle is in a docked position (attached to the Program window).
- Double-click either a title bar (separate or attached areas) or a tab (combined areas) displaying the name of the **Configuration Components** pane, the **Object Inspector** or

the **Messages** area. The area will jump from an undocked to a docked position and vice-versa.

Show or hide areas of the program window

You can choose to hide or display any of the customizable areas in PlanetPress Workflow program. Hidden areas will still contain the same information but will not be visible.

To show or hide a Program window area:

1. In the PlanetPress Workflow Ribbon, click the **View** tab.
2. From the **Show/Hide** group, click on any area name to hide or display it.

A "highlighted" (orange) button means the area is displayed somewhere on your screen(s). A dim (blue) button means the area is hidden.

> **Note**
>
> The **Process Area** is always visible and cannot be hidden.

Combine and attach areas

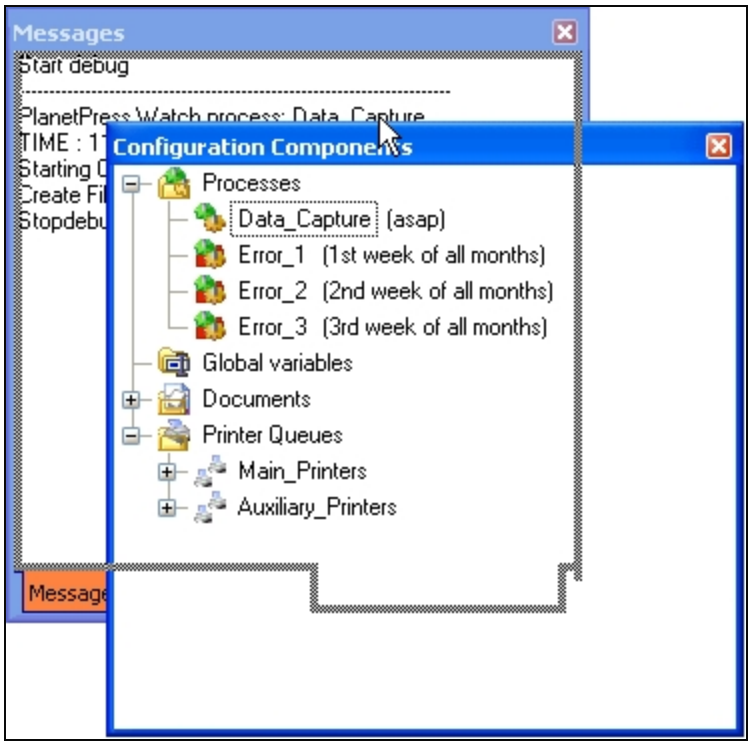
The **Configuration Components** pane, the **Object Inspector**, and the **Messages** area can be attached or combined to one another and share the same space. However they are displayed, you can always drag, dock, or undock any area as desired. You can also switch among areas when they are combined, as well as maximize or minimize areas when they are attached. For more information, refer to "Customizing the Workspace" on page 807.

The following procedures will show a number of things you can do to change the way information is displayed by PlanetPress Workflow Configuration program.

Combining areas

Click either a title bar (separate or attached areas) or a tab (combined areas) displaying the name of the **Configuration Components** pane, the Object Inspector or the Messages area and move the mouse pointer. As you drag, a rectangle is displayed to show the landing position. Drag the rectangle directly over another area and release the mouse button when the shape of

a tab appears at the bottom of the rectangle.



Switching between combined areas

At the bottom of the combined area, click the tab of the area you want to bring to the top. If all the tabs are not displayed, use the left and right arrows to navigate between them.

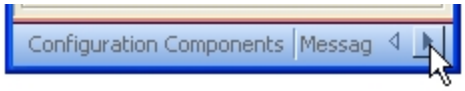


Image: The left and right arrows let you show hidden tabs.

Reordering tabs in a combined area

At the bottom of the combined area, click the tab of the area you want to move, drag it to the left or right and drop it at the desired position.

Image: Dragging a combined area to new position.

Taking an area out of a combined area

To take an area out of a combined area, do one of the following:

- Click the tab displaying the name of the area you want to take out and move the mouse pointer so as to drag the area away from the combined area. As you drag, a rectangle is displayed to show the landing position. Release the mouse button when the rectangle is away from the combined area.
- Double-click the tab of the area you want to take out of the combined area. The area will jump outside of the combined area.

Attaching areas

> **Note**
>
> You can attach an area to a group of combined areas, as well as change combined areas into attached areas. When attaching previously combined areas, you may find it easier to do it in two steps: begin by taking the area out of the combined area and then try attaching it.

To attach areas:

1. Click either a title bar (separate areas) or a tab (combined areas) displaying the name of the **Configuration Components** pane, the **Object Inspector** or the **Messages** area and move the mouse pointer. As you drag, a rectangle is displayed to show the landing position.
2. Drag around to the edges of another area and release the mouse button when the rectangle appears to the left or right, or above or below the other area. The rectangle should not display a tab at its bottom, otherwise the areas will not be attached but rather combined.
3. Resize each part of the new group as desired.

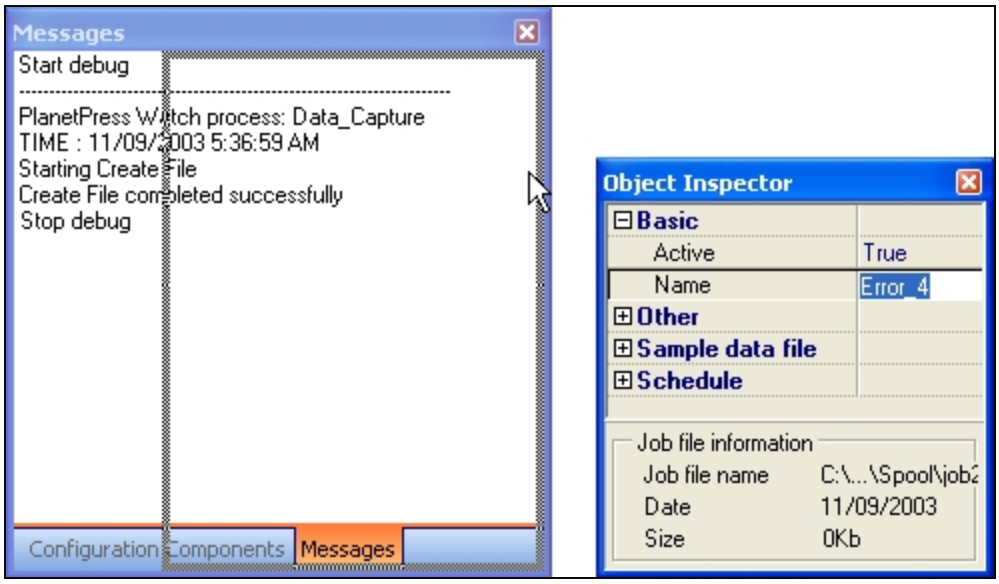


Image: Attaching an area to a group of combined areas. The rectangle showing the landing position is not tabbed and the area will therefore be moved next to the combined area.

Maximize or restore attached areas

To maximize or restore attached areas, do one of the following.

- To maximize a vertically attached area, click the upward pointing arrow on its title bar.
- To restore a vertically attached area, click the downward pointing arrow on its title bar.
- To maximize a horizontally attached area, click the left pointing arrow on its title bar.
- To restore a horizontally attached area, click the right pointing arrow on its title bar.

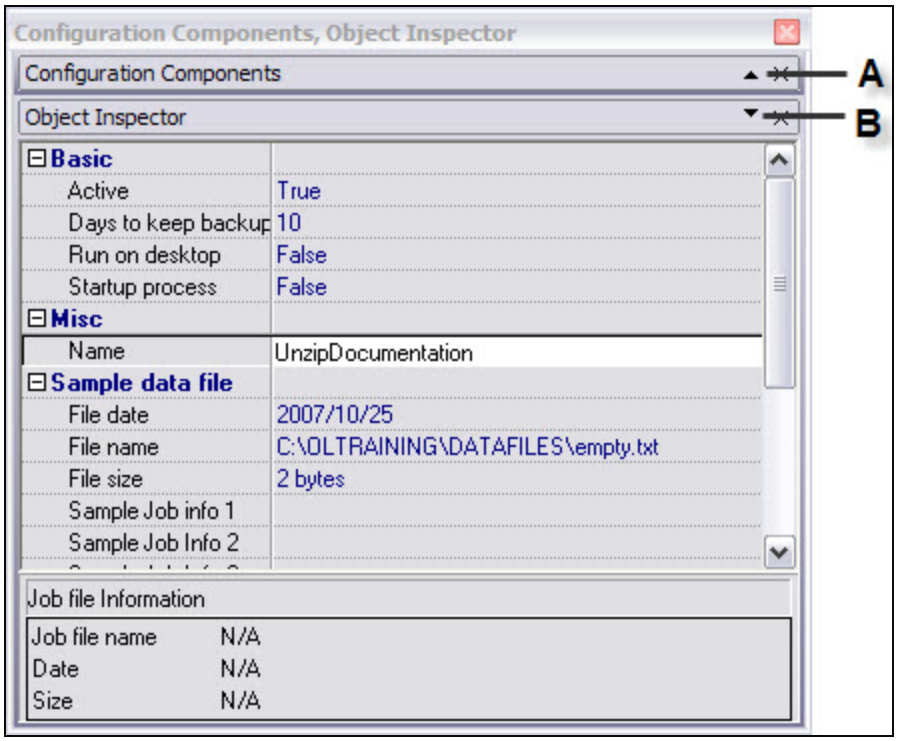


Image:
A) Click to maximize this area.
B) Click to restore this currently maximized area.

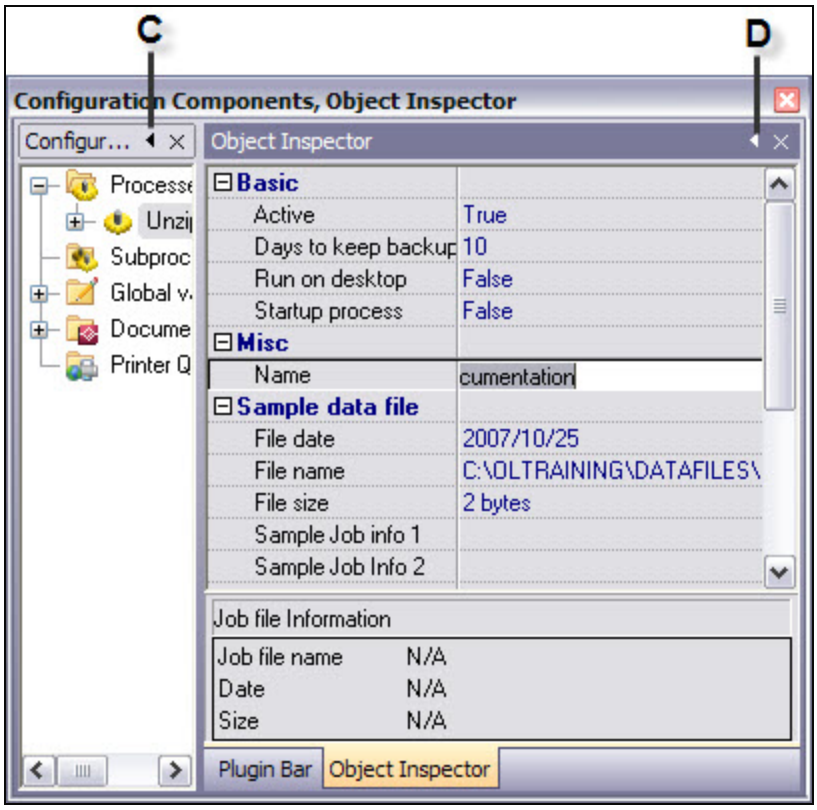


Image:
C) Click to maximize this area.
D) Click to restore this currently maximized area.

Taking an attached area out of a group

To take an attached area out of a group, do one of the following:

- Click the title bar displaying the name of the attached area you want to take out and move the mouse pointer so as to drag the area away from the group. As you drag, a rectangle is displayed to show the landing position. Release the mouse button when the rectangle is away from the group.
- Double-click the title bar of the area you want to take out. The area will jump outside of the group.

Resize the program window areas

You can adjust the layout of the program window by resizing one of the program window areas, including combined areas (see "Combine and attach areas" on page 809).

To resize a program window area:

1. Move the pointer to an edge of the area that you want to resize, to display the resize pointer.
2. Then click and drag to resize the area.

Change the Interface language

PlanetPress Workflow can be used in multiple languages, and the list of available languages grows as we translate the software. The first time you use PlanetPress Workflow, it starts in the language used for the installation.

To change the language used by the PlanetPress Workflow Configuration program:

1. Click the PlanetPress Workflow button, then click **Select Language**.
   The **Select Language** dialog box appears. This box lists all the languages that can be used by PlanetPress Workflow as well as the **Use System Default Locale** check box.
2. Select the desired language.
3. **Use System Default Locale**: Select to mirror your language settings, as defined in the **Regional and Language Options** of the Windows Control Panel. This option is typically used to enter and process information in non-European languages. It is only enabled when English is selected as the program language.
4. Click OK.

You may change this setting as often as you like, but you need to **restart** the application every time you do so.

> **Note**
>
> If you plan to enter and process information in non-European languages, you should know that PlanetPress Workflow uses codepages when storing and retrieving information (a codepage is a mapping used to convert back and forth the letters and numbers used by humans to the numeric characters used by computers). By default, codepage 1252 is used for Latin languages (good for Afrikaans, Basque, Catalan, Danish, Dutch, English, Faroese, Finnish, French, Galician, German, Icelandic, Indonesian, Italian, Malay, Norwegian, Portuguese, Spanish, Swahili and Swedish) and codepage 932 is used for

Japanese.

PlanetPress Workflow **Button**

The PlanetPress Workflow button provides access to the **File** menu options.

Options

- **New**: Closes the configuration that is currently opened and creates a new configuration, with a single example process and no printer queues. See "Creating a new configuration" on page 34.
- **Open**: Displays the dialog to open an existing configuration file.
- **Save**: Saves the current configuration. If the file is new and has not yet been saved, or if the configuration is the loaded directly from the service, the **Save As** dialog is displayed instead. See "Saving and sending a Workflow Configuration" on page 36.
- **Save As**: Saves the current configuration under a new name. It does not overwrite any existing configuration file, unless an existing file is selected and overwritten manually by the user.
- **Import**:
  - **Configuration Components**: Displays the **Import Processes** dialog, letting you import processes and other components from other existing configuration files. See "Importing processes" on page 129.
  - PlanetPress **Document**: Displays the dialog to import a PlanetPress Connect Document to be added to the list in the components area.
  - **PrintShop Mail Document**: Displays the dialog to import a PrintShop Mail Document to be added to the list in the components area.
  - **Connect Content**: Displays the dialog to import Connect files including templates, data mapping configurations, presets and packages.
- **Send Configuration**: Sends the current configuration to the PlanetPress Watch service. See "Saving and sending a Workflow Configuration" on page 36.

- **Close**: Closes the configuration that is currently opened and creates a new configuration, with a single example process and no printer queues. Closing the current configuration is the same as creating a new one.
- **Recent Documents**: Displays a list of the 9 most recently opened configuration files. Click on any of them to open it.
- **Select Language**: Click to display the language selection dialog, which changes PlanetPress Workflow interface language. See " Change the Interface language" on page 815.
- **Preferences**: Displays the **Options** dialog. See "Preferences" on page 754.
- **Exit**: Closes PlanetPress Workflow. See " Exit PlanetPress Workflow Configuration program" on page 38.

When using the **New**, **Open**, **Close**, **Recent Documents** and **Exit** menu options, if your current configuration has not been saved after modifications, a dialog will open asking if you want to save, not save, or cancel the action and return to the current configuration.

Configuration Components pane

The **Configuration Components** pane displays processes, subprocesses, variables, resource files and printer queues. It also lets you add any of these components using the right-click menu.

Components Area Sections

- **Processes**: Displays a list of processes in your configuration (see: "About processes and subprocesses" on page 125). Right-click on a process to access a drop-down menu that offers these choices:
    - **Insert Process**: Inserts a new process with a default input and output task.
    - **Insert Startup Process**: Inserts a new process as a Startup Process (see "About processes and subprocesses" on page 125).
    - Insert Self Replicating Process: Inserts a regular process that is set to be self-replicating.
    - **Insert Local Variable**: Inserts a new local variable (see: "Local variables" on page 708).

    - **Cut, Copy, Paste**: Controls the clipboard.
    - **Delete**: Deletes the process from the configuration.
    - **Rename**: Renames the process.
    - **Active**: Triggers whether the process is active (runs in service mode) or inactive (does not run in service mode). Inactive processes never trigger their input task or any other tasks.
    - **Startup**: Triggers whether the process is a startup process (runs before any other process).
    - **Group, Ungroup**: Triggers grouping functionality.
    - **Properties...**: Displays the process' properties, for scheduling and error handling.
- **Subprocesses**: Displays a list of subprocesses in your configuration (see: "About processes and subprocesses" on page 125). Right-click on a subprocess to access a drop-down menu that offers these choices:
    - **Insert Subprocess**: Inserts a new subprocess with a default input and output task.
    - **Insert Local Variable**: Inserts a new local variable (see: "Local variables" on page 708).
    - **Cut, Copy, Paste**: Controls the clipboard.
    - **Delete**: Deletes the subprocess from the configuration.
    - **Rename**: Renames the subprocess.
    - **Group, Ungroup**: Triggers grouping functionality.
    - **Properties...**: Displays the process's properties for error handling.
- **Global Variables**: Displays a list of variables that are shared between all your processes (see: "Global variables" on page 710). Right-click on a Global Variable to access a drop-down menu that offers these choices:
    - **Insert Global Variable**: Creates a new global variable
    - **Cut, Copy, Paste**: Controls the clipboard.
    - **Delete**: Deletes the global variable from the configuration.
    - **Rename**: Renames the global variable.
    - **Reset**: Resets the global variable to its default value. Useful if one of your process is modifying the global variable's value and you want to return it to its original default value.

    - **Group, Ungroup**: Triggers grouping functionality.
    - **Properties...**: Displays the properties, which lets you set a default value for the global variable.
- **Connect Resources**: Displays a list of PlanetPress Connect resources that can be used in processes (see: "Connect resources" on page 40). Different resources are divided into subfolders:
    - **Data Mapping Configurations**: Displays a list of data mapping configurations used with the **Execute Data Mapping** task. For each data mapping configuration in the list, the following two items appear within them:
        - **Data Model**: Displays the data model used in the data mapping configuration. Double-click on the data model to view it in your default XML viewer (generally, Internet Explorer).
        - **Sample Data File(s)**: Displays a list of sample files that are included in the data mapping configuration. Double-click on a file to use it as a sample data file for the active process.
    - **Document Templates**: Displays a list of templates that can be used in content creation tasks: "Create Email Content" on page 597, "Create Web Content" on page 614 and "Create Print Content" on page 611.
    - **Job Presets**: Displays a list of **Job Presets** that can be used in the "Create Job" on page 601 task.
    - **Output Presets**: Displays a list of **Output Presets** that can be used in the "Create Output" on page 604 task.
- PPS/PSM **Documents**: Displays a list of PlanetPress Suite Design and PrintShop Mail (Suite) documents that have been imported into PlanetPress Workflow (see "PlanetPress Design documents" on page 44 and "PrintShop Mail documents" on page 49). Right-click on the section or on a document to access a drop-down menu that offers these choices:
    - **Insert Resident Document**: Inserts a new Resident Document, which is a placeholder for a PlanetPress Design document that resides exclusively on the printer.
    - **Cut, Copy, Paste**: Controls the clipboard.
    - **Delete**: Deletes the document from the configuration, as well as the Workflow Tools Working Folders.
    - **Refresh**: Regenerates a PostScript Cache from the original document's PTK file.

    - **Group, Ungroup**: Triggers grouping functionality.
    - **Properties...**: Displays the properties, which lets you see the form information and select its default printing behaviors.
- **Printer Queues**: Displays a list of printer queues in your configuration (see: "PlanetPress Workflow printer queues" on page 111). Right-click on a printer queue to access a drop-down menu that offers these choices:
    - **Insert Printer Queue**: Creates a new printer queue in your configuration.
    - **Replace Printer Queue By**: Replaces the currently selected printer queue with a new one.
    - **Cut, Copy, Paste**: Controls the clipboard.
    - **Delete**: Deletes the printer queue from the configuration.
    - **Rename**: Renames the printer queue.
    - **Group, Ungroup**: Triggers grouping functionality.
    - **PS Test Page**: Prints a test page in PostScript format. Useful for validating whether the printer supports PostScript.
    - **Text Test Page**: Prints a text-only test page on the printer.
    - **Properties...**: Displays the printer queue properties.

> **Note**
>
> Deleting a component that is currently used by a process will cause this process to stop working and trigger an error, until the task that causes the error is removed, or changed to point to another existing component.

PlanetPress Design document properties

To view the properties of a PlanetPress Design document (see "PlanetPress Design documents" on page 44), do one of the following:

- Click any document to display its properties in the Object Inspector.
- Double-click any document to display its properties in the **PlanetPress Design Document Options** dialog box.

PlanetPress Workflow Configuration programs let you view a number of the properties associated with the PlanetPress Design documents you use, but most of those properties are set in PlanetPress Design and cannot be edited using PlanetPress Workflow Configuration program.

The Document name of printer-resident documents can be changed using PlanetPress Workflow Configuration program simply because it is initially set using that program.

The properties available via the **Printer Settings** tab define how documents are printed. They are also set using PlanetPress Workflow Configuration program and are retained when documents are assigned to printer queues. They can be edited by selecting documents within the **PPD/PSM Documents** category, which changes the document's default printer settings, or within the **Printer Queues** category, which changes the document properties on the selected queue.

Document properties options

Identification Tab

The information here is read-only and gives you information on the document.

- **Document**: The file name of the document, as entered in PlanetPress Design. This is the name of the file saved in PlanetPress Design, or the name you give it when you add a printer-resident document in your PlanetPress Workflow Configuration. It may have a PTK extension (if it has been sent to PlanetPress Workflow from PlanetPress Design), or a PS extension (if it is printer-resident).
- **Version**: The version of PlanetPress Workflow in which the document was originally created. Printer-resident documents are identified as such.
- **Document name**: The name of the document as entered in PlanetPress Design. You can enter a name for printer-resident document here; the name does not have to match the name given it in PlanetPress Design. Since this property is used in the trigger to identify the document when PlanetPress Workflow sends a job to be merged on a printer, the document name must exactly match the name of the document installed on the printer.
- **Description**: The description of the document as entered in PlanetPress Design.
- **Last modified**: The date and time the document was last uploaded to PlanetPress Workflow.

Printer Settings Tab

- **Trigger Type**: Select whether you want a normal trigger configuration to be used, or a custom trigger that you manually enter.
- **Custom Trigger Box** (appears only when Custom Trigger is selected in Trigger type): Lets you enter the exact trigger you want to use. This trigger must absolutely be in standard postscript language.
- **Run mode group**
  - **Printer centric**: Select to send the document along with the trigger and data to the component that generates fax documents.
  - **Optimized PostScript Stream**: Select to merge the selected document with the data received by this task before sending it to the component that generates fax documents. Some PlanetPress Design features, such as the Time and Date PlanetPress Talk functions, require that this option be selected.
- **Document location group** (enabled only when using Printer-Centric mode)
  - PlanetPress **Workflow-based**: Select if the PlanetPress Design document is in PlanetPress Workflow. This option should be selected if your document is updated often and you are sending it to the Workflow Tools instead of the printer directly.
  - **On printer hard disk**: Select if the PlanetPress Design document is on the printer's hard drive.
  - **In printer flash memory**: Select if the PlanetPress Design document is on the printer's flash memory.
  - **RAM**: Select if the PlanetPress Design document is on the printer's RAM (Random Access Memory).
- **Document Update group** (enabled only when using printer-centric mode and the document is on the printer)
  - **Automatically update**: PlanetPress Workflow will send a new version of the document to the printer automatically if the document has been changed since it was last used. If unchecked, you will have to manually update the document on the printer from the **Update Instances** button or by sending the document to the printer from PlanetPress Design.
  - **Confirm Update**: Check if you want a confirmation page to be printed stating the document has been updated, when it happens. This options is disabled if Automatically update is not selected.

- **Update Instances**: Clicking this button brings up a dialog box that lets you manually update any document on any printer.

- **Printer-Specific folder**: This option lets you enter a manual location where the documents should reside in the printer's memory. This option is only available if the document is **Printer Centric**, and the **Document location** is either **On printer hard disk** or **In printer flash memory**.

Moving and copying configuration components

Moving configuration components in the **Configuration Components** pane is very easy and can either be done with the mouse (drag & drop), the Ribbon menus (clipboard buttons) or the keyboard (clipboard keyboard shortcuts).

If you wish to change the order in which objects appear in a category or group of the Configuration Components pane, refer to "Reordering objects in the Configuration Components pane" on page 826.

Mouse cursor

As you drag a configuration component, your mouse cursor will change to indicate the action you are performing, as well as whether the location where the cursor is can accept the configuration component you are dragging. If you try to drag a configuration component in a location that is not accepted, the cursor changes to a "prohibited" icon. If you are moving a configuration component to a valid location, the mouse cursor displays the normal cursor along with a small dotted box. If you are copying a configuration component to a valid location, the mouse cursor displays the normal cursor along with a small dotted box and a plus (+) sign.

Normal mouse pointer	
Move mouse pointer	
Copy mouse pointer	
Prohibited mouse pointer	

Moving Configuration Components

You can move components in the Configuration Components pane in a number of ways; see below.

Note that moving a configuration component does not change the order in which the components are used. However they can affect your process if, for example, you move a local variable from one process to another and the local variable is still used in the first process.

Dropping documents onto printer queues does not move the documents, but rather assigns them to these queues (see "PlanetPress Workflow printer queues" on page 111).

Using Drag & Drop

- Click on the component and hold the mouse button.
- Move the component to the location where you want to drop it.
- Let go of the mouse button.

When dragging configuration components, a horizontal line appears where the component will be dropped (if the location is valid). At the end of this line will be small "dents". If these dents are on top of the line, the component will be placed at the same level (group) as the component before it. If the dents are at the bottom, the component will be placed at the same level (group) as the component after it.

If you move an object in the Configuration Components pane on top of a **group**, the group name turns maroon (in the default color scheme) to indicate the object will be moved in the group after all the existing objects currently in that group.

Using the clipboard buttons

- Click on the component you want to move.
- Go to the **Home** tab of the ribbon.
- Click the **Cut** button in the **Clipboard** group.
- Click on the new location where you want the component.
- Click the **Paste** button in the **Clipboard** group.

Using the contextual menu

- Right-click on the component you want to move.
- Click on **Cut** in the contextual menu.
- Right-click on the new location where you want the component.
- Click on **Paste** in the contextual menu.

Using the keyboard shortcuts

- Click on the component you want to move.
- Do CTRL+X (cut) on your keyboard.
- Click on the new location where you want the component.
- Do CTRL+V (paste) on your keyboard.

Copying components

You can make a copy of any component in the **Configuration Components** pane, except resource files (of which you can only have one copy). Copying components is done using the same methods as moving them, with the following differences:

- To copy components using the clipboard buttons and contextual menu, replace Cut by **Copy**. Otherwise the methods are the same.
- To copy components using the keyboard shortcuts, replace CTRL+X by **CTRL+C**. Otherwise the method is the same.

> **Note**
>
> You can also copy multiple components by selecting more than one then using the methods described above. However, you can only select multiple components from within the same folder. You cannot, for example, select a subprocess along with a process and move them together. Also, you cannot select multiple components if they are not in the same group or if one is in a group and the other is not.

Renaming objects in the Configuration Components Pane

You can rename processes, groups, and printer queues in the **Configuration Components** pane. Resource files cannot be renamed or modified using PlanetPress Workflow. You can, on the other hand, change the name of printer-resident PlanetPress Design documents.

> **Note**
>
> Names cannot begin with a number. They can only contain the following ASCII characters: underscore, upper and lower case letters of the alphabet, all digits 0 through 9. If you enter an invalid name, you will be prompted to correct it (unless if the corresponding option has been turned off).

To rename a process, printer queue or group in the Configuration Components pane:

1. In the **Configuration Components** pane, right-click the name of an object or group and choose **Rename** from the pop-up menu. The name of the object or group is highlighted and ready to be edited.
2. Type the new name over the existing name and press the **Enter** key.

To rename a PlanetPress Design printer-resident document:

1. In the **PPD/PSM Documents** section of the **Configuration Components** pane, double-click a printer-resident document. The **PlanetPress Design Document Options** dialog box is opened.
2. In the **Document name** box, enter the new document name and click OK.

Reordering objects in the Configuration Components pane

There are multiple ways you can reorder objects in the **Configuration Components** pane. Commands available from the right-click menu let you reorder selected objects, as well as alphabetically reorder objects listed directly under a category or appearing within a group. You can also use the clipboard controls and drag & drop methods described in "Moving and copying configuration components" on page 823 to copy and move objects and tasks.

To **reorder selected objects** in the Configuration Components pane:

1. Click an object or group.
2. In the PlanetPress Workflow Ribbon, go to the **View** tab. Then click **Order** in the **Arrange** group, and select one of the following:
    - **Move up** to move the item one step up in the category or group. If the item is already the top object in the category or group, this command has no effect.
    - **Move down** to move the item one step down in the category or group. If the item is already the bottom object in the category or group, this command has no effect.
    - **Move to the top** to move the item to the top of the category or group. If the item is already the top object in the category or group, this command has no effect.
    - **Move to the bottom** to move the item to the bottom of the category or group. If the item is already the bottom object in the category or group, this command has no effect.

To **alphabetically reorder objects** in the Configuration Components pane:

- Click either a category (Processes, Global Variables, Connect Resources, PPD/PSM Documents, or Printer Queues) or a group
- In the PlanetPress Workflow Ribbon, go to the **View** tab.
- In the **Arrange** group, select **Sort by Name**.

Grouping Configuration Components

Groups help you organize processes, documents, and printer queues. For example, you may create the Invoices, Checks and Reports groups in the **Processes** section and associate individual processes with each one of these groups. Each group may contain subgroups.

Items or processes, and groups, can only be grouped within their own category. Thus you can only group processes with other processes, resource documents with other resource documents, and printer queues with other printer queues. In the resource documents category, you can only group documents with others of the same version and type. For example, you can only group documents from PlanetPress Design (files with a PTK extension) with other PTK files, not with printer-resident documents.

You can also use groups to quickly assign multiple PlanetPress Design documents to multiple printer queues. By dragging a group of documents to a printer queue, you assign all the documents in the group to that queue.

> **Tip**
>
> Groups can be copied and moved using the Clipboard and Drag & Drop; see "Moving and copying configuration components" on page 823.

Grouping objects

To add a group in the Configuration Components pane:

- Select one or more processes and/or groups in the same group and choose **View > Group**.
- Right-click one or more selected processes and/or groups and select **Group** from the contextual menu.
- Select one or more processes or groups in the same group and press **CTRL+G**.

The selected items will be moved to a new (sub)group.
When you've clicked on a group, all processes therein are moved to a new subgroup.

Objects are **added** to an existing group via **drag-and-drop**. The objects are added as the last objects in the group.

Ungrouping objects

To **remove a group** in the Configuration Components pane, but keep its contents:

- Select the group and choose **View > Ungroup**.
- Right-click on the group and select **Ungroup** from the contextual menu.
- Select the group and press **CTRL+U**.

The contents of the group will move one level up.

To **remove objects** from a group, without removing the group itself, select the object or objects and use one of the methods above or **drag-and-drop**.
If a group becomes empty, you are prompted to confirm the deletion of the group.

Expanding and collapsing categories and groups in the Configuration Components pane

You can expand and collapse the Processes, Global Variables, PPD/PSM Documents and Printers Queues categories, and groups, in the **Configuration Components** pane.

To do this, click the **Expand / Collapse** button to the left of the item.

Deleting something from the Configuration Components pane

To delete a **process**, **document**, or **printer queue**:

- Click a process, document, or printer queue, then press the **Delete** key.

In the case of processes and printer queues, the object is deleted. If there is only one process in the configuration, you cannot delete it; there must be at least one process in the configuration. If you delete the last configured process, a process with two Unknown tasks remains.

In the case of documents, you are first prompted to confirm the deletion. You can turn off this prompt in the Notification Messages User Options.

To delete a **group** of processes, documents, or printer queues:

- Click a process group, documents group, or printer queue group, then press the **Delete** key.

In the case of process groups and printer queue groups, the group and all its members are deleted. In the case of documents, you are first prompted to confirm the deletion of each member of the group. You can turn off this prompt in the Notification Messages User Options.

> **Note**
>
> To disable the confirmation notification that you get when you delete something from the Configuration Components pane, you can check **Always delete without asking** in the notification.
> To enable a notification again, go to **Preferences > Behavior > Notification Messages**

and check the desired **Prompt on (...) deletion** options.

Dialogs

Dialogs are either accessible from the preferences or from different parts of PlanetPress Workflow.

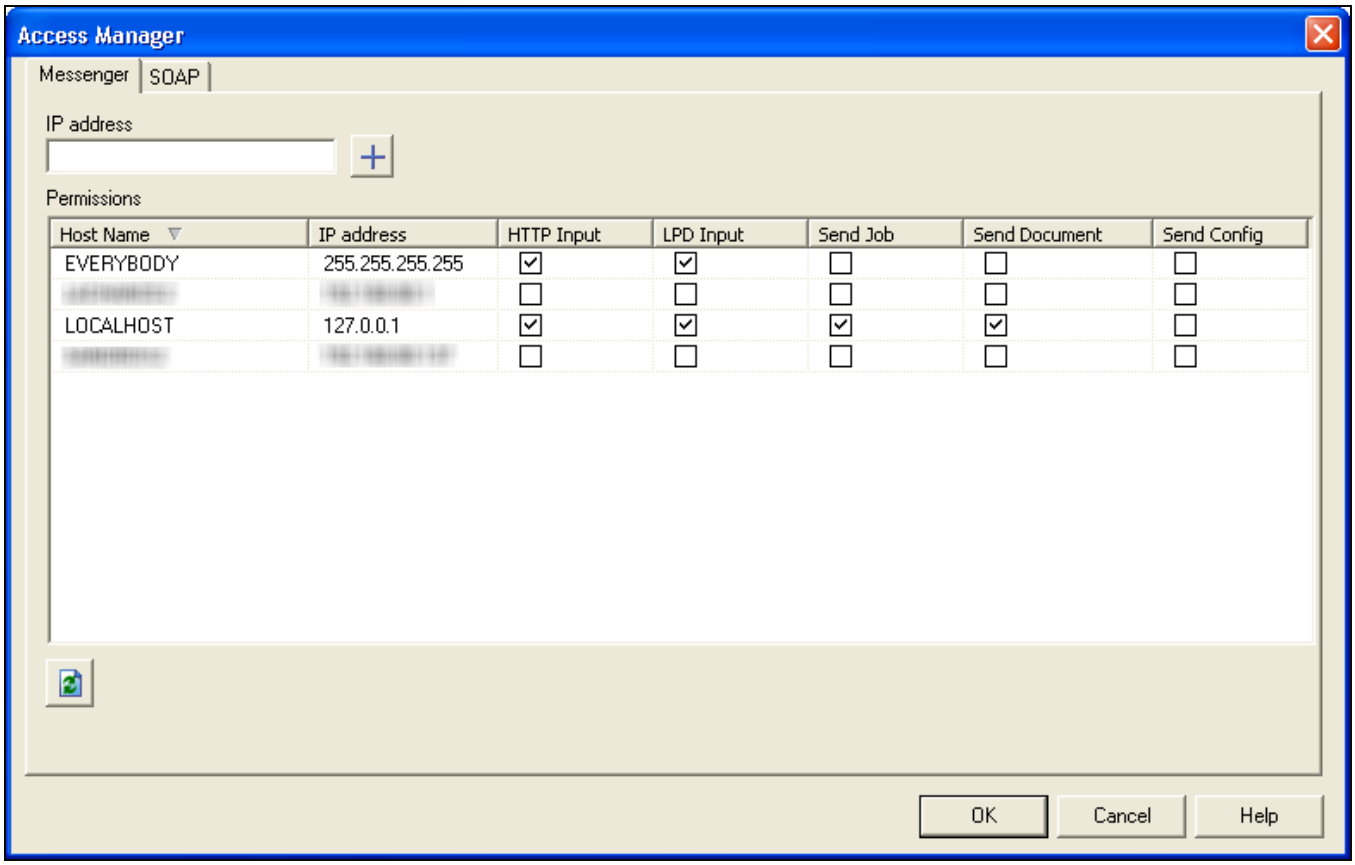
Access Manager

The **Access Manager** controls what rights are granted to other machines (clients and servers) on the same network. It grants access to functions such as sending documents and jobs to the server.

To open the Access Manager:

1. Open PlanetPress Workflow.
2. In the Ribbon, go in **Tools > Managers > Access Manager**.

The **Access Manager** dialog box is displayed. It lists all IP addresses and IP ranges that have PlanetPress Connect modules installed in the same network.



Messenger access

Manually adding new entries to the list

To grant access to the Messenger service you can manually add new entries to the list:

- Open the *Access Manager*.
- Make sure you are in the **Messenger** tab.
- In the **IP address** box, enter the IP address of the remote machine.
- Click on the + button.
- Add the necessary permissions.
- Click OK.
- Restart the Messenger service.

Note

The format of the IP address must be one of the following:

- **127.0.0.1**: The local computer. Typically this IP should have all the accesses checked.
- **255.255.255.255**: Everyone on the same subnet. This is equivalent to hard-coding the current subnet, such as 192.168.1.255 or 10.0.0.255.
- **192.168.0.42**: A single IP address. This can be any valid address on the same subnet.
- **10.0.255.255**: Any IP in the 10.0.X.X range.

Automatically detecting machines on the network and adding them

To detect machines on the network automatically, and give them access to the Messenger service:

1. Make sure the machine you want to detect is turned on and the Messenger service is started.
2. Click on the **Refresh** button under the list.
3. Add the necessary permissions to the detected machines.
4. Click OK.
5. Restart the Messenger service.

Removing an entry from the list

To remove an entry from the list:

1. Remove all checkmarks from the entry.
2. Click OK.
3. Restart the Messenger service.

Warning

The following considerations are to be understood when using the Access Manager to configure IP limitations:

- Each permission type (column) is evaluated from top to bottom (column per column) in the order in which they are visible in the **Access Manager** window. This means that wide ranges should always be at the top to increase performance. For example, if you accept HTTP connections from any IP, the first entry should be 255.255.255.255 with the Allow checkmark in the **HTTP Input** box. PlanetPress does not continue processing after it has found an "Allow" checkmark. There is no concept of "Deny", meaning if any "Allow" permission is given, there is no way to later remove it for certain IP addresses or IP ranges.
- The configuration of the Access Manager is saved in a file on the hard drive which can be edited manually. See Access Manager hosts.allow File.
- HTTP, FTP and SOAP communication is not limited to the local subnet on any version where these plugins appear.
- Any change to the Access Manager requires a restart of the Messenger server which can be done in "The PlanetPress Workflow Service Console" on page 884.

Modifying permissions

Permissions are given simply by adding and removing options in the permission grid. Access to the services installed on this computer is granted or denied by checking the corresponding boxes next to the listed IP ranges. For each IP range, the following information is displayed:

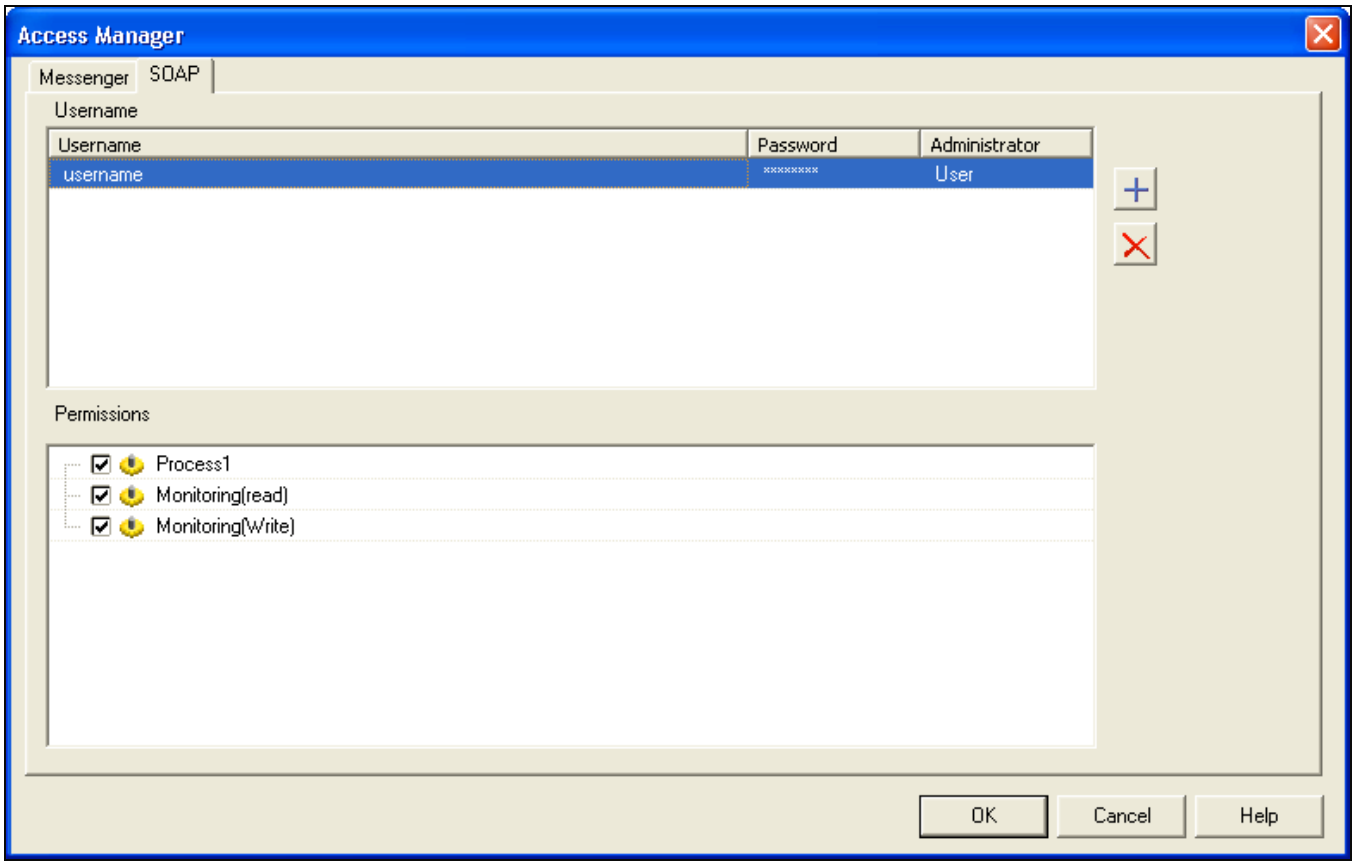
- **Host name**: The name of those computers on which PlanetPress Workflow software are currently installed or which have been manually added.
- **IP address**: The IP address or IP address range to give permission to.
- **Permissions**
  - **HTTP Input**: Grants access to send HTTP Requests to this server.
  - **LPD Input**: Grants access to send LPD Queue jobs to this server.
  - **Send Job**: Grants access to the selected computer or server to send jobs to PlanetPress Fax and PlanetPress Image installed on this server.

- **Send Document**: Grants access to the remote computer to send new or updated Connect files (templates, data mapping configurations, print presets), or PlanetPress Design Documents, to this server.
- **Send Config**:Grants access to the remote computer to overwrite the configuration on the local PlanetPress Workflow service

> **Note**
>
> In order for the changes made here to be effective, you will need to restart the PlanetPress Messenger service. This can be done via the PlanetPress Workflow Service Console.

SOAP Access

The **SOAP** tab of the **Access Manager** controls access from SOAP clients to local processes and SOAP processes. Each user name entered in this dialog can have access to one or more processes.



Adding a new SOAP user

To add a new SOAP user:

1. Click on the button.
2. Enter the following information under the **Username** column for the new entry that was created:
    - **User name**: An alphanumerical user name for the user.
    - **Password**: A password to protect the user. Note that the password will always revert to ******** (8 stars) when clicking outside of this box - that is normal and is meant to protect the length of the password as much as its contents.
    - **Administrator**: Choose the permission type
        - **User**: Can access none, some, or all of the processes, selected individually in the **Permissions** section.

- **Admin**: Has access to all processes and features. When this option is selected, the **Permissions** section is grayed out an all options are selected in it.
- **Disabled**: Has access to nothing. The result is the same as not having this user defined at all, but has the advantage that a disabled user can be reactivated with a simple click.

3. Define the permissions for the user (see below).
4. Click **OK** to save the changes.

Defining or changing permissions

The **Permissions** section of the **SOAP** tab displays all of the processes that are available in the live configuration (the one that the PlanetPress service uses). To change or define the permissions for a SOAP user:

1. In the top **Username** section, click on the user name of which to modify permissions.
2. Place a checkmark in each process that the user should have access to.
3. Check **Monitoring(read)** to give permission to the GetProcessList and GetProcessTaskList actions for SOAP.
4. **Monitoring(write)** is currently not implemented.
5. Click **OK** to save the changes.

> **Note**
>
> In order for the changes made here to be effective, you will need to restart the PlanetPress Messenger service. This can be done via the PlanetPress Workflow Service Console.

Activate a printer

The **Activate a Printer** dialog lists the existing activated printers on the system and lets you add new activations.

> **Note**
>
> Activating a printer is required when you have a PlanetPress Suite Printer License, unless you have the “Optimized Output” add-on in your Connect license, which grants you the equivalent of PlanetPress Production in Connect Workflow. Note that even then, “printer-centric” output requires a printer license.
>
> Printer activations are normally given to you by the activations department electronically, including a file that will automatically add all your printers in this dialog.

To display the **Activate a Printer** dialog, click the **Printer Activation** button from the **Help** menu.

The printer list displays the following information

- **License Number**: Reference number of the activation, linked to your customer account.
- **Magic Number**: The magic number generated by the printer. If the magic number is incorrect, your jobs will output with a watermark on that printer.
- **Activation Code**: The activation code generated by your license number and magic number. If the activation code is incorrect, your jobs will output with a watermark on that printer.
- **Printer Name** (Optional): Name and/or model of the printer.
- **Comments** (Optional): Comments about the printer.

The following buttons are available in this dialog:

- **Add**: Brings up the **Printer Activation** dialog. This dialog lets you enter the information for the printer (see previous section), then click OK to save the new activation.
- **Delete**: Removes the currently selected activation from the list.
- **Web Activation**: Click to access the online activation manager on our website.
- **OK**: Save changes and exit.
- **Cancel**: Exit without saving changes.

You can also double-click on any existing activation to edit it.

Advanced SQL Statement Dialog

The **Advanced SQL Statement** dialog is available by clicking the **Edit SQL** button from the **Database Query** action task. You can enter a custom SQL query in this dialog, using the language supported by the database you select in the **Database Query** action task.

The dialog is separated in two parts:

- The left part displays the available tables in your database. Click the **Show Tables** button to display them.
- The right part displays a default SQL statement which you can modify at your leisure.
- The bottom part displays the following options:
  - **Alternate syntax**: Select to prevent automatically enclosing the names of any database tables and fields that appear in the SQL query in square brackets when it exits the **Advanced SQL Statement** dialog box. The alternate syntax may be required for some database types.
  - **Client-side Cursor**: When this option is enabled, the complete result set is downloaded before processing starts, and changing records is done by PlanetPress. This is generally faster for queries returning a small number of results ; otherwise the start of the record processing can be delayed since the whole record set must be downloaded.

    > **Note**
    >
    > MySQL, using ODBC 5.0, must be set to use a client-side cursor.
    > Microsoft Access will always work better when using a Server-Side cursor.

  - **Expect record set**: Check if you are expecting a result from the database after executing the SQL query. If the query is expecting a record set in return and does not return one, the task will trigger an error.
  - **Test SQL** button: Verify the SQL statement's validity.

Data Repository Manager

The Data Repository Manager is an interface that manages the PlanetPress Workflow "Data Repository" on page 95. This feature, introduced in version 8.5, is a persistent data store used to save any sort of textual data in a table format.

Accessing the Data Repository Manager

To access the Data Repository Manager:

- Open PlanetPress Workflow
- Go to the **Tools** tab.
- Click the **Data Repository Manager** button in the **Managers** group.

> **Warning**
>
> Any change made within the Data Repository Manager is **Immediate**, and **Irreversible**. Deleting data from this interface may impact running processes if such processes access the data saved in the repository. This includes clearing a group, or clearing the repository.

Toolbar buttons

- **Group section**
  - **Add Group**: Click to create a new group. Enter the group name and click **OK**. Three keys will be added to the group automatically: ID, DateC and DateM . These keys cannot be removed or edited.
    - ID is a unique number that identifies a key set in the Data repository.
    - DateC is the creation date of the key set.
    - DateM is the date at which the key set was last modified.
  - **Delete Group**: Click to delete the currently selected group. **Warning: This action cannot be undone.**
- **Key section**
  - **Add Key**: Click to add a key to the currently selected group. Enter a key name and click **OK**. If adding a key to a group with existing data, the key will be empty for all

existing key groups.

  - **Delete Key**: Click to remove the currently selected key in the group. This will remove the key and all the data for this key in each existing key set. **Warning: This action cannot be undone.**

- **Key Set section**
  - **Add Key Set**: Click to add a new key set to the currently selected group. Displays a dialog with all the keys in the group, asking for a value for each of the keys. Enter the values then click **OK**. The key set will display in the right part of the repository manager.
  - **Delete Key Set**: Click to delete the currently selected key set in the Group. **Warning: This action cannot be undone.**

- **Update section**
  - **Edit Key Set**: Click to edit the currently selected key set. Opens a dialog which each key and their value, which can be edited. Double-clicking a row has the same effect as clicking the **Edit Key Set** button.
  - **Refresh**: Click to load any changes made to the repository since it was last opened or refreshed.

- **Management section**
  - **Check Repository**: Click to verify the integrity of the database, as well as reclaim any disk space from
  - **Clear Group Data**: Click to delete all the key sets in the currently selected group, leaving the key definitions intact. **Warning: This action cannot be undone.**
  - **Clear All Data**: Click to delete every key set of every group in the Repository. **Warning: This action deletes all your data and cannot be undone.**
  - **Clear Repository**: Click to delete every group in the repository, including all their data. **Warning: This action deletes all your data and cannot be undone.**

- **Show/Hide System Keys**: Click to show or hide the ID, DateC (creation date) and DateM (modification date) keys. The creation date and modification date fields both contain a full time stamp in the form of `YYYY-MM-DDThh:mm:ss.sZ`, where
  - YYYY = four-digit year
  - MM = two-digit month (01=January, etc.)
  - DD = two-digit day of month (01 through 31)

- T = literal constant separating date from time
- hh = two digits of hour (00 through 23) (am/pm NOT allowed)
- mm = two digits of minute (00 through 59)
- ss = two digits of second (00 through 59)
- s = one or more digits representing a decimal fraction of a second
- Z = literal constant representing the UTC time zone designator.

Repository structure pane

This section of the Data Repository display a tree view of all groups in the data repository as well as all the keys under each of those groups.

- To **add, delete or edit a group**, use the contextual menu (right-click).
- To expand a group and **edit its keys**, click the + or double-click on the group .
- To **rename a key**, select it and then press F2.

Key Sets pane

This section of the Data Repository displays the current key sets in the group. Each horizontal row is a key set, and each vertical row is a key defined in the group.

- To **add, edit or delete a value** in a key set, double-click on the field, or select it and press F2. The Edit Key Set dialog will appear. Use the arrow buttons to browse through the keys in the key set.
- To **delete a key set**, press the Del key.
- To **add a key set**, press Insert. The Add Key Set dialog will appear. Use the arrow buttons to browse through the keys in the key set and add values to them. This dialog has a button at the bottom to add another key set.

Navigating with the keyboard

Though of course the mouse is the easiest way to navigate through the Data Repository, the keyboard can be used as well.

- Press **Tab** to switch between the **Repository Structure**, **Group Key Sets**, **Lookup Function Syntax** and the **Close** and **Help** buttons.
- Press **CTRL+N** to add a **new key** within the selected group.

- Press **Ctrl+G** to add a **new group**.
- Press **Insert** to add a key set. The Add Key Set dialog will appear, allowing you to create a **new key set**.
- Press **F2** to **rename** a group or a key on the Repository Structure pane.
- Press **Delete** to remove a **group or key** from the Repository, or a **key set** from the Key Sets pane.

> **Tip**
>
> You can look up these shortcuts by right-clicking the item you want to interact with, and looking at the contextual menu.

The Data Selector

The Data Selector is the tool you use to choose your sample data and Metadata files, to select the appropriate emulation, to make data selections, and to stabilize your data.
For more information about sample data, Metadata and emulation types, see the chapter "About data" on page 50.

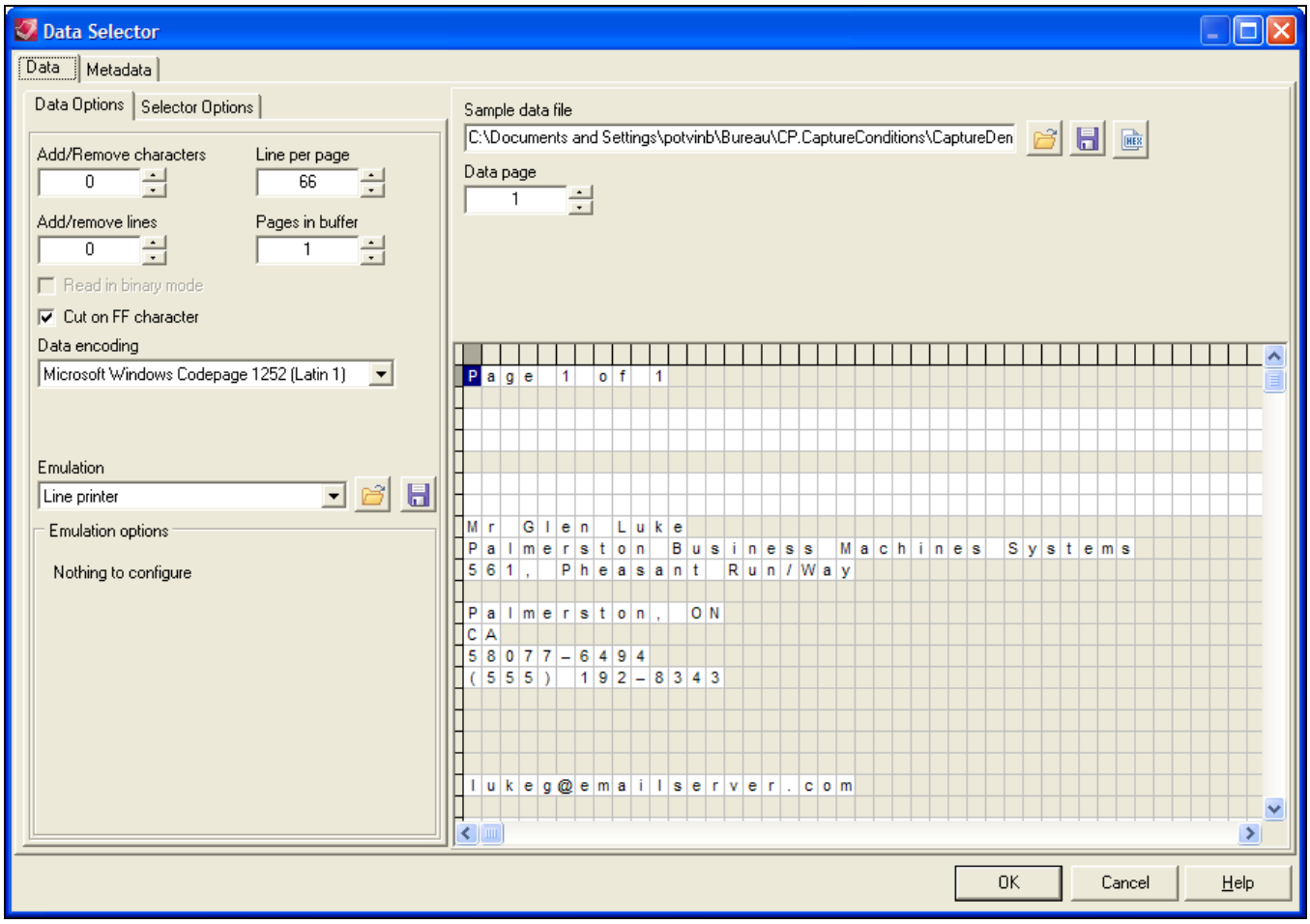
To open the Data Selector:

- Choose **Debug > Select**, on the menu.
- Right-click a task property that may contain variables (recognizable by the color of its field label, which is maroon by default) and choose one of the **Get Data ...** or **Get Metadata ...** options.
- Debug your configuration and step through it until the option **Debug > View Metadata** gets enabled. This happens when the Metadata file has been created by a task in the process.

The Data Selector does two things:

- It uses the current emulation (either the emulation chosen when the sample data file was selected, or the one chosen in the last **Change Emulation** action task appearing above the current task) to format the data.
- It displays the formatted data to let you make selections easily using the mouse pointer.

It is divided in two tabs: Data and Metadata.



The **Data Selector** is essentially the same as the one used in PlanetPress Design.

The **File Viewer** is like a Data Selector without any data related options, such as emulation settings. It is displayed when doing a data selection from the **Generic Splitter** task (see "Generic Splitter" on page 457) with the **Use Emulation** option unchecked. The only data formatting codes to which the File Viewer responds are line breaks.

Data tab

The Data tab contains the Data Options, which let you select your emulation, and the Selector Options, which let you personalize the data selector's display options (see "Data Selector display preferences" on page 846).

The Data Selector uses the emulation (either the emulation chosen when the sample data file was selected, or the one chosen in the last **Change Emulation** action task appearing above

the current task) to format the data. It displays the formatted data to let you make selections easily using the mouse pointer.

Depending on the chosen emulation and data file, the options in the Data Selector, the Sample data file section and the **Data** pane itself may change to accommodate your choice. The Line Printer, Ascii, Channel Skip and User-Defined emulations will display the default options (see "About data emulation" on page 60) and a grid-like display of each character on each line. The following emulations however, will be slightly different.

Database Emulation

The Database emulation exchanges the Browse button for the Database Emulation Configuration button, which displays the Database Emulation Configuration (see "Database emulation" on page 66).

Once a database has been opened and query entered (see "Choosing a database sample file" on page 72), the **Data** pane displays the results of the SQL Query in a grid format, which each line representing a single returned row from the database. Each column represents a field returned by the query, with its field name as a row header.

PDF Emulation

- If you use a PDF emulation, the **Data** pane displays the data as you would see it in any PDF reader.
- A new zoom drop-down list is displayed to let you set the zoom in percentage or fit the PDF to the window or the width of the window.
- A new status bar, displaying the (Left, Top) and (Right, Bottom) coordinate pairs, is shown under the **Data** pane.

XML Emulation

- XML data is represented in a tree structure which corresponds to the data in the XML file. Each node of the XML can be expanded to see the nodes under it. See "XML Emulation" on page 70.

Metadata tab

The Metadata tab allows to load a Metadata file and make a selection from it.

The **Sample metadata filename** is the path to the Metadata file describing the current sample data file. Buttons on the right can be used to load Metadata from a file or to save the current Metadata to a file.

> **Tip**
>
> To get a sample of the Metadata file, debug your process and step through it until the option **Debug > View Metadata** gets enabled. This happens when Metadata have been created by a task in the process. Open the Metadata viewer and save the Metadata file to use it as a sample file. Click the **Open a meta data file** button to open the sample in the Metadata selector.

PlanetPress Design documents (unlike Connect Designer templates) are built to contain Metadata. PlanetPress Design users may therefore generate a Metadata file for their active sample data file, using a PlanetPress Design document: click the **Create meta data file** button.

The **Generated PressTalk Expression** shows the expression to retrieve the currently selected attribute or field. Metadata are retrieved with the GetMeta() function (see "Metadata selections" on page 58). This expression is editable, which allows you to customize the string returned by the Metadata selector.

> **Tip**
>
> The wildcard parameter '?' indicates that the function operates on all nodes (not just one) of a given level; see "Wild card parameter "?"" on page 54.

The **Enable search on multiple levels** option is available when a Metadata is selected under Production information or User defined information. If it is not selected, the option flag includes NoCascade (+2). For an explanation of option flags in the GetMeta() function, see "Option flags" on page 58.

Metadata level is a tree view allowing users to select the Metadata level from which to display or select Metadata elements.

The **Production information** list displays all Metadata fields describing the current Metadata level, as selected in the Metadata Level tree view, for the current data page, as selected in the Data page box.

The **User defined information** lists all Metadata fields defined by the user on the current Metadata level.

> **Note**
>
> Not all of the options in the Metadata Selector in PlanetPress Design 7 are available in the user interface of PlanetPress Workflow . However, when these settings are made in PlanetPress Design 7, they will function as expected in PlanetPress Workflow2020.1.

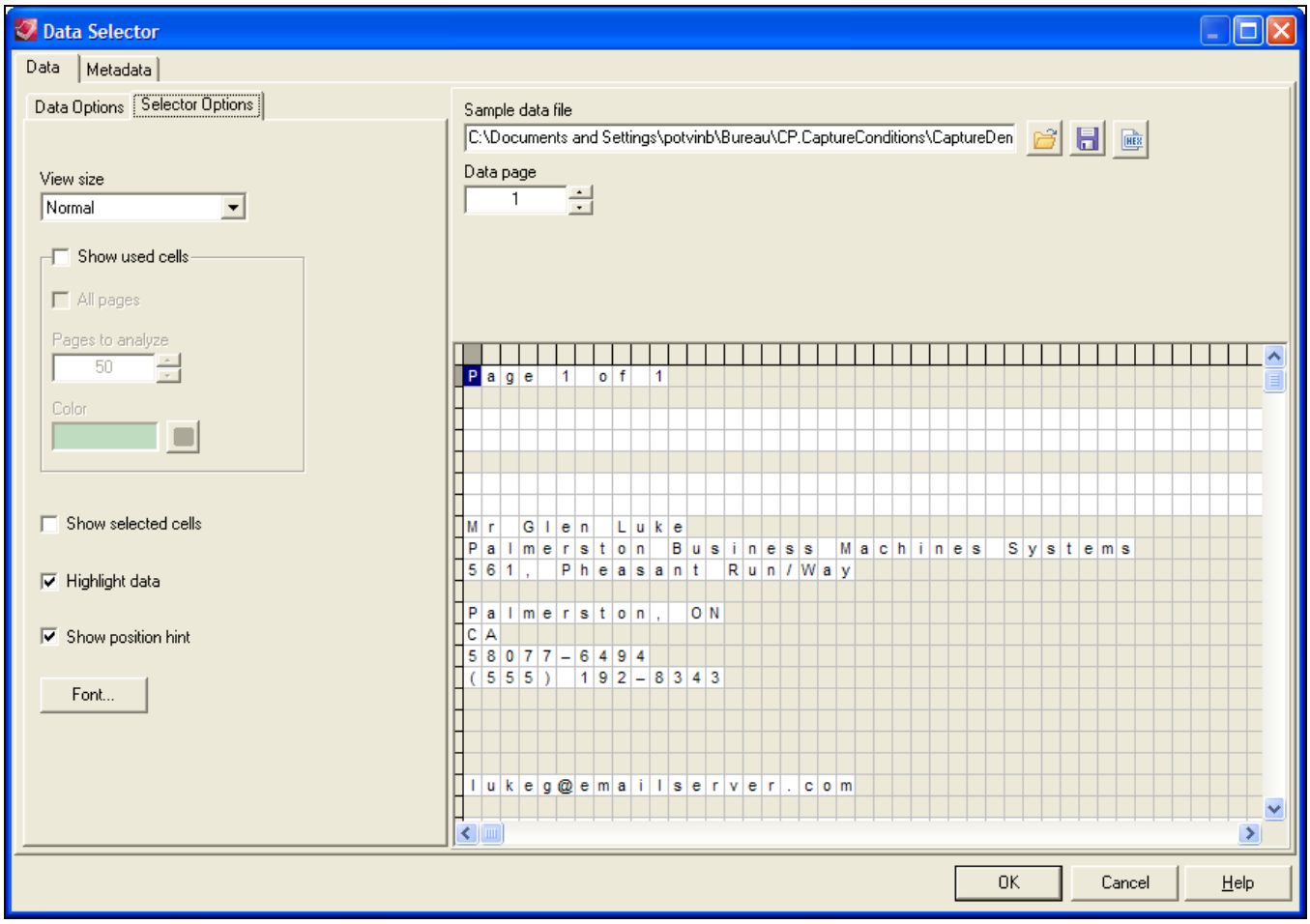
The File Viewer

The File Viewer is like a Data Selector without any data related options, such as emulation settings. It is displayed when doing a data selection from the **Generic Splitter** task (see "Generic Splitter" on page 457) with the **Use Emulation** option unchecked. The only data formatting codes to which the File Viewer responds are line breaks.

For more information on the data selector, see "The Data Selector" on page 842.

Data Selector display preferences

The Data Selector Preferences are accessible through the **Selector Options** tab in the **Data** tab of the Data Selector. It controls how text-based data files (such as Line Printer, ASCII and Channel Skip) are displayed in the data selector.



Content and appearance of the Data Pane

To adjust the content and appearance of the Data pane for all emulations except XML and PDF:

1. In the Data Selector, click the **Selector Options** tab.
2. Change the options that modify the appearance and behavior of the **Data** pane:
   - **View size**: Use to adjust the size of each cell in the Data Pane, and the amount of visible data that is visible.
   - **Show used cells**: Select this to display in green all cells that contain data. When you select this option, and your document uses any emulation other than database, you use either the All pages or Pages to analyze option to specify the number of data pages to which you want to apply the Show used cells option.

- **All pages**: Select to apply the Show used cells option to all pages in the sample data file. This option is not available in database emulation.
- **Pages to analyze**: Use this box to limit the number of data pages to which PlanetPress Workflow applies the Show used cells option. Enter the number of pages to which you want PlanetPress Workflow to apply the option, or use the spin buttons to adjust the value. This option is not available in database emulation.
- **Show selected cells**: Select this to display in gray all cells that your document currently references.
- **Highlight data**: Select to have the Data Selector highlight only those cells (or fields) that contain data from the sample data file.
- **Show position hint**: Select to have PlanetPress Workflow display information about the current mouse position in the Data Pane, under and to the right of the pointer as you move it in the Data Pane. If the mouse is over a current data selection, or is dragging to create a data selection, PlanetPress Workflow displays the line and column numbers that define the selection, or, in the case of a database emulation, the positions within the record set of the first and last records in the selection. If the mouse is not over a data selection, PlanetPress Workflow displays the line and column coordinates of the current mouse position), or, in the case of a database emulation, the position of the record within the record set.

3. If necessary, adjust the font the Data Selector uses to display data in the Data Panel for all emulations except XML and PDF.
4. Click **OK**.

Color of used cells

To select the color the Show used cells option will use:

- Click on the **Select Color** button .

Font

To set the font the Data Selector uses for all emulations except XML and PDF:

1. In the Data Selector, click the **Selector Options** tab.
2. Click **Select Font**.
3. In the **Font** dialog box, set the font you want PlanetPress Workflow to use to display the sample data file in the Data Pane.

- **Font**: Select the font you want to use to display the sample data file in the Data Pane.
- **Font style**: Select a weight for the font.
- **Size**: Select the point size for the font.
- **Sample**: Displays a preview of the font selected in the Font box.
- **Script**: Select the system-level encoding table you want to use for the font selected in the Font box. The encoding tables available here are those available on the system on which you are running PlanetPress Workflow, and are distinct from those available when you create a style. While you can edit the encoding table a style uses, you cannot edit the system-level encoding table. If you see discrepancies between the glyphs that represent your sample data file in the Data Pane and those that appear in the data selections on the document page, the source of the discrepancy may be the encoding tables.

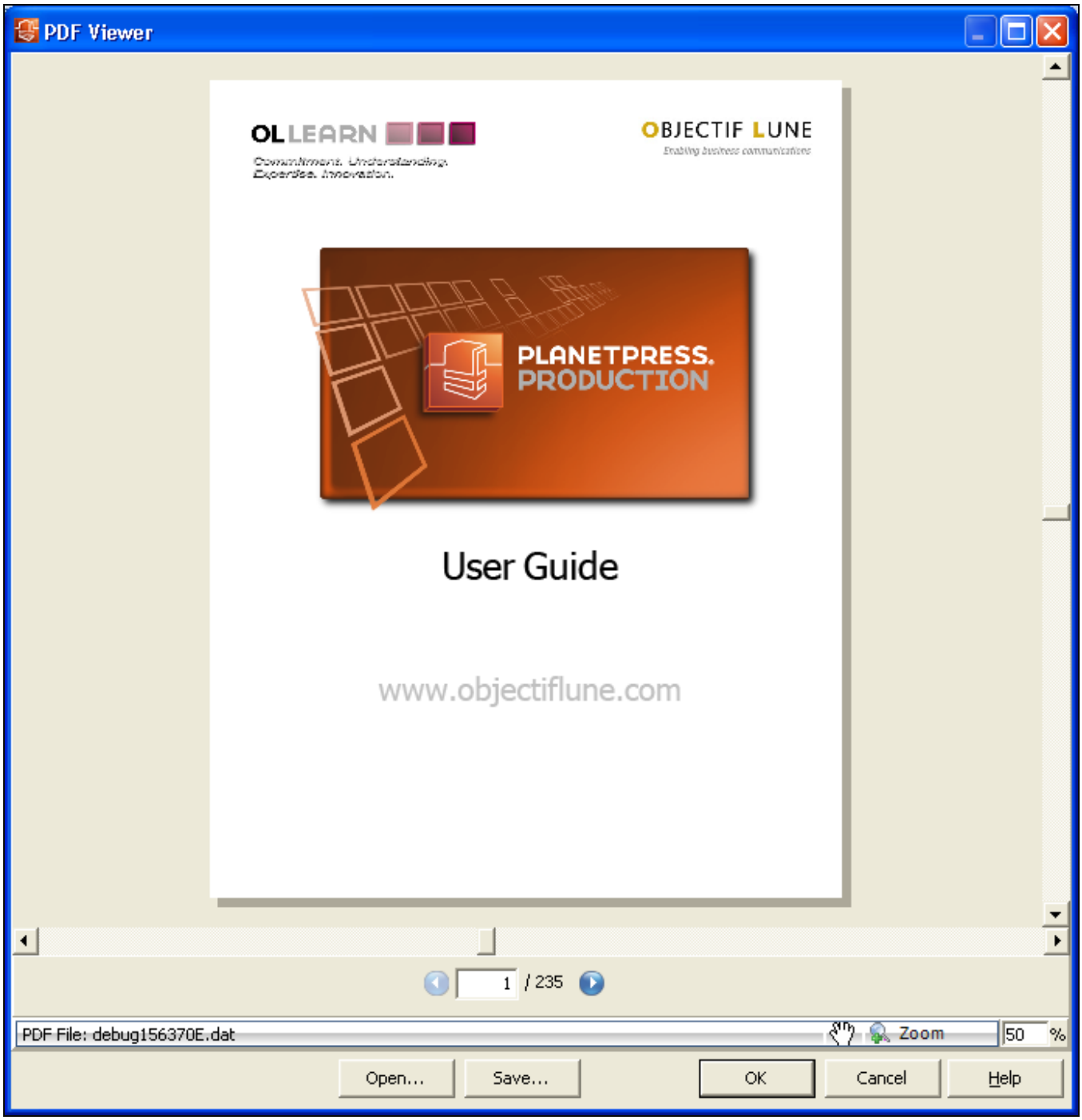
4. Click **OK**.

PDF Viewer

The PDF Viewer, introduced in PlanetPress Tools 7.3 in some areas and expanded for use throughout the configuration tool, displays any PDF used in the configuration or process. Because this PDF viewer is integrated with the suite, it is not necessary to have any third-party tools such as Adobe Acrobat installed on the operating system.

Technical

The PDF Viewer is not currently standalone and cannot be used to display PDFs outside of PlanetPress Workflow.



The PDF Viewer

To open the PDF Viewer: In the **Documents** section of the **Configuration Components** pane, expand a document present in the list. Then, right-click on the document's Preview, and click Open in PDF Viewer.

The PDF Viewer is accessible through one of the following methods:

- In the **Documents** section of the **Configuration Components** pane, expand a document present in the list. Then, right-click on the document's *Preview*, and click **Open in PDF Viewer**.
- Click **View as PDF** in the **Debug** toolbar. This will show the current data file in the viewer (assuming it is a PDF). If the viewer is opened during debugging, the current state of the PDF will be displayed (instead of the original data file).
- In the **PlanetPress Capture Document Manager** dialog, select at least one document from the database and click on **View Documents**.

The top area of the PDF Viewer displays the PDF, while the bottom area contains a few controls:

- **Open**: Click to browse for a PDF to open in the PDF Viewer. Note that this will not change the data file used in the process.
- **Save**: Click to browse for a location and name to save the currently active PDF in the viewer.
- **Right Arrow**: Click to view the next page of the PDF.
- **Left Arrow**: Click to view the previous page of the PDF.
- **Page Selection**: Type a page number and hit Enter on your keyboard to jump to that page.
- **Zoom**: Click to view a drop-down list of pre-set zoom percentage, or automatic zoom fit options. Or, type in a zoom percentage and hig Enter on your keyboard to set the zoom level. Note that you can also use CTRL+Scroll Wheel (on your mouse) to zoom in and out, SHIFT+Scroll Wheel to scroll left and right, and Scroll Wheel to scroll up and down.

Printer utilities

Printer Utilities are options for customers using "PlanetPress Design documents" on page 44. These commands were made for PostScript printers, so the printer on which they are used needs to be able to interpret PostScript.

To get to these options, open the **Tools** ribbon and click **Printer Utilities**.

Set Printer's Advanced Options

This allows to set some of the PostScript printer's options from Workflow.

- **Printer Password**: If the printer requires a password, enter it here.
- **Max form cache**: Set the size, in bytes, of the PostScript printer form cache. This sets the cache size for all documents that execute on the printer. You base the setting for this option on the number of images in your documents, their sizes, and how frequently each image repeats in a document.
- **Manual Feed Time-Out**: Enter the maximum amount of time, in seconds, you want the printer to wait for paper from a manual feed before terminating the current job.
- **Wait Time-Out**: Enter the maximum amount of time, in seconds, you want the printer to wait for input before terminating the current job.
- **Do Sys/Start**: Select to have the printer execute its Sys/Start file at boot time.
- **Print PostScript Errors**: If the printer encounters a PostScript error during execution of a job, it terminates the job. Select this option to have the printer print an error page that reports the offending PostScript command and the status of the print stack. This can be useful in debugging a document.
- **Force postscript mode**: Check to force the printer to expect, and print, in PostScript mode. This is useful if the printer supports multiple printing languages.

Delete Files from Printer's File System

The **Delete Files from Printer's File System** option allows to send a command to the printer so that it deletes a file contained on its hard drive, RAM or Flash drive. It is possible to delete multiple files by pressing enter at the file path just entered. A confirmation page will be printed out after the command is sent. The syntax is the following:

Path syntax:	Deletes a file:
%<DISKNAME>%<DOC_OR_FILE_NAME>	On the hard disk. If the printer has more than one hard disk, you must specify the one on which the document or file you want to delete resides. For example: `%sales%sale_flyer` deletes the document or file "sale_flyer" on the hard disk named "sales".
%FLASH%<DOC_OR_FILE_NAME>	In Flash memory. For example: `%flash%tax_bill` deletes the document or file "tax_bill" from the flash memory of the printer.
<DOC_OR_FILE_NAME>	On a printer that has either only Flash memory or only a single hard disk.

Print Status Page

The **Print Status Page** option sends a command to print information to the selected printer(s), notably:

- The serial number and the full version number of the copy of Workflow making the request.
- Printer information (printer name, firmware version, etc.).
- Information on the current job (paper type, paper tray used, etc.).
- Information on the installed devices (printer hard disk, flash drive, etc.).
- Memory size information.
- Input and output tray information (all trays and their settings on the printer).
- Paper handling and finishing information.
- System settings (various internal info on the printer).

A Status Page is required when a PlanetPress Suite printer license needs to be "reactivated", for example after a change of printer or printer hardware.
Email the Status Page(s) and Reactivation Request form to activations@ca.objectiflune.com and you will receive a .pac file in return, with which you can reactivate your printer(s).

Print Intelligent Form Listing

It is possible to send "PlanetPress Design documents" on page 44 to a printer's hard drive to be executed there in pure PostScript for efficient printing. This can be done through the Workflow plugin "Download to Printer" on page 417.

The **Print Intelligent Forms Listing** option prints out the list of any such PlanetPress Design documents on the printer, and their location (hard drive, RAM or Flash memory). The information contained in the **Notes** box of the PlanetPress Design interface for that document will also be displayed.

Print File Listing

The **Print File Listing** command makes the selected printer(s) print out a list of all files contained on its hard drive, RAM of Flash memory, of any file type (images, text, PlanetPress Forms, etc).

Send to File

If the **Send to File** option is checked, a prompt for each of the selected Printer Utilities options will appear in Workflow so the PostScript commands can be saved to disk. This makes it possible to send the commands to the printer at another time and independent from Workflow.

Process properties

To have access to the properties of a process or subprocess:

- Right-click on the process in the **Configuration Components pane**.
- Select **Properties**.

You can also double-click on the process to show its options.

> **Note**
>
> Subprocesses do not have the General tab which is only used for scheduling, but they do have the Information tab.

Options

General tab

- **Active**: Select to make the process active. Clear to prevent this process from running when you send the configuration to PlanetPress Workflow.
- **Startup**: Select to make this process a startup process (see: "Startup processes" on page 126). This option is not available for self-replicating processes and error processes. The order in which the Startup processes are arranged in the Configuration Components pane determines, from top to bottom, the order in which the Startup processes are executed when the Workflow Service launches. To change the order you may drag and drop them (see "Moving and copying configuration components" on page 823).
- **Self Replicating**: Check this if you want the process to replicate itself in the background when multiple input files are received simultaneously. When this is checked, the input task polls its source once, determines the number of files to process, then replicates itself up to the maximum allowed and treats the files simultaneously. The initial process runs

again once it has completed itself and replicates again as necessary, until all files have been processed.

- **Max percentage of threading (%)**: Determines how many processes you may have running at the same time. This is a percentage of the maximum number of threads specified in the "Messenger plugin preferences" on page 777. For example if the maximum number of threads is 10 and you specify 50% here, a maximum of 5 replications will occur (the original process + 4 copies).
- **As soon as possible**: Select to have the process run continuously. Clear to enable the Time Grid to fine-tune the schedule of the process.

> **Tip**
>
> Non-startup processes starting with the HTTP Server Input, NodeJS Server Input or LPD Input task will run trigger-based if they are set to run **As soon as possible** with a **Polling interval** of 0. This reduces CPU usage.

> **Note**
>
> In order to wake up a trigger-based process that starts with the HTTP Server Input task the server issues a signal to *all* trigger-based processes, not just those that start with an HTTP Server Input task. This means that some processes may get woken up when they do not need to. This issue only occurs in version 2020.1 and will be fixed in version 2020.2.

- **Day(s) to keep backup**: Indicate the number of days to keep backups of jobs processed by input tasks. Note that backups will only be kept for those input tasks that have the Keep backup file option selected and that they are required to resubmit input files.
- **Polling interval**: Enter the frequency (in seconds) at which the process should verify if there are new jobs to process. The polling interval also applies to scheduled tasks that only run on certain times. For example, if your process polls every 30 seconds on a task that's only scheduled to run one hour per week, it will capture the input 120 times during that period.

> **Note**
>
> The polling interval is ignored when multiple files are present in the input and will be used only when there are no longer any files to process.

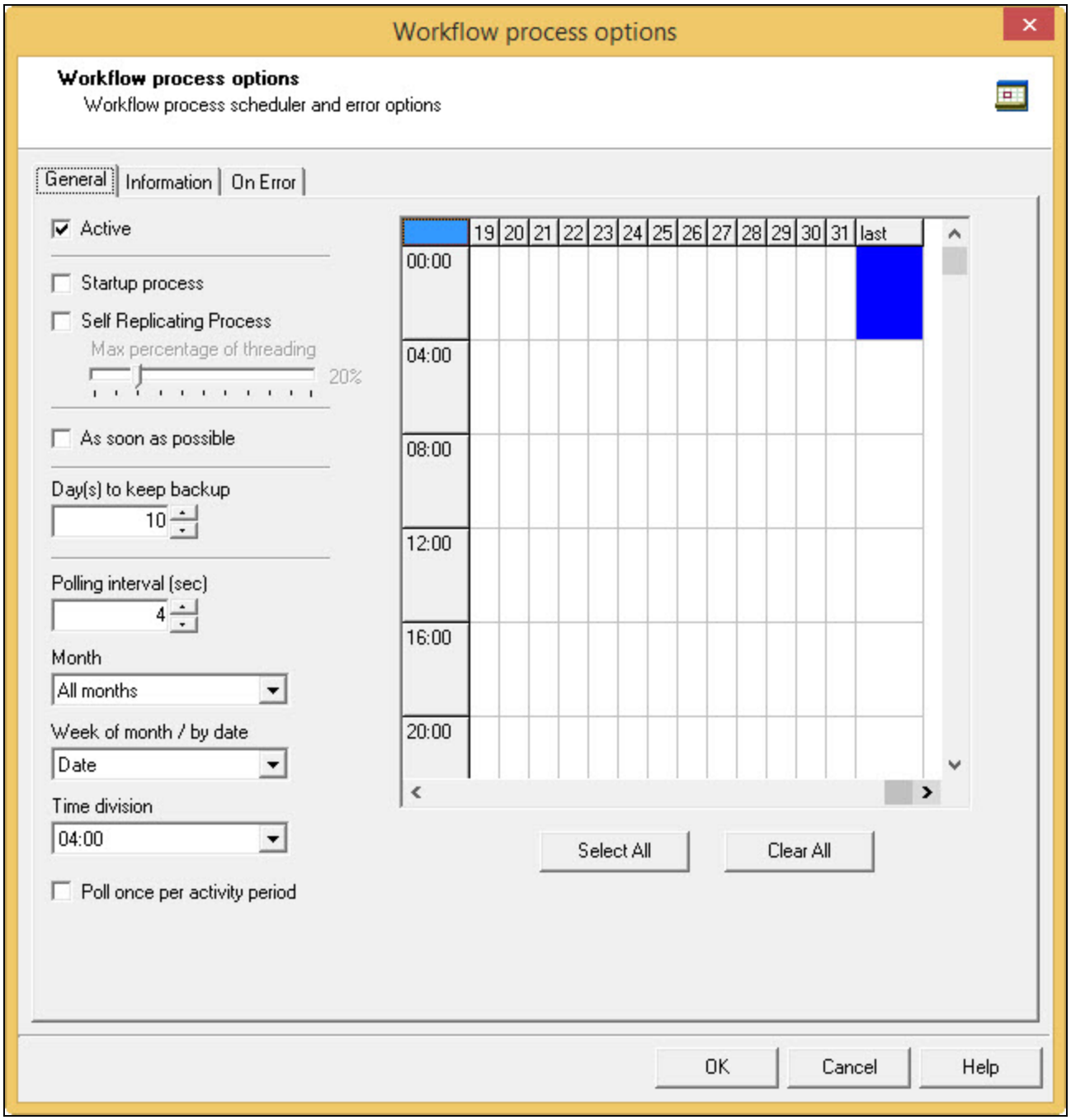
- **Month**: Select the month of the year when the process should be run or select All months to have the process run all year long. This option is disabled when "As soon as possible" is checked.
- **Week of month / by date**: Select the desired option for the time grid. Note that any selection you make in this box will be interpreted based on the selection made in the Month box. If you chose All months in the Month box and Last in the Week of month / by date box, then the process will run on the last week of every month. If you chose January in the Month box and First in the Week of month / by date box, then the process will run only on the first week of January.
  - Select Date to display dates on the grid's top ruler.
  - Select any of the other options to display days on the top ruler.
  - Select All weeks to have the process run every week.
  - Select First, Second, Third or Fourth to have the process run on the first, second, third or fourth week.
  - Select Last to have the process run only on the last week.
- **Time division**: Select the duration of each daily segment in the time grid. If you select 00:15, each segment will represent only 15 minutes and each day will be made up of 96 blocks (4 blocks per hour times 24 hours). If you select 24:00, each segment will represent an entire day.
- **Poll once per activity period**: Select to perform this process' initial input task no more than once for each set of contiguous blocks (blocks that are on the top of one another). Choosing this option overrides the polling interval option. By default since the Time Grid blocks are divided by hours, this option will make your polling happen once every hour.
- **Minimal logs**: With this option enabled, the process will only log its Start time and the End time (along with the Time Spent), if no error was encountered during execution of the process. In case of an error, the entire process information is logged.

The Time Grid

The PlanetPress Workflow **Process Options** dialog box includes a time grid that lets you set exactly when you want a process to poll. The grid is composed of blocks that represent time

periods on a given day. To activate the Time Grid, the "As soon as possible" option must be unchecked.

In the Time Grid, a blue block will indicate that the process is active within that time block. White blocks mean the process will not poll.
Note that when multiple files are present in the input, these may continue to be processed after the period set in the time grid. The "Folder Listing" on page 323 plugin in combination with a "Time of Day Condition" on page 488 could be used to prevent further processing of those files.



- Click on any block to select / deselect it.
- Click and drag from one block to another to toggle all blocks between the two.
- Shift-click on any block to toggle all blocks from the top-left corner of the grid to the block you click.

- To select all of the time segments for a given day or date, click the day or date on the top grid ruler. To deselect all of the time segments for a given day or date, CTRL+click the day or date on the top grid ruler.
- To select all the days or dates for a given time segment, click the time segment on the left grid ruler. To deselect all the days or dates for a given time segment, CTRL+click the time segment on the left grid ruler.
- To select the entire grid, use the **Select All** button located below the grid. To deselect the entire grid, use the **Clear All** button located below the grid.

> **Note**
>
> "Toggle" means turn on when it's off and vice versa, when selecting multiple blocks in one command. This means if you select a certain number of blocks in the Time Grid and then use the shift+click or drag method, blocks that are on will turn off.

> **Warning**
>
> Changes made to the system time can have adverse effects on the processes managed by PlanetPress Workflow. When changing from daylight saving time to standard time, for example, if PlanetPress Workflow starts a given process at 2:00 AM, and if the system time is then taken back to 1:00AM, the application will start a new instance of the same process when the system time reaches 2:00 AM for a second time. So, when you manually change the system time, be aware that it may have an effect on PlanetPress Workflow and its processes. And for those cases when you know the system time will change automatically, you may consider creating special schedules.

Information tab

The **Information** tab lets you enter information that is not critical to your process but may help others (or yourself in the future) to understand what the process does. It offers two boxes:

- **Description**: A one-line box to give a title or short description to your process.
- **Comments**: A multi-line box to give more detailed information, for example the file format expected, explanation of the system in general.

On Error Tab

A process's On Error tab specifies the default values for error handling of all of the tasks in that process.
When a task has its own error handling settings, those settings overwrite the process's default error handling settings. The **Set All Tasks** button resets the On Error properties of all the tasks included in the current process to the On Error properties of the process itself.
All other options in the On Error tab of the Process Properties dialog are the same as in the On Error tab in the Task Properties dialogs; see "Using the On Error tab" on page 99.

Rule Interface

The Rule Interface can be opened from the **Rule** column of the following tasks:

- "Metadata Fields Management" on page 562
- "Metadata Filter" on page 566
- "Metadata Level Creation" on page 568
- "Metadata Sequencer" on page 570
- "Input from SharePoint" on page 687

Conditions are expressed using the following syntax:

```
<EXPRESSION 1> <OPERATOR> <EXPRESSION 2>
```

The `<EXPRESSION 1>` and `<EXPRESSION 2>` options represent the values for comparison. The interface displays clickable links as the following:

- First link: click to set the first expression.
- Second link: click to choose the operator from a popup menu.
- Third link: click to set the second expression.

Operators

The Operator options are listed below.

- IS EQUAL TO
- IS NOT EQUAL TO
- IS EQUAL TO OR GREATER THAN (>=)

- IS EQUAL TO OR LESS THAN (<=)
- IS CONTAINED IN
- IS NOT CONTAINED IN
- CONTAINS
- IS GREATER THAN
- IS LOWER THAN
- STARTS WITH
- ENDS WITH
- VALUE CHANGED

> **Note**
>
> When "VALUE CHANGED" is selected in the condition, the second parsed field is not considered.

Expressions

The first expression `<EXPRESSION 1>` can either be a custom list or a parsable edit field. The second expression `<EXPRESSION 2>` is always a parsable edit field.

When you click a link to set an expression, an input field appears below that link. Right-clicking this field opens a popup menu that gives access to variables, the Data Selector (see "Data selections" on page 53) and the Data Repository Manager (see "Data Repository Manager" on page 839).

Wildcard parameter

Expressions may contain metadata/data selection functions (see "Data selections" on page 53). These functions accept a wild card parameter "?", indicating the function operates on all nodes (not just one) of a given level.

Examples

- In a PDF emulation, the format of a selected region could be:
  `region(?,0.59375,2.21875,1.85416,2.51041,KeepCase,NoTrim)`
  In this case “?” represents the current physical data page processed by the task.

- The following rule:
  `(GetMeta(SelectedIndexInDocument[0], 11, Job.Group[?].Document[?].Datapage[?]) Equal 0`
  loops through all datapages in a job, comparing their index in the document to a value.

Index/Count values

When using Index/Count values in a rule, please note that these values are **zero-based**: the first element in any collection has an index of 0 and the last element's index corresponds to the collection's length minus 1. For example, the following rule checks all Datapages to see if it is the first in its containing Document:
`(GetMeta(SelectedIndexInDocument[0], 11, Job.Group[?].Document[?].Datapage[?]) Equal` **0**`)`

Adding Conditions and Sub Conditions

The Rule Interface is used to add/remove conditions or sub conditions. The available options are:

- **Add Condition**: Create a new condition at the selected level, using a standard logical operator (AND, OR).
- **Add Sub condition**: Indent the selected condition by one level and create a new condition at this level, linked with the selected condition by a standard logical operator (AND, OR). The purpose of using sub conditions is to explicitly arrange the order on which conditions are evaluated and the way they are nested together.
- **Delete Condition**: Delete the selected condition.

Example

As an example, consider the following conditional expression, where A, B, C and D are conditions of the form `<EXPRESSION 1><OPERATOR><EXPRESSION 2>`:

```
A and (B or C) and D
```

Such a conditional expression can be expressed by means of sub conditions in the following way:

1. Define condition A.
2. Select condition A and choose Add Condition. Specify the logical operator AND.

3. Define condition B.
4. Select condition B and choose Add Sub Condition. This will indent condition B and allow to define the condition C. Specify the logical operator OR.
5. Define condition C.
6. Right click on the first AND operator (the one right after condition A) and choose Add Condition. Specify the logical operator AND. This will create a condition at the same level as A.
7. Define condition D.

The resulting conditional expression will be indented like this:

A

AND

B

OR

C

AND

D

Task Properties dialog

Any task you add to your PlanetPress Workflow process must be configured using its **Properties** dialog. It appears as soon as you add a task to a process, or when you double-click on a task.
Each task's Properties dialog will give you the options to configure that specific, individual task. Properties of one task do not directly affect the properties of another task, however there are some software preferences that may affect tasks in one way or another (see "Preferences" on page 754).

Each task has its own set of tabs available, though some tabs are common to most tasks.

- Most tasks have the **General** tab which lets you configure the main task properties for that specific task.
- All tasks except for the **InputErrorBin**, **Run Script**, **Open XLST** and **Comment** tasks have an **On Error** tab that lets you manage errors generated by the task. For a description of the options that it contains, see "Using the On Error tab" on page 99.
  The error management system (the **On error** tab and the **Error Bin Input** task), however, is only triggered when there is an error within the task functionality - that is, a plugin error. These kinds of errors are triggered if the plugin cannot communicate with a service, another task, if the plugin crashes, etc.
- All initial Input tasks have the **Other** tab which lists Job Infos (see "Job Info variables" on page 702) and lets you back up the job file (see "Job file" on page 51).
- The **Comments** tab is common to all tasks. It contains a text area (**Task comments**) that lets you write comments about the task. These comments are saved when the dialog is closed with the **OK** button, and are displayed in "The Task Comments Pane" on page 884.

For more information about both common properties and properties that are specific to a certain task, see "Task properties" on page 302.

Update document

The **Update Document** dialog lets you update PlanetPress Design documents on your printers where those documents are used in printer-centric mode. It displays the following information in the list of installed printer documents:

- **Printer Queue**: Displays in which printer queue the document is present.
- **Printer Group**: If available, displays in which printer group the document is located.
- **Document**: Displays the name of the document.
- **Location**: Displays the location (printer or Workflow) of the document.

Select any document in the list (use CTRL+Click or SHIFT+Click to select multiple document or use the **Select All** button) and click **OK** to update these documents.

To add any document to this list, you need to assign them to a printer queue. See "Associating PlanetPress Design documents and PlanetPress printer queues" on page 120.

Virtual Drive Manager

When you use the "Send Images to Printer" on page 437 Action task in a given process, you have the option of, at the same time, sending the images to the virtual drive (a local storage folder used by PlanetPress Suite applications) of any computer included in your network. You need to do this, for instance, if you plan to run PlanetPress Suite documents that contain dynamic images on those computers (using the Optimized PostScript Stream option). You can then use the Virtual Drive Manager to see the images that were downloaded to your computer as well as to delete them from your virtual drive.

To **add** images to the virtual drive, use either of the following methods:

- Send a single resource file to the printer: see "Download to Printer" on page 417.
- Send one or more images to the printer: see "Send Images to Printer" on page 437.
- Use PlanetPress Design: see the PlanetPress Design User Guide.

To **delete** images from your virtual drive:

1. In the PlanetPress Workflow Ribbon, go to the **Tools** tab, then click on **Virtual Drive Manager**.
   The **Virtual Drive Manager** dialog box is displayed. It lists all the images currently stored in your computer's virtual drive.
2. Select the images you want to delete.
3. Press the **Delete** key.

The Debug Information pane

The **Debug Information** pane displays the current values of variables and other information useful in debugging processes (see "Debugging and error handling" on page 98). It is divided in 4 sections:

- **Job Information**: Displays the **Job Info** variables, as well as the job's file name, size, last edit date and presence of metadata (see "Job Info variables" on page 702).
- **Local Variables**: Displays all the variables local to this process (see "Local variables" on page 708).

- **Global Variables**: Displays all the variables global to this configuration (see "Local variables" on page 708).
- **Evaluate Expression**: Lets you enter a custom expression and displays its value at run-time.

You can use the **Evaluate Expression** section to see the result of any combination of variable properties (see "Variable task properties" on page 712). To add a new expression, simply right-click in the window and select **Add Expression**.

Click in the box on the left to edit the expression and add any variable properties or static text you want, and click outside of the box to save it. Once saved, the **Value** column displays the expression's result.

The contextual (right-click) menu displays the following items when at least one expression is present:

- **Copy Value** (only when right-clicking an existing expression): Places the resulting value of the expression in your clipboard.
- **Revalue all**: Refreshes the value of all the expressions.
- **Add Expression**: Creates a new expression.
- **Delete Expression** (only when right-clicking an existing expression): Remove the selected expression.
- **Clear Expression List**: Removes all expressions.

> **Warning**
>
> Deleting an expression or clearing the expression list cannot be undone!

The Message Area Pane

The **Messages** area is used in Debug mode to indicate the status of your PlanetPress Workflow process as the sample data file is processed and used to generate output. When your PlanetPress Workflow runs in Debug mode, the Messages area displays useful processing and error information.

Messages are displayed in different colors (debug levels) in the Message area.

- Messages in **Red** are critical and are normally critical errors in the plugin.
- Messages in **Orange** are warnings.
- Messages in **Gray** are job info and variable changes.
- Messages in **Black** are debug information and processing information.

There are various actions you can execute in the **Message** area. Here they are:

- Click any line to select it.
- While a line is selected, press **Delete** on your keyboard or right-click on the line and select **Delete** to delete the line.
- While a line is selected, press **CTRL+X** on your keyboard or right-click on the line and select **Cut** to place the line in the clipboard.
- Press **CTRL+C** on your keyboard or right-click on the line and select **Copy** to place a copy of the line in the clipboard.
- Press **CTRL+A** on your keyboard or right-click on any line and select **Select All** to select all the lines in the **Message** Area.
- Right-click anywhere in the **Message** Area and select **Clear Messages** to clear the contents of the **Message** Area.
- Right-click anywhere in the **Message** Area and select **Save to File** to display a dialog box that lets you save a copy of the **Message** Area content to a text file.

The **Message** Area will only display information while running in Debug mode. It does not display information from other running services, and will not display the log of any process running in a live configuration (submitted to PlanetPress Workflow Service).

To learn more about debugging a process, refer to "Debugging and error handling" on page 98.

The Object Inspector pane

The Object Inspector pane displays the properties of the object selected in the **Configuration Components** pane (not the Process area, however). You can edit some of these properties directly from the Object Inspector, simply by clicking on the property.

The Object Inspector also displays information about the Job File while it is being processed in Debug mode. Seeing how files change as they travel down a process can provide valuable debugging information. You can even change some of the job information from the Object Inspector (such as Job Infos) while debugging.

Editing properties

To edit properties of processes, documents, and printers in the Object Inspector:

1. In the **Configuration Components** pane, select a process, a document (either a document in the Connect Resources or PPS/PSM Documents, or a document assigned to a printer queue) or a printer queue. The selected object's properties appear in the Object Inspector.

   > **Note**
   >
   > When you select a group (folder), no information is displayed in the Object Inspector, because what is really selected is the group heading and not the items included in the group.

2. In the Object Inspector, click an editable property.
3. Depending on the values that can be entered for the selected property, edit the value by typing one or by selecting a new one from the drop-down list.

> **Note**
>
> If you select multiple objects in the Configuration Components window, some properties that are shared between those objects can be changed in the Object Inspector. Changing a property changes it for all the selected objects.

The Plug-in Bar

PlanetPress Workflow offers a constantly increasing number of plugins, while always allowing third party plugins to be installed and set up to be used by PlanetPress Workflow. The

PlanetPress Workflow Plug-in Bar lists all plugins available in PlanetPress Workflow, and is divided into categories, which users can customize at will.

Most of the PlanetPress plugins are installed by default, but other plugins may be added. Because the plugins are always expected to execute some sort of task, they are always referred to, in this documentation, as **tasks**, except in the specific case of importing a new plugin or customizing the Plug-in Bar.

Categories

The default categories list plugins according to what type of task they achieve. When first starting your PlanetPress Workflow program, the following categories are used:

- Inputs; see "Input tasks" on page 309.
- Actions; see "Action tasks" on page 379.
- Data splitters; see "Data splitters" on page 451.
- Process logic; see "Process logic tasks" on page 471.
- Connectors; see "Connector tasks" on page 490.
- PlanetPress Capture; see "PlanetPress Capture" on page 715.
- Metadata related; see "Metadata tasks" on page 559.
- OL Connect Send; see "OL Connect Send" on page 745.
- OL Connect; see "OL Connect tasks" on page 590.
- Document Management; see "Document Management tasks" on page 668.
- Outputs; see "Output tasks" on page 643.

Note

An Uncategorized category is dynamically created if your PlanetPress Workflow finds any plugin that would not be part of the existing Plug-in Bar. User-defined plugins and third party application plugins fall into such a category.

Settings and customization

The Plug-in Bar can be customized according to your needs and the plugins you most frequently used.

You can use the horizontal dark blue bar separating the plugin area and the list of categories to change how many plugin categories are displayed as the full-width bar with the title, and how much are displayed as icon only. Move the bar up to display more full-width categories, or down to display them more as icons.

Furthermore, the Plug-in Bar can be customized using the popup indicator control ( ). Customizing the Plug-in Bar is mostly used for third party or legacy plugins.

Using the **contextual menu** displayed by the popup indicator, you can:

- Insert, delete and rename custom categories.
- Move categories up or down.
- Import plugins, such as connectors, third party or legacy plugins.
- Move plugins from one custom category to another (that you cannot move default plugins from the default categories, you can only copy them)
- Copy plugins from one custom category to another by holding the CTRL key.
- Delete plugins from any custom category by using the **Delete** key. Note that custom plugins cannot be deleted this way. They will reappear after closing and opening the Workflow tool. For information on removal of custom plugins see "Deleting a custom plugin" on the facing page.
- Revert to the default Plug-in Bar by selecting **Reset to default**. Custom plugins will be moved to the "Uncategorized" category.

Importing a plugin

1. Click on the **popup control** ( ).
2. Click on **Import Plugin**.
3. Browse to the location of the plugin DLL file or PPK file.
4. Select the desired file type: .DLL or .PPK.
5. Select the file and click on **Open**.

Plugins downloaded from the Resource Center will be placed in the appropriate category in the Plug-In Bar. The M-Files plugins, for example, will appear in the *Document Management* category.
Third-party plugins appear in the *Uncategorized* category.

Deleting a custom plugin

To permanently delete a custom plugin from the Plug-In Bar, you have to manually delete the DLL file from the following location: C:\Program Files (x86)\Common Files\Objectif Lune\PlanetPress Workflow 8\Plugins.
Note that the name of the DLL file doesn't always match the name given to the custom plugin in the Workflow tool.

The Process area

The Process area, which is always available and visible, holds all the tasks, branches, conditions and comments that make up the selected process (see "About processes and subprocesses" on page 125 and "About Tasks" on page 300).

The Process area is built like an invisible grid divided by rows (horizontal) and columns (vertical). When adding a new Action task, a new row is added. When adding a Branch or Condition, a new column appears (unless there is already a column at that level).
The first task of any process, also called the initial input task, always appears in the first box in the upper left corner. When you create a new process, this first task is always followed by the default Output task in the following box.

The Process area is where you edit a process by:

- "Adding tasks" on page 301
- "Adding a branch or condition" on page 138
- "Cutting, copying and pasting tasks and branches" below
- "Disabling tasks and branches" on page 874
- "Editing a task" on page 302
- "Moving a task or branch using drag-and-drop" on page 875
- "Replacing tasks, conditions or branches" on page 877
- "Removing tasks or branches" on page 876

In the Process area you can also:

- "Undo a command" on page 879
- "Redo a command" on page 876
- "Highlight a task or branch" on page 874
- "Collapse and expand branches and conditions" on page 878
- "Resize the rows and columns of the Process area" on page 878
- "Zoom in or out within the Process Area" on page 879

Cutting, copying and pasting tasks and branches

Using cut and paste, and copy and paste, you can move as well as duplicate tasks and branches within a given process as well as between different processes and subprocesses.

To **cut and paste** tasks or branches:

1. In PlanetPress Workflow Process area, select the task or branch you want to cut and paste.
2. From the **Home** tab in the Ribbon, choose **Cut** (or right-click and select **Cut** from the drop-down menu). When you cut a Task or Branch, it disappears from the Process Area but is kept in your clipboard until it is pasted somewhere else.
3. To paste the task or branch to a different process, select that process.
4. Select the task or branch crossing above which you want the task or branch to be pasted.
5. From the **Home** tab in the Ribbon, choose **Paste** (or right-click and select **Paste** from the drop-down menu).

To **copy and paste** tasks or branches:

1. In PlanetPress Workflow Process area, select the task or branch you want to copy and paste.
2. From the **Home** tab in the Ribbon, choose **Copy** (or right-click and select **Copy** from the drop-down menu).
3. To paste the task or branch to a different process, select that process.
4. Select the task or branch crossing above which you want the task or branch to be pasted.
5. From the **Home** tab in the Ribbon, choose **Paste** (or right-click and select **Paste** from the drop-down menu).

A few notes:

- When you cut an Input or Output task, it is replaced with an **Unknown Task**, that you will need to replace with another task for the process to be functional.
- If you cut one task or branch, then cut another one, the first one is lost and replaced by the second. Remember however that you can always undo the command to retrieve it (see "Undo a command" on page 879).
- Tasks and branches will always appear on top of (in other words, before) the task or branch where you paste it. The only exceptions are Input and Output tasks which can only be pasted on top of an **Unknown Task**.

Copying the Properties of a task or branch

Instead of pasting the actual task or branch, you can simply paste the properties of the task or branch. To do this:

1. **Copy** or **Cut** a task or branch of which you want to have the properties.
2. Select the task or branch where you want to paste the properties
3. From the **Home** tab in the Ribbon, choose **Paste Properties** (or right-click and select **Paste Properties** from the drop-down menu).

> **Note**
>
> You can only paste the properties of an Input task on the initial Input task of your process. Similarly you can only paste the properties of an Output task on another Output task. Also, you cannot paste the properties of a task on a branch and vice versa.

Copying the On Error Properties of a task or branch

Instead of pasting all properties, you can paste only the properties of the **On Error** tab of any task or branch on another one:

1. Copy or cut a task or branch from which you want the **On Error** properties.
2. Select the task or branch where you want to paste the **On Error** properties.
3. From the **Home** tab in the Ribbon, choose **Paste On Error** (or right-click and select **Paste On Error** from the drop-down menu).

Highlight a task or branch

The Highlight command lets you toggle the background color of selected tasks and branches.

There are several ways to highlight a Process area square.

- Right-click it and select Highlight from the contextual menu.
- Double-click it, open the **Miscellaneous** tab and select the **Highlight** option.
- Select a square, open the **View** ribbon and select **Highlight** from the **Navigate** group.

To remove the highlight, repeat the procedure.

Selecting a highlight color

The default highlight color may be changed via the PlanetPress Workflow Configuration preferences (see "Colors" on page 755).

A custom highlight color can be defined per task: open the task's properties (double-click) and select or define a color under **Highlight color** on the **Miscellaneous** tab.
To revert the custom highlight color to the default color, open the Miscellaneous tab again, turn the Highlight option off and close the dialog with the OK button; then turn highlighting back on. Turning highlighting on and off via the task's contextual menu doesn't change the highlight color.

Disabling tasks and branches

PlanetPress Workflow lets you ignore individual tasks, branches or conditions.

- When a task is disabled, it is not executed when the process is run in Debug mode (see "Debugging your PlanetPress Workflow process" on page 106) or by the PlanetPress Workflow Service.
- When a branch is disabled, the whole branch including the tasks inside that branch is ignored and not executed. In the case of conditional branches, this means that the tasks appearing on the True side are not executed.

A task, branch or condition that was previously disabled out can be re-enabled at any time.

To disable or enable a task or branch:

1. In the PlanetPress Workflow **Process** area, click the icon of a task or branch.
2. From the **Debug** tab in the Ribbon, click **Ignore**. If the task or branch was enabled, it is now disabled, and vice versa.

Moving a task or branch using drag-and-drop

When you want to move a given task or branch, the simplest way is to use drag-and-drop. Using the mouse, you can drag and drop tasks and branches only within a given process. To move tasks and branches between different processes, see "Cutting, copying and pasting tasks and branches" on page 872.

Replacing Unknown tasks

When you move a task or branch using drag-and-drop, it typically moves from its original location to a position immediately preceding the target onto which you dropped it. But if you drop an Input task over an Unknown input task, the moved task will replace the unknown task. The same will happen if you drag an Output task over an Unknown output task.

> **Note**
>
> It is impossible to drag-and-drop any task over a configured initial Input or Output task.

Moving a task or branch using drag-and-drop

To move a task or branch using drag and drop:

1. In the PlanetPress Workflow **Process** area, click the icon of the task or branch you want to move.
2. While holding down the mouse button, drag the icon task or branch over another task or branch.
3. Release the mouse button to drop the dragged item. The dropped task or branch is moved above the item over which it was dropped.

When you move a branch, all its tasks are also moved. When you move a conditional branch, all the tasks appearing on the **True** side of the condition are also moved.

Duplicating a task or branch

To duplicate a task or branch, the same method as for moving them applies but with a slight difference:

1. In PlanetPress Workflow **Process** area, click the icon of the task or branch you want to duplicate.
2. While holding down the mouse button, press and hold down the **CTRL** key and drag the icon task or branch over another task or branch.
3. Release the mouse button to drop the dragged item and release the **CTRL** key. The dropped task or branch is copied above the item over which it was dropped.

Redo a command

The Redo command can be used to redo commands that were just undone using the Undo command. For example, if you used the Undo command three times in a row and immediately thereafter decided to redo those commands, you could use the Redo command three times in a row to redo those commands. Note that all commands in PlanetPress Workflow Configuration can be redone.

To redo a command:

- From the **Quick Access Toolbar**, choose **Redo**.

Removing tasks or branches

To remove any task or branch (except Input and Output tasks), use one of the following methods:

- Click on the task or branch you want to delete, go to the **Home** tab of PlanetPress Workflow Ribbon and click on the **Delete** button in the **Clipboard** group.
- Click on the task or branch you want to delete, and press the **Delete** (or "Del") key on your keyboard.
- Right-click on the task or branch you want to delete, and select **Delete** from the menu.

When you remove a branch, all the tasks located in that branch are also deleted. When you delete a task, only that task is deleted.

Note

You cannot use the **Delete** option to remove an input or output task, but you can right-click on them and click **Cut** instead. This replaces the task with an Unknown task (see "Unknown tasks" on page 701).

To delete the path below a branch crossing (instead of the path to the right of the branch):

- Press Shift+CTRL+Delete.
- From the right-click menu, choose **Edit | Delete| Delete Below the Branch**.

Replacing tasks, conditions or branches

You can replace existing tasks either by dropping a new task on it, or by pasting another task over it.

To replace an existing task with a new task, see "Adding tasks" on page 301.

To replace an existing task with another existing task or its properties, see "Cutting, copying and pasting tasks and branches" on page 872.

Note

You cannot replace a task by a branch or a condition. Trying to paste or drop a branch or condition over a task will insert it before the task instead. The contrary is also true, you cannot replace a branch or condition with a task.

Warning

When you replace a task, you lose all the properties you set in this task.

Resize the rows and columns of the Process area

The rows and columns of PlanetPress Workflow Process area in which tasks are located can be resized to better visualize the organization of your process.

To resize rows and columns of the PlanetPress Workflow Tools Process area:

1. In the PlanetPress **Workflow Tools Process** area, place your cursor over the separator line dividing each section of row or column rulers.
2. When the cursor changes appearance, click and drag up or down to resize rows, or left or right to resize columns.

A dashed line appears as you drag indicating the new separation. The row or column, with all its tasks, moves accordingly.

Collapse and expand branches and conditions

A Branch or Condition can be temporarily hidden by collapsing it. This gives a better view on other parts of the process. It doesn't disable the Branch or Condition.

A collapsed Branch or Condition can be expanded at any time. When expanding any branch, all its sub-branches will be expanded as well automatically.

To **collapse** or **expand** a Branch or Condition, in the Process Area:

- **Double-click** the right corner of the line of the Branch or Condition.
- **Right-click** the icon of the Branch or Condition or the right corner of its line, and select **Collapse** or **Expand**.
- Select the icon of the Branch or Condition or the right corner of its line. Then you can either:
    - From the **View** tab in the Ribbon select **Collapse** or **Expand**.
    - Press the **+** key on the numeric keypad to expand the Branch or Condition, or the **-** key to collapse it.

To collapse or expand **all** Branches and Conditions:

- **Right-click** the icon of a Branch or Condition or the right corner of its line, and select **Collapse all** or **Expand all**.
- From the **View** tab in the Ribbon, select **Collapse all** or **Expand all**.

Undo a command

The Undo command lets you undo most commands performed with the PlanetPress Workflow Configuration program.

To undo a command:

- From the **Quick Access Toolbar**, choose **Undo**.

Zoom in or out within the Process Area

You can do a zoom out in the PlanetPress Workflow Process area to see more tasks at the same time. In zoom out mode, you can perform the exact same functions as in normal view mode.

To zoom in or out on the PlanetPress Workflow Process Area:

1. Click on the **View** tab of the Ribbon.
2. Click on **Zoom Out** in the **Navigate** group to zoom out, and **Zoom In** to zoom in.

The Quick Access Toolbar

The PlanetPress Workflow Quick Access Toolbar is displayed, by default, on the right side of the PlanetPress Workflow Button and provides one-click shortcuts to commonly used functions and features. You can add as many buttons as you want to the Quick Access Toolbar and remove them at will.

Adding buttons

To add a new button to the Quick Access Toolbar:

1. Locate the button you want to add in one of the tabs of the Ribbon.
2. Right-click on the button.
3. Select **Add to Quick Access toolbar**.

Note

The Quick Access Toolbar buttons cannot be moved or reordered. If you wish to reorder them, you will need to remove all the buttons and re-add them in the desired order.

Removing buttons

To remove a button from the Quick Access Toolbar:

1. Locate the button you want to remove in the Quick Access Toolbar.
2. Right-click on the button.
3. Select **Remove From Quick Access toolbar**.

Moving the toolbar

To move the Quick Access Toolbar below or above the Ribbon:

1. Right-click on the Quick Access Toolbar, or click on the downwards arrow at the rightmost end of the Quick Access Toolbar.
2. Click on **Show Quick Access Toolbar Below the Ribbon** or **Show Quick Access Toolbar Above the Ribbon**, depending on where you want it.

The PlanetPress Workflow **Ribbon**

The PlanetPress Workflow Ribbon centralizes commands, organizing them into a set of Tabs, each tab containing groups of controls. Each tab on the Ribbon displays the commands that are most relevant to a given feature set. The built-in Ribbon and Quick Access Toolbar contain commands that are frequently used and convenient to keep close at hand. You can minimize the Ribbon, and choose the position of the Quick Access Toolbar, as well as the commands it displays.

- You can minimize the Ribbon by right-clicking on it and selecting Minimize the Ribbon.
- You can also customize the Ribbon's color scheme in the Preferences window.

The PlanetPress Workflow Ribbon has five tabs: the **Home** tab, the **View** tab, the **Debug** tab, the **Tools** tab and the **Help** tab. Each one of these tabs contains a series of groups, each group holding a number of controls.

- The **Home** tab includes the **Clipboard, Processes, Variables, (PPS) Documents** and **Printer Queues** groups.
  - The **Clipboard** group contains the typical Windows-based editing controls: Cut, Copy, Paste, Select All, Delete.
  - The **Processes** group contains controls allowing to insert new processes of any type as well as controls to converts, activate or branches processes (see "About processes and subprocesses" on page 125).
  - The **Variables** group contains two controls to insert either Global variables available throughout the entire configuration, or Local variables available to the current process only (see "About variables" on page 701).
  - The **Documents** group contains the controls used to insert, refresh, update or delete **PlanetPress Design** documents and document instances (see "PlanetPress Design documents" on page 44).
  - The **Printer Queues** group contains controls to set up printer queues of any type, as well as replace any existing queues (see "PlanetPress Workflow printer queues" on page 111).
- The **View** tab includes the **Arrange**, **Navigate** and **Show/Hide** groups.
  - The **Arrange** group contains the **Group/Ungroup**, **Sort by Name** and **Order** controls, allowing to reorder objects in the **Configuration Components** pane. It also includes the **Undo/Redo** controls, as well as a **Rename** control, to modify a given component's name.
  - The **Navigate** group contains a **Processes** control to select any existing process of the currently loaded configuration, as well as a **Highlight** control to mark a given node, a **Zoom Out** for a quick overview of the currently selected process, a **Go to Child/Go to Parent** to move around a given process logical nodes (branches or conditions) and a **Collapse/Expand, Collapse All** and **Expand all** to collapse or expand branches and conditions in a process.
  - The **Show/Hide** group contains four controls to display or hide any of the four panes; the **Configuration Components** pane, the **Object Inspector** pane, the **Message** pane, the **Debug Info** pane and the **Plug-in Bar**.

- The **Debug** tab includes the **Data**, **Debug** and **Debug Messages** groups.
  - The **Data** group allows to associate a sample data file to the currently selected process, as well as update or replace it, and display it in its text/PDF or Hexadecimal format.
  - The **Debug** group contains the debugger's controls, allowing to execute a process step by step, skipping over or ignoring certain tasks, as well as setting up breakpoints and resetting variables values. This group also includes the **Send Configuration** button, necessary to push the current configuration to the PlanetPress Workflow service.
  - The **Debug Messages** group contains two controls to either clear or save the contents of the **Messages** pane.

- The **Tools** tab includes the **Managers**, **Services** and **Test Page** groups.
  - The Managers group:
    - The **Install PostScript Font** control allows to install a PostScript font into your PlanetPress Workflow installation. This feature is specific to PlanetPress Suite.
    - The **Virtual Drive Manager** control loads the "Virtual Drive Manager" on page 865. This feature is specific to PlanetPress Suite.
    - The **Access Manager** control loads the "Access Manager" on page 830, allowing to grant/remove permissions to hosts.
    - The **Check for updates** control, used to update the current PlanetPress Workflow version.
    - The **Launch Upgrade Wizard** control, used when migrating from a previous PlanetPress Workflow version.
  - The **Services** group:
    - The **Services Status** control allows to start, pause and stop PlanetPress Workflow service.
    - The **Configure Services** control loads the PlanetPress Workflow **Services** dialog to configure the user account PlanetPress Workflow should use.
    - The **Service Console** button opens the "The PlanetPress Workflow Service Console" on the next page, allowing to monitor real-time information on the configuration execution.

- The **PlanetPress Capture** group contains:
  - The **Document Manager** button opens the " PlanetPress Document Manager" on page 765.
  - The **Pen Manager** button opens the "PlanetPress Capture Pen Management Tool" on page 769.
- The **Test Page** group:
  - The **PS Test Page** control allows to print a Status Page for the selected printer queue. Note that if no printer queue is selected in the **Configuration Components** pane, the control is disabled.
  - The **Text Test Page** control allows to print a raw text test page for the selected printer queue. If no printer queue is selected in the **Configuration Components** pane, the control is disabled.

- The **Help** tab includes the **Help**, **Activation** and **License** groups.
  - The **Help** group contains the **User Guide**, the **Reference Guide** and the **About** controls, used to access online documentation and version information.
  - The **Activation** group contains the **Software Activation** and **Printer Activation** controls, used to enter activation codes for either the software (all users) or a given device (PlanetPress Suite users)
  - The **License** group contains a link to the "PlanetPress Capture License Management" on page 771.

The Task Comments Pane

The **Task Comments** pane displays comments relevant to the currently selected items, such as the contents of the **Comments** tab of any task in the currently selected process.

The **Task Comments** pane cannot be used to edit the comments themselves - only to see them. to edit the comments, the properties of the task must be opened, and the comments changed in the **Comments** tab.

The PlanetPress Workflow Service Console

The PlanetPress Workflow Service Console is a centralized service console and log viewer in one. You can use it to individually start and stop PlanetPress Workflow services, as well as to view current and past log files for each service.

> **Note**
>
> The Service Console has changed greatly since version 7.4. If you are still using an older version of PlanetPress, please see the user manual for your version instead.

Controlling Services

The left part of the PlanetPress Workflow Service Console displays a list of the PlanetPress Workflow services and is used to control these services.

To start a stopped service:

1. Right-click on the service.
2. Click on **Start**.
3. Look in the Log window on the right to see the service starting.

To stop a service that is running:

1. Right-click on the running service.
2. Click on **Stop**.
   If the service is currently processing a file (if a process is running, output is being generated, job being received, etc), the service will wait for this action to complete before stopping.

To pause a service temporarily:

1. Right-click on the running service.
2. Click on **Active** to remove the checkmark.
   If the service was currently processing a file, the service will wait for this action to

complete before pausing. Once paused, the service is still "started" but will wait until it is activated again before processing jobs. This is very useful if you want to receive jobs from external services (such as with the LPD Server) but not process them right away.

To kill (force quit) a service:

1. Right-click on the running service.
2. Click on **Kill**.
3. Click **OK** to confirm on the warning.
   If the service is currently processing a file, execution will stop and the action will not complete. If the action was partially completed (for example writing a large file), the partial action is not undone. As this may lead to corrupted or incomplete files, it is strongly advised not to kill a service unless it is absolutely necessary to do so.

Viewing log files

The second major role of the Service Console is to view and browse log files. The Service Console can both view existing log files, or monitor the log file for the current day and update the view in real time.

When a service is selected on the left pane, its log file (if any exists for the current day) is displayed. The log displays in a tree fashion. The log itself is the root, and each *session* (the time between the start and stop of a service) is listed. Under each session, each time a process runs, a new branch is created and it can be expanded to see each action within that process.

The log viewer for the current day is always live, meaning it updates automatically as the log file is updated by the appropriate service.

Viewing older log files

To open an existing, older log file:

1. In the **File** menu, click on **Open**.
2. Browse to the location of the log file you want to open
3. Click on the log file and click **Open**.
   The log file is added, by name, at the end of the list of PlanetPress Workflow services. Clicking on it opens the log file in the viewer. Right-clicking on the file brings a menu from which the log file can be refreshed, or removed from the list.

The log viewer for existing log files does not refresh automatically since log files for older days do not generally change. The display of the sessions, processes and tasks is the same.

> **Note**
>
> The log viewer as described here was introduced in version 7.4 of PlanetPress Workflow. Though it should be able to open log files from older versions of PlanetPress Workflow, the results are not guaranteed. Some log files may not display properly in this view.

Searching through the active log file

When a log file is active in the log viewer, it can be searched by going in the **Search** menu, then clicking **Find**. After entering a search term and selecting the options (Match case and Direction), clicking **Find Next** will display the first result for the search term.

When a search is started, using **F3** on the keyboard or clicking **Search** then **Search again** will find and highlight the next available result.

Knowledge Base

You can find extra information in Connect Knowledge Bases which complement the information contained in this manual.

The PlanetPress Knowledge Bases can be found here:

- The PlanetPress Connect and Workflow Knowledge Base
- The PlanetPress Classic Workflow Knowledge Base

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The license agreements for the associated open source third party components can be found in the following installation folder: *C:\Program Files\Objectif Lune\OL Connect\Legal Notices*

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  NOTE: This library has been modified for Connect. To obtain copies of the modified library please contact your local Objective Lune Support team.
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- **Jacob Java Com Bridge** which is licensed under the terms of the GNU Lesser General Public License (LGPL) Version 2. The source code for this can be obtained from the following location: http://sourceforge.net/projects/jacob-project/files/jacob-project/
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- **JavaX Mail** which is distributed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. The source code for this can be obtained from the following location: https://java.net/projects/javamail/downloads/directory/source
- **Java XmlHttpRequest** which is licensed under the terms of the GNU Lesser General Public License Version (LGPL) 2.1. The source code for this can be obtained from the following location: https://github.com/objectifluneCA/java-XmlHttpRequest
- **Jersey** which is distributed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. Information on how to obtain the source code can be found at the following location: http://repo1.maven.org/maven2/org/glassfish/jersey/jersey-bom
- **jersey-json-1.13** which is licensed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. Information on how to obtain the source code can be found at the following location: http://mvnrepository.com/artifact/com.sun.jersey/jersey-json/1.13-b01
- **Jersey Multipart** which is distributed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. Information on how to obtain the source code can be found at the following location: http://repo1.maven.org/maven2/org/glassfish/jersey/jersey-bom
- **JNA Version 3.5.1** which is distributed under the terms of the GNU Lesser General Public License Version (LGPL) 2.1. The source code for this can be obtained from the following location: https://github.com/twall/jna/releases

- **Logback** which is distributed under the terms of the Eclipse Public License (EPL) Version 1.0. The source code for Logback can be obtained from the following location: https://logback.qos.ch/download.html
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