



## **Suite 14.1**

What's New in Automation Engine 14.1

V04

**Powered by  
Global Support**



# Features Overview

# Features Overview

## Simplified installation and setup

- Installation changes
- AE healthiness check
- Scheduled server checks
- Reliable overview of my databases in server admin
- Database maintenance - Rebuild index
- Improved UI for database configuration
- About page in Server Admin with installation and hotfix information
- Include screens data in the AE backup
- Improved UI for troubleshooting container issues
- SQL2014 as default database engine
- Simplify installation with an existing full SQL server
- Simplify migration of HotFolders to Folder Access Points

# Features Overview

## General Performance

- View native ArtPro files (no conversion to Normalized data)
- Improved task cleanup rules
- Improved database performance (also with 2008)
- Improved Pilot performance (Avoid 'dead' Pilot)
- Improved file download
- Support for large XML files in the XPath builder

## Workflow tools

- Launching workflows via HTTP using synchronous communication
- Make Sync and Submit Workflow in WCR possible outside
- Select and Remove job in a workflow
- Restore job task in a workflow
- Remove product task



# Features Overview

## **CAD automation**

- Create CAD sheet task improvements: nest using products + simplified station location
- Run CAD standard task
- CAD S&R tasks use bleed priority info in MFG from ArtiosCAD
- Shrink support in Create CAD sheet tasks
- Load structural file
- CAD sheet XML based on products

## **Gang run printing**

- Roll support in gang run printing
- Override substrate rotation in submit to gang run
- Extend content option in the prepare graphics for nesting task
- File info on jobs in the gang run printing view

# Features Overview

## Imposition automation

- New Change Imposition Layout Task
- Re-center pages on trim box

## Various features

- Grids in workflow canvas
- Load Parameters for Repeating Content from XML in Map Data task
- Improved UI for the Data Splitter workflow control
- Sort on modification date in the Sort workflow control
- Improved handling of conditional queries in the Split XML task
- Improved UI for deprecated task (aka soon outdated tasks)
- Pitstop 13 support (from prerelease DVD 4 onwards)
- Search in Job Parameters
- Layer info for Adobe® PDF files



# System Requirements

# System requirements

## Server

- ~~Windows 2003~~
- ~~Windows 2008~~
- Windows 2008 R2
- Windows 2012
- Windows 2012 R2

## Client

- ~~Windows XP~~
- Windows 7
- Windows 8
- Windows 8.1
- ~~Mac OS 10.6.x~~
- ~~Mac OS 10.7.x~~
- Mac OS 10.8.x
- Mac OS 10.9.x
- Mac OS 10.10.x

## Database

- SQL Server 2005
- SQL Server 2008
- SQL Server 2012
- SQL Server 2014

NEW

NEW

## SOURCE

<https://wiki.esko.com/display/SystemRequirementsSource/Automation+Engine+14.1+System+Requirements+-+Client>  
<https://wiki.esko.com/display/SystemRequirementsSource/Automation+Engine+14.1+System+Requirements+-+Server>



Simplified installation  
and setup

# Changes in the installation

- When installing Automation Engine, there's a possibility now to configure an **existing (full) SQL Server** instance for the Automation Engine databases so you don't need to go through the Express Edition prerequisite installation and a reconfiguration phase afterwards.

## Automation Engine 14.1 Installer

### Standard Automation Engine installation

To install or repair/re-install the Automation Engine software click one of the following links.



[Install](#) or [Repair/re-install](#) Automation Engine Master

### 2 options

**Option 1:** Install Automation Engine like you would do previously and then change the configuration of the Automation Engine databases to use another SQL Server instance. (and create the databases there and use the Synchronize button in configure to create the tables)

### Special Automation Engine installation

To install or repair/re-install the Automation Engine software click one of the following links.



[Install](#) or [Repair/re-install](#) Automation Engine Assistant



[Install](#) or [Repair/re-install](#) Automation Engine Master for use with an existing Microsoft SQL Server

**Option 2:** Install Automation Engine like you would do previously, but **without the SQL Server Express Edition** prerequisite component.

### Installation of Automation Engine as On Board Graphics Engine (OBGE) for WebCenter

To install or repair/re-install the Automation Engine as OBGE software click one of the following links.



[Install](#) or [Repair/re-install](#) OBGE for use with an existing Microsoft SQL Server



[Install](#) or [Repair/re-install](#) OBGE

**Note:** fully implemented from prerelease DVD 5 onwards

# Server checks | Automation Engine healthiness check

- A new “**Server Checks**” page is added to the Automation Engine Server Web Page called Health Check. There are currently 3 health checks available: **Processor Cores, Memory and Tasks**

## Processor Cores

The number of processor cores is checked. The check determines if **sufficient processor cores** are present for the **current AE setup**.

## Memory

The amount of memory (RAM) is checked. The check determines if **sufficient memory** is present for the **current AE setup**.

## Tasks

The number of tasks is checked against some predefined thresholds. A check for old tasks is also performed. (old tasks are tasks that were launched more than 6 months ago) The thresholds are dependent upon the database version:

### For an SQL express edition

Warning threshold: 30.000

Error threshold: 100.000

### For all other database versions

Warning threshold: 200.000

Error threshold: none

English

You're currently logged in as daga [LOG OUT](#)

Automation Engine Server

CLIENT APPS SAMPLES SERVER ADMIN SERVER CHECKS

Home > Server Checks > Health

Server EAW14VM170 running [Log in to another server](#)

HEALTH CHECK

Status	Name	Details
<span>!</span>	Processor Cores	The number of processor cores in "EAW14VM170" (1) is not sufficient. The current setup requires at least 5 processor cores. Please consider reducing the number of file streaming sessions and/or gang run printing sessions or consider upgrading.
<span>!</span>	Memory	The amount of memory in "EAW14VM170" (3 GB) is not sufficient. The current setup requires at least 8.5 GB. Please consider reducing the number of file streaming sessions and/or gang run printing sessions or consider upgrading.
<span>!</span>	Tasks	No cleanup rules are defined for the Tasks database. Please consider adding cleanup rules for the Tasks database in Configure.

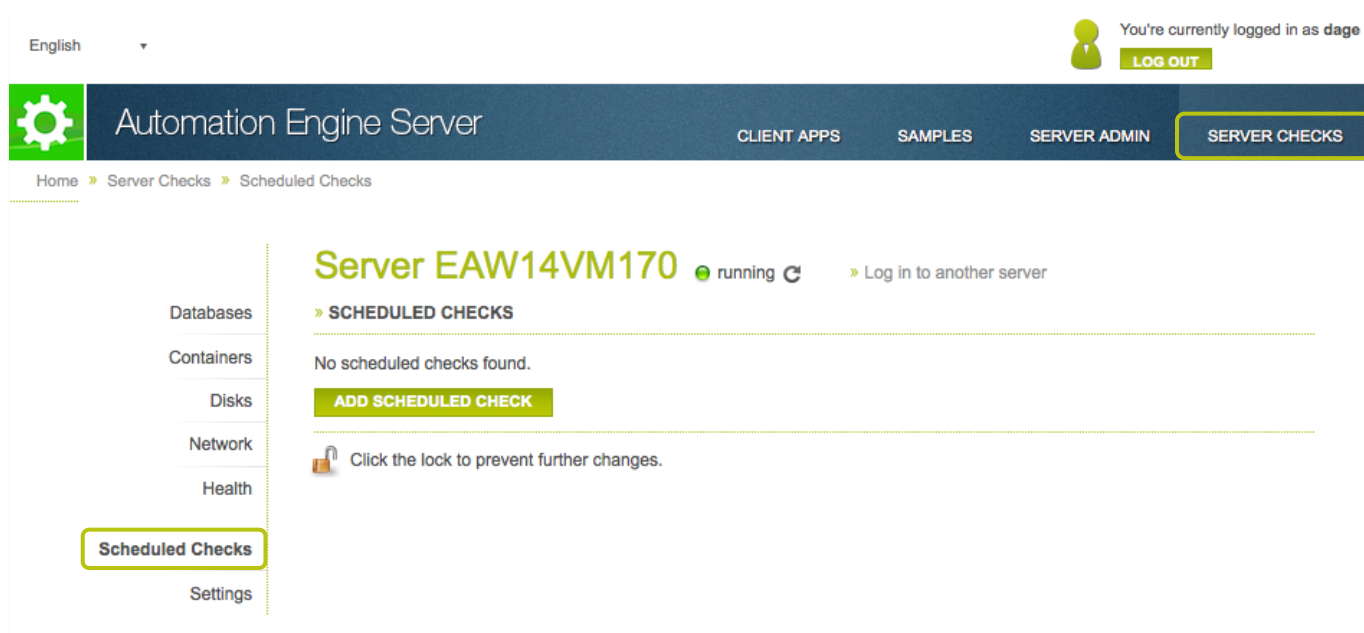
[CHECK AGAIN](#)

# Server checks | Scheduled server checks

## Introduction

- Scheduled checks can be used to run the server checks that are available in the **Server Checks** section of the **Server Admin** page of the Automation Engine Server Web Page .
- Scheduled checks will run automatically on the Automation Engine Server and will send reports when there are warnings or errors.

## How to set up and manage scheduled checks of the Automation Engine Server?





# Server checks | Scheduled server checks

- To add a scheduled check, click the **Add Scheduled Check** button. The **Add Scheduled Check** dialog will pop up.

The screenshot displays the 'Automation Engine Server' web interface. The top navigation bar includes 'CLIENT APPS', 'SAMPLES', 'SERVER ADMIN', and 'SERVER CHECKS'. The left sidebar lists 'Databases', 'Containers', 'Disks', 'Network', 'Health', 'Scheduled Checks', and 'Settings'. The main content area shows 'Server EAW14VM170' with a 'running' status. Below this, a '» SCHEDULED CHECKS' section indicates 'No scheduled checks found.' and features a yellow 'ADD SCHEDULED CHECK' button. A yellow arrow points from this button to a modal dialog titled '» ADD SCHEDULED CHECK'. The dialog contains a description: 'A scheduled check will run automatically on the Automation Engine Server and will send reports when there are warnings or errors.' It includes a 'Check' section with checkboxes for 'Databases', 'Containers', 'Disks', 'Network', and 'Health'. The 'Frequency' is set to 'Weekly' (Every 1 week(s)). The 'Start time' is set to 'Saturday' at '02:00:00'. The 'Send report on' dropdown is set to 'Warning or Error'. The 'Send report to' field is empty, with a note: 'The e-mail address or a semicolon-separated list of e-mail addresses the report will be sent to.' The dialog has an 'OK' button at the bottom right.

English

You're currently logged in as **dage** **LOG OUT**

**Automation Engine Server**

CLIENT APPS SAMPLES SERVER ADMIN SERVER CHECKS

Home » Server Checks » Scheduled Checks

**Server EAW14VM170** running

» SCHEDULED CHECKS

No scheduled checks found.

**ADD SCHEDULED CHECK**

Click the lock to prevent further changes.

**» ADD SCHEDULED CHECK**

A scheduled check will run automatically on the Automation Engine Server and will send reports when there are warnings or errors.

Check

☐ Databases

☐ Containers

☐ Disks

☐ Network

☐ Health

Frequency **Weekly** Every **1** week(s)

Start time **Saturday** **02:00:00**

Send report on **Warning or Error**

Send report to

The e-mail address or a semicolon-separated list of e-mail addresses the report will be sent to.

**OK**

# Server checks | Scheduled server checks

- Select the checks that should be run. *Note: at least one check should be selected*
- Select the **Frequency** (Hourly, Daily, Weekly or Monthly) and the **Start Time** of the scheduled check.
- Specify if you want the report to be sent on **Warning, Error** or on **Error Only**.
- Specify the e-mail address or a semicolon-separated list of e-mail addresses the report should be sent to.

» ADD SCHEDULED CHECK ✕

A scheduled check will run automatically on the Automation Engine Server and will send reports when there are warnings or errors.

Check

- ☒ Databases
- ☒ Containers
- ☒ Disks
- ☒ Network
- ☒ Health

Frequency Weekly Every 1 week(s)

Start time Sunday 02:00:00

Send report on Warning or Error

Send report to david.geldhof@esko.com

The e-mail address or a semicolon-separated list of e-mail addresses the report will be sent to.

OK

# Server checks | Scheduled server checks

- This is an **example of the report** when there are warnings or errors:

## Databases Check

### FlexoPlates Database Scenario

Trying to log in to the default SQL Server instance on “localhost” for user “admin” failed. Verify that the user name and password you entered in Configure are correct and that the user has permission to connect.

For the latest situation, go to the [Databases Check page](#) of the Server Admin.

## Containers Check

### ExampleJobContainer3@twister

Could not connect to the Container “ExampleJobContainer3@twister” on “file://twister/ExampleJobContainer3”. Please contact your IT administrator. Computer twister does not have a public IPv4 address.

### ExampleJobContainer2@twister

Could not connect to the Container “ExampleJobContainer2@twister” on “file://twister/ExampleJobContainer2”. Please contact your IT administrator. Computer twister does not have a public IPv4 address.

### gdm\_container@homer

Container “\\homer\gdm\_container” is nearly full (76.1% used)

### ExampleJobContainer@TWISTER

Could not connect to the Container “ExampleJobContainer@TWISTER” on “file://twister/ExampleJobContainer”. Please contact your IT administrator. Computer twister does not have a public IPv4 address.

### RND-SW-Tom-Gent@egsbe100

Container “\\egsbe100\RND-SW-Tom-Gent” is full (89.7% used)

### ExampleJobContainer4@twister

Could not connect to the Container “ExampleJobContainer4@twister” on “file://twister/ExampleJobContainer4”. Please contact your IT administrator. Computer twister does not have a public IPv4 address.

For the latest situation, go to the [Containers Check page](#) of the Server Admin.

# Server checks | Scheduled server checks

- Example report continued...

## Network Check

### WebCenterConnection-ikbestaniet

The server "ikbestaniet" does not have a public IPv4 address. Please check its network settings or contact your IT administrator.  
Computer ikbestaniet does not have a public IPv4 address.

### DeviceConnection-rdvmaedfe01

The server "rdvmaedfe01" has multiple IPv4 addresses, which may cause connectivity problems. Please check its network settings or contact your IT administrator.  
The computer rdvmaedfe01 has multiple IPv4 addresses : 10.31.224.57 : 20.31.224.57.

### DeviceConnection-ScreenedOutput1

Could not connect to the Device "ScreenedOutput1" on "cssuite12a33" using port "3020". Verify that this Device is running and accessible and that you entered the correct information in Configure.  
Computer cssuite12a33 does not have a public IPv4 address.

### DeviceConnection-CDI1

Could not connect to the Device "CDI1" on "cssuite12a1" using port "3100". Verify that this Device is running and accessible and that you entered the correct information in Configure.

For the latest situation, go to the [Network Check page](#) of the Server Admin.

# Reliable overview of databases in server admin

*The state of a full (local) SQL or external SQL server is now displayed correctly*

The screenshot displays the 'Automation Engine Server' web interface. The top navigation bar includes 'CLIENT APPS', 'SAMPLES', 'SERVER ADMIN', and 'SERVER CHECKS'. The 'SERVER ADMIN' section is active, showing a breadcrumb trail: 'Home > Server Admin > Databases'. The main content area is titled 'Server RDVMAE17' with a 'running' status indicator. Below this, the 'DATABASES' section is highlighted. It features a dropdown for 'SQL server' set to 'RDVMAE17' and another for 'Instance' set to 'MSSQLSERVER'. A 'running' status is shown next to the instance name. A sidebar on the left lists various system functions, with 'Databases' highlighted. The 'Databases' section shows a list of databases, including 'BSJobs', 'Fastlane', 'Fastlane\_TM', 'TMP\_BSJobs\_from\_OPTIONS', 'fasttrack', and 'fasttrack\_ANBO'. The 'BSJobs' database is selected, and its details are shown in a table. The table includes fields for 'Database name', 'Created', 'Size', 'Used', 'Master database file', 'Transaction log file', 'Status', and 'Actions'. The 'Status' is 'Online'. The 'Actions' section contains buttons for 'BACKUP', 'RESTORE', 'REPAIR', and 'MOVE'. A lock icon and the text 'Click the lock to prevent further changes.' are visible at the bottom of the interface.

English

You're currently logged in as dage

LOG OUT

Automation Engine Server

CLIENT APPS SAMPLES SERVER ADMIN SERVER CHECKS

Home > Server Admin > Databases

Server RDVMAE17 running » Log in to another server

» DATABASES

SQL server RDVMAE17 » Select another SQL Server

Instance MSSQLSERVER running You're currently logged in as admin

Status Overview

Server Activity

Server Setup

System Account

Maintenance

Backup

Restore

Databases

SQL Server

About

Databases

BSJobs

Fastlane

Fastlane\_TM

TMP\_BSJobs\_from\_OPTIONS

fasttrack

fasttrack\_ANBO

Details

Database name	BSJobs
Created	2014-07-17 11:52:39.253
Size	18.94 MB
Used	5.77 MB
Master database file	D:\Esko\bg_data_fastserver_dbase\BSJobs_DAT.mdf
Transaction log file	D:\Esko\bg_data_fastserver_dbase\BSJobs_LOG.ldf
Status	Online
Actions	<span>BACKUP</span> <span>RESTORE</span> <span>REPAIR</span> <span>MOVE</span>

+ -

Click the lock to prevent further changes.

# Database maintenance | Rebuild index

## Basic database maintenance

- New database maintenance actions in server admin so the general **AE performance** improves and/or remains as **optimal** as possible
- To rebuild the indexes of an Automation Engine database go to the *Maintenance* section in server admin and click “**Start Maintenance Now**” or setup a “**Maintenance Schedule**”

The screenshot displays the 'Automation Engine Server' interface. The top navigation bar includes 'CLIENT APPS', 'SAMPLES', 'SERVER ADMIN', and 'SERVER CHECKS'. The 'SERVER ADMIN' section is active, showing a breadcrumb trail: Home > Server Admin > Maintenance. The main content area is titled 'Server RDVMAE17' and shows a 'MAINTENANCE' section with a table of maintenance schedules. A yellow box highlights the 'ADD MAINTENANCE SCHEDULE' button, and a yellow arrow points from it to the 'ADD MAINTENANCE SCHEDULE' dialog box on the right. The dialog box contains a list of database components to rebuild, a frequency selector, and a start time selector.

English

You're currently logged in as **dage** **LOG OUT**

**Automation Engine Server**

CLIENT APPS SAMPLES SERVER ADMIN SERVER CHECKS

Home > Server Admin > Maintenance

Status Overview

Server Activity

Server Setup

System Account

**Maintenance**

Backup

Restore

Databases

SQL Server

About

**Server RDVMAE17** running [Log in to another server](#)

**» MAINTENANCE**

Maintenance schedule

What	Frequency	Start time
Rebuild database indexes of Jobs, Tasks, Task History, JDF, FlexoPlates, Gang Run Printing, Application Server	Every day	12:05:00

**ADD MAINTENANCE SCHEDULE** **START MAINTENANCE NOW**

Click the lock to prevent further changes.

**» ADD MAINTENANCE SCHEDULE**

Scheduled maintenance will run automatically on the Automation Engine Server.

Database performance could be affected while rebuilding indexes. Please schedule this when production is low or down and avoid taking backups at the same time.

Rebuild database indexes of

- ☐ Jobs
- ☐ Tasks
- ☐ Task History
- ☐ JDF
- ☐ FlexoPlates
- ☐ Gang Run Printing
- ☐ Application Server

Frequency: Weekly Every 1 week(s)

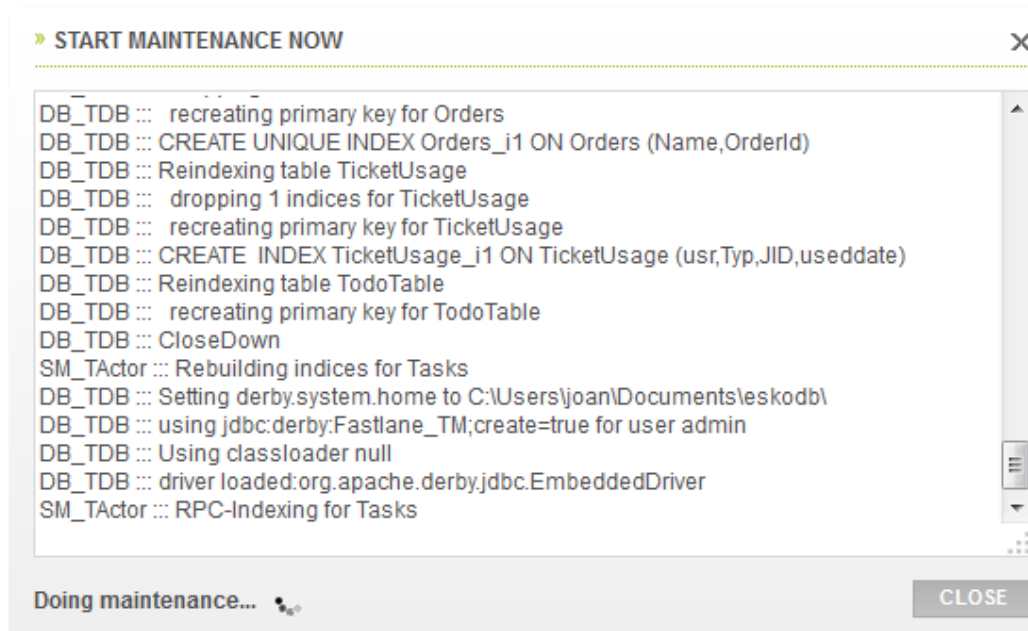
Start time: Saturday 02:00:00

**OK**

# Database maintenance | Rebuild index

## Basic database maintenance

- You'll get an indication that the system is **busy doing maintenance**. Click *View details* to get more live info.



**IMPORTANT:** Database performance could be affected while rebuilding indexes. Please schedule this **when production is low or down** (e.g. Sunday at 2 pm) and **avoid taking backups at the same time**.

# Database maintenance | Rebuild index

## *Extra information: What is a database index?*

- A database index is a data structure that **improves the speed of data retrieval operations** on a database table at the cost of additional writes and storage space to maintain the index data structure. **Indexes** are used to **quickly locate data** without having to search every row in a database table every time a database table is accessed.
- The SQL Server Database Engine automatically maintains indexes whenever insert, update, or delete operations are made to the underlying data. Over time these modifications can cause the information in the index to become **scattered** in the database (fragmented). Heavily fragmented indexes can **degrade query performance** and cause Automation Engine to respond slowly. You can remedy index fragmentation by reorganizing or rebuilding an index.



# About page with installation and hotfix information

- The **About** page of the **Server Admin** section of the Automation Engine Server Web Page is the place where you can find detailed information about the Automation Engine Server.

The screenshot shows the Automation Engine Server Web Page. The top navigation bar includes 'CLIENT APPS', 'SAMPLES', 'SERVER ADMIN', and 'SERVER CHECKS'. The 'SERVER ADMIN' section is active, and the 'About' page is selected. The page displays information for 'Server EAW14VM170', which is running. The 'ABOUT AUTOMATION ENGINE' section shows the server version as '14.1.0 - build 319' and the installation date as 'Mar 19, 2015 10:50 AM'. The 'Hotfixes' section indicates 'No hotfixes found.' The 'History' section shows a table with one entry: 'Installed Automation Engine 14.1.0 - build 319' on 'Mar 19, 2015 10:50 AM'.

Action	Date
Installed Automation Engine 14.1.0 - build 319	Mar 19, 2015 10:50 AM

The **About** page shows the following information about Automation Engine:

- The **current version** and **build number**, including the date the current version was created
- **The date** the current version was installed
- **The list** of installed hotfixes, including the date the hotfixes were installed
- The installation **history**

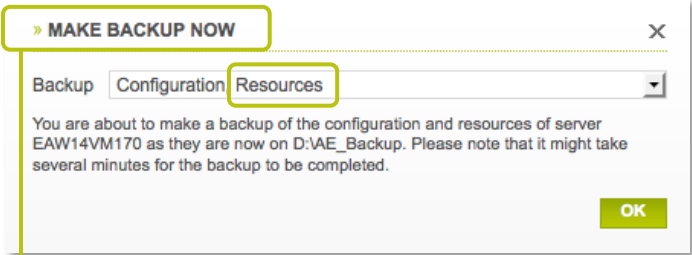
For every hotfix that is installed, the following information is available:

- The **name** of the hotfix
- A **short description** of the hotfix
- The **product** the hotfix applies to
- The **date** the hotfix was **created**
- The **date** the hotfix was **installed**

# Include screens data in the AE backup

## Backup and restore screens

- Screens are now included when making a backup that includes resources and/or databases. When restoring such a backup using the restore action **Restore resources only**, you can now also choose to **restore screens separately**.

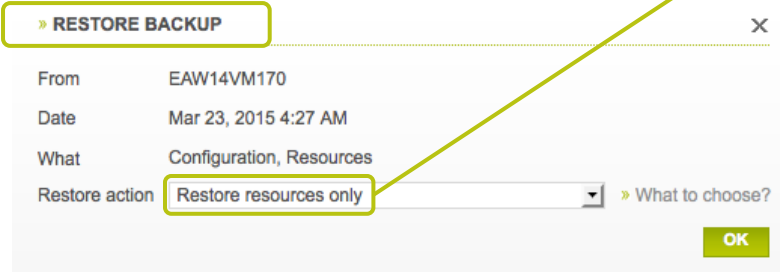


» MAKE BACKUP NOW

Backup Configuration **Resources**

You are about to make a backup of the configuration and resources of server EAW14VM170 as they are now on D:\AE\_Backup. Please note that it might take several minutes for the backup to be completed.

OK

» RESTORE BACKUP

From EAW14VM170

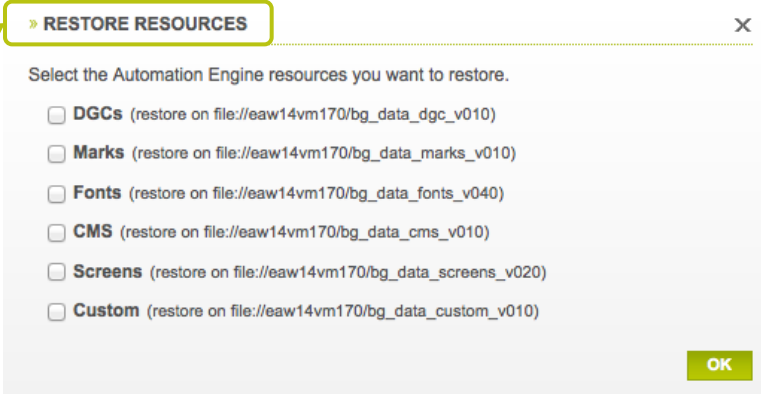
Date Mar 23, 2015 4:27 AM

What Configuration, Resources

Restore action **Restore resources only** » What to choose?

OK

**Note:** Only Imaging Engine screens are included, no FlexRip screens



» RESTORE RESOURCES

Select the Automation Engine resources you want to restore.

☐ **DGCs** (restore on file://eaw14vm170/bg\_data\_dgc\_v010)

☐ **Marks** (restore on file://eaw14vm170/bg\_data\_marks\_v010)

☐ **Fonts** (restore on file://eaw14vm170/bg\_data\_fonts\_v040)

☐ **CMS** (restore on file://eaw14vm170/bg\_data\_cms\_v010)

☐ **Screens** (restore on file://eaw14vm170/bg\_data\_screens\_v020)

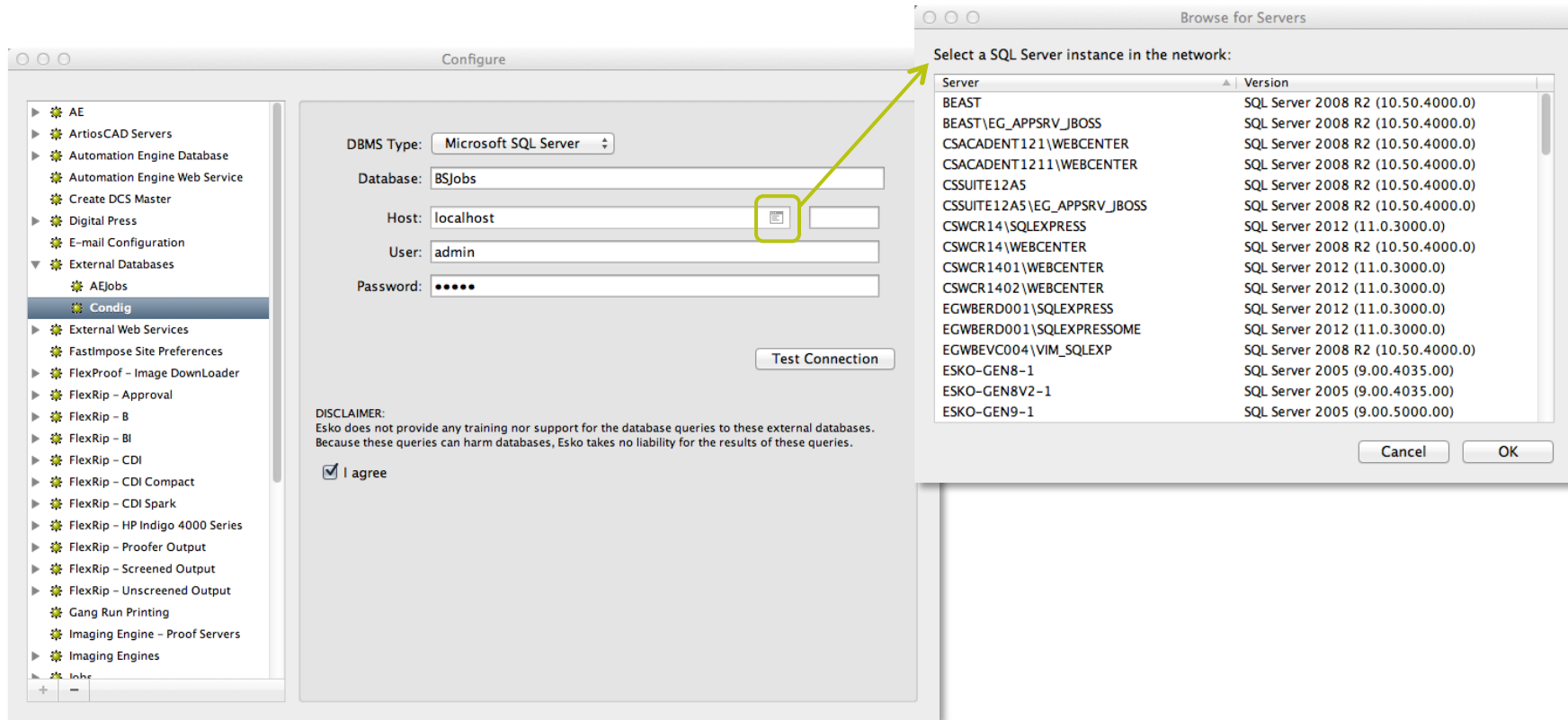
☐ **Custom** (restore on file://eaw14vm170/bg\_data\_custom\_v010)

OK

# Improved UI for database configuration

## Select SQL Server Host and Instance from a list

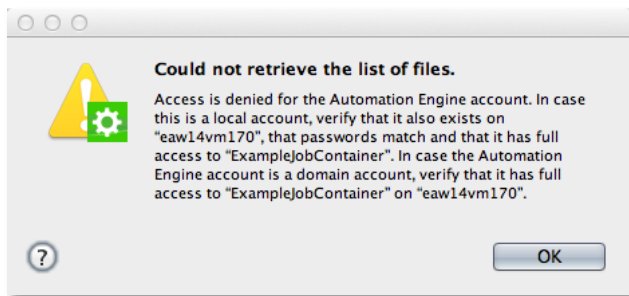
- When configuring a DBMS type database, e.g. "Microsoft SQL Server" (possible in "ArtiosCAD Servers", "Automation Engine Databases" or "External Databases"), the "Host" field now allows to pick the wanted host and instance combination from a list.



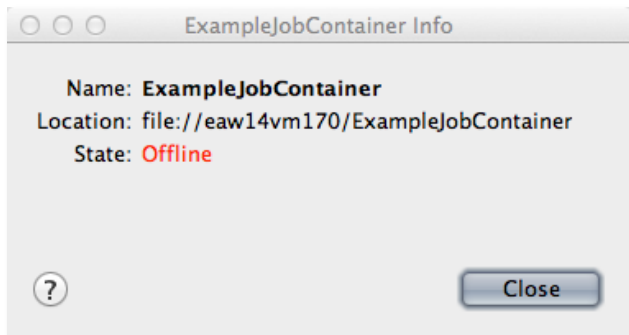
# Improved UI for troubleshooting container issues

## Some scenarios

- Creating a new Container fails because the BGSYSTEM password doesn't match
- A Container is no longer accessible because BGSYSTEM doesn't have full access



- A Container is offline in the “Containers view”. Why is it offline? *New!* Get Info on a Container



# Simplify Migration of HotFolders to Folder Access Points

- It is now possible to **export the ticket** from within the hotfolder setup dialog. To export a ticket, open the “hotfolder” settings and choose "Export Ticket...". This will present the user with a save as dialog.

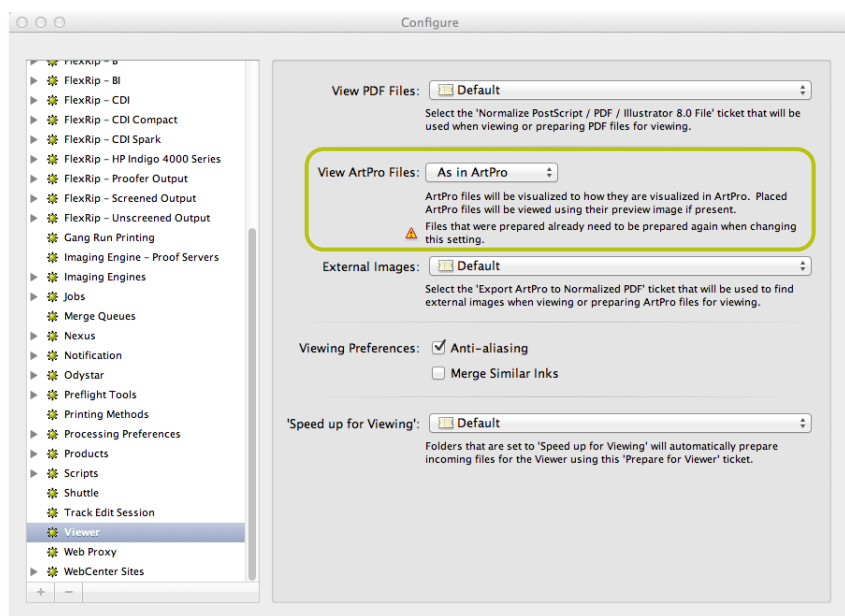
The screenshot displays the 'Hot Folder' configuration window. At the top, the 'Hot Folder' path is set to 'file://TWISTER/ExampleJobContainer/Hot Folder 2'. Below this, the 'Operator' is 'Koen Van den...'. The 'Inactive between' section shows a time range from '1:08 PM' to '1:08 PM'. The 'Poll Interval' is set to '5 minutes' and the 'Priority' is 'Normal'. Under 'Automatic Tasks', 'A Workflow for all File Types' is selected. A checkbox for 'First, move files (to Job)' is present, with associated 'Folder' and 'File' fields. The 'Workflow' section shows 'Export Ticket...' as the selected workflow, with an 'Edit...' button next to it. Below this, there is a 'Grouped launching' checkbox. The 'Working Folder' is set to 'file://TWISTER/ExampleJobContainer/Hot Folder 2/Working Folder'. A checkbox for 'Delete input files when the automatic task is finished' is also visible. At the bottom, there is an 'Annotation' field.

The background features a series of overlapping, flowing waves in shades of light green and grey, creating a sense of movement and depth. The waves are layered, with some appearing more prominent than others, and they span the width of the image.

General performance

# View native ArtPro files (non Normalized data)

- The Automation Engine Viewer now has **two modes** for **viewing ArtPro files**. The desired mode can be setup in Configure/Viewer.



## View ArtPro files as in ArtPro

ArtPro files view or Prepare for View similar as in ArtPro. Placed ArtPro files are viewed using their preview image if available in the ArtPro file. This compatibility setting is usually faster but less accurate.

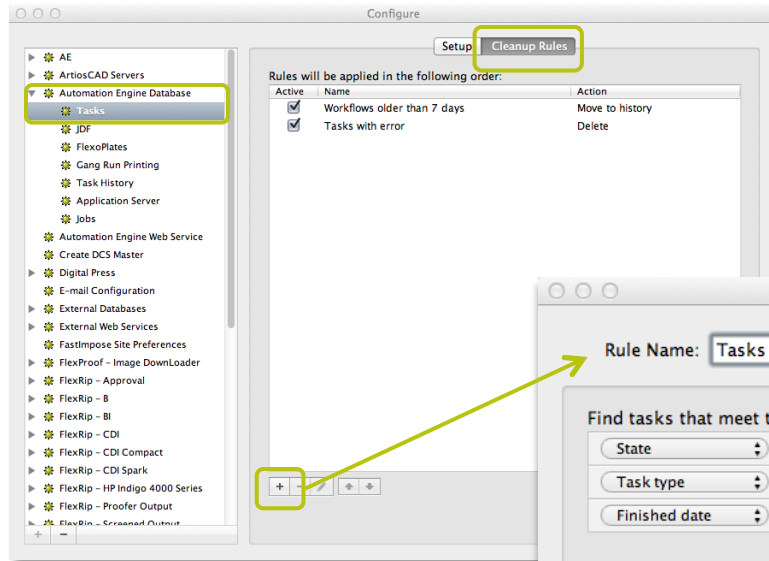
**Note:** The setting “Merge Similar Inks” has no effect when using the ArtPro compatibility mode.

## View ArtPro files as in PackEdge

ArtPro files view or Prepare for View similar as in PackEdge. This compatibility setting is usually slower but more accurate.

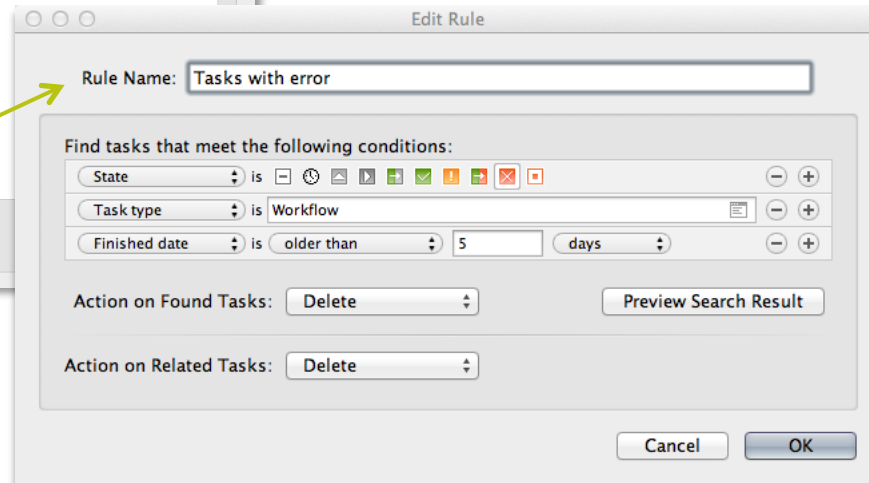
# Improved task cleanup rules

- Having the ability to cleanup tasks in a **more precise way**, makes it easier to keep the task monitor size under the recommended limit of 30.000 tasks.
- Example: a preflight workflow can be cleaned up 1 day after finished date. The prepress workflow I'd like to keep for 5 days after finish date. I only want to archive my RIP workflows, they can be archived 1 day after finished date (as the job typically is finished).



The Task Cleanup rules are now located in a **different place in configure**. They used to be available as a dedicated entry labeled "Task Cleanup Rules".

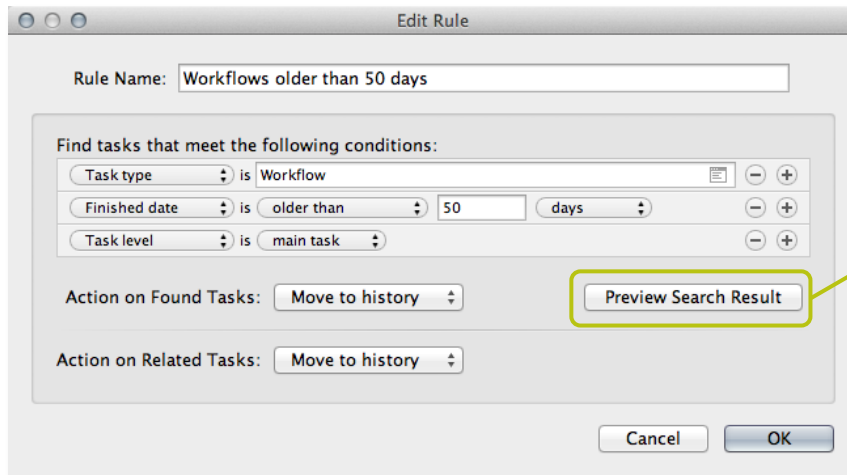
**Note:** Existing configured filters are automatically converted into new style filters.





# Improved task cleanup rules

- The conditions can be previewed by clicking on "Preview Search Result". The preview window allows the user to make changes to the conditions.



File Name	Job Name	Task Type	Progress	Phase	State	Launched
e4d33a17-b977-4...		Workflow	100%		✓	4/17/15 10:34 AM
e4d33a17-b977-4...		Workflow	100%		✓	4/17/15 10:21 AM
Config_D01021_20...		Workflow	100%		✓	4/17/15 10:13 AM
e4d33a17-b977-4...		Workflow	100%		✓	4/17/15 9:31 AM
e4d33a17-b977-4...		Workflow	100%		✓	4/17/15 9:30 AM
e4d33a17-b977-4...		Workflow	100%		✓	4/17/15 9:29 AM
Config_D01021_20...		Workflow	100%		✓	4/17/15 9:18 AM
e4d33a17-b977-4...		Workflow	100%		✓	4/17/15 9:13 AM
032553.xml		Workflow	100%		✓	4/17/15 9:04 AM
032553_2.xml		Workflow	100%		✓	4/17/15 9:01 AM
untitled folder.zip	_Testing	Workflow	100%		✗	4/15/15 2:46 PM
untitled folder.zip	_Testing	Workflow	100%		✗	4/15/15 2:03 PM
untitled folder.zip	_Testing	Workflow	100%		✗	4/15/15 2:03 PM
untitled folder.zip	_Testing	Workflow	100%		✗	4/15/15 2:02 PM
untitled folder.zip	_Testing	Workflow	100%		✗	4/15/15 2:00 PM
Innovation.pdf	AE14_1_Training	Workflow	100%		✓	3/30/15 3:44 PM
CADstandardXML.xml	AE14_1_Training	Workflow	100%		✓	3/30/15 3:37 PM
CADstandardXML.xml	AE14_1_Training	Workflow	100%		✓	3/30/15 3:37 PM
CADstandardXML.xml	AE14_1_Training	Workflow	100%		✗	3/30/15 3:36 PM
Innovation.pdf	AE14_1_Training	Workflow	100%		✓	3/30/15 10:57 AM
CADstandardXML.xml	AE14_1_Training	Workflow	100%		✓	3/30/15 10:47 AM
CADstandardXML.xml	AE14_1_Training	Workflow	100%		✗	3/30/15 10:46 AM

Cancel OK

**Note:** Creating custom rules should be done with care as this can have a serious impact on performance. **Advised** to hit the **restore defaults button** and adapt the number of days.

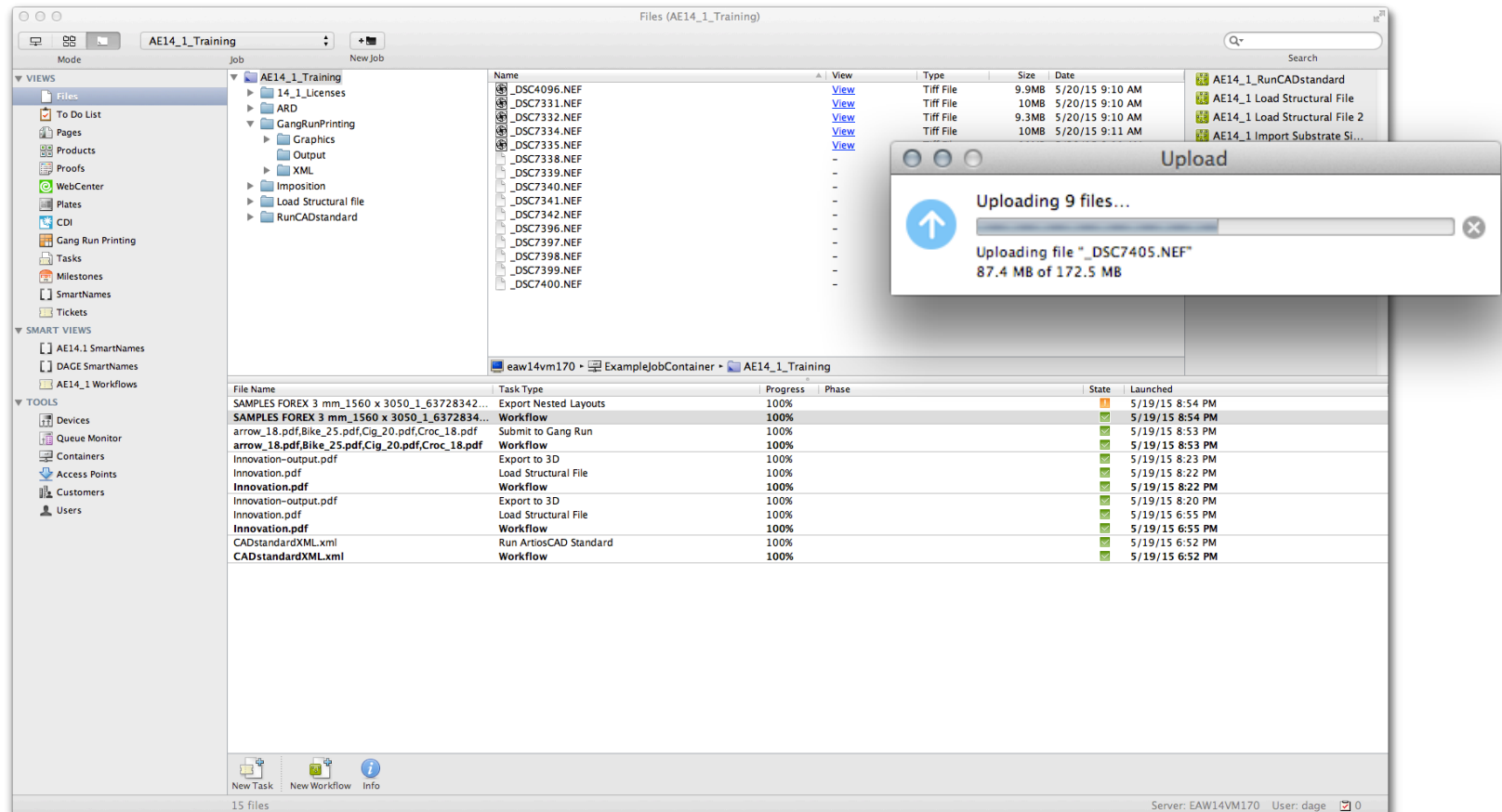
# Improved Pilot performance

- When a workstation goes into **sleep / hibernate** mode, it may happen that the network communication is switched off on system level to save power. When waking up again, the Pilot was unable to **re-establish its open network connection** that keep the views alive and updated in **accordance to server activity** (typically f.i. progress in the tasks view). A clear message is now popping up and the user has the possibility to either **Relaunch** or **Quit** the application.



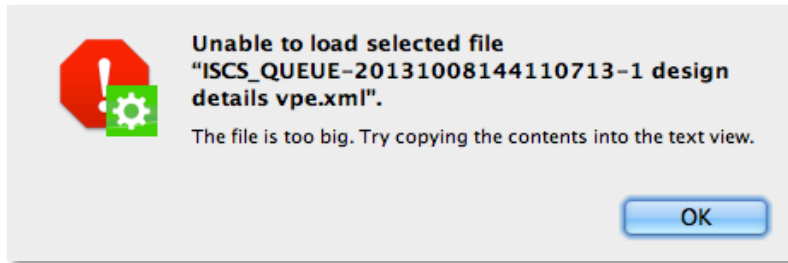
# Improved file download

- The “uploading file” dialog is no longer blocking the Pilot. Multiple uploads are grouped together.



# Support for large XML files in the XPath builder

- When using the XPath builder to generate an XPath expression and you want to use/load the contents of an example XML file, a clear error message is given now:



- It is now possible to use/load the contents of XML files that are **larger than 20KB**.



# Workflow tools

# Launching workflows via HTTP using synchronous communication

- Web service access points can be configured to use **synchronous communication**. When using synchronous communication, every time an HTTP request is received on the URL specified by the web service access point, the Automation Engine Web Service will **wait for the workflow to be finished before sending an HTTP response**.

**Note:** some of the Automation Engine Server's processing channels should be reserved for processing the incoming HTTP requests. This can be done in "Server Setup" of the Automation Engine Server Web Page .

New Web Service Access Point

Name:

Description:

URL:

This is the URL on the Automation Engine Web Service that will receive the HTTP requests. Note that the port of the Automation Engine Web Service can be configured in Configure (Tools menu).

Launch Workflow:

Communication: ☒ Synchronous

When using synchronous communication, the Automation Engine Web Service will wait for the workflow to be finished before sending an HTTP response. Note that some processing channels need to be reserved for processing incoming HTTP requests. This can be done in the Server Setup page of the Server Admin.

Timeout:  minutes  seconds

The workflow will be canceled if the specified time has passed.

# Launching workflows via HTTP using synchronous communication

## Setting the number of reserved processing channels in Server Admin

- When using synchronous communication, some of the Automation Engine Server's processing channels should be reserved for processing the incoming HTTP requests.

**Note:** the number of reserved processing channels has to be lower than the total number of processing channels.

The screenshot shows the 'Automation Engine Server' administration interface. The top navigation bar includes 'CLIENT APPS', 'SAMPLES', 'SERVER ADMIN', and 'SERVER CHECKS'. The 'SERVER ADMIN' tab is active. The left sidebar contains a tree view with 'Server Setup' highlighted. The main content area is titled 'Server EAW14VM170' and shows the 'SERVER SETUP (THIS COMPUTER)' section. Under 'Processing capabilities', there are checkboxes for 'Run tasks', 'Prepare and view files (Viewer)', and 'Calculate layouts (Gang run printing)', all of which are checked. Below these are input fields for 'Maximum number of files that can be viewed simultaneously' (set to 4) and 'Maximum number of layouts that can be calculated simultaneously' (set to 1). The 'CLUSTER SETUP' section shows 'Processing channels' as '2 of 44 licensed channels' and 'Reserved for web service' as '0 channels'. A note explains that the number of processing channels is reduced to meet system capabilities and that the reserved channels are for the Automation Engine Web Service. The 'Central resource server' is listed as 'EAW14VM170'.

English

You're currently logged in as dage [LOG OUT](#)

Automation Engine Server

CLIENT APPS SAMPLES SERVER ADMIN SERVER CHECKS

Home » Server Admin » Server Setup

Status Overview

Server Activity

**Server Setup**

System Account

Maintenance

Backup

Restore

Databases

SQL Server

About

**Server EAW14VM170** running [Log in to another server](#)

» **SERVER SETUP (THIS COMPUTER)**

Current role: Master

Assistant servers: 0

Processing capabilities:

- ☒ Run tasks
- ☒ Prepare and view files (Viewer)  
Maximum number of files that can be viewed simultaneously: 4
- ☒ Calculate layouts (Gang run printing)  
Maximum number of layouts that can be calculated simultaneously: 1

» **CLUSTER SETUP**

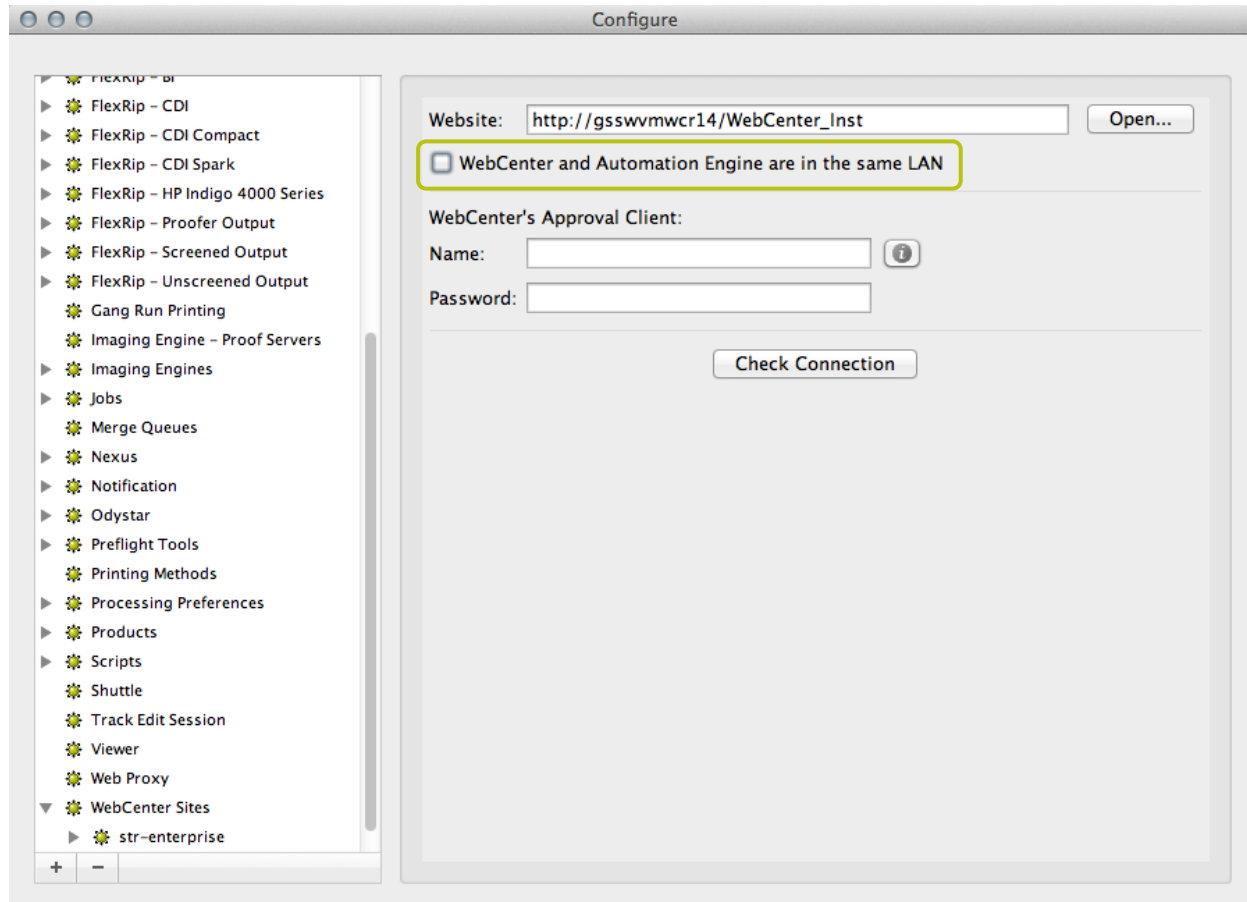
Processing channels: 2 of 44 licensed channels  
The number of processing channels is reduced to meet your system's capabilities.

Reserved for web service: 0 channels  
Specify how many channels should be reserved for the Automation Engine Web Service for processing incoming HTTP requests.

Central resource server: EAW14VM170

# Sync and Submit Workflow in WCR possible outside LAN

- It's now possible to submit and sync workflows on Automation Engine when Automation Engine and WebCenter are NOT in the same LAN

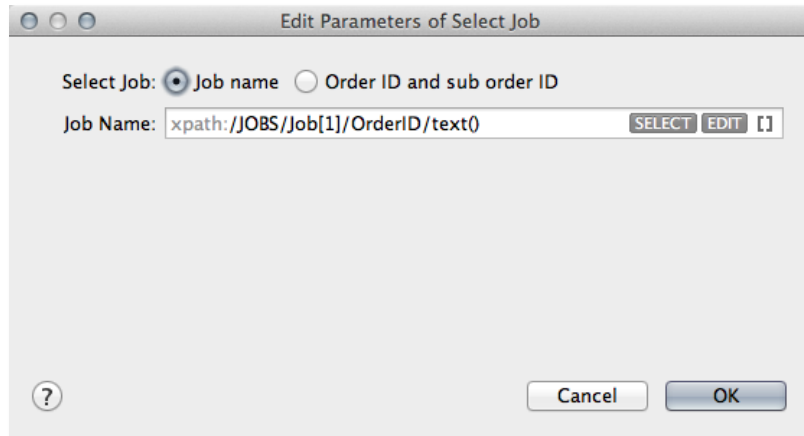




# Select and Remove job in a workflow

## Select Job

- The Select Job workflow control can be used to select a job folder in a workflow. You can choose to select a job folder using the **Job name** or using the **combination** of the **Order ID** and **sub order ID**.



The **Job Name**, **Order ID** and **Sub Order ID** can be specified by

- Entering a **value**
- Inserting a **SmartName**
- Selecting a job using the **Select button**
- Entering an **XPath expression** and/or create an XPath expression

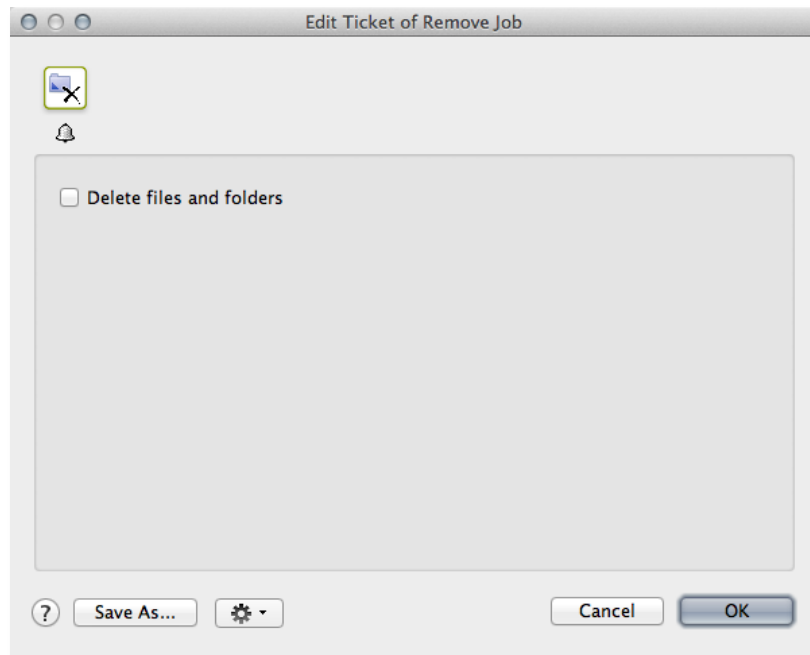
### Data splitter

**Note:** the Select Job workflow control only handles one input file at the time. Use a Data Splitter if you want to select the jobs of multiple input files

# Select and Remove job in a workflow

## Remove Job

- The Remove Job task can be used to remove a job and to convert the job folder to a **normal folder**. It's also possible to **delete the files and folders**.



# Restore job task in a workflow

- The Restore Job Task can be added to a Workflow, but **only has the error output pin** (similar to the Create Job Task inside a Workflow). In the Restore Job Task ticket, you can specify that you want to launch a Workflow after the Job has been restored. This Workflow will **run in the context of the restored Job**.

Edit Ticket of Restore Job

Output in: [Job URL] BROWSE

Job Name: [Job Name]

Order ID: [Order ID]

SubOrder ID: [Sub Order ID]

Due Date: Tomorrow at 11:00 PM

☐ Delete archived data

☒ Launch workflow when the job is restored

Workflow: Default SELECT

Please note that when the workflow is launched, the task will not wait for the workflow to finish

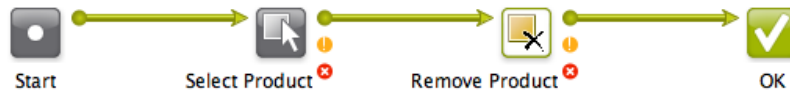
? Save As... [Settings] Cancel OK

## Job Context

The Restore Job task inside a Workflow only has an error pin, because otherwise you would expect that the tasks following the Restore Job task would run in the context of the Restored Job. This is not possible since **all tasks inside a Workflow run in the same Job as the Workflow**.

# Remove product task

- A new task that gives the user the possibility to delete Products that are not relevant anymore for production as this **fills up disks** and makes **managing the database more difficult**. This action should be possible from within a **business system** so a manual cleanup is not needed. The task can also find products based on selecting their part(s) and then remove the complete product. (and all of its parts..)



The 'Edit Parameters of Select Product' dialog box contains the following elements:

- Select:** A group box containing three radio buttons:
  - ☒ A product by its ID
  - ☐ A product by its name
  - ☐ A product part by its name
- Product ID:** A text field containing the value 'xpath:/Products/ProductID/text()' with 'SELECT' and 'EDIT' buttons and a small square icon to the right.
- Two checked checkboxes:
  - ☒ Provide a warning when no products were selected
  - ☒ Ignore unexisting products
- At the bottom right, 'Cancel' and 'OK' buttons.
- A help icon (?) at the bottom left.

The 'Edit Ticket of Remove Product' dialog box contains the following elements:

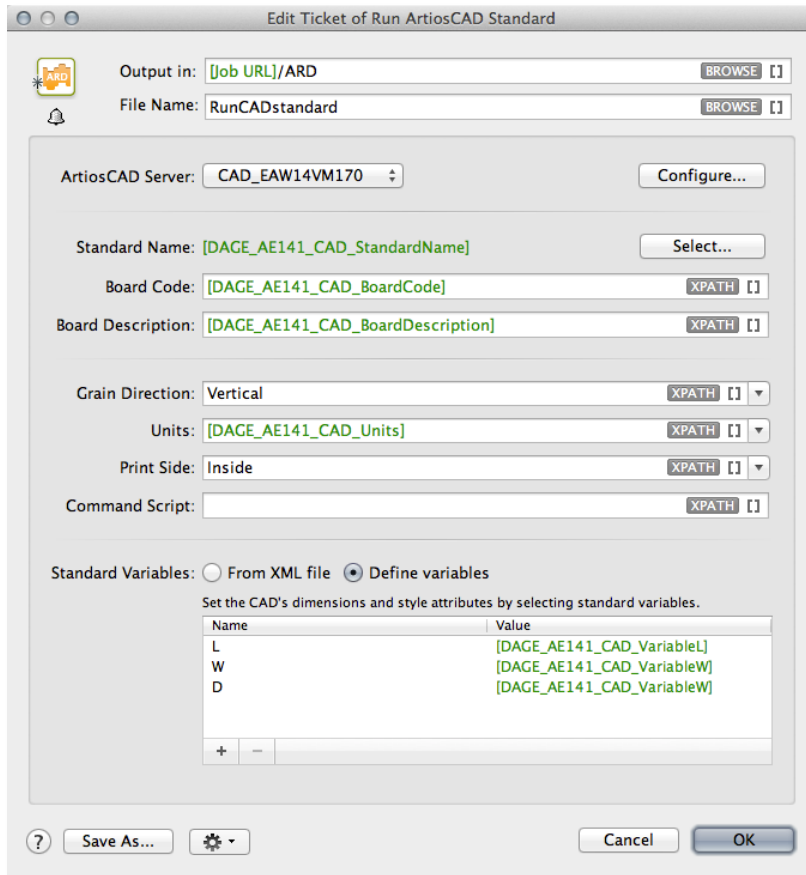
- A trash can icon with an 'X' and a bell icon.
- Next to removing the product from the products database:** A section containing two checked checkboxes:
  - ☒ Remove file
  - ☒ Remove complete data zone
- A warning icon (triangle with exclamation mark) followed by the text: 'Data zone should not overlap with the data zone of other products'.
- At the bottom, a 'Save As...' button, a settings icon (gear), and 'Cancel' and 'OK' buttons.
- A help icon (?) at the bottom left.



CAD automation

# Run ArtiosCAD standard task

- The Run CAD Standard task allows to create an **ARD design** document based on the **standard name, board code, board description, grain direction, units and standard variables** as provided in an input XML file or direct input to those fields.



Output in: [Job URL]/ARD BROWSE []

File Name: RunCADstandard BROWSE []

ArtiosCAD Server: CAD\_EAW14VM170 Configure...

Standard Name: [DAGE\_AE141\_CAD\_StandardName] Select...

Board Code: [DAGE\_AE141\_CAD\_BoardCode] XPATH []

Board Description: [DAGE\_AE141\_CAD\_BoardDescription] XPATH []

Grain Direction: Vertical XPATH []

Units: [DAGE\_AE141\_CAD\_Units] XPATH []

Print Side: Inside XPATH []

Command Script: XPATH []

Standard Variables: ☐ From XML file ☒ Define variables

Set the CAD's dimensions and style attributes by selecting standard variables.

Name	Value
L	[DAGE_AE141_CAD_VariableL]
W	[DAGE_AE141_CAD_VariableW]
D	[DAGE_AE141_CAD_VariableW]

+ -

? Save As... [Settings] Cancel OK

# Run ArtiosCAD standard task

## Parameters for Run CAD Standard task

Attribute	Description
<b>Output in</b>	Specify the folder location, where the ARD file should be created.
<b>File Name</b>	Specify the name of the ARD file that should be created in the output folder.
<b>ArtiosCAD Server(*)</b>	Select the configured ArtiosCAD server. It supports both ArtiosCAD standard and enterprise servers.
<b>Configure</b>	Click on configure button to configure the ArtiosCAD server.
<b>Standard Name(*)</b>	Click on the Select button to set the Standard Name (extension is important!)
<b>Select</b>	When the ArtiosCAD Server is 'None', then this button is disabled. Based on the type of ArtiosCAD server, this dialog will look differently for these scenarios.
<b>Board Code(*)</b>	Specify the existing ArtiosCAD board code by using the smart name or XPath.
<b>Board Description(*)</b>	Specify the existing ArtiosCAD board description by using the smart name or XPath.
<b>Grain Direction</b>	Select the grain direction. Default value is <b>Vertical</b> .
<b>Units</b>	Select the metrics. Default value is <b>mm</b> .
<b>Print Side</b>	Select the print side. Default value is <b>inside</b> .
<b>Command Script</b>	Specify the command script which has to be executed after design creation.
<b>Standard Variables(*)</b>	Standard Variables define the dimensions (and other characteristics) of the CAD object. They can be defined by: <ul style="list-style-type: none"><li>• <b>From XML File</b> - Extracting the name and value from the XML file</li><li>• <b>Define Variables</b> - Defined by the user (input via SmartNames, direct input ...).</li></ul>

(\*) = mandatory elements.

# S&R tasks use bleed priority info in MFG from ArtiosCAD

- In case of **MFG layouts**, the artwork panels in ArtiosCAD can define a **bleed direction**. Artwork panels in ArtiosCAD now have an '**Allow bleed**' property - if this property is turned ON, the panel is considered as having a minor priority and it can receive bleed when it touches another panel marked as major priority ('Allow bleed' not defined or turned OFF). In case 2 minor panels are touching, bleed will be truncated to the centerline.
- This changed behavior applies to **all S&R tasks** and **Plato**.



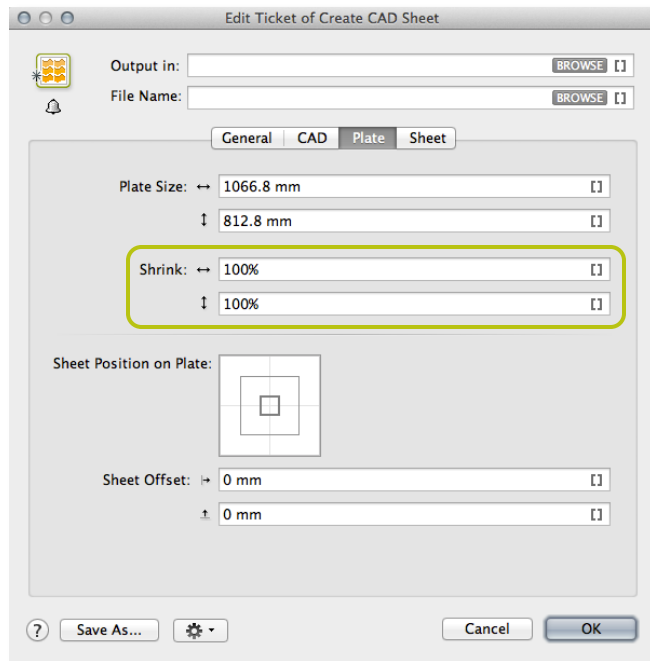
**Note:** the 'Allow bleed' property is available from **ArtiosCAD 14.0.2** onwards. Please check this document for detailed **info**:

<https://esko.box.com/SmartFlapping>



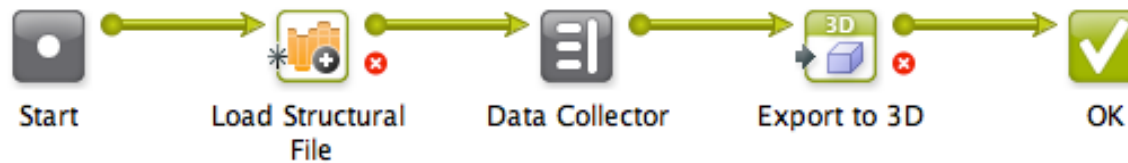
# Shrink support in Create CAD sheet tasks

- When writing a **Normalized PDF file** (self-contained PDF file or a PDFPLA) file, the shrink factors are written in the file's **XMP section** (i.e. the objects and page boxes will keep their original sizes). These shrink factors will be picked up by the **RIP or Export to PDF file tasks** where they will result in a scale factor (in vertical and horizontal direction) which are **applied on the complete document** (including page boxes).
- When writing an **Adobe PDF file**, the shrink factors will result in a **scaling which is applied on the complete document**, including PDF page boxes (i.e. the objects will get scaled).



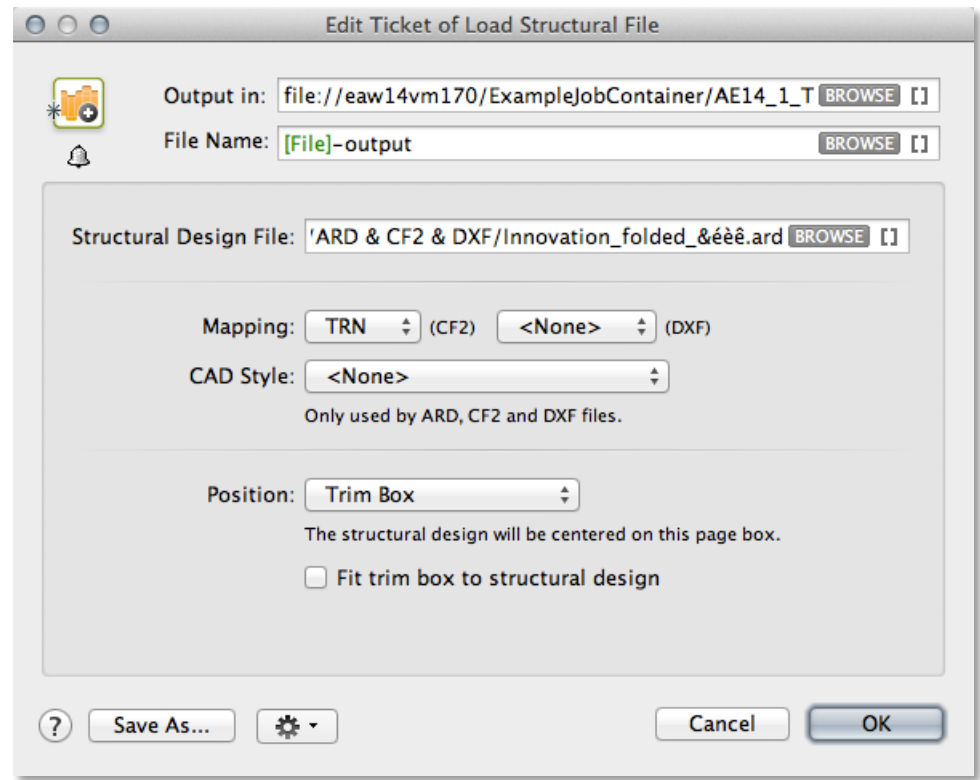
# Load structural file

- With this task you can place a structural file, starting from a PDF file so that 'the marriage' between **graphic file and structural file** can happen automatically in the background **without human intervention**. This allows time saving for the operator who **normally needs to place the structural file manually**. The risk of choosing the wrong structural file is also gone. The output of the task is also the perfect input file for full automation of 3D samples.



# Load structural file

- Input is a **Normalized or Adobe PDF file** (Adobe PDF files will get normalized on-the-fly).
- If the input file **already contains a structural object** (loaded in PackEdge/ArtPro/DeskPack - only in case of normalized PDF files), the task will result in an **error**.
- The structural file can be:
  - a **CAD file** (ARD / CF2 / DXF format)
  - a **.bag file**
  - a **Collada file** (.DAE / .ZAE format)
- Loading the structural file will result in a **Normalized PDF file containing a structural object**.
- The structural object will be positioned on the **selected page box** (Art/Crop/Bleed/Trim/Media Box). In case the **dimensions** (bounding box) of the structural object **does not match with the size of the selected page box**, a **warning will be issued**.

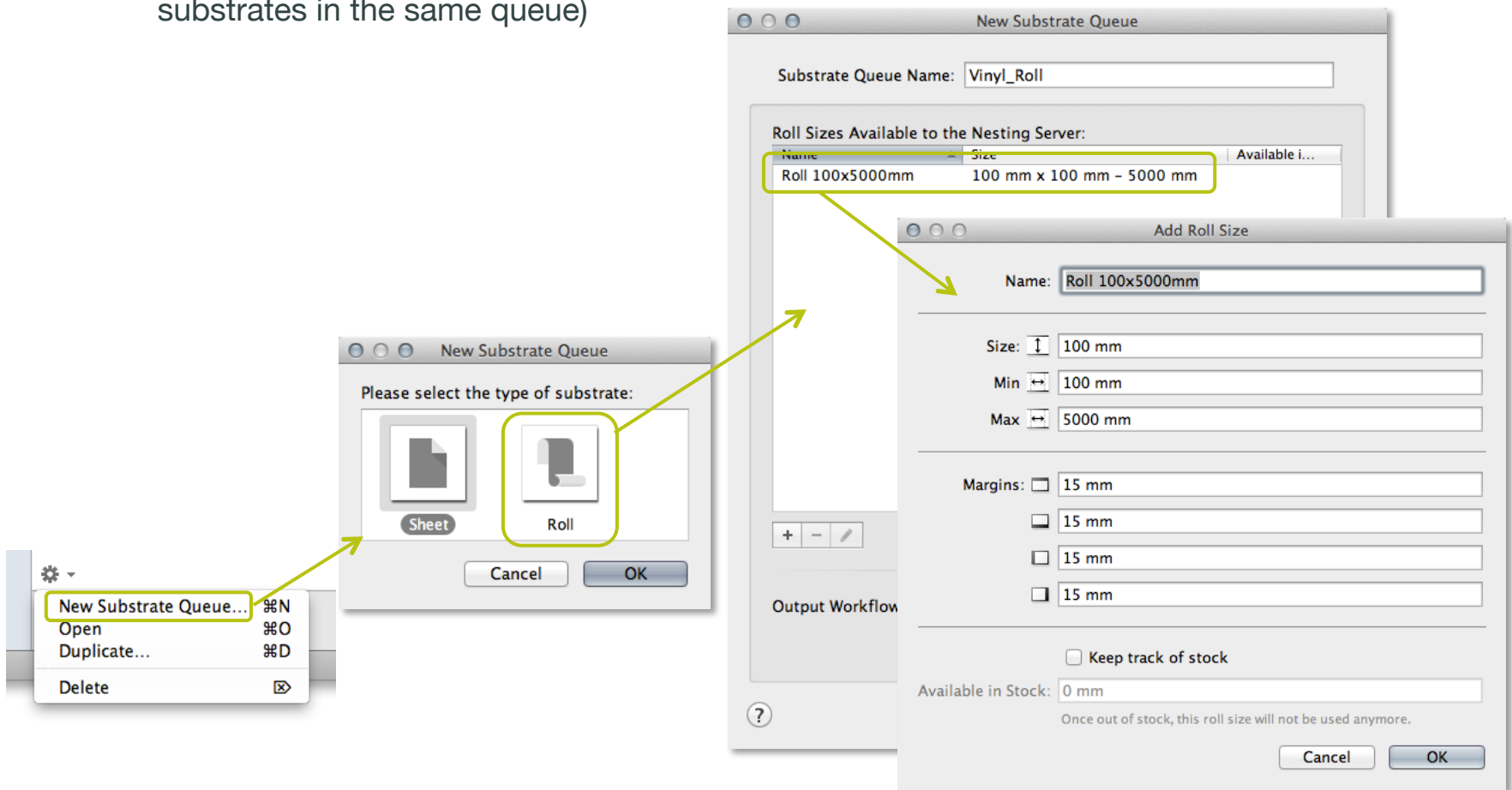




Gang run printing

# Roll support in gang run printing

- When adding a new **substrate queue**, one can select whether the queue will contain '**Sheet**' or '**Roll**' substrates (note: roll & sheet are a property of the queue - you can not mix sheet and roll substrates in the same queue)



# Roll support in gang run printing

**Add Roll Size**

Name:

---

Size:

Min:

Max:

---

Margins: ☐

☐

☐

☐

---

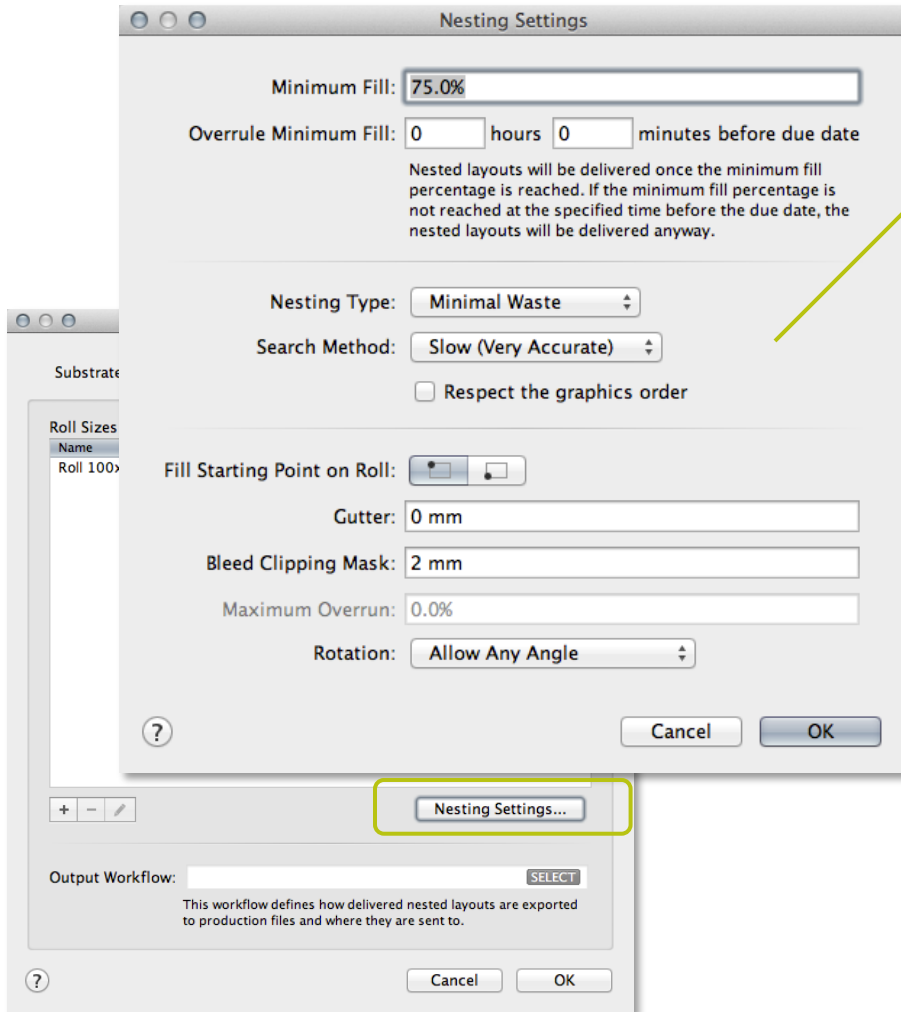
☐ Keep track of stock

Available in Stock:

Once out of stock, this roll size will not be used anymore.

- In the case of roll substrates, one can define:
  - The width of the web (across the roll)
  - A min. and max. length (along the roll)

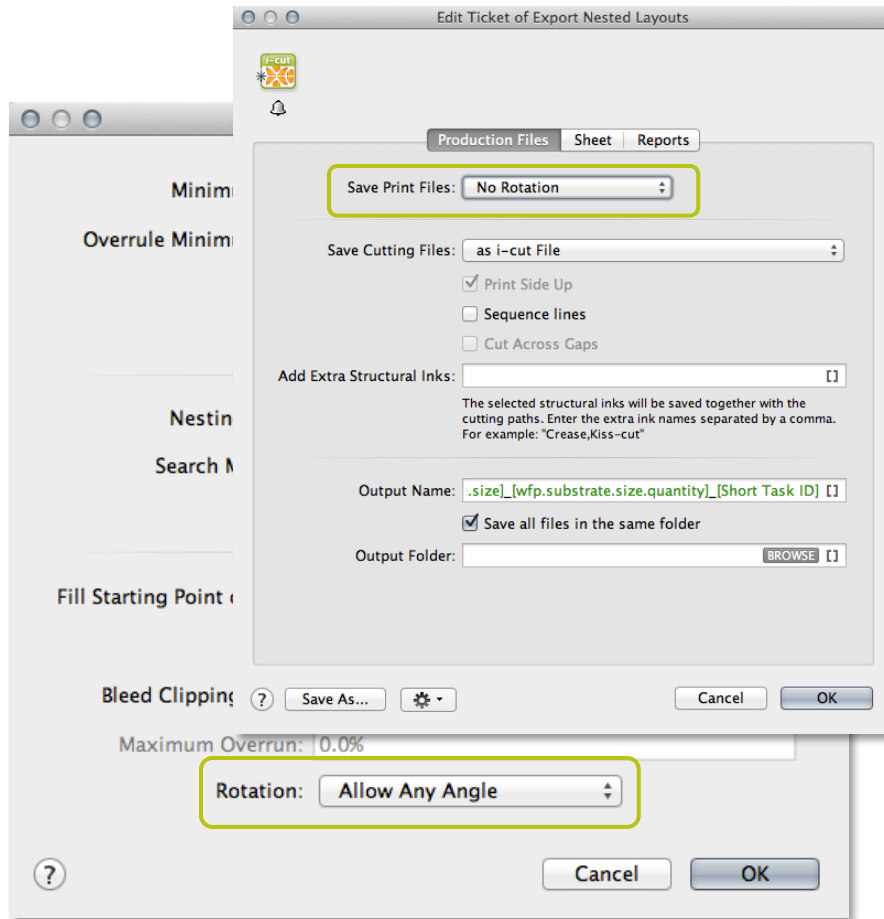
# Roll support in gang run printing



- Nesting on roll will:
  - Always set the '**Primary Fill Direction**' or '**First Cut**' to the direction across the roll
  - **Reject** jobs which **exceed the maximum length** (these jobs can't fit on the substrate)
  - **Generate** a layout in case the layout **exceeds the minimum length** and **reaches the minimum fill percentage**

**Note:** in case the **due date has expired**, a layout will be generated even if the minimum fill and length is not reached

# Roll support in gang run printing



- In case the PDF file for printing needs a **different orientation**, there is now a **rotation option** in the 'export nested layouts' task

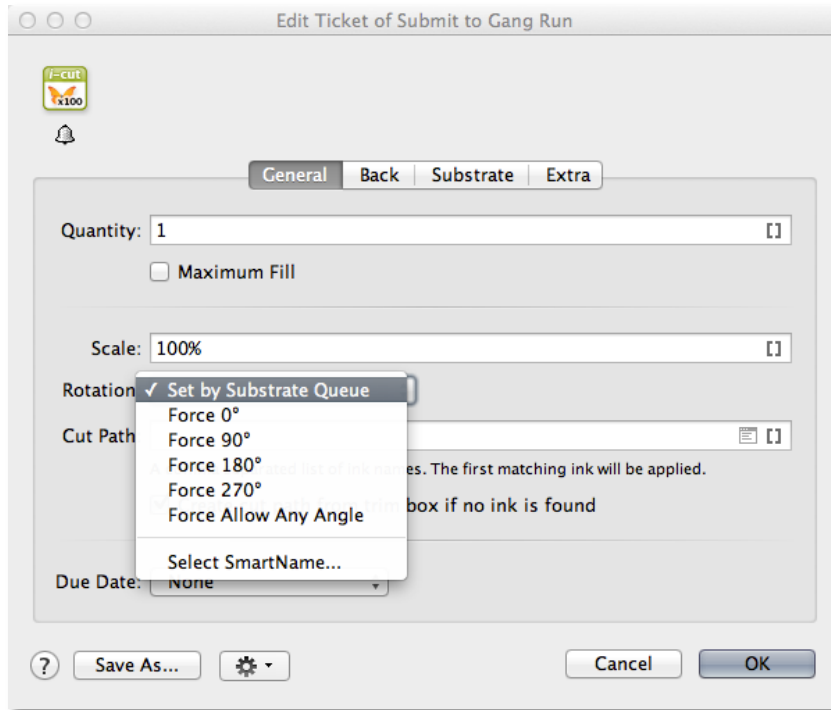
**Note:** The orientations in the definition of the substrates (and the resulting nested file) are seen from the point of view of the (Kongsberg) table operator: the **width of the web corresponds to the Y-direction** of a Kongsberg table, so the height of the resulting layout. The **length along the roll corresponds to the X-direction** on a Kongsberg table = the width of the resulting layout.

**Note:** The 'Import Substrate Sizes from XML' has support to define roll substrates



# Overrule substrate rotation in submit to gang run

- The 'submit to gang run task' has an additional control to set the **rotation of the graphic**. Possible values are:



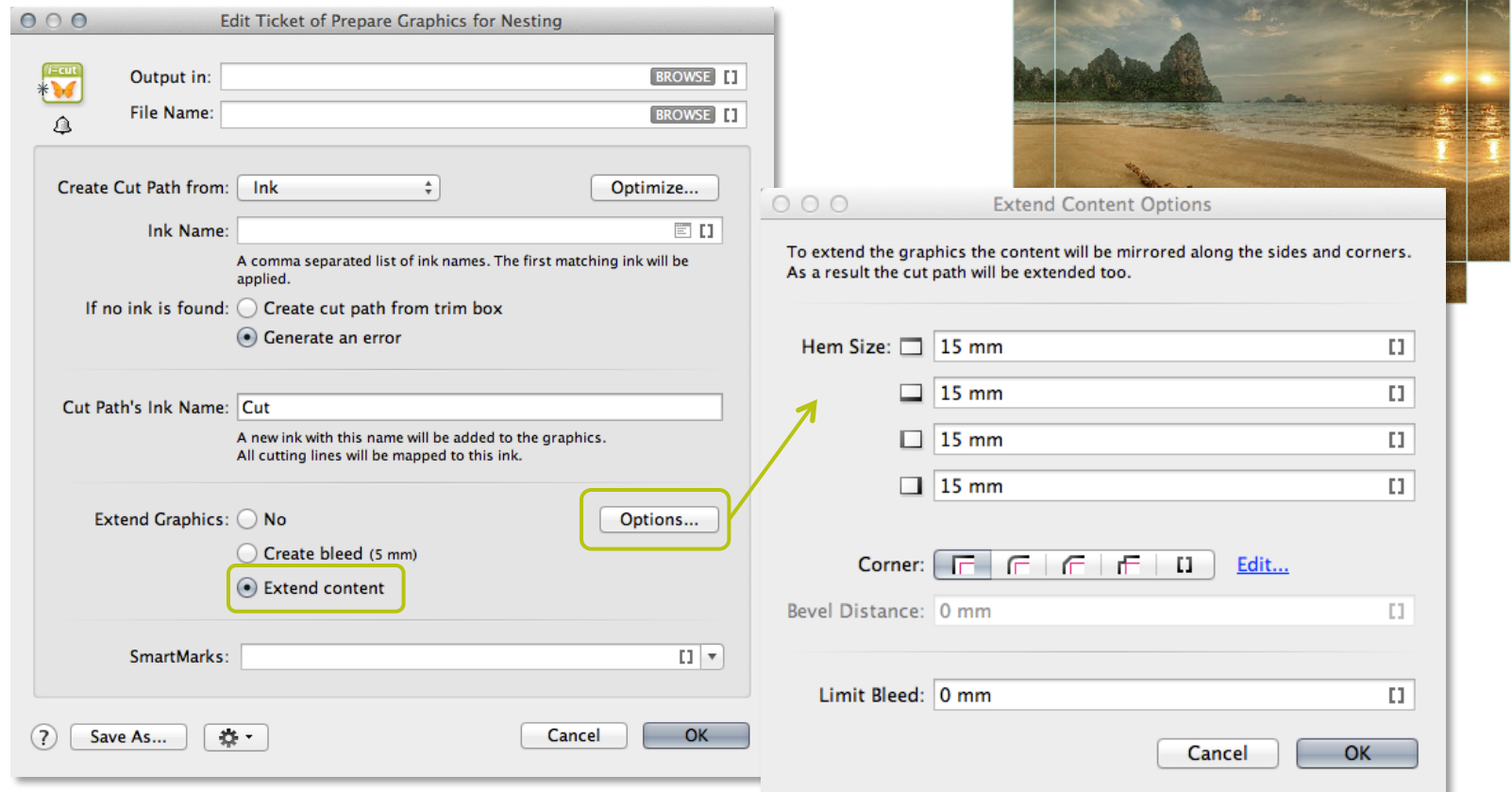
- **Queue setting** : use the rotation settings as defined in the gang run queue
- **Any angle**: allow any angle (overrules the gang run queue settings)
- **0, 90, 180, 270**: apply a fixed rotation angle (overrules the queue settings) - value is in degrees, clockwise

**Note:** The 'submit XML to gang run task' allows a `<Rotation>` node to **control the rotation angle per graphic**

**Note:** The gang run view shows **an extra column** containing the **rotation setting** for each entry in the queue

# Extend content in the prepare graphics for nesting task

- Using Extend content, you can **mirror the graphic content** over the 4 sides and corners of the original cut path, and extend the cut path. This can be used to create a hem for **a flag, a banner, a canvas, ....**



# File info on jobs in the gang run printing view

The screenshot displays the gang run printing interface. At the top, a table lists files for printing:

File Name	Submit Date	Due Date	Customer	Substrate Size	Scale	Quantity	Remainin...
Croc_18.pdf	(page 1 of 1)	3/27/15 5:30...			100%	Maximum Fill	
Bike_25.pdf	(page 1 of 1)	3/27/15 5:30...			100%	Maximum Fill	
Cig_20.pdf	(page 1 of 1)	3/27/15 5:30...			100%	Maximum Fill	
arrow_18.pdf	(page 1 of 1)	3/27/15 5:30...			100%	Maximum Fill	

Below the table, a preview of the selected file 'Croc\_18.pdf' is shown. The preview window includes a 'Data Type' tab with options like Artwork, Fonts, General, Inks, Layers, and Pages. The 'General' tab is active, displaying document information:

- Document Color Profile: -
- Pages: 1 page
- Readerspread: -
- Trapped: No
- Screen Registration: Unknown
- Trim Box - Height: 210.002 mm, Trim Box - Width: 297 mm
- Media Box - Height: 210.002 mm, Media Box - Width: 297 mm
- Top Margin: 0 mm, Left Margin: 0 mm
- Bottom Margin: 0 mm, Right Margin: 0 mm
- Vertical Distortion: -
- Horizontal Distortion: -
- Document Info: -

At the bottom of the preview window, there is a 'View Source...' button and a 'Print...' button. A yellow arrow points from the 'Info' button in the bottom toolbar to the 'View Source...' button in the preview window.

The bottom toolbar contains several icons: Hold, Release, Print Now, Delete, and Info. The 'Info' button is highlighted with a yellow square.

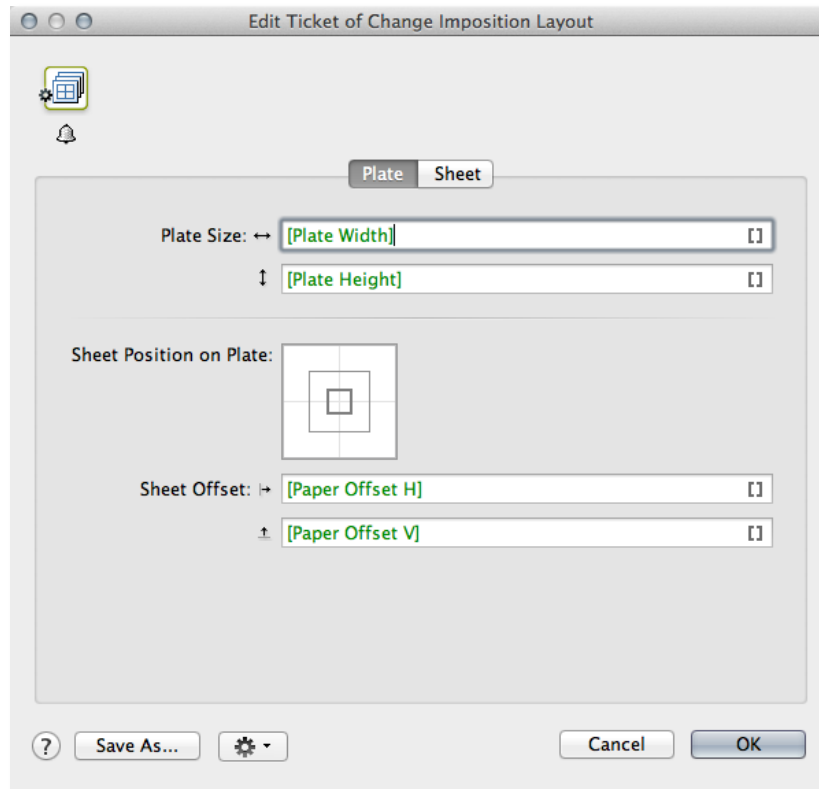
- An info button was added to the gang run printing view. This button is **only enabled when one file is selected**. Clicking on this button will open the file info dialog. The dialog can also be opened by using the shortcut ctrl-i (cmd-i on Mac) or by choosing the menu item *File > Info*.



Imposition automation

# New Change Imposition Layout Task

- The 'change imposition Layout task' allows you to change the way the **imposition is positioned relatively to the paper and plate**. This means this task will typically be used when changes on the press need to be made.



# New Change Imposition Layout Task

## Changing the plate parameters

Edit Ticket of Change Imposition Layout

Plate Sheet

Plate Size: ↔ 2000 mm [ ]

↓ 800 mm [ ]

Sheet Position on Plate:

Sheet Offset: → 0 mm [ ]

↑ 0 mm [ ]

? Save As... [ ] Cancel OK

- The **plate tab** allows you to define the plate sizes as well as the positioning of the sheet (paper) on the plate.

**Note:** If you do not want to change the plate size or sheet offsets, then leave these settings to the default settings, they **contain the corresponding SmartNames**.

# New Change Imposition Layout Task

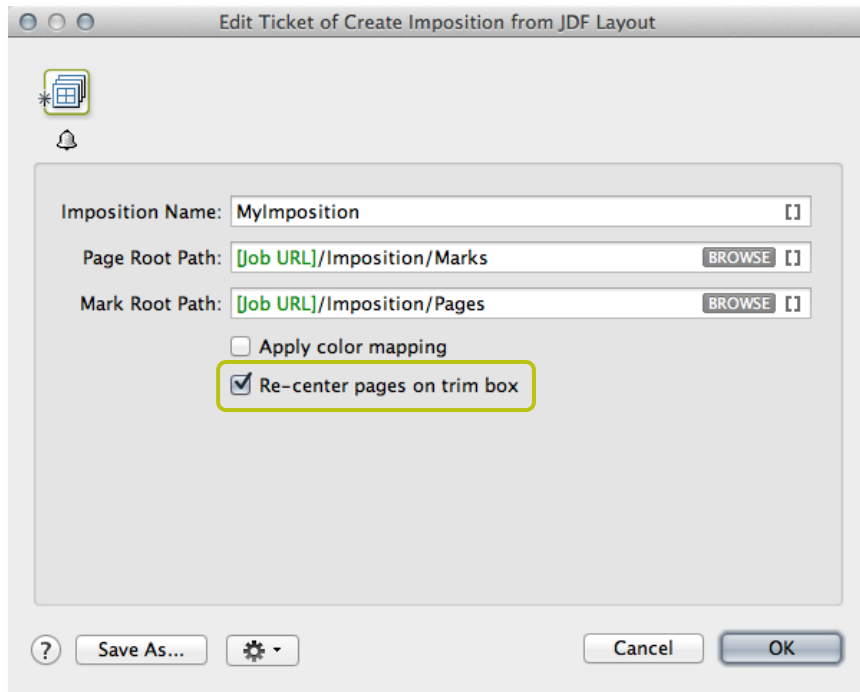
## Changing the sheet parameters

The screenshot shows a software window titled "Edit Ticket of Change Imposition Layout". Inside, there are two tabs: "Plate" and "Sheet", with "Sheet" currently selected. The "Sheet" tab contains several input fields and a diagram. At the top left is a small icon of a document with a gear. Below it is a "Sheet Size" section with two input fields: "[Paper Width]" and "[Paper Height]". Below these is a "Blank Position on Sheet:" section featuring a diagram of a square sheet with a smaller square in the center, representing the blank area. Below the diagram are two input fields for "Blank Offset": "0 mm" and "0 mm". Below these is a "Gripper Margin:" input field with the value "[Gripper Margin]". At the bottom of the input section is a "Backing Up:" dropdown menu showing "[Work Method]". At the bottom of the window are buttons for "?", "Save As...", a gear icon, "Cancel", and "OK".

- The **sheet tab** allows you to define the sheet (paper) sizes and position your imposition on the sheet.
- The gripper-margin field allows you to **redefine the gripper-margin SmartName** for the selected sheet or imposition.
- The *Backing Up* drop-down box allows you to accommodate for a **change in working method** of your printing press.

# Re-center pages on Trim Box

- If, **while importing a JDF layout** imposition, you want to **reposition** the pages **according to their Trim Box**, then switch this toggle ON. If you want to leave the pages positioned **relative to their Media Box**, which is according to the JDF specification, then switch this toggle OFF.
- Which option to use is **dependent on the impositioning and page workflow** you are using.
- When in doubt, start by setting the toggle ON, and **check the page positioning** in the resulting **Imposition**.



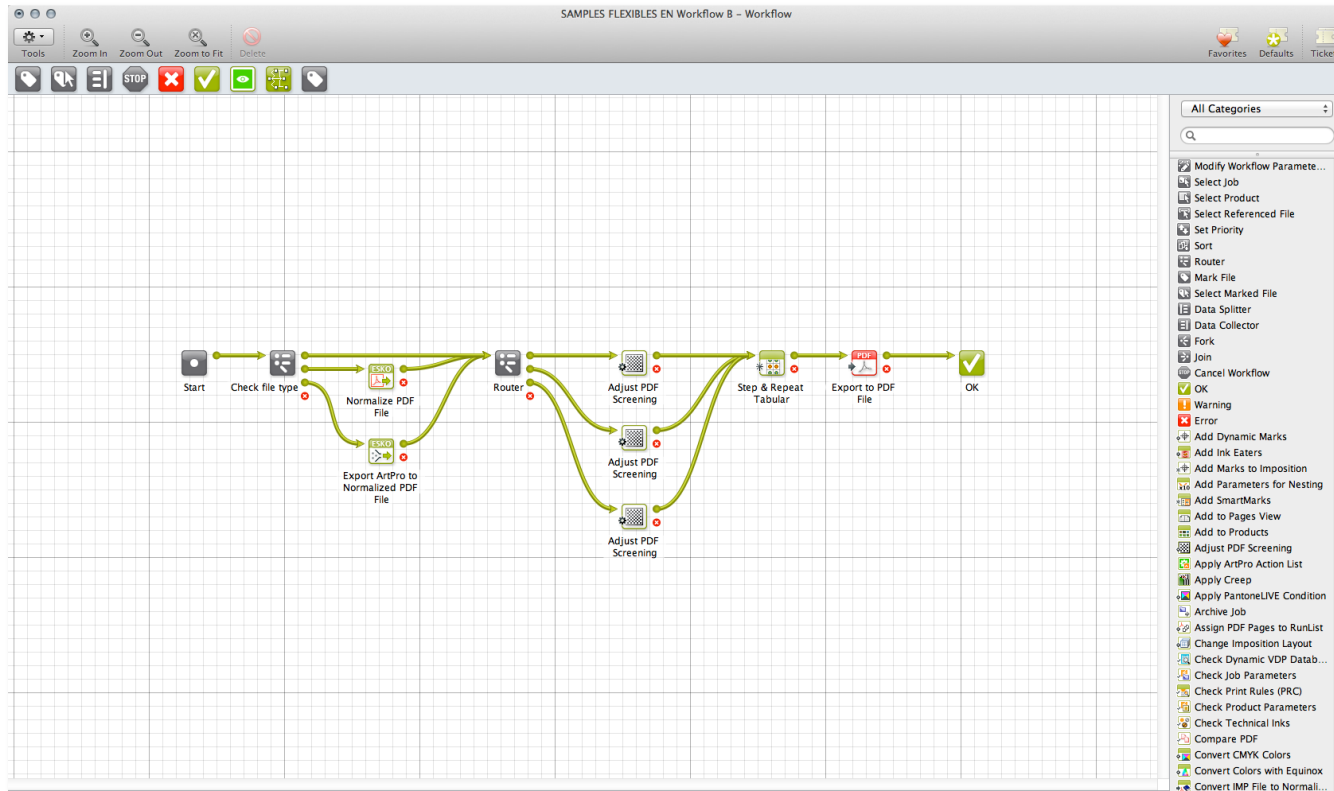


The background features a series of overlapping, flowing waves in shades of light green, olive green, and grey. The waves move horizontally across the frame, creating a sense of motion and depth. The colors are soft and blended, giving the background a modern, organic feel.

Various features

# Grids in workflow canvas

- To use the grid, go to **View > Show Grid**.
- To hide the grid, go to **View > Hide Grid**.
- To snap workflow blocks to the grid when moving them, choose **View > Snap to Grid**.

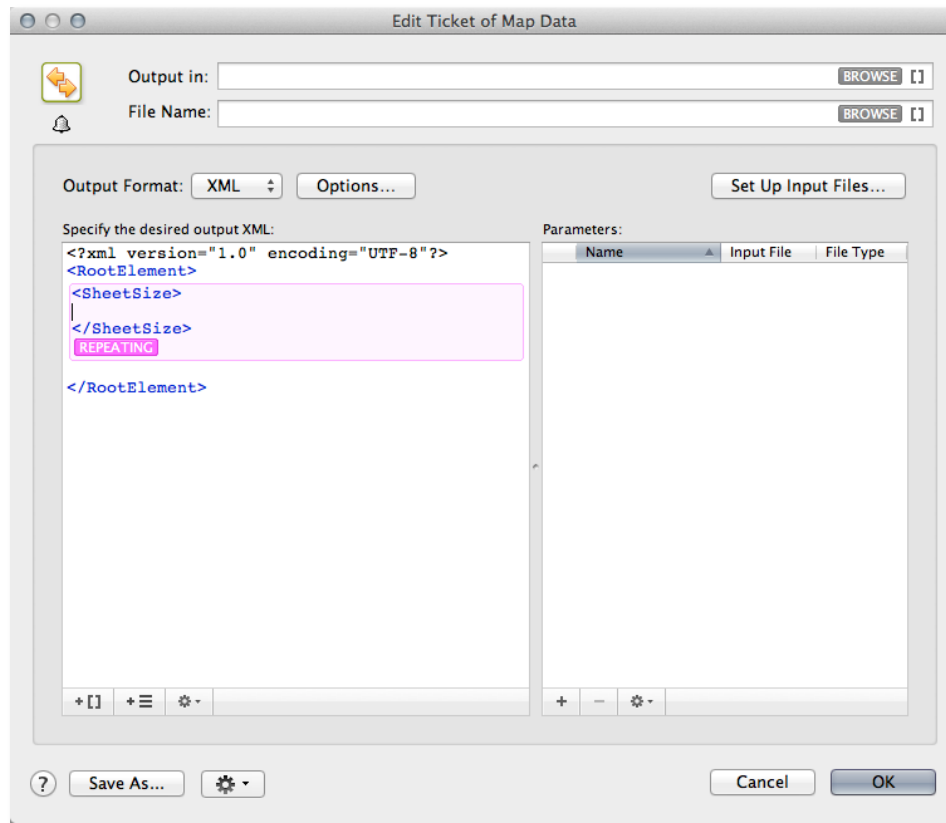


# Load Parameters for Repeating Content from XML

## *How to load parameters for repeating content from XML in the Map Data task?*

- Place the **text insertion cursor** in the **repeating block** for which you want to load parameters.

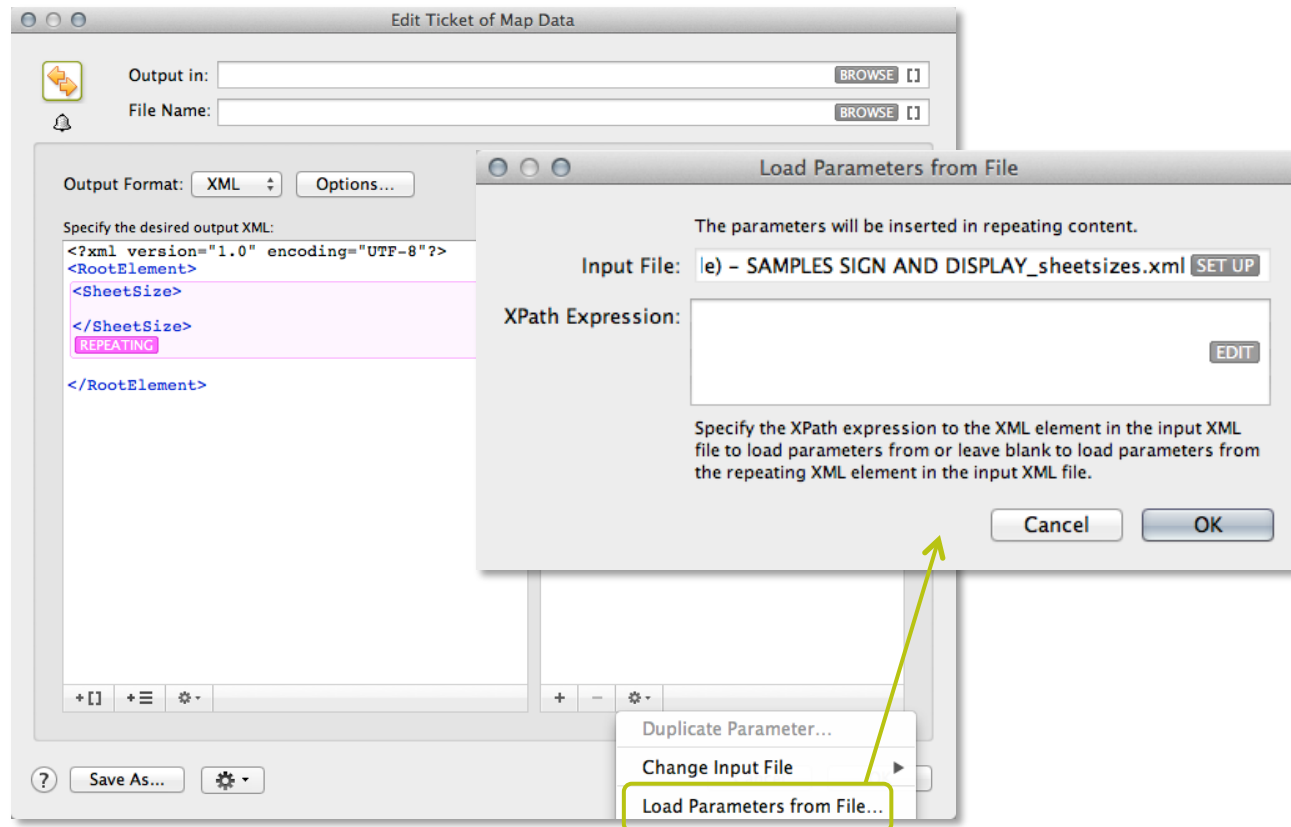
**Note:** the repeating block should represent a repeating XML element in an XML input file.



# Load Parameters for Repeating Content from XML

## *How to load parameters for repeating content from XML in the Map Data task?*

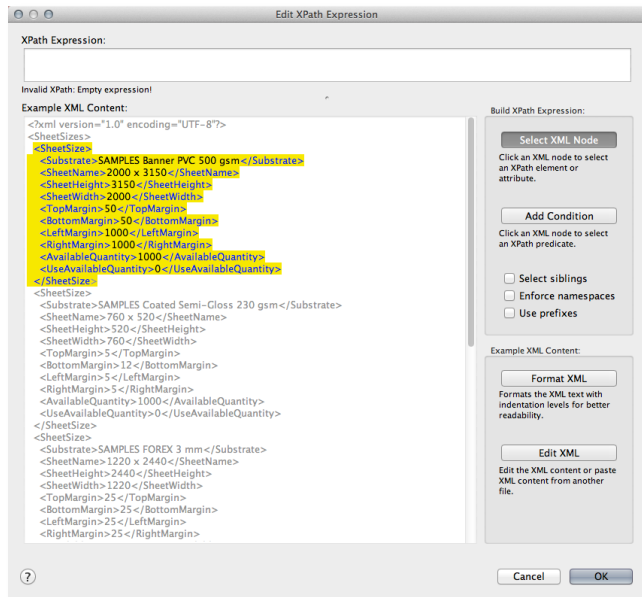
- Select **Load Parameters from File...** from the action pop-up menu at the bottom of the list of parameters. The **Load Parameters from File** dialog will pop up.



# Load Parameters for Repeating Content from XML

## *How to load parameters for repeating content from XML in the Map Data task?*

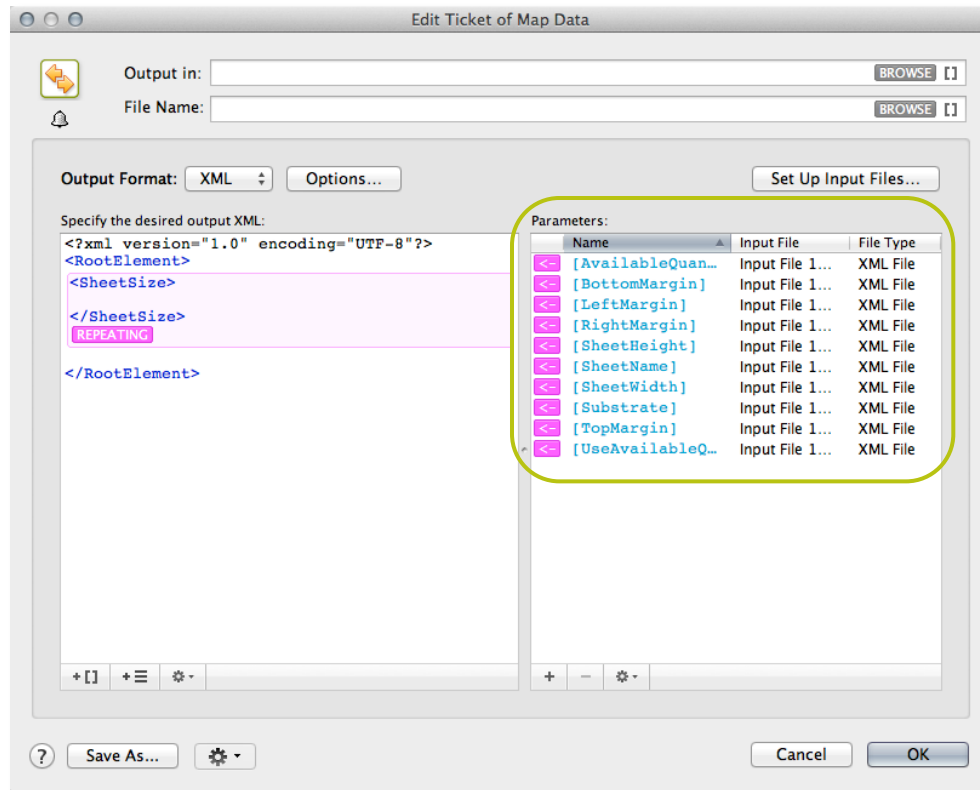
- Specify the relative **XPath Expression** to the XML element in the repeating XML element in the input XML file to load parameters from.
- You can automatically generate the XPath expression by selecting the XML element to load parameters from the example file you selected for the input XML file. To do this, click the **Edit** button at the bottom of the **XPath Expression** field.
- You can choose to load parameters from the repeating XML element itself. To do this, leave the **XPath Expression** field blank.



# Load Parameters for Repeating Content from XML

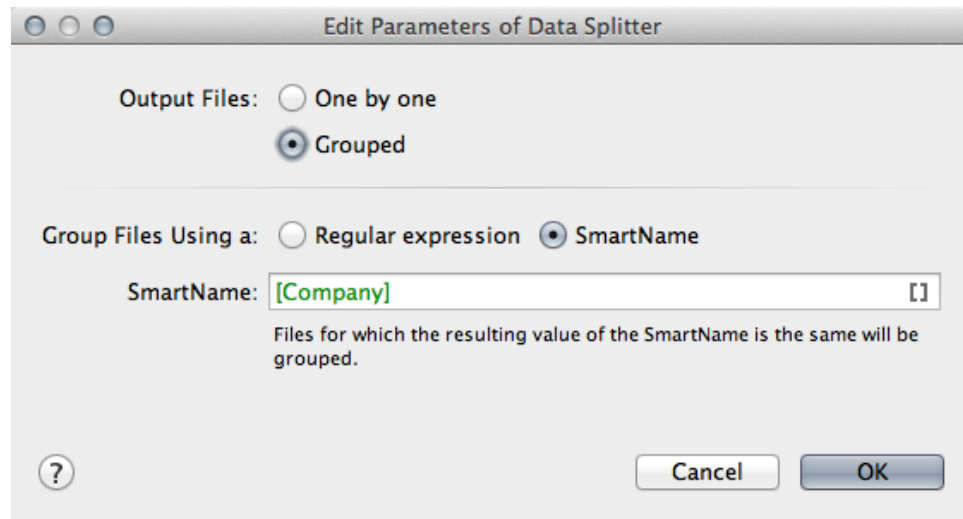
## *How to load parameters for repeating content from XML in the Map Data task?*

- Click OK to load parameters from the the repeating XML element in the input XML file. Parameters will be added for **every child XML element of the selected XML element** and for all of their XML attributes.



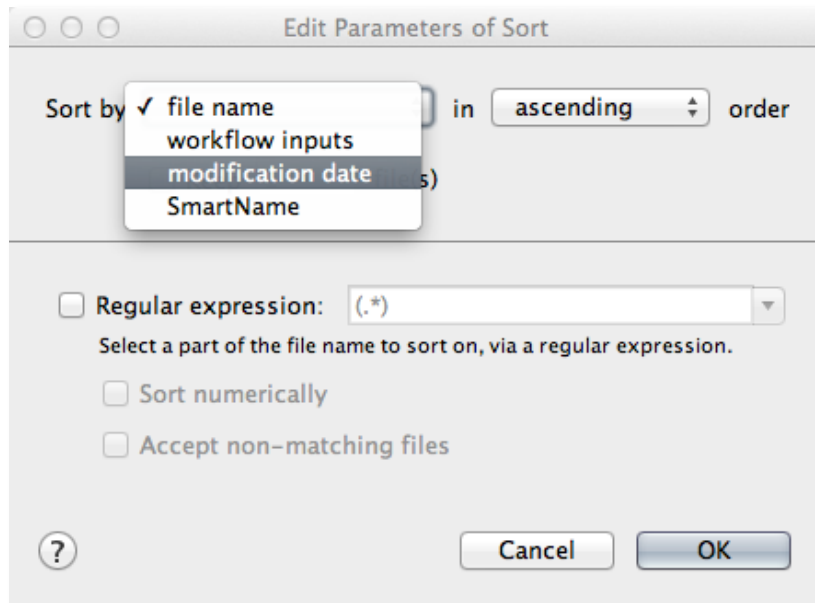
# Improved UI for the Data Splitter workflow control

- The Edit Parameters dialog of the Data Splitter workflow control has a new and more easy-to-use user interface. The Data Splitter workflow control can be used to process **each file of a file set individually**. By default, files will be processed one by one. However, you can choose to output the files in groups by selecting the **Grouped** option.



# Sort on modification date in the Sort workflow control

- It is now possible to sort on the modification date of the input files by choosing "**modification date**" in the **sort by** combo box. E.g. to find the most recent files / folders.





# Improved handling of conditional queries in Split XML

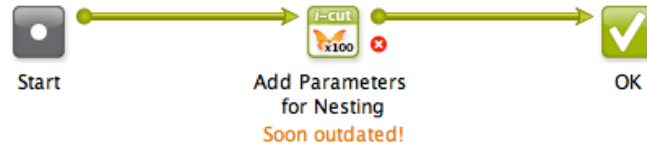
- When splitting on an XPath expression `/Jobs/Job[@ready='y']`, where a file contains the following:

```
<Jobs>  
  <Job id='1' ready='y'/>  
  <Job id='2' ready='n'/>  
  <Job id='3' ready='y'/>  
</Jobs>
```

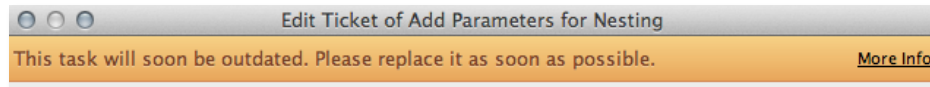
- The 'split XML task' will produce 2 files, with only the selected node where before both files also unexpectedly contained the non-selected node with id 2.

# Improved UI for deprecated tasks

- A task is flagged as 'soon outdated' in the **workflow canvas**:



- The **options panel** of a 'soon outdated' task will contain following banner at the top:

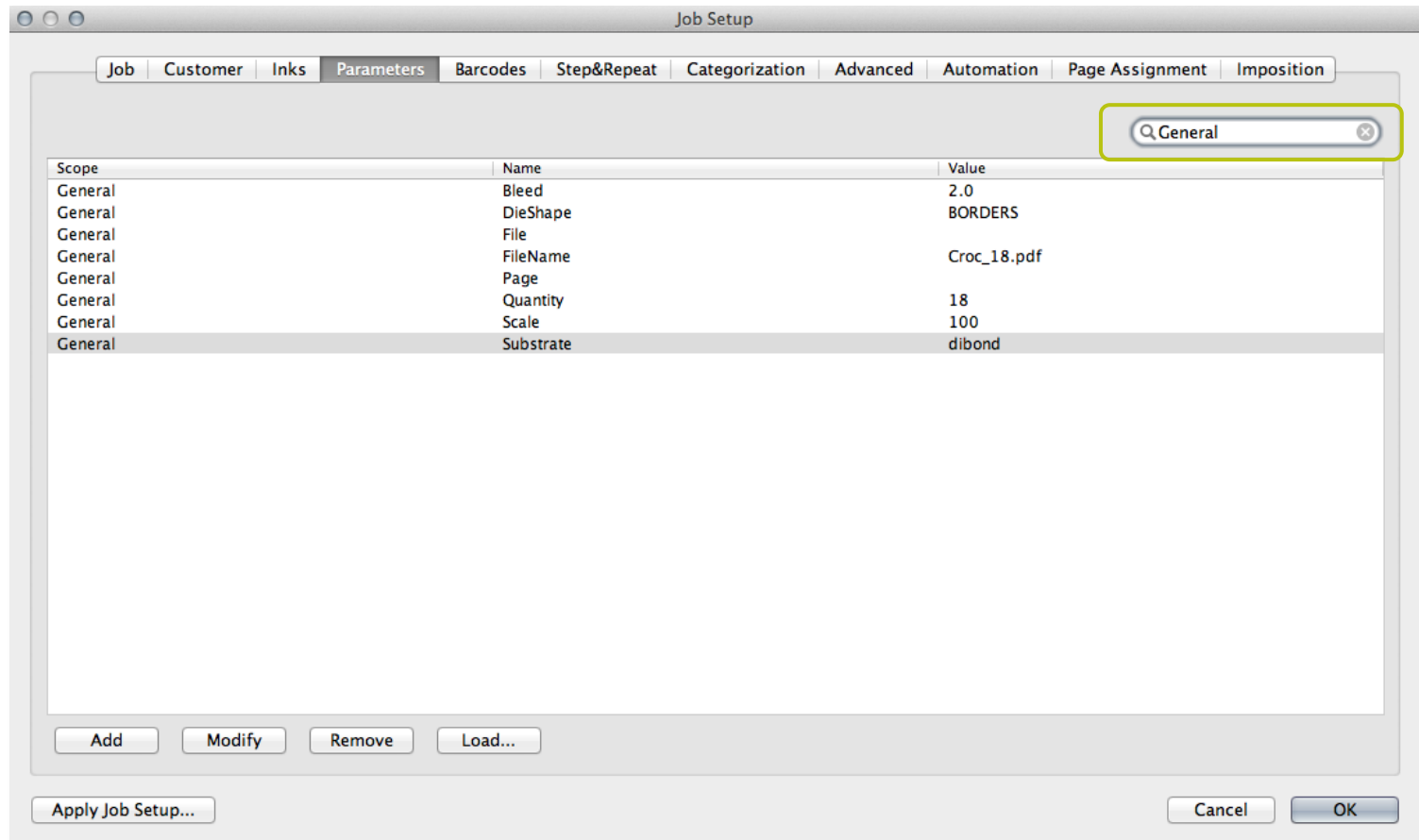


- **Tickets view** indicates 'soon outdated' tickets:

A list of tasks in the tickets view. The tasks are: 'Add to Products', 'Add to Pages View', 'Add SmartMarks', 'Add Parameters for Nesting (Soon outdated)', and 'Add Marks to Imposition'. The task 'Add Parameters for Nesting' is highlighted with a grey background and has '(Soon outdated)' in parentheses next to it.

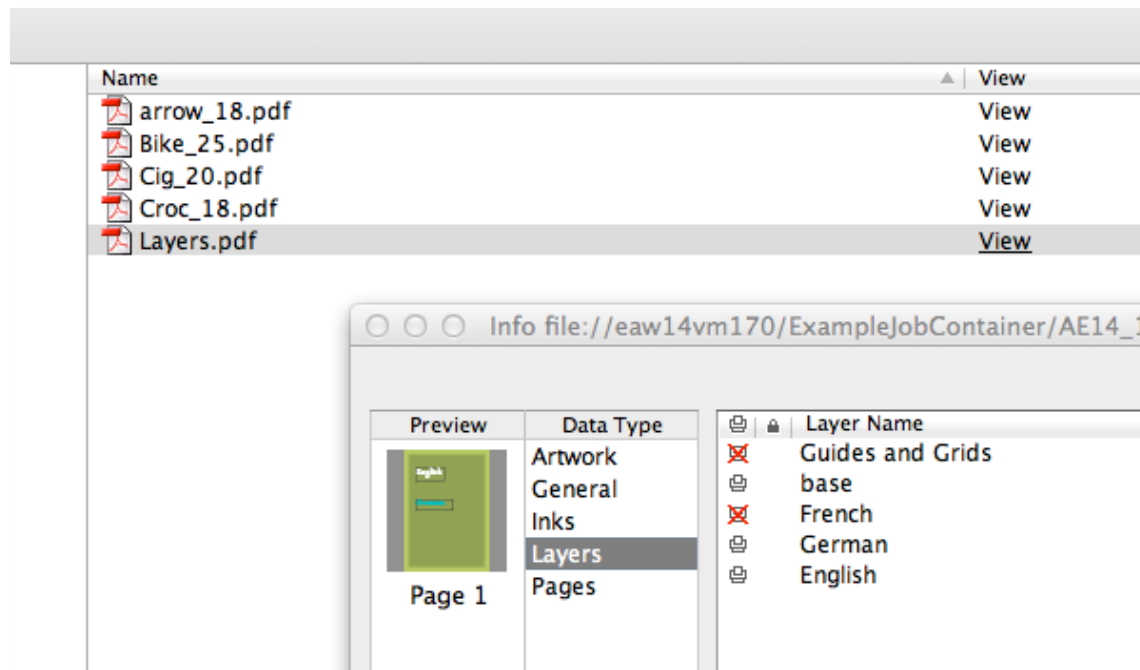
# Search in Job Parameters

- The **Parameters tab** in the **Job Setup dialog** now has a **search** field. The search field allows the user to search on Scope, Name and Value.



# Layer info for Adobe PDF files

- The info dialog in the Pilot now shows layer information for Adobe PDF files. The Router Workflow Control can now also route on layer names for Adobe PDF files, identical as for Normalized PDF files



ESKO\*

