document sciences

xPression 3

xDashboard Enterprise Edition User Guide

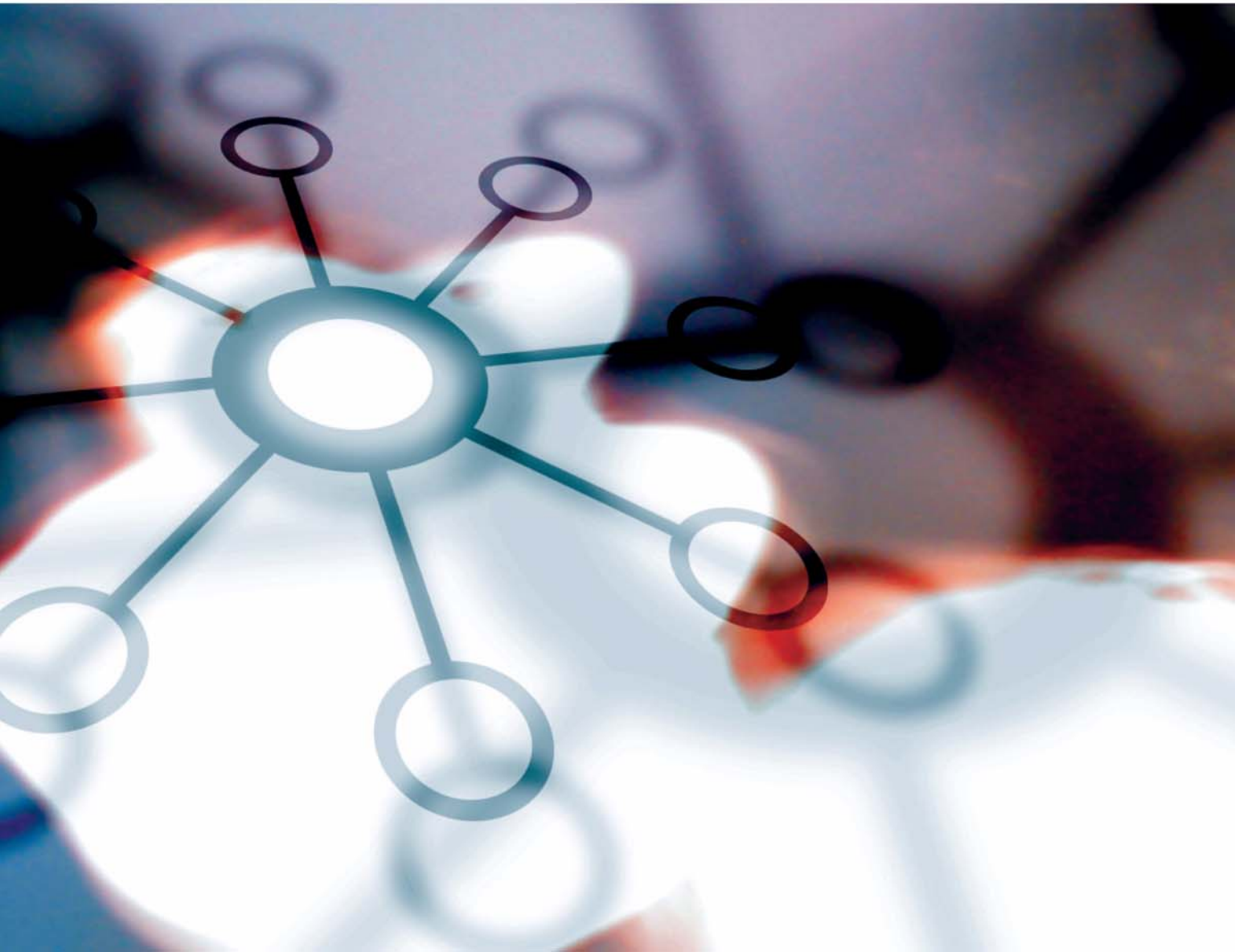

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Table of Contents

Chapter 1

Introduction

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Welcome to the *xDashboard Enterprise Edition User Guide*. This book shows you how to use xDashboard to create and administer jobs, monitor your batch processes, and keep track of your job history.

Boxes and Revision Bars

The following colored boxes alert you to special information in the documentation.

Caution: The caution box warns you that a fatal error, unsatisfactory output, or loss of data may occur if you do not follow the directions carefully.

Tip: A tip offers suggestions to simplify a task or describes a useful shortcut. They may also describe an alternate way to use the techniques described in the text.

Note: A note offers information that emphasizes or supplements important points of the main text.

Revision bars help you locate new or changed information. Look for these revision bars in the right margin of each affected page.

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Chapter 2

Introduction to xDashboard

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xDashboard is a thin-client application that enables you to run and administer the batch capabilities of xPression and manage the xPression Server.

Figure 1. *This figure shows xPression Dashboard.*

You can access xDashboard by opening the following URL from a networked computer:

`http://<xPression_Server_name_or_IP>:<port_number>/xDashboard`

where

<xPression_Server_name_or_IP> is the name or IP address of the xPression Server

and <*port_number*> is the http port for your xPression Server. This port number is configured during installation. To determine the value for this port number, contact your xPression Server Administrator or see thexPression Enterprise Edition Installation Guide.

For example: http://xPressionServer:9081/xDashboard

The default xDashboard page displays four tabs that enable you to access different areas of functionality.

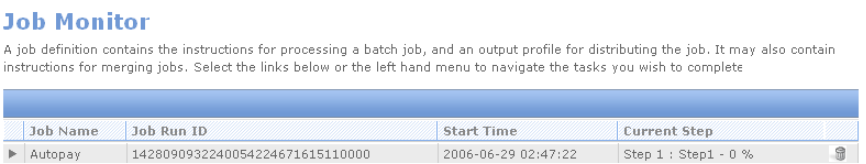
The Job Management Page

xDashboard displays the Job Management page Figure 1 on page 8 by default. Job Management enables you to create job definitions and execute your batch jobs. The job definition pages contain settings for your input data source, output profile, document personalization, and job logging. For complete details about Job Management, see Job Management.

The Job Monitor Page

The job monitor page contains information about current jobs running on your system.

Figure 2. *This figure shows the Job Monitor page.*



Jobs are listed by job name and contain the following information:

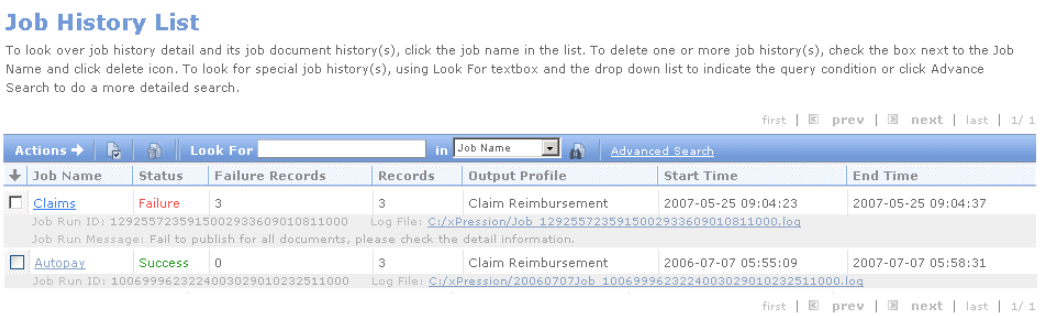
- **Job Run ID** - The ID of the batch run.
- **Start Time** - Displays the time the job was started as recorded by the xPression Server.
- **Current Step** - Displays the current status of the job.

For more information, see Job Monitor.

The Job History Page

The job history page contains a searchable list of previously run batch jobs.

Figure 3. *This figure shows the Job History page*



The job history page displays the following information:

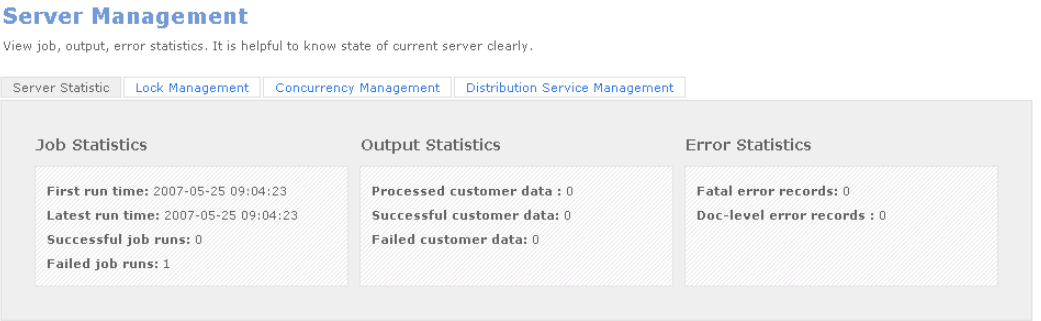
- **Job Name** - You can click the job name to see details of the batch job.
- **Job Run ID** - The ID of the batch run.
- **Job Run Message** - Displays error messages.
- **Log File** - Displays the location of the job log file. You can click this path to directly open the log file.
- **Status** - Displays the final status of the job: Success, Failure, or Success with failure records.
- **Failure Records** - Displays the number of customer records that failed to produce output.
- **Records** - Displays the total number of customer records that were processed.
- **Output Profile** - Displays the name of the output profile
- **Start and End Time** - Displayed below each record, this value shows the time the job was started and completed as recorded by the xPression Server.

For more information, see Job History.

The Server Management Page

The server management page enables you to administer the xPression Server.

Figure 4. *This figure shows the Server Management page*



This page enables you to remove locks on documents that result from server communication interruptions, view current xPression software usage, view information about distributed documents, and view server statistics. For more information, see Server Management.

Chapter 3

Job Management

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This chapter details the functionality of xDashboard Job Management. Job Management enables you to create and configure your xPression batch jobs. Almost all settings for your batch job reside in a job definition. More advanced settings reside in your BatchRunner.Properties file. For more information, see the Enterprise Edition Batch Processing Guide.

What is Batch?

Running jobs in batch mode enables you to produce large volumes of personalized xPression documents in a single batch run. You can run batch jobs in three ways:

- Schedule batch jobs to run as unattended jobs
- Manually initiate the batch job from the command line
- Run the batch job directly from Job Management

How Does xPression Handle Batch Jobs?

When running in batch mode, xPression produces one or more personalized documents from a set of customer data records. When you run a batch job, you are executing the Batch Runner command, passing along parameters and a *job definition*.

Understanding Job Definitions

The job definition is the key component of a batch job in xPression. It controls everything about your batch job except when and where it executes. You can manually create batch job definitions or create job definitions through The Job Management Page. A basic job definition contains the following pieces of information:

- Your choice of publisher.
- The input data source to use (trigger file, literal, or customer data).

- The output profile to use. An output profile defines the output streams that must be generated, the format definition of each stream, and how they're distributed.
- How to produce the personalized documents. You create job steps to specify which documents you want to publish. You can identify documents by name or from a customer data source, publish all documents waiting in the batch queue, or use queries to publish documents that satisfy certain criteria.

To create a job definition, you must configure three main components.

Component	Definition
General Information	Describes the basic settings for the job definition, such as job name, choice of publisher, output profile, job options, and batch parameters. You define these settings on the job definition page in The Job Definition Page.
Job Step(s)	Identifies the type of batch process you are running, the documents you want to process, and the data source you want to use in the process. You define these settings on the job steps page.
Job Log Settings	Enables you to configure the logging process for the batch job. You define these settings in Job Definition: The Job Log Section

How to Customize Batch Reports and Batch Logs

Job definitions can be created through Job Management or composed manually using a text or XML editor.

Job definitions generated by Job Management are stored in the xPression database. Manually composed job definitions are stored on your file system as an XML file. To learn more about creating job definitions, see The Job Definition Page.

CompuSet and xPublish Job Definitions

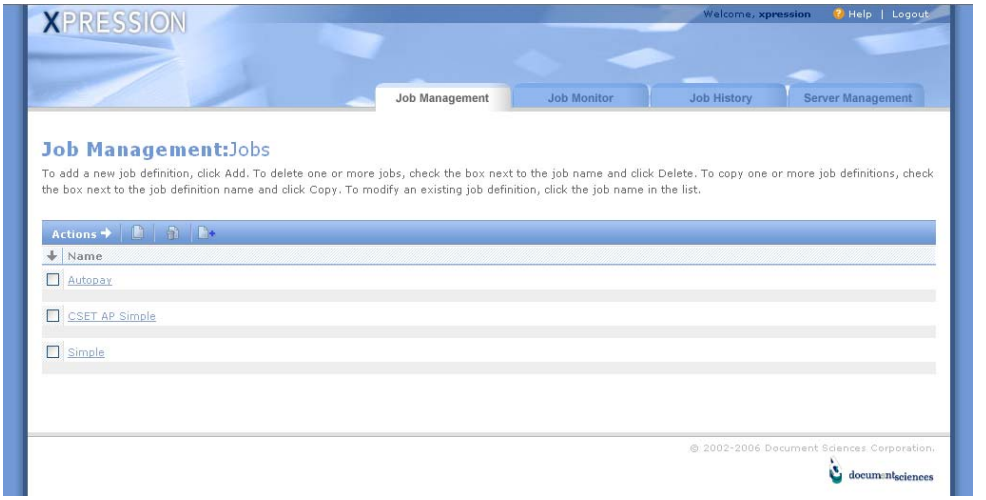
The Job Management page handles job definitions for both CompuSet and xPublish documents. When creating a job definition you can identify the job as a CompuSet or xPublish job. Ensure you pay close attention to this designation as CompuSet and xPublish job definitions are not interchangeable, and only documents that match the job type will be available in Job Management.

All batch configuration work is done from The Job Management Page in xDashboard.

The Job Management Page

The Job Management page appears by default when you log on to xDashboard. To navigate to this page from another xDashboard page, click the **Job Management** tab at the top of the page.

Figure 5. *The Job Management page lists all existing job definitions.*



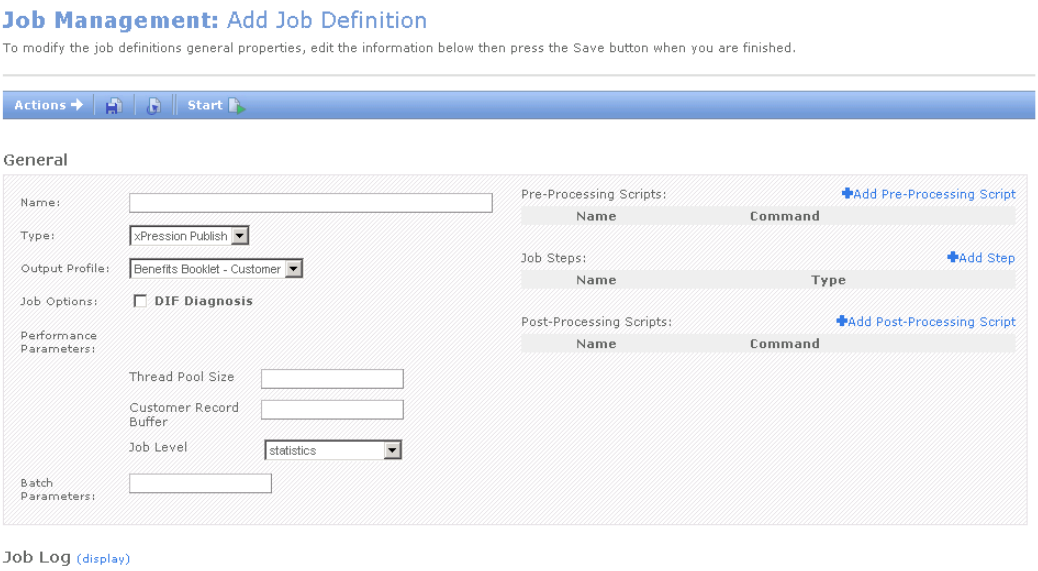
This page lists all existing job definitions. From the Actions toolbar, you can perform the following actions.

Element Name	Description
Add Button 	Enables you to create a new job definition. After clicking Add, xDashboard will display The Job Definition Page.
Copy 	Creates a copy of any selected item. To create a copy of an item, select the checkbox next to that item and click **Copy**. The copy will be identified as “Copy (1) of *xxxx*”.
Delete 	Deletes any selected item. To delete an item, select the checkbox next to the item and click Delete.
Printer Definition Name List	To edit the settings of an existing item, click the item name.

The Job Definition Page

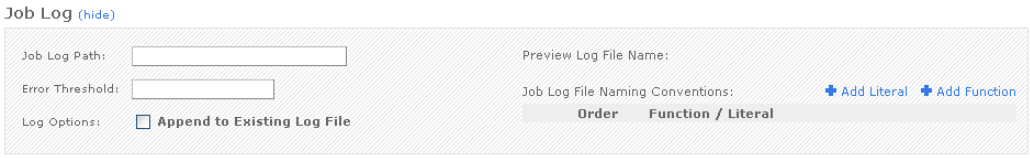
The job definition page enables you to create and execute a job definition.

Figure 6. *The job definition page contains two sections: General and Job Log.*



The General section contains basic settings for your job definition, such as name, publisher, output profile, and job steps. The Job Log section is collapsed by default. Click **(display)** to see the Job Log options.

Figure 7. *Job Log Section.*



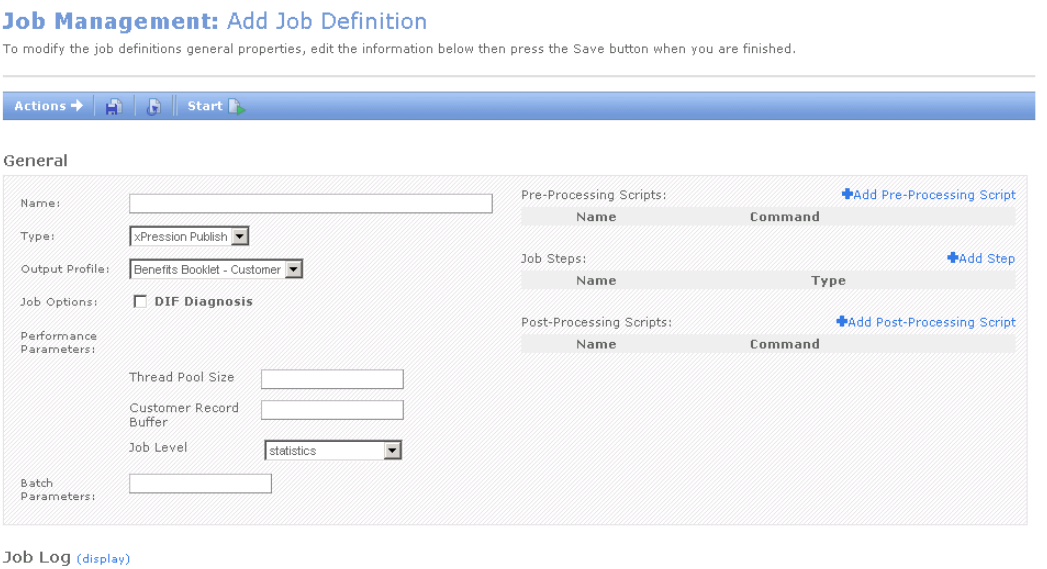
This page also contains an Actions toolbar that enables you to perform the following actions for the current job definition.

Element Name	Description
Save Button 	The **Save** button saves the new job definition.
Cancel Button 	The **Cancel** button cancels the creation of the new job definition. This button closes the job definition page without saving your changes and returns you to the Job Management page.
	The **Start** button executes the current job definition. Please see Running a Batch Job for more information about running a batch job.

Job Definition: The General Section

The general section of the job definition page contains basic information about your job definition.

Figure 8. *The General section of the Job Definition page.*



The general section contains the following options.

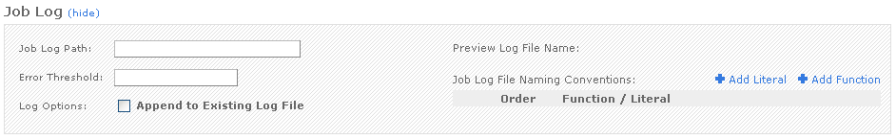
Element Name	Description
Name	Type a 1-255 alphanumeric job name. Make the name as descriptive as possible, but keep in mind that you will be referencing this name from batch scripts, and shorter names are easier to work with.
Type	Select your publisher type. CompuSet and xPublish have slightly different job options. If you are processing xPresso documents, you must choose xPublish.
Output Profile	Select the output profile that you want to associate with this job definition. This output profile will apply to all the documents included in the batch run (unless you are using queued documents, which enables you to override it). An output profile is a set of output streams, each of which is associated with a format or printer definition, and a distribution definition. Output profiles for CompuSet and xPublish provide different features and are not interchangeable. The only output profiles available to you from this list are those that match your publisher type.
Job Options: DIF Diagnosis	(xPublish only) This feature enables Document Sciences Solution Support to diagnose publishing problems. It enables you to save the Device Independent Format (DIF) file (a composed, but unpublished xPression document) to a file before sending it to the emitter. DIFs are placed in the directory specified in the DIF Diagnosis Path. The DIF saved in this path is named after the output profile name with a counter appended to the end.
Job Options: Save to Intermediate Output only	Creates the intermediate output required by job steps using Job Steps for Previously Run Jobs. You can specify the location where the intermediate output should be saved. If the output profile you choose produces only HTML, xPression won't produce intermediate output.
Job Options: Save CompuSet tagged text	Saves CompuSet tagged text to the location of your choice. Tagged text can be used to verify that the CompuSet publishing engine is functioning properly. Use this option only for troubleshooting your output.
Job Options: Override the OP Setup File	This feature is for highly specialized situations where a user may want to override the default OP Setup file created by xPression. The OP setup file defines the master page group template, describes the sort order objects, and designates OP fields as merge keys. It also contains commands that define the tasks to be performed by Output Processing. xPression automatically generates the OP setup file. To override this file, select this option and type the fully qualified path and file name for the override file in the provided box.

Element Name	Description
Thread Pool Size	Defines the number of worker threads available for each batch run. The Customer Data Reader and xPression Assembly components of the batch process use this setting to distribute customer records across parallel threads to improve performance.
Customer Record Buffer	Number of customer records the main batch thread reads in at a time.
Job Level	Indicates what type of information will be collected for your job. **Statistics** - Collects only batch statistics, such as start time, end time, and publish type. **Statistics with errors** - Collects all the statistics information and information about failed customer documents. **Statistics with details** - Collects all the statistics information and customer document information for all documents. Select this option for information to appear on the Job History tab. This information is displayed on the Job History tab, after clicking the Job Name.
Batch Parameters	This box enables you to specify a string value that can be appended to your print file name, batch log file name, CompuSet log, and CompuSet emitter log. When creating your file names, xPression enables you to add the “batch parameter” to your naming convention. Each time you run batch from xDashboard while using the batch parameter, xPression appends this string to the beginning of your CompuSet and emitter log files names. This helps you locate all the log files for a particular batch run.
Pre-Processing Scripts	This section enables you to define scripts that will be executed by the xPRS Server prior to executing the batch process. See Adding Pre and Post-Processing Scripts to Your Job Definition for more information.
Job Steps	This section enables you to add job steps. Each step identifies a set of documents you want included in the batch run. Choose the type of batch job, the document source, and the data source. Job steps allow you to execute multiple document sources at once. See About Job Steps.
Post-Processing Scripts	This section enables you to define scripts that will be executed by the xPRS Server after the batch process completes. See Adding Pre and Post-Processing Scripts to Your Job Definition for more information.

Job Definition: The Job Log Section

The job log section enables you to create a job log for the current job definition, and to set the error threshold for the job.

Figure 9. *A job log provides information about the errors generated during your batch run.*



From this screen you can define the following elements.

Element Name	Description
Job Log Path	Specify the name and path where you want xPression to save your error logs. By default, xPression saves error logs to C:\xPression\
Error Threshold	Enables you to set the xPression error threshold level for your batch job. xPression will abort the batch run if the batch job generates more errors than defined here.
Log Options	**Append to Existing Log File**: xPression can either append new errors to an existing error log, or overwrite the old log with the new errors. Select this option to append errors to the existing log.
Job Log File Naming Conventions	Build your error log naming convention using the options in this section. You can type a literal name for the log by clicking the **Add Literal** button and add a built-in function by clicking the **Add Function** button. For a full explanation of error log naming, see Job Log File Naming Conventions.

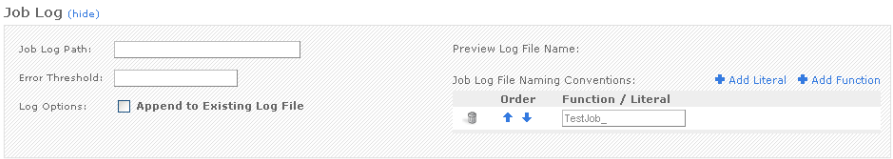
xPression provides a preview of your error log name above the Job Log File Naming Conventions table. Error logs are automatically given a .log extension.

Job Log File Naming Conventions

Use one or both of the following options to create a method for naming your job log. A preview of your job log appears at the top of the job file naming table.

You can manually type a name for your error log by clicking **Add Literal** and typing the name in the provided box.

Figure 10. *Type your literal value in the provided box*



If you create a job log file name using two or more consecutive literals, xPression will combine those literal definitions into a single literal definition when you click **Save**.

For example, if you create a job log file name using three separate literals as follows:

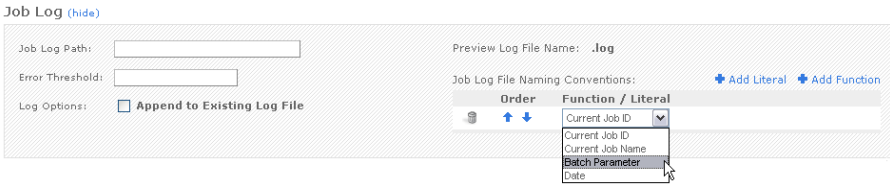
```
Report_
Receipts_
October
```

When you click **Save**, xPression concatenates these literal values into the following single literal definition:

```
Report_Receipts_October
```

The Add Function button enables you to name your job log using the job ID, job name, the BatchParameter, or the current date.

Figure 11. *Select the function that you want to use in your job name*



From this section you can add the following elements.

Element Name	Description
Current Job ID	Adds the Job ID to the job log name.
Current Job Name	Adds the name of the job definition to the job log name.
BatchParameter	The BatchParameter enables you to add an identifier to your log files. This identifier helps you identify output files for a particular job. This is especially helpful when output from more than one job resides in the same directory. When you select the BatchParameter function, xPression will add the BatchParameter value to the job log name. The BatchParameter value is set at the time the batch job is executed from the command line. For more information about setting the BatchParameter values, please see Job Definition: The General Section. When you use the BatchParameter in your job log name, xPression also appends the parameter to the beginning of your CompuSet and emitter log files. This makes it very easy to locate all of the job files for a particular batch run.
Date	Adds the current date to the job log name.

Use the up and down arrows to move the selected item up or down in the list. Items at the top of the list appear first in the job file name, and items at the bottom appear last.

Adding Pre and Post-Processing Scripts to Your Job Definition

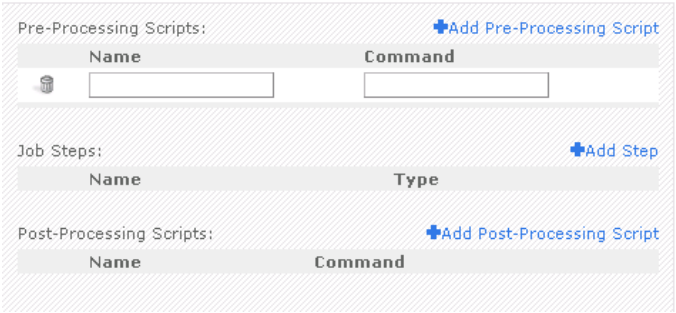
xPression enables you to define a set of pre-processing and post-processing scripts to be run either before or after your batch job. For example, you could create a pre-processing script to clear the screen before the job is executed or create a post-processing script to send emails notifying personnel that the batch job has completed. You can define more than one script in the pre-processing and post-processing sections.

> **Note:** If the path for your script contains spaces in it, you must place the script in quotes.

To add a Pre or Post-Processing Script:

1. Create a new job definition or click a job definition name from the Job Definition: List page.
2. In the Pre-Processing or Post-Processing section, click **Add Pre-Processing Script** or **Add Post-Processing Script**.

Figure 12. *To define a script, supply a name for the script and command.*

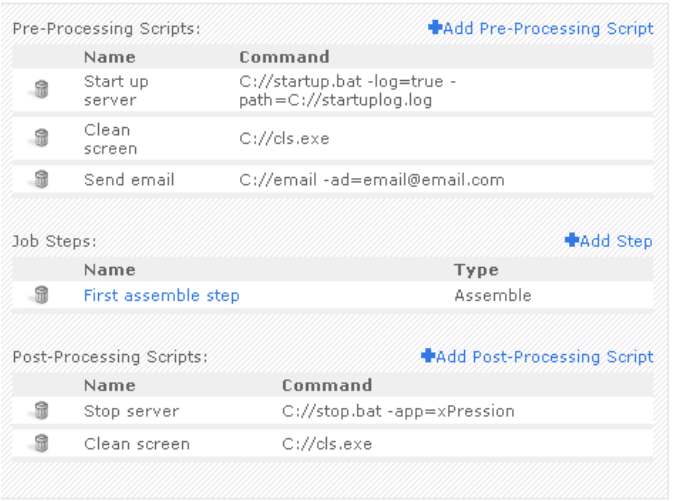


   xPression creates a new row in the section. This row enables you to specify a name for the script, the script path and parameters, and enables to you remove the script reference from the job definition.
3. In the Name box, supply an identifying name for the parameter.
4. In the Command box, supply the command to execute the script. This command should contain the path, script filename, and needed parameters. For example:

   ```
   C://startup.bat -log=true -path=C://startuplog.log
   ```

5. To add another script, click Add Pre-Processing Script or Add Post-Processing Script. When finished, click **Save**. The following image shows a sample of how your definition might look.

Figure 13. *To define a script, supply a name for the script and command.*



About Job Steps

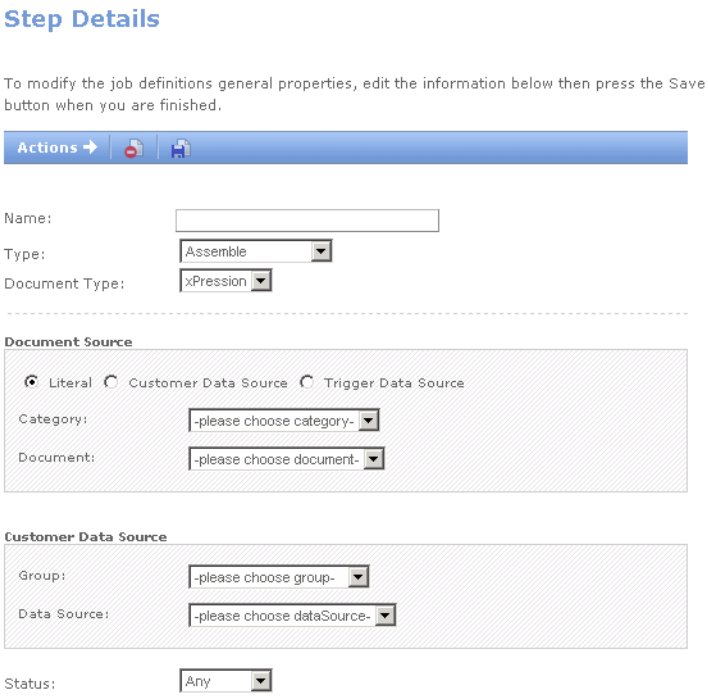
A job definition must contain one or more *job steps*. A job step selects documents and defines customer data for your job definition. You can use multiple job steps to select different types of documents and publish them in the same job definition.

An individual job step can select xPression documents or xPRS packages for the job definition. Job steps for xPression documents can select xPublish and CompuSet documents created in xDesign. Job steps for xPRS packages can include xPresso packages created in xPresso for InDesign, xPresso for Dreamweaver, and xPresso for Word and imported into your xPression enterprise edition server. The options for xPression and xPRS job steps are different. For xPression job steps, see Job Steps for xPression Documents. For xPRS job steps, see Job Steps for xPRS Packages.

Job Steps for xPression Documents

To access the job steps page, click **Add Step** from the job steps section on the job definition page. The job step options appear in the following pop-up page.

Figure 14. *The job step pop-up page appears when you click Add Step from the job steps section.*



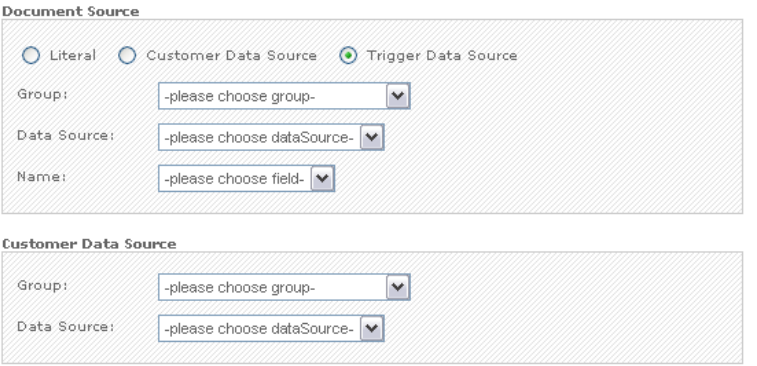
At the top of the job step page you will see settings for Name, Type, and Document Type. As for the job type, there are several different job types to choose from, and each type contains unique options and functions.

Job Type	Description
Name	Supply a name for the Name box. The name must be between 1 and 255 alphanumeric characters.
Type: Assemble	An Assemble job type should be used when you want to directly specify which documents you want to assemble. This job type provides several methods for identifying your document: • Directly specifying the document category, name, and data source • Retrieving the document name from a data source • Using a trigger file data source For more information, see Assemble Job Steps for xPression Documents.
Type: Queued Documents	Use the Queued Documents job type when you want to process documents that have already been “queued for batch” by a transactional distribution request sent by xPression Response or any application built with xPression Framework. For more information, see Job Steps for Queued Documents.
Type: Previously Run JobsPreviously Run Job	This option is only available for CompuSet job definitions. You should use this job type if you are merging intermediate output from a previous batch run. For more information, see Job Steps for Previously Run Jobs.
Type: Custom Documents	Use Custom Documents when you want to pull completed work items from the xPression Revise Completed Work queue or from a field in a data source, and add “personalization data” to each. The data must be provided in a trigger file and is restricted to a single “record” of information for each customer. For more information, see Job Steps for Custom Documents.
Document Type	You can choose xPression and xPRS. To create an xPression document job step, ensure you select xPression.

Assemble Job Steps for xPression Documents

The two main components of an assemble job is the *document source* and a *customer data source*.

Figure 15.
This figure shows the Document Source and Customer Data Source options in an Assemble Job Step.



The document source provides xPression with the name and location of the document you want to process. The customer data source enables xPression to associate your document with data.

The Document Source and Customer Data Source

The *Document Source* enables you to select the documents for your job. You can select documents for the job step in three ways: you can select from a list of existing documents (Literal), you can pass the document name to xPression from a field in your data source (Customer Data Source), or you can use a trigger file (Trigger File) to define the document names.

- Literal: Using a Literal Value to Select Your Document
- Selecting the Document Name from a Data Source
- Selecting the Document Name By Trigger Data Source

You must also tell xPression which records in your customer data source you want to process, you do this by defining the *Customer Data Source*. You can define a data source table, a trigger file, or conditionally qualify specific records from a data source table. The Customer Data Source options differ for each Document Source.

Document Source Method	Available Customer Data Source Options
Literal	You must define a customer data source table that contains the customer records you want to process. You can also define a trigger file to pre-select a sub-set of records in this table.
Customer Data Source	The same data source you use to provide the document name will be used to provide xPression with customer records.

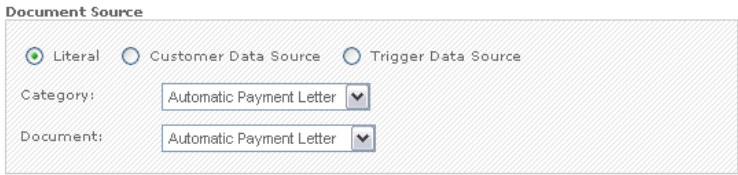
Document Source Method	Available Customer Data Source Options
Trigger Data Source	Define a customer data source table that contains the customer records you want to process.

Literal: Using a Literal Value to Select Your Document

Use this option to select an individual document by name. This limits your batch job to a single document type. To create an Assemble Job Step using a literal value for document selection, select **Literal** from the Document Source section and complete these steps:

1. Select your Document Source. When using the Literal method, you specify an exact document by name. From the drop-down lists, select the category where the document resides, then select the document name.

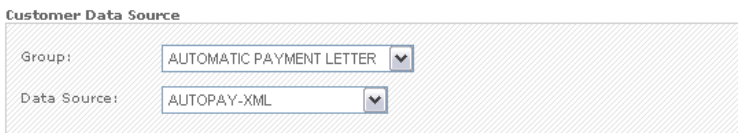
Figure 16. *Select your Document Source.*



2. Select your Customer Data Source. Now that you've selected the document, you need to tell xPression which customer records you want to process. For each customer record that it processes, xPression will generate a personalized version of the document you selected above.

   Use the drop-down lists to select the data source and data source group that contains the customer records you want to process.

Figure 17. *Select your Customer Data Source.*



   By default, xPression processes every customer record in the selected data source. However, if you select a relational database data source (.rdb), you have the option of processing a smaller subset of customer records by querying the data source. This option is not available for XML data sources. For XML data sources, xPression will process every customer in the data source. See Querying an RDB Customer Data Source for more information.

3. Filter Documents by Status. The Status option enables you to limit the documents your job steps can produce based on their approved status. Set the status option to **Approved** to qualify only items with a workflow status of approved.

Set the status option to **Any** to qualify content items of any status. Select Any when you want to perform test assemblies, or if you don't have a status field in your attribute set.

When finished making your selections, click **Save** to save your changes.

Querying an RDB Customer Data Source

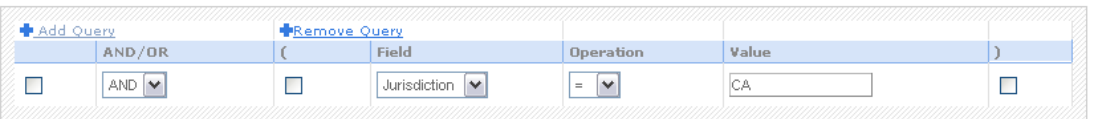
The query tool enables you to conditionally extract a set of customer records from your data source for processing by the xPression batch run. For example, you may want to print only those customers who live in a certain jurisdiction and have a specific group policy number. The query tool enables you to qualify customers based on the values in specified fields in your data source.

Figure 18. *Query Tool.*

To create a query, click **Add Query**. The query tool options appear.

A basic query statement compares a field from the Primary table of your customer data source against a value that you define. For example, if you wanted to query for customers who reside in California, you would compare the Jurisdiction field in your data source against the value CA, as shown below.

Figure 19. *Query Tool Options.*



This scenario (Jurisdiction = CA) would submit only California customers for batch assembly in this job step.

You can create more complex query statements by adding additional lines to the query table and using the AND/OR and Parenthesis functions.

The **AND/OR** function joins one query statement to another. Using "AND" tells xPression to extract customer records that satisfy both query statements. The OR function tells xPression that it may select customer records that satisfy just one of the query statements.

The **Parenthesis ( )** function groups your query statements together so they are read as one statement. For example:

```
("JURISDICTION = CALIFORNIA" or "JURISDICTION = NEVADA") and "POLICY_TYPE = LIFE"
```

This query statement tells xPression that qualifying customer records must have a Life policy, and must reside in either California or Nevada jurisdictions.

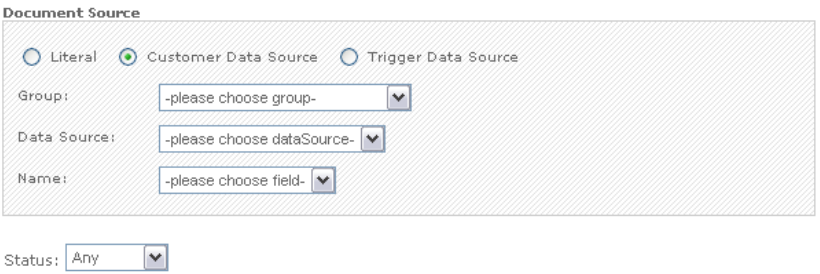
If parenthesis were not used, the query statements would evaluate differently because xPression would not know if the OR operator applies to the Jurisdiction statement or to the Jurisdiction and Policy_Type statements.

In the latter case, xPression would incorrectly return all records from the California jurisdiction regardless of Policy_Type, and all Life policies from Nevada.

Selecting the Document Name from a Data Source

This option enables you to select the document name from a field in your customer data. To use this option, select **Customer Data Source**.

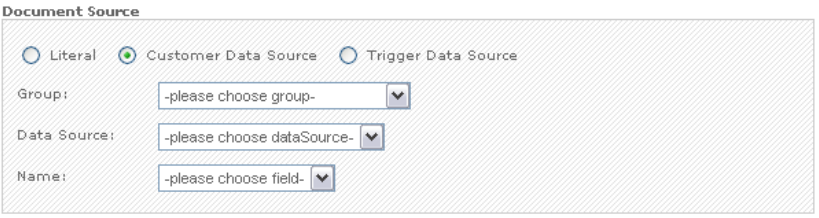
Figure 20. *Selecting a document name from a data source.*



To create an Assemble Job Step using a data source to select your document name, complete these steps:

1. To use the Customer Data Source feature, you must store a list of document names in your data source. This section enables you to access the data source that contains the document name.

   Figure 21. *Select your Document Source and Customer Data Source.*

   To enable xPression to select the document name, identify the data source group, the data source, and the field which contains the list of your document names. xPression will retrieve the document name from the specified field at assembly time.

   By default, xPression processes every customer record in the selected data source. However, if you select a relational database data source (.rdb), you have the option of processing a smaller subset of customer records by querying the data source. This option is not available for XML data sources. For XML data sources, xPression will process every customer in the data source.

Passing a customer data file to xPression Batch differs from the trigger file approach in that instead of "pointing" to your data, you're actually sending xPression all of the customer data necessary to produce your documents.

Relational databases allow you to query the data in order to know which records to process. Queries can be valuable if you process renewals or other events driven by the contents of your customer data. If you don't provide a query for relational database input, xPression Batch processes the entire contents of the primary table. See Querying an RDB Customer Data Source for more information.

Tip: You can override the actual file defined in an XML data source by passing the fully qualified XML file name as the third parameter in Batch Runner.

2. Filter Documents by Status. The Status option enables you to limit the documents your job steps can produce based on their approved status.

   Set the status option to **Approved** to qualify only items with a workflow status of approved.

   Set the status option to **Any** to qualify content items of any status. Select Any when you want to perform test assemblies, or if you don't have a status field in your attribute set.

When you complete your Assemble Job Step, click **Save** to save your changes.

Querying an RDB Customer Data Source

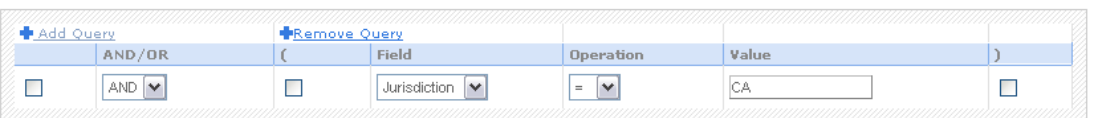
The query tool enables you to conditionally extract a set of customer records from your data source for processing by the xPression batch run. For example, you may want to print only those customers who live in a certain jurisdiction and have a specific group policy number. The query tool enables you to qualify customers based on the values in specified fields in your data source.

Figure 22. *Query Tool.*

To create a query, click **Add Query**. The query tool options appear.

A basic query statement compares a field from the Primary table of your customer data source against a value that you define. For example, if you wanted to query for customers who reside in California, you would compare the Jurisdiction field in your data source against the value CA, as shown in Figure 23.

Figure 23. *Query Tool Options.*



This scenario (Jurisdiction = CA) would submit only California customers for batch assembly in this job step.

You can create more complex query statements by adding additional lines to the query table and using the AND/OR and Parenthesis functions.

The **AND/OR** function joins one query statement to another. Using “AND” tells xPression to extract customer records that satisfy both query statements. The OR function tells xPression that it may select customer records that satisfy just one of the query statements.

The **Parenthesis ( )** function groups your query statements together so they are read as one statement. For example:

```
("JURISDICTION = CALIFORNIA" or "JURISDICTION = NEVADA") and "POLICY_TYPE = LIFE"
```

This query statement tells xPression that qualifying customer records must have a Life policy, and must reside in either California or Nevada jurisdictions.

If parenthesis were not used, the query statements would evaluate differently because xPression would not know if the OR operator applies to the Jurisdiction statement or to the Jurisdiction and Policy_Type statements.

In the latter case, xPression would incorrectly return all records from the California jurisdiction regardless of Policy_Type, and all Life policies from Nevada.

Selecting the Document Name By Trigger Data Source

You can generate a batch job by passing through the names of documents in a trigger data source. A trigger data source enables you to draw your document names from a data source that is separate from your customer data source.

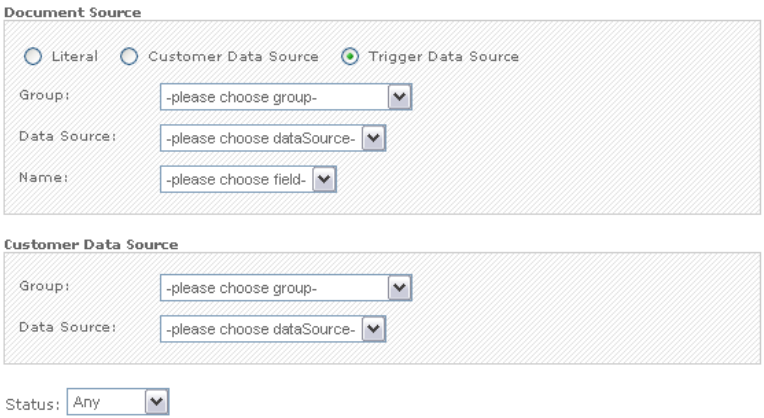
Trigger data sources enable you to use xPression to produce many different document types from many different categories as long as all the categories use the same data source group.

When using an XML trigger data source, xPression reads data from start to finish, processing records in the order in which they appear in the file.

To view a sample XML trigger file, see the Enterprise Edition Batch Processing Guide.

Select **Trigger Data Source** to use this option.

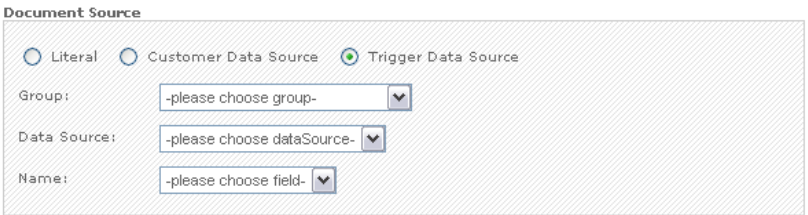
Figure 24. *Trigger Data Source.*



To select documents with a trigger data source, complete the following steps:

1. Select the data source group, the data source, and the data source field that contains the document name.

Figure 25. *Select your document with a Trigger Data Source.*



If you are using a relational database as the trigger data source, you can use the query tool to select and process a subset of document names in the trigger data source.

The query tool enables you to conditionally extract a set of records from your trigger data source for processing by the xPression batch run. The query tool enables you to qualify records based on the values in specified fields in your data source.

Figure 26. *Query Tool.*

To create a query, click **Add Query**. The query tool options appear.

A basic query statement compares a field from the Primary table of your trigger data source against a value that you define. You can create more complex query statements by adding additional lines to the query table and using the AND/OR and Parenthesis functions.

The **AND/OR** function joins one query statement to another. Using “AND” tells xPression to extract customer records that satisfy both query statements. The OR function tells xPression that it may select customer records that satisfy just one of the query statements.

The **Parenthesis ( )** function groups your query statements together so they are read as one statement. For example:

2. Select the Customer Data Source. You also need to tell xPression which customer records you want to process. Each customer record will be used to generate a personalized version of the document you selected above. You can only use relational database (RDB) data sources for the customer data source.

   Use the drop-down lists to select a data source group and RDB data source that contains the customer records you want to process.

Figure 27. *Customer Data Source*

   xPression processes every customer record in the trigger data source in the order that they are presented in the trigger file.

   Note: When you run xPression Batch using multiple customer data sources, we recommend that you turn on cache to improve performance. In the xPressionCache.properties file, set: CacheSwitch = ON.

3. The Status option enables you to limit the documents your job steps can produce based on their approved status. Set the status option to **Approved** to qualify only items with a workflow status of approved.

   Set the status option to **Any** to qualify content items of any status. Select Any when you want to perform test assemblies, or if you don’t have a status field in your attribute set.

Job Steps for Queued Documents

Use a Queued Documents job step to process output that has been “queued for batch” from a transactional distribution request sent by xResponse or any application built with xFramework. Use this option by selecting Queued Documents from the Job Step Type list.

A Queued Documents job step may be used for both CompuSet and xPublish job definitions. However, xPublish job definitions provide one additional option not available to CompuSet.

Figure 28. *This figure shows the Queued Documents job step options.*

You can select from the four options for processing queued documents. xPression uses your selection to choose documents of the proper type from the queue.

All Queued Documents with Stored Output Profiles

This option instructs xPression to process all the queued documents using the output profile that they were originally queued with and not the output profile defined in the job definition. If you select this option, this step must be the only step in the job, this option cannot exist in a job with other steps.

All Queued Documents Overridden with Job's Output Profile

This option instructs xPression to process all the queued documents using the output profile defined in the job definition. This option overrides the output profile originally saved with the document.

All Queued Documents with Matching Output Profile

This option instructs xPression to process only queued documents whose output profile matches the output profile you associated with the job. For example, if you defined an output profile in your job definition named AFP Printer, this option will only process documents from your batch queue that were originally saved in the queue with the AFP Printer output profile.

Queued Documents by Name

This option is only available for xPublish jobs and selects documents by name from the current batch queue. When you use this option, xPression processes queued documents whose document name matches the document name you define in the Documents by Name table.

Figure 29. *The Documents by Name section.*

This option also takes into consideration your output profile. You have two options for controlling the output profile of the processed document.

Option	Definition
Match	Selects only those documents whose output profile matches the output profile associated with the job definition.
Override	Selects ALL documents from the current batch queue, and overrides the document output profile with the output profile associated with the job definition.

Select the document name from the Document Name drop-down box and choose either **Match** or **Override** from the Match/Override drop-down box. The Document Name list displays a list of all document names currently in your batch queue.

Job Steps for Previously Run Jobs

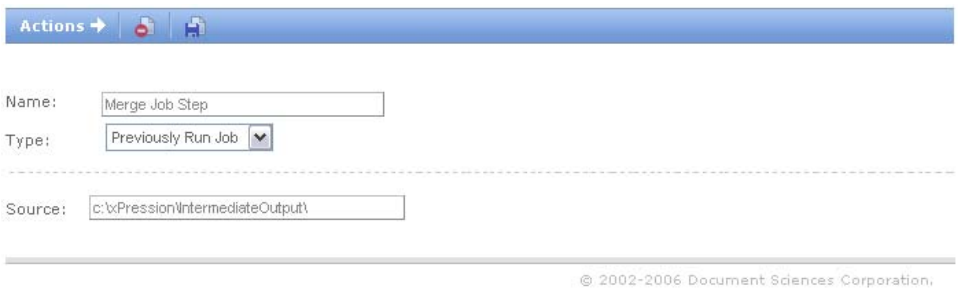
Previously Run Job is a CompuSet-only feature. Previously run jobs are jobs that were intercepted by xPression before the final output was created. This intermediate output is saved to a network location defined by the user. The purpose of saving the intermediate output is to merge it with another batch job through the use of a Previously Run Job step. A Previously Run Job step performs the sole action of merging intermediate output into your current job definition. For instructions on configuring your Previously Run Job from beginning-to-end, see the Enterprise Edition Batch Processing Guide.

To merge the intermediate output:

1. Click **Add Step** to create a new job step.
2. From the job step page, select **Previously Run Job** from the Type list.

   Supply the fully qualified path and filename of the intermediate output you want to merge into the current job. The path you define here is the same path that you used when saving intermediate output from your previous job definitions.

Figure 30. *Supply path and filename to intermediate output*



3. Click **Save**. The job definition page shows the new job step.

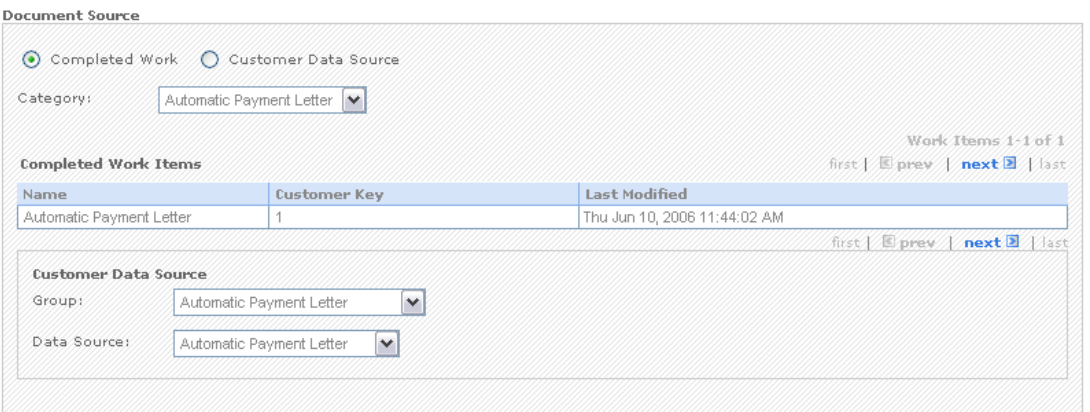
   Each job step can only contain a reference to one piece of intermediate output. To merge in another intermediate output file, create an additional job step using the same instructions.

4. Next, you must use an Assemble job step as the final job step for your Previously Run Job job definition. The Assemble job step provides a key for merging the intermediate output from the previous documents into the final document.

Job Steps for Custom Documents

This feature only works with xRevise documents. For more information, see the xRevise User Guide. Custom documents are customized documents from the xPression Revise Completed Work queue. You can add documents to your job step by selecting the name and category, or you can query the document from the completed work queue by customer key.

Figure 31. *This figure shows Custom Documents.*



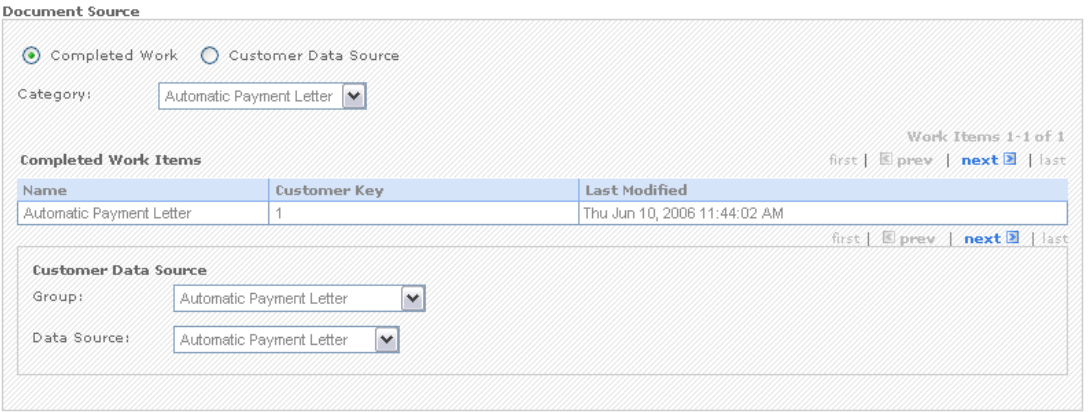
Custom Documents enables you to select a document name in the following two ways.

Option	Definition
Completed Work	Enables you to select documents from the xRevise completed work queue.
Customer Data Source	Enables you to query the completed work queue for documents.

Completed Work

To select a document by name, click **Completed Work.**

Figure 32.
This page displays a list of completed work items for the selected category.



To select a completed work item, complete the following steps:

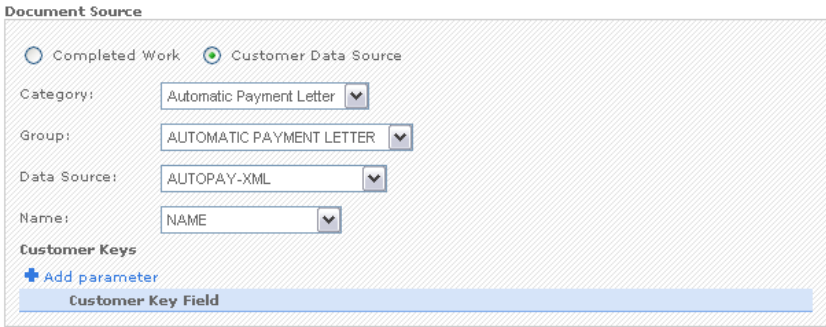
1. First, choose your category. The category section contains a list of all available categories. Select the category that contains your document. When you select a category, xPression fills the Completed Work Items table with all of the completed work items for the selected category.
2. Next, select a document from the Completed Work Items list. The Completed Work Items list shows items for the selected category that have been modified by xPression Revise. Select the document you want to add to the job definition.
3. Finally, select the customer data source. Select the data source group and data source that contains the customer records you want to process.

   xPression processes each record in the defined customer data source. If you are using a relational database and want to process only a subset of records in the data source, use the query tools.

Customer Data Source

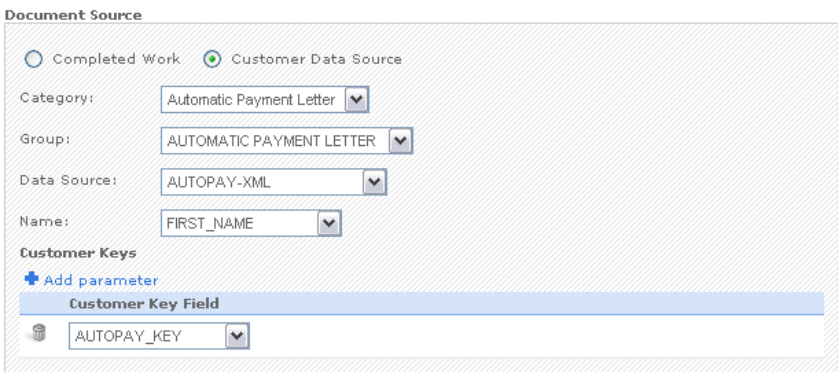
Use the Customer Data Source feature to query the completed work queue for the documents. To use this feature, you must store a list of document names in your data source.

Figure 33.
Select the document category, data source group, data source, and the field containing the document name.



Customer keys are fields in the current DataSource that will match the Customer Keys in the Completed Work queue. Select the customer keys from the drop-down list.

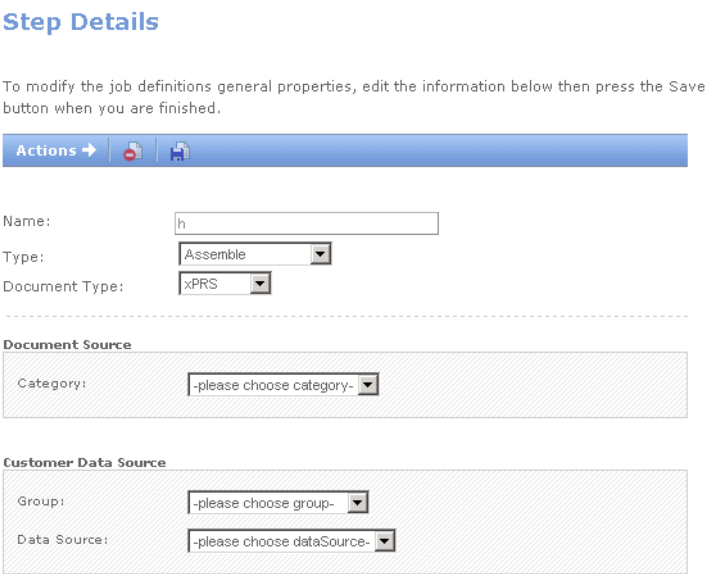
Figure 34.
Ensure that the keys are added in the order that will match those in the Completed Work queue.



Job Steps for xPRS Packages

To access the job steps page, click **Add Step** from the job steps section on the job definition page. The job step options appear in the following pop-up page.

Figure 35. *The job step pop-up page appears when you click Add Step from the job steps section.*



At the top of the job step page you will see settings for Name, Type, and Document Type. As for the job type, there are several different job types to choose from, and each type contains unique options and functions.

Job Type	Description
Name	Supply a name for the Name box. The name must be between 1 and 255 alphanumeric characters.
Type	For xPRS packages, you can only select Assemble jobs. An Assemble job type enables you to directly specify which package you want to assemble. This job type enables you to directly specify the pacakge category, package name, and data source.
Document Type	You can choose xPression and xPRS. To create an xPRS package job step, ensure you select xPRS.

Assemble Job Steps for xPRS Packages

An Assemble job steps enables you to directly select the category, package name, data source group, and data source name. To access the job step options for xPRS packages, click **Add Step** from the Job Steps section of the Job Definition page and select **xPRS** in the Document Type list box. This page, shown in Figure 35 on page 39, contains the following elements.

Job Type	Description
Name	Supply a name for the Name box. The name must be between 1 and 255 alphanumeric characters.
Type: Assemble	This job type enables you to directly select the category, package name, data source group, and data source.
Document Type	You can choose xPression or xPRS. To create an xPRS package job step, ensure you select xPRS.
Document Source: Category	Select the name of the category that contains the xPresso package you want to select.
Document Source: xPresso Packages	Select the name of the xPresso package you want to define in this job step.
Customer Data Source: Group	Select your Customer Data Source Group. Now that you've selected the document, you need to tell xPression which customer records you want to process. For each customer record that it processes, xPression will generate a personalized version of the document you selected above.
Customer Data Source: Data Source	Select the name of the customer data source. By default, xPression processes every record in the selected data source.

Running a Batch Job

xPression's batch function is a Java application that is provided as a set of Java classes and a platform-specific executable command called *BatchRunner.* You can execute a batch run in a number of ways:

- BatchRunner operations can be scheduled with your operating system's scheduling tool
- You can use xDashboard to run an immediate batch job

- You can execute an immediate batch job from the command line. For instructions on running batch from the command line, see the Enterprise Edition Batch Processing Guide.

  Note: Batch e-mail jobs can be run from Windows (DOS) or UNIX (batch or shell scripts). If a CompuSet PDF batch job encounters an e-mail recipient whose e-mail address (“To” variable) is missing, the job fails and does not identify the record that had the missing e-mail address. If an xPublish job encounters the same situation and fails, the log will indicate the bad record.

Running Batch from xDashboard

To run a batch job from xDashboard, simply access the job definition page for the job you want to process. If you have just created your job definition and job steps, you must save your job definition **after** you have created your job step. To start the job, click **Start**. View your batch logs and the xPression.log file to check for errors.

Manually Composing or Editing Job Definitions

The easiest way to manually create a job definition is to use xDashboard to create a simple, sample job definition, export it with xAdmin, and use the Job Definition XML file located in the exported pdpx file.

To manually create a job definition:

1. Log on to xDashboard.
2. Create a job definition. See The Job Definition Page for more information.
3. Save the job definition after adding a job step.
4. Log on to xAdmin.
5. Click **Migration Utilities**.
6. Click **Export**.
7. From the export list, select **job definition**.
8. From the Available Job Def list, select the sample job definition you created and click **Add**.
9. Clear the **Include Output Profile** checkbox.
10. Set the PDP path to a directory and file name of your choice.
11. Click **Start**.
12. Locate the exported PDPX file and open it. Inside the PDPX you will find an XML file with the following naming convention: <job_definition_name>.XML. This is the job definition XML file. You can use this file as a baseline for creating your own job definition file.

Chapter 4

Job Monitor

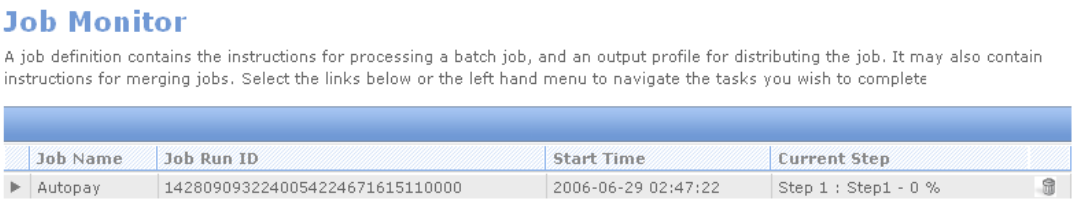
4

This chapter introduces you to the xPression Job Monitor. The Job Monitor enables you to view details about active batch jobs.

The xPression Job Monitor

To access the xPression Job Monitor, start xDashboard and click the Job Monitor tab at the top of the page.

Figure 36. *The Job Monitor displays information about the status of your batch jobs.*



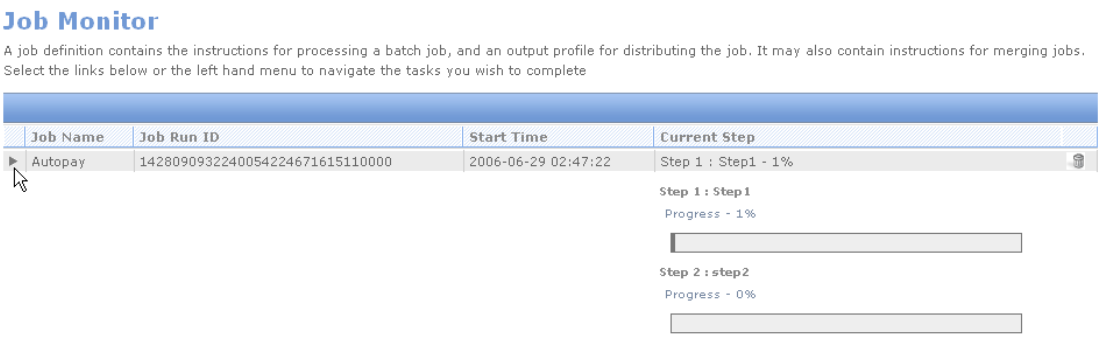
The job monitor page contains the following information about current jobs running on your system.

Element Name	Description
Job Name	The name of the job definition.
Job Run ID	The system generated job run ID.
Start Time	The date and time when the job started.
Current Step	The current job step being executed, the job step name, and the percentage complete.

Toggle Statistics

To see more in-depth details, click the toggle button located in the far left column. When activated, xPression will display all of the job steps scheduled in the batch run and the percentage complete of each.

Figure 37. *Click the toggle button to see more details.*



Querying for Information About Your xPublish Batch Job

xPression stores information about your xPublish batch jobs in a table in your xPression database called T_IDocTable. Before you begin using the IDocTable functionality, be advised that the implementation of the IDocTable may change in future releases. These future changes may require you to update or change your applications.

You can query T_IDocTable to retrieve the following information.

Information	Definition
DocumentTrackingID	The unique document ID. The DocumentTrackingID field serves as the primary key of the T_IDocTable.
DocumentName	The name of the document.
PublishName	The name of the batch job as recorded in the xAdmin Job History page or in the T_Jobs table.
PublishID	The ID of the batch job as noted in the T_Jobs table or the xAdmin Job History page which displays the contents of this table.
CustomerKeys	This value identifies the customer key in the following format: *FieldName* = *Value*. The customer key can be used with the PublishID to uniquely identify a customer record for the document represented in the table.

Information	Definition
Status	Identifies the current processing state of the document with the following status codes. **Processing** - Indicates that xPression has begun processing the document. **Error** - Indicates that the document failed. **Success** - Indicates that the document was processed without error. If an error occurs, details will appear in the Error field.
Error	If an error occurs, the exception message is recorded in this field. Otherwise, this field is blank.

xPression begins writing information to the IDocTable when a task to process a document is identified. These tasks are generated by Assemble, Queued Documents, and Custom Documents.

How the IDocTable Handles Job Steps

Queued documents are identified in the CustomerKeys field by the queue ID in the following format: `PQAssembledID=n` where *n* is the queue ID. Queued documents will not be deleted from the queue in the event of a document error.

Document Failure

If you receive a fatal error in a batch job, you must assume that all documents in the batch job are bad because it may not be possible to determine which documents successfully completed and which documents were not fully completed.

Deleting Documents from the IDocTable

You can delete documents from the IDocTable by deleting the job that contains the documents from xDashboard.

Disabling IDocTable Functionality

You can prevent xPression from writing information to the IDocTable by disabling the IDocTable functionality. To disable this functionality, set the DocInfoSystem property in the batchrunner.properties file to OFF.

```
DocInfoSystem=off
```

You can still delete document entries from the Job History page with the IDocTable functionality disabled. You do not have to restart the xPression Server when changing the DocInfoSystem setting in Batchrunner.properties.

Chapter 5

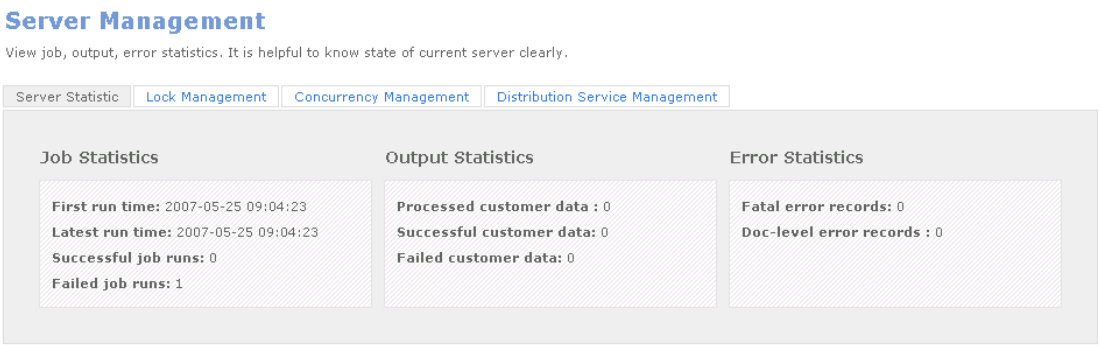
Server Management

5

Server Management enables you to remove locks on documents that result from server communication interruptions, view current xPression software usage, view information about distributed documents, and view server statistics.

To access Server Management, click the **Server Management** tab from xDashboard.

Figure 38. *The server management page enables you to administer the xPression Server.*



The Server Management page contains four tabs.

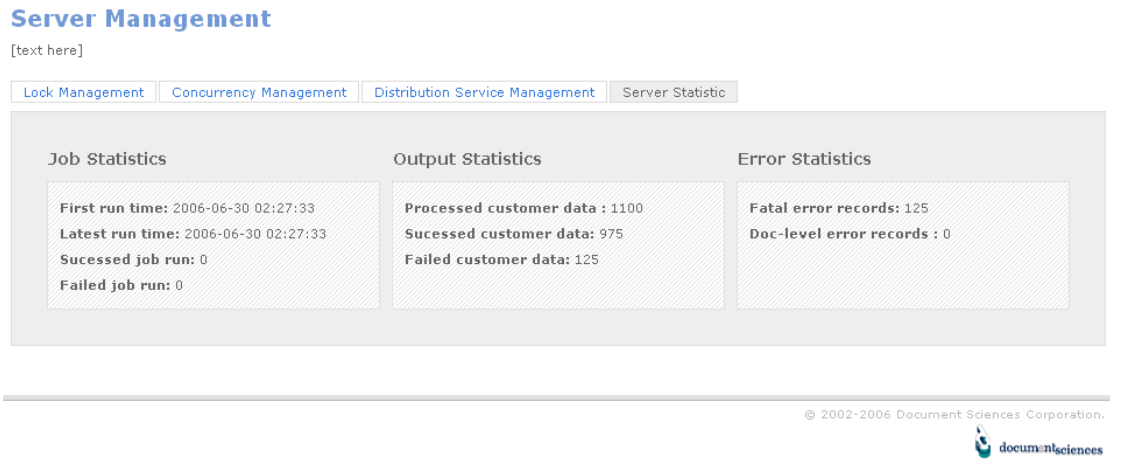
Tab	Definition
Server Statistic	Displays statistics for your jobs, output, and errors. See Server Statistics for more information.
Lock Management	Enables you to remove locks that result from server communication errors. See Lock Management for more information.
Concurrency Management	Displays the concurrent usage of the software by the number of seats used for any application. See Concurrency Management for more information.

Tab	Definition
Distribution Service Management	Enables you to view the email, print, and archive distribution tables in your xPression database. See Distribution Service Management for more information.

Server Statistics

You can view Server Statistics by clicking the **Server Statistics** tab.

Figure 39. *The Server Statistics tab displays job, output, and error statistics.*



The Server Statistics tab displays three sections of server statistics.

Element Name	Description
Job Statistics	**First run time** - The time of the first job run on during the life of the server. **Latest run time** - The date and time of the most recent job run on the server. **Successful job runs** - The number of job runs that completed successfully. **Failed job runs** - The number of failed job runs.

Element Name	Description
Output Statistics	**Processed customer data** - The number of customer records processed during the life of the server. **Successful customer data** - The number of successful customer records processed during the life of the server. **Failed customer data** - The number of failed customer records processed during the life of the server.
Error Statistics	**Fatal error records** - The number of fatal errors received. Fatal errors are very serious errors that cause the entire job to terminate. For example, a fatal error will occur if xPression cannot connect to the xPressiondatabase. **Doc-level error records** - The number of document-level errors received. A document-level error often means there is a problem related to the customer data. When a document-level occurs, xPression skips the customer record that caused the error and continues to process the remainder of the job.

Lock Management

xPression client applications create locks throughout the course of a session as users access the various documents associated with routine system administration and application use. Locks are set when users update documents, rules, content groups, and content items. If communication with the server is interrupted during a session, any locks that xPression created while the server was active may still be present when the user reconnects. The Lock Management utility enables you to remove locks that result from server communication interruptions.

Be aware that xPression doesn't differentiate between the locks left when a user's computer stops responding, and those created by users still using an xPression client application. Be extremely cautious when you unlock content and resources.

To view the list of locked documents, click the **Lock Management** tab.

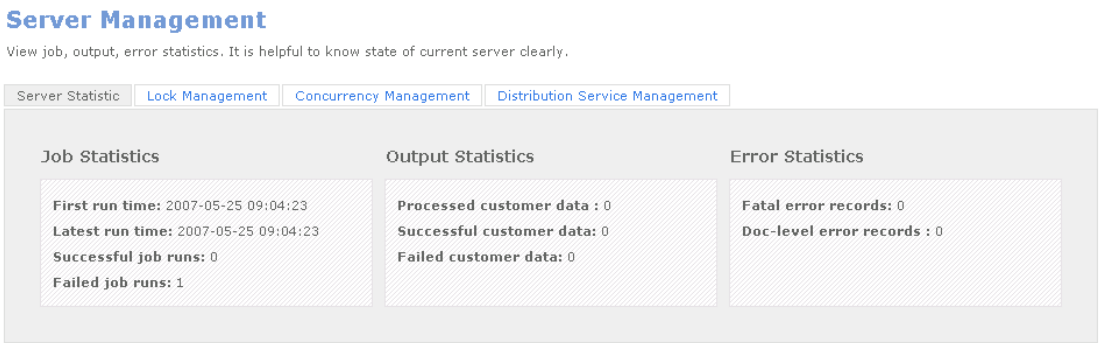


Figure 40. *The Lock Management tab enables you to view the list of locked documents.*

To unlock a resource, select the check box next to the name of the item you want to unlock and click the **Unlock button**. To unlock all documents in the list, click the **Select All** button and then click **Unlock**.

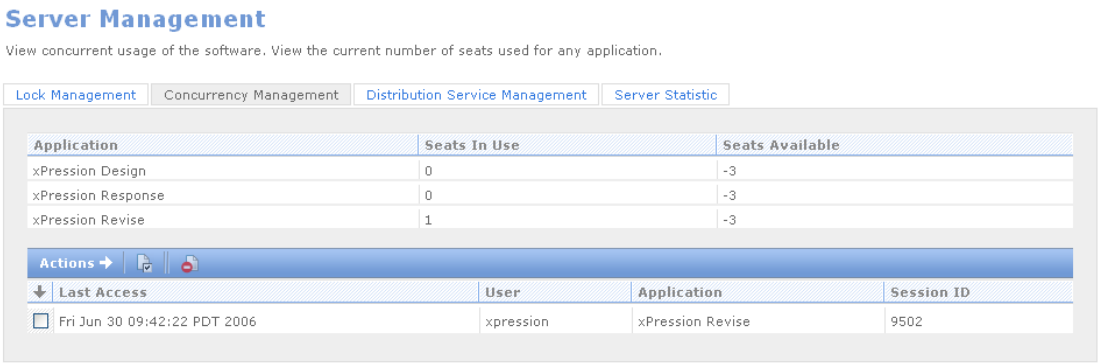
Concurrency Management

Your xPression license agreement grants you a certain number of “seats” for the server, for xPression batch capabilities, and for client applications such as xDesign and xResponse. When a user logs on to a client application, xPression validates that a seat is available for use. If a seat is available, the authentication process passes a call to remove one of the available seats. When the user logs off, xPression returns the seat to the pool for use by another user.

If communication between the user’s computer and the server is interrupted during a session (either the computer or server stops responding), a licensed seat could “hang up” and be unavailable for use.

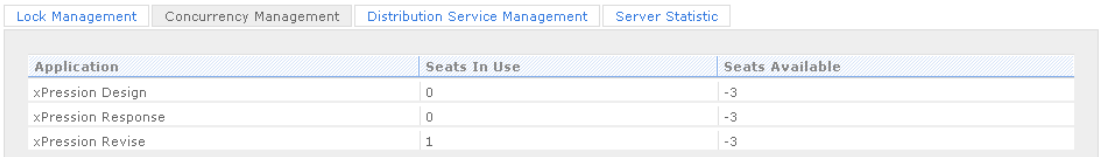
The Concurrency Management tab enables you to free a hung up license, to view at a glance what xPression components you have licensed, and to see how many seats are in use for each application.

Figure 41. *The Concurrency Management tab enables you to manage your licensed seats.*



The Concurrency Management page displays a list of installed applications, and identifies the seats in use and seats available for each application.

Figure 42. *This tab shows seats available for application.*



The Concurrency Management page also displays a list of current users. From the Actions toolbar you can stop the current user's session by selecting the checkbox for the user record and clicking the **Stop** button.

Users who are logged on will lose their seats momentarily, but won't experience any interruption. xPression automatically "grabs" a new seat when the user performs the next action in the application. To refresh the Concurrency Controls page at any time, click the **Refresh** button on your Web browser or press **F5**.

Handling Session Time-outs

If your company is using its full complement of licensed seats, and an extra user attempts to log on, xPression server "looks" for available seats. If it doesn't find any, it then examines the idle times of each connected user. xPression does not automatically drop a seat when it times out. A timed-out seat only drops when a new user tries to log on when no seats are available.

If a user's idle time exceeds the timeout value in the SessionControl.properties file, the server disconnects the idle user and allocates the freed seat to the new user. If xPression doesn't locate any idle users, the new user will be unable to connect to the server until a seat is available.

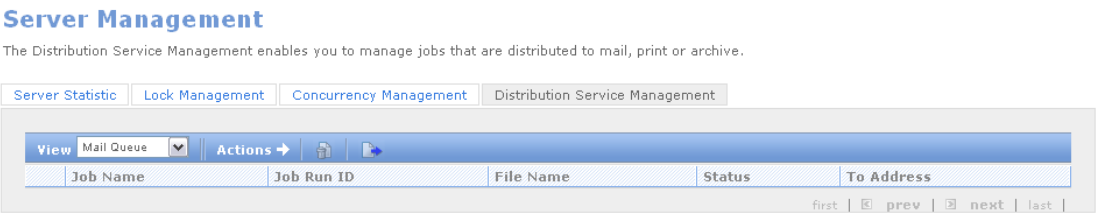
The SessionControl.properties file resides in your xPressionHome directory. On Windows systems, this default location is C:\Windows\xPression.

> **Note:** If you're not concerned about concurrent log on issues, you can disable this feature by setting the timeout3, timeout4, and timeout7 values in SessionControl.properties to zero.

Distribution Service Management

This section enables you to view all the jobs waiting in the batch queue. All queued jobs reside in either the Mail Queue, Print Queue, or Archive Queue info table in your xPression database. You can view the queued jobs in any of these tables.

Figure 43.
The Distribution Services management tab enables you to view jobs in the batch queue.



To view the queued jobs in one of the tables, select the table from the **View** drop-down box. A list of queued jobs appears in the table.

You can delete or submit any jobs in the table.

Element Name	Description
Delete	Deletes the selected record from the output queue.
Submit	Updates the status of the selected record from PENDING or FAILED to READY. The xPression distribution service will attempt to process and deliver all records with a READY status.

Queued Document Management Tab

This section enables you to sort queued CompuSet documents by output profile and delete individual documents from the list. This list shows all queued CompuSet documents by default. To sort the list by output profile, select the output profile from the View By OP drop-down box. This page contains the following elements.

Element Name	Description
View by OP	Select the Output Profile for the CompuSet documents that you want to delete from the queue. Select All to show all documents in the queue.
Delete	Click this icon to delete the selected documents. You must view each document that you want to delete before you can delete it.
DOC ID	The document's ID.
Output Profile Name	The name of the document's output profile.
Output Profile ID	The ID of the document's output profile.
BDT ID	The document's Business Document Template ID.
Document Name	The name of the CompuSet document.
Category Name	The name of the document's category.
View	Click this button to view the document. You must view the document before you can delete it from the queue.

You must view a document before you can delete it. To delete a document:

1. Click View to review it in the viewer.
2. Click Back to return to the Queued Document Management list when you have finished reviewing the document.
3. Select the document checkbox, and click **Delete**.

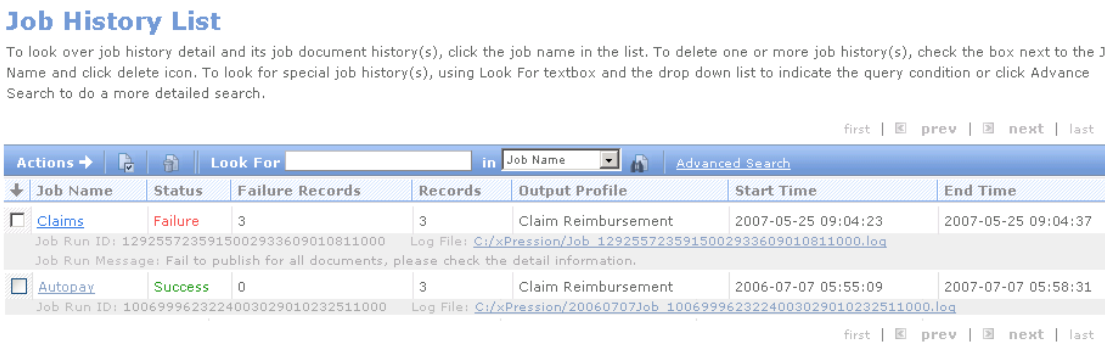
Chapter 6

Job History

6

xPression enables you to view a detailed listing of recently executed batch jobs. Click **Job History** tab to display the job history list.

Figure 44. *The Job History page contains information about the recently executed batch jobs.*



The Job History details will not contain any information that was created or altered by a print script. For example, if your print script is designed to rename the output files generated by xPression, the job history page will not show the updated names. It will show the output file names as they were when they left the xPression system. The Job History details will also not contain the output file name for CompuSet jobs.

Caution: If the Document name or Category name are maximum-length or longer, no information is captured on the Job History tab, even if "Statistics with Details" is selected for job level.

This page contains the following elements.

Element Name	Description
Job Name	The Job name is the name of the job definition. This information may appear on the Job History Details for that particular batch job, depending on the value selected in the Job Level field of the Job Definition.
Status	Shows the final status of the batch job. This column will display Success, Failure, or Success with failure records.
Failure Records	Shows the number of records that failed during the batch run.
Records	This column identifies the total number of customer records that xPression attempted to process for the job.
Output Profile	Displays the name of the output profile in use.
Start Time	The date and time that the batch job was started.
End Time	The date and time that the batch job completed.
Job Run ID	The system generated batch ID.
Job Run Message	Displays error messages.
Log File	Shows the path and filename of the job log file. Click the path to open the file.

Changeing the Start or End Time

In the xDashboard Advanced Search interface, when you select one of the Start time/End time fields and select a date, the current time is selected by default. You can change the time by typing a valid time and then reclicking the selected date.

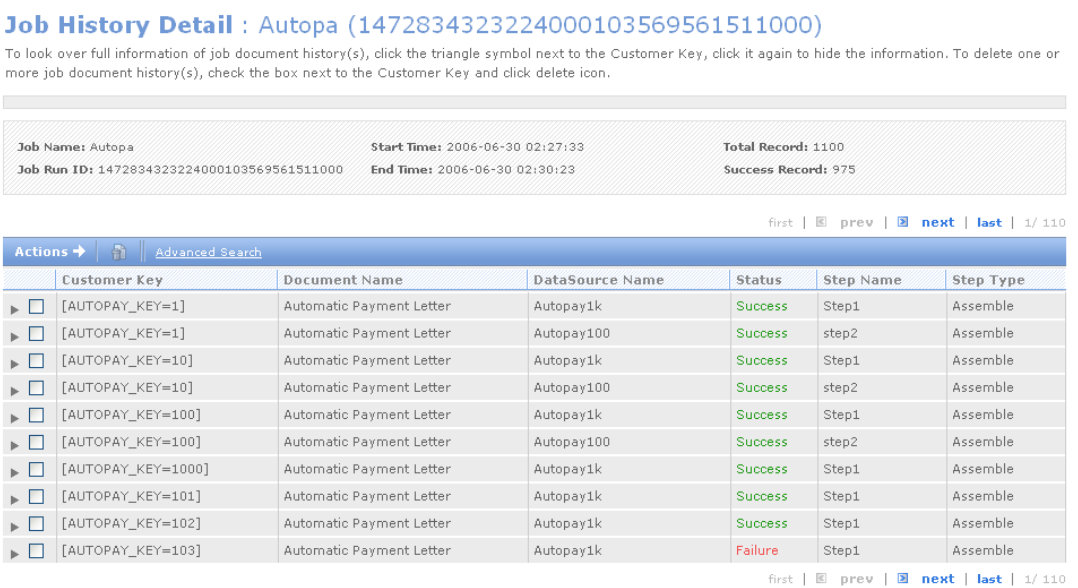
To set a time in the xDashboard Advanced Search interface:

1. Select one of the Start time/End time fields.
2. Select a date. The current time is offered by default.
3. Replace the default time with the time you would like to use.
4. Re-click the selected date.

Job History Detail Page

You can click the job name to see the Job History Details for that particular batch job

Figure 45. *The Job History Detail page shows further details about your batch jobs*



The Job History Detail page displays the following elements.

Element Name	Definition
Job Name	The name of the job definition. This information may not be displayed depending on the value selected in the Job Level field of the Job Definition.
Job Run ID	The system generated batch ID.
Start Time	The date and time that the batch job was started.
End Time	The date and time that the batch job completed.
Total Records	The total number of records processed.
Success Record	The total number of records that were successfully processed.
Customer Key	A list of all customer records that were processed.
Document Name	The name of the document that was processed for the customer key.

Element Name	Definition
DataSource Name	The name of the data source used to assemble the document.
Status	Displays the success or failure of the customer record.
Step Name	The job step that processed the document for the customer record.
Step Type	The job step type.

If you click the Advanced Search button, you can perform job level or document level searches on the customer key list.

The Actions Toolbar

The Actions toolbar enables you to delete jobs from the job history list and search for jobs in the job history list.

Delete a Job from the History List

To delete a job from the job history list, select the checkbox next to the job you want to delete and click the **Trash** button.

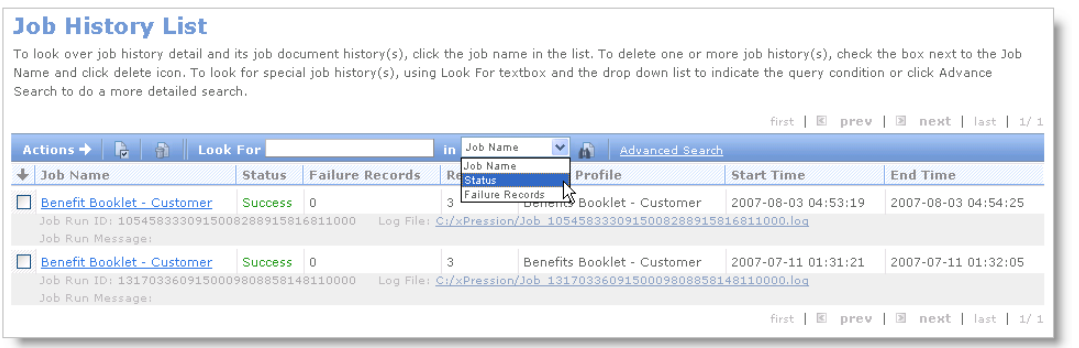
Search the Job History List

You can perform two levels of searches from the Actions toolbar. You can perform a basic search directly from the toolbar or click Advanced Search to specify more detailed search criteria.

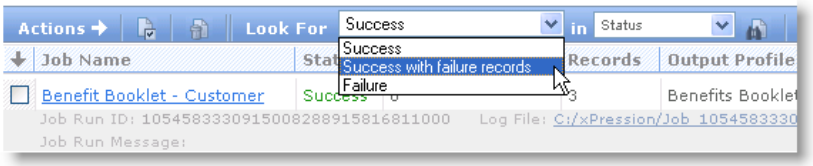
Basic Search

You can perform basic searches for Job Name, Status, and Failure Records.

Figure 46. *Select the type of search you want to perform from the drop-down list.*



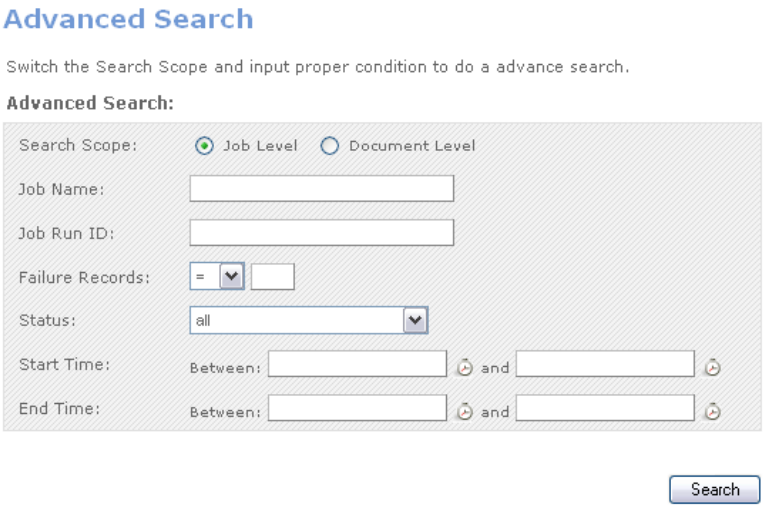
See the following table for instructions on performing basic searches.

Search Category	Description
Job Name	Select **Job Name** from the drop-down box and type the name that you want to search for in the **Look For** box. You can type a partial word in the Look For box and the search utility will return all jobs that contain that string. In the example above, typing the word “auto” enables the search utility to find “Autopay”.
Status	Select **Status** from the drop-down box and select one of the following items from the **Look For** box: • Success • Success with failure records • Failure 
Failure Records	Enter a positive integer to search for a job with a specific number of failure records. For example, if you want to search for a job with 10 failure records, enter 10 in the **Look For** box.

Advanced Search

Click **Advanced Search** to perform a search with a greater level detail. The Advanced Search feature appears in a pop-up window.

Figure 47. *The Advanced Search window enables you to define more advanced search criteria.*

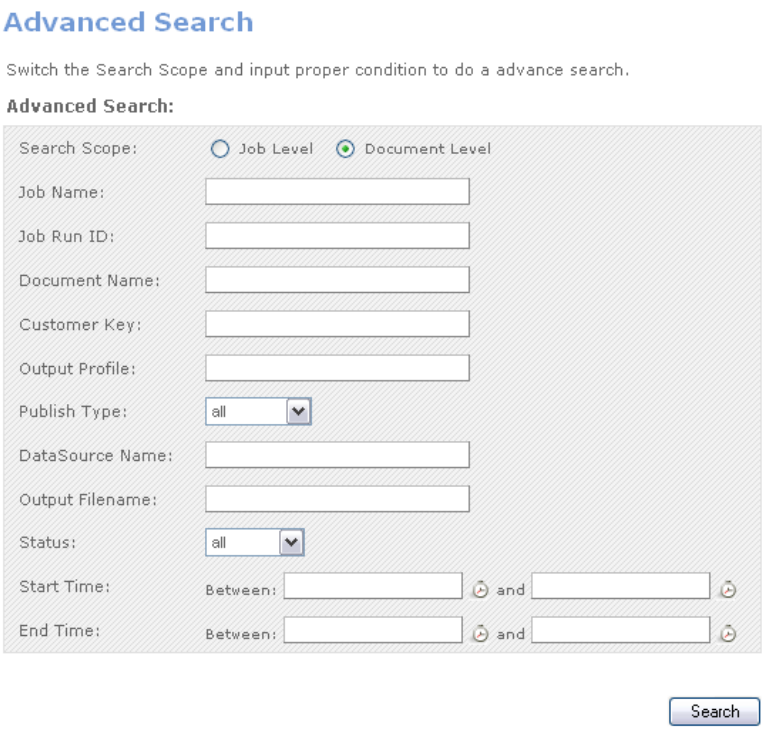


You can perform a Job Level search with any combination of the following criteria:

- Job Name
- Job Run ID
- Failure Records
- Status
- Start Time
- End Time

You can also perform Document Level searches.

Figure 48. *The Document Level Advanced Search window contains document-related options to define your search criteria.*



You can perform a Document Level search with any combination of the following criteria:

- Job Name
- Job Run ID
- Document Name
- Customer Key
- Output Profile
- Publish Type
- DataSource Name
- Output Filename
- Status
- Start Time
- End Time

Time Format for Advanced Search [xDashboard]

The Start and End time fields in the xDashboard Advanced Search interface uses the 24-hour time format. The 24-hour time format, also called military time and international time, expresses the time of day without reference to AM or PM. For example, four o’clock in the morning is 4:00, but four o’clock in the afternoon is 16:00. So, to search a range of time between four o’clock in the morning and four o’clock in the afternoon, select 4:00 to 16:00.