



# Installing and Configuring LiveCycle for WebLogic

September 2007

**Adobe® LiveCycle™**  
Version 7.2

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Adobe® LiveCycle™ 7.2 Installing and Configuring LiveCycle for WebLogic™ for Microsoft® Windows®, Linux®, and UNIX®  
Edition 1.3, September 2007

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# Preface

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This guide is one of several resources available to help you learn about the Adobe® LiveCycle™ suite of products. LiveCycle products help automate and accelerate the flow of business-critical information to and from customers, partners, constituents, and employees.

## What's in this guide?

This guide provides information about how to install and configure the following LiveCycle products on Microsoft® Windows®, Linux®, and Sun™ Solaris™, and how to deploy the products to a BEA WebLogic Server®:

- Adobe LiveCycle Assembler 7.2.1
- Adobe LiveCycle Forms 7.2
- Adobe LiveCycle Form Manager 7.2
- Adobe LiveCycle PDF Generator 7.2 Professional, LiveCycle PDF Generator 7.2 Elements, and LiveCycle PDF Generator 7.2 for PostScript®
- Adobe LiveCycle Print 7.2
- Adobe LiveCycle Workflow 7.2.1

This guide also provides information about how to install and configure Watched Folder 1.1.

## Who should read this guide?

This guide provides information for administrators or developers responsible for installing, configuring, administering, or deploying LiveCycle products. The information provided is based on the assumption that anyone reading this guide is familiar with application servers, Linux, Windows, or Solaris operating systems, MySQL, Oracle®, DB2®, or SQL Server database servers, and web environments.

## Conventions used in this guide

This guide uses the following naming conventions for common file paths.

Name	Default value	Description
<i>[LiveCycle root]</i>	Windows: C:\Adobe\LiveCycle\  Linux and UNIX®: /opt/adobe/livecycle/	The installation directory that is used for all LiveCycle products. The installation directory contains subdirectories for Adobe Configuration Manager, product SDKs, and each LiveCycle product installed (along with the product documentation).

Name	Default value	Description
[product root]	Windows: C:\Adobe\LiveCycle\Assembler C:\Adobe\LiveCycle\pdfgenerator C:\Adobe\LiveCycle\Workflow C:\Adobe\LiveCycle\Forms C:\Adobe\LiveCycle\Print C:\Adobe\LiveCycle\Formmanager  Linux, UNIX: /opt/adobe/livecycle/Assembler /opt/adobe/livecycle/pdfgenerator /opt/adobe/livecycle/workflow /opt/adobe/livecycle/forms /opt/adobe/livecycle/print /opt/adobe/livecycle/formmanager	The directories where product-specific directories and files (such as documentation, uninstall files, samples, and license information) are located.
[appserver root]	Windows: C:\bea\weblogic81\  Linux and UNIX: /opt/bea/weblogic81	The home directory of the application server that runs the LiveCycle products.
BEA_HOME	Windows: C:\bea  Linux, UNIX: /opt/bea	The install directory for WebLogic as specified for the BEA_HOME environment variable.
[appserverdomain]	Windows: C:\bea\user_projects\domains\mydomain  UNIX: /opt/bea/user_projects/domains/mydomain	The domain that you configured on WebLogic.

Most of the information about directory locations in this guide is cross-platform (all file names and paths are case-sensitive on Linux). Any platform-specific information is indicated as required.

## Related documentation

This guide contains instructions for deploying LiveCycle products to WebLogic Server. The *Installing and Configuring LiveCycle* guides for other supported application servers can be accessed at: [www.adobe.com/support/documentation/en/livecycle/](http://www.adobe.com/support/documentation/en/livecycle/)

The resources in this table can help you learn about and get started using LiveCycle products.

For information about	See
General information about a product and how it integrates with other Adobe products	<i>Overview</i> guides for each product
The product architecture, how to use the APIs, and how to develop custom applications for use with the products	The developer guides for each product. For example, <i>Developing Custom Application for LiveCycle Workflow</i> or <i>Developing Applications for LiveCycle Assembler</i> .

<b>For information about</b>	<b>See</b>
The EJB API, including descriptions and explanations of its classes and methods.	The API Reference for each product. Most API References are installed as JavaDocs with each product. However, some API references are provided as PDF documents with the product.
The syntax for the Document Description XML (DDX) grammar and related XML grammars supported by LiveCycle Assembler	<i>Document Description XML Reference</i>
Setting up and administering Watched Folders	<i>Watched Folder Administration Help</i>
Managing access to the Adobe Administrator user interface	<i>User Management Administration Help</i>
How to use LiveCycle Workflow Designer	<i>Creating Workflows or LiveCycle Workflow Designer Help</i>
Using the LiveCycle Workflow SDK to create Quick Process Action Components (QPACs) that invoke methods in the LiveCycle product EJB APIs	The QPAC guides, available with the LiveCycle Workflow SDK. For example <i>Using LiveCycle Assembler QPACs</i> or <i>Using LiveCycle Forms QPACs</i> .
Other services and products that integrate with LiveCycle products	<a href="http://www.adobe.com">www.adobe.com</a>
Patch updates, technical notes, and additional information on this product version	<a href="http://www.adobe.com/support/products/enterprise/index.html">www.adobe.com/support/products/enterprise/index.html</a>

For information about additional documentation available for each of the LiveCycle products, see the doc\_map.pdf files located in each *[product root]/documentation* folder.

**Note:** When copying and pasting strings directly from this guide, you may copy the tag <CR> if the instructions span a line in the guide.

## Updated LiveCycle product information

Adobe Systems has posted a Knowledge Center article to communicate any updated LiveCycle product information with customers. You can access the article at:

[www.adobe.com/support/products/enterprise/knowledgecenter/c4811.pdf](http://www.adobe.com/support/products/enterprise/knowledgecenter/c4811.pdf).

This chapter describes how to prepare your system for installing LiveCycle products:

- [“About the installation, configuration, and deployment process” on page 11](#)
- [“Methods for installing, configuring, and deploying LiveCycle products” on page 12](#)
- [“Installing and deploying multiple LiveCycle products” on page 12](#)
- [“System requirements” on page 13](#)
- [“Installation, configuration, and deployment checklists” on page 16](#)
- [“Updated LiveCycle product information” on page 18](#)

Before you begin installing LiveCycle products on your application server, visit the Adobe LiveCycle product download page at the following location to make certain you have the latest version of the software:

[www.adobe.com/support/products/enterprise/support\\_downloads.html](http://www.adobe.com/support/products/enterprise/support_downloads.html)

## About the installation, configuration, and deployment process

Installing, configuring, and deploying LiveCycle products involves the following processes:

**Installing:** Installing the products places all of the required files onto your computer, within one installation directory structure. You install the products by running the installation program. The default installation directory is C:\Adobe\LiveCycle (Windows) or /opt/adobe/livecycle (Linux or UNIX); however, you can install the files to a different directory. In this guide, the default installation directory is referred to as *[LiveCycle root]*. In order for multiple LiveCycle products to work with one another, you must install all of the products in the same *[LiveCycle root]* location. This enables you to assemble the multiple LiveCycle products into one EAR file. (See [“Installing LiveCycle Products” on page 19.](#))

**Configuring and assembling:** Configuring the products modifies a variety of settings that determine how the products work. Assembling the products packages all of the installed components that the products need into a deployable EAR file, according to your configuration instructions. You configure and assemble the products for deployment by running Configuration Manager. (See [“Configuring LiveCycle Products for Deployment” on page 62.](#)) You can configure and assemble multiple LiveCycle products at the same time.

**Deploying:** Deploying the products involves deploying the assembled EAR file and a few other configured files to the WebLogic application server on which you plan to run your LiveCycle solution. If you have configured and assembled multiple products, most of the deployable components for the multiple products are packaged within the single deployable LiveCycle.ear file.

**Initializing the LiveCycle database:** Initializing the LiveCycle database creates tables for use with Adobe User Management and certain LiveCycle products. Deploying any LiveCycle product that connects to the LiveCycle database requires you to initialize the LiveCycle database after the deployment process. (See [“Initializing the Database” on page 79.](#))

## Methods for installing, configuring, and deploying LiveCycle products

You can use one of the following methods for installing, configuring, and deploying LiveCycle products as well as initializing the database:

**Automatic:** The automatic method lets you install the files, and then run Configuration Manager to automatically perform the following tasks:

- Configure and assemble LiveCycle products for deployment
- Configure your application server settings for LiveCycle products
- Automatically deploy LiveCycle products to your application server
- Initialize database schemas for deployed LiveCycle products
- Verify the deployed LiveCycle products

However, you must manually install your application server before running Configuration Manager.

**Manual:** The manual method lets you install the files, and then run Configuration Manager to configure the application server, the EAR file and other components, and deploy the EAR file. You can also choose to configure your application server and deploy your EAR file manually. However, you must manually install and, once configured, start your application server as well as create and configure the database before running Configuration Manager and deploying to the application server. You must also run Configuration Manager a second time (after deployment) to initialize the database. (See [“Manual installation and deployment checklist” on page 17.](#))

### Installing and deploying multiple LiveCycle products

To deploy more than one of the LiveCycle products discussed in this guide so that they interoperate, you need to install the products in the same location, assemble them in a single EAR file, and then deploy the EAR file.

## Upgrading LiveCycle products

For information on upgrading LiveCycle products, refer to [“Upgrading LiveCycle Products to Version 7.2 or 7.2.1” on page 125](#) in this guide.

## About Watched Folder installation

Both LiveCycle Assembler and LiveCycle PDF Generator can use watched folder functionality as a method for initiating jobs for processing. However, LiveCycle Assembler and LiveCycle PDF Generator use different watched folder technologies.

LiveCycle Assembler uses a service called *Watched Folder*, which you install separately and configure with LiveCycle Workflow using Configuration Manager. This service is included in the deployable LiveCycle.ear file.

LiveCycle PDF Generator uses an embedded watched folder functionality, which does not require a separate installation. The configuration tasks required for LiveCycle PDF Generator watched folders is included in the [“LiveCycle PDF Generator post-deployment tasks” on page 59](#).

All other installation and configuration references to Watched Folder in this guide pertain to the service that is used by LiveCycle Workflow and LiveCycle Assembler.

## System requirements

This section includes details about the software and hardware that is required for running LiveCycle products.

### Supported software

This table provides a summary of the application servers, web browsers, and JDK versions that LiveCycle products support. For a complete list, see [“Supported Platform and Software Combinations” on page 109](#).

Required software	Supported version
Operating system	<ul style="list-style-type: none"><li>• Microsoft Windows Server™ 2003 Enterprise Edition or Standard Edition</li><li>• (LiveCycle Workflow Designer) Microsoft Windows XP Service Pack 2</li><li>• Sun Solaris 9</li><li>• SUSE™ Linux Enterprise Server 9.0 i386 (32-bit)</li><li>• Red Hat® Linux Advanced Server 2.1 or 3.0</li></ul> <p><b>Note:</b> LiveCycle PDF Generator Elements and LiveCycle PDF Generator Professional are only supported on Microsoft Windows Server 2003.</p> <p>For the latest operating system versions supported by BEA WebLogic, see: <a href="http://e-docs.bea.com/platform/suppconfigs/configs81/81_over/overview.html#1146895">http://e-docs.bea.com/platform/suppconfigs/configs81/81_over/overview.html#1146895</a></p>
Application server	<ul style="list-style-type: none"><li>• BEA WebLogic 8.1, Service Pack 5</li></ul> <p><b>Note:</b> Your application server must have an active Internet connection to access LiveCycle Administrator.</p>
Web browser	<ul style="list-style-type: none"><li>• Microsoft Internet Explorer 6.0 for Windows</li><li>• Netscape 7.1 or higher for Windows</li><li>• Netscape 7.2 or higher for Linux</li><li>• Mozilla 1.8 or higher for Windows and Linux</li><li>• Safari 1.2.3, Safari 1.3, Safari 2.0 (end-user support for Macintosh only)</li><li>• (LiveCycle Forms) Firefox 1.0</li></ul> <p><b>Note:</b> LiveCycle PDF Generator only supports Microsoft Internet Explorer 6.0.</p>

Required software	Supported version
JDK	<ul style="list-style-type: none"> <li>J2SDK version 1.4.2_08 (embedded in BEA WebLogic 8.1, Service Pack 5)</li> </ul> <p>You must create or set the <code>JAVA_HOME</code> environment variable to point to the location where Java™ is installed. Ensure that the Java 2 Standard Edition (J2SE) installation <code>\bin</code> directory is in the <code>PATH</code> environment variable. (This is not required for LiveCycle PDF Generator and LiveCycle Assembler.)</p>
Database	<ul style="list-style-type: none"> <li>Microsoft SQL Server 2000 SP 3</li> <li>Oracle 9i</li> <li>Oracle 10g</li> </ul>
Database driver	<ul style="list-style-type: none"> <li>Microsoft SQL Server 2000 - <code>wlbase.jar</code>, <code>wlsqserver.jar</code>, and <code>wlutil.jar</code></li> </ul> <p><b>Note:</b> You must use the database drivers provided with WebLogic rather than those supplied by Microsoft. By default these files are installed in the <code>[appserver root]/server/lib</code> directory.</p> <ul style="list-style-type: none"> <li>Microsoft SQL Server 2000 for BAM - <code>msbase.jar</code>, <code>mssqlserver.jar</code>, and <code>msutil.jar</code></li> <li>Oracle - <code>ojdbc14.jar</code>, version 10.2.0.1</li> </ul>
LDAP server	<ul style="list-style-type: none"> <li>Sun ONE 5.1, 5.2</li> <li>Microsoft Active Directory 2000</li> <li>Microsoft Active Directory 2003</li> <li>Novell® eDirectory 8.7</li> </ul>

## Platform and software combinations

This table summarizes the software combination and database combination supported for BEA WebLogic 8.1 SP5. For a complete list of supported software on each operating system, see [“Supported Platform and Software Combinations” on page 109](#).

**Note:** LiveCycle PDF Generator Elements and LiveCycle PDF Generator Professional only run on the Windows Server 2003 Enterprise Edition platform.

Operating system	Database
Microsoft Windows Server 2003 Enterprise Edition or Standard Edition	Microsoft SQL Server 2000 SP 3
Sun Solaris 9	Oracle 10g
SUSE Linux Enterprise Server 9	Oracle 10g

## Minimum hardware requirements

The table in this section lists the supported operating systems and corresponding hardware. For any installation, these settings are recommended as a minimum:

- Disk space for installation: 3 GB per product, except LiveCycle PDF Generator, which requires 3.5 GB
- System temp space during installation: 3 GB
- Memory for running the products: 1 GB per product for each CPU, except LiveCycle PDF Generator, which requires 1.5 GB per CPU

Operating system	Minimum hardware requirement
Windows Server 2003 Enterprise Edition or Standard Edition	Intel® Pentium® 3 or x86 equivalent, 1GHz processor
Sun Solaris 9	Sun UltraSPARC® IIe, 650 MHz processor
SUSE Linux Enterprise Server 9.0 i386 (32-bit)	Pentium 3 or x86 equivalent, 1GHz processor
Red Hat Linux Advanced Server 2.1 or 3.0	Pentium 3 or x86 equivalent, 1GHz processor

## Additional requirements for LiveCycle PDF Generator Elements and LiveCycle PDF Generator Professional

LiveCycle PDF Generator Elements and LiveCycle PDF Generator Professional must be installed on Microsoft Windows Server 2003 with the en\_US locale. The Windows user who installs the product must have administrative rights, and must be the same user who installed Microsoft Office on that computer.

Before installing LiveCycle PDF Generator Elements or LiveCycle PDF Generator Professional, you must ensure that Adobe Acrobat® Professional or Acrobat Standard is not installed. If Acrobat is installed, you must uninstall it and restart the computer. However, Adobe Reader® can be installed.

Before installing LiveCycle PDF Generator Elements or LiveCycle PDF Generator Professional, you must also install the software that supports the file formats for which PDF conversion support is required. LiveCycle PDF Generator Elements and LiveCycle PDF Generator Professional can be extended to convert these additional file types to PDF files using the following applications:

- Microsoft Office 2000, XP, or 2003
- (LiveCycle PDF Generator Professional) Microsoft Office Visio 2003
- (LiveCycle PDF Generator Professional) Microsoft Project 2003
- (LiveCycle PDF Generator Professional) AutoCAD 2005
- Corel WordPerfect 12
- Adobe Photoshop® CS2

Before completing an automatic installation of LiveCycle PDF Generator on Windows, ensure that the Service Control Manager command line tool, sc.exe, is installed in the Windows environment variable. Some Windows servers do not have this software preinstalled. By default, the sc.exe file is installed in the \Windows\system32 directory.

LiveCycle PDF Generator Professional and LiveCycle PDF Generator Elements must be installed on the same server where it needs to be configured and deployed.

## Additional requirements for LiveCycle PDF Generator for PostScript

LiveCycle PDF Generator for PostScript is supported on all of the operating systems listed in [“Supported software” on page 13](#).

To install LiveCycle PDF Generator for PostScript on Linux or UNIX, ensure that the bc tool (an arbitrary precision calculator language) is installed on the computer. You can download the GNU bc tool from [www.gnu.org/software/bc/bc.html](http://www.gnu.org/software/bc/bc.html).

## Installation, configuration, and deployment checklists

This section includes checklists that you can use to step through the installation and configuration process. A checklist is provided for installing and configuring when using either the automatic method or the manual method.

Before starting the installation, ensure that the JAR files are not associated with WinZip or any other application other than the Java application launcher.

### Automatic installation and deployment checklist

The following table includes the steps required for installing LiveCycle products using the automatic method. Your application server must be installed before you perform the installation.

Perform this type of installation if you are installing the products in a production environment.

**Note:** If you are installing multiple LiveCycle products, ensure that they are all installed before running Configuration Manager to configure and deploy them.

Task	Topic
<input type="checkbox"/> Ensure that you have the required software installed in the target environment.	<a href="#">“System requirements” on page 13</a>
<input type="checkbox"/> Run the installation program.	<a href="#">“Installing LiveCycle Products” on page 19</a>
<input type="checkbox"/> Create the database to use with User Management and configure data source information for the application server.	<a href="#">“Preparing Your Environment” on page 26</a>
<input type="checkbox"/> Run Configuration Manager and select the Typical Configuration Wizard. This will configure and assemble the products, configure application server settings, deploy the products to the application server, initialize the LiveCycle database, and verify the deployment.	<a href="#">“Configuring LiveCycle Products for Deployment” on page 62</a>
<input type="checkbox"/> Access Administrator and User Management.	<a href="#">“Accessing Administrator” on page 53</a>
<input type="checkbox"/> Configure LDAP access.	<a href="#">“Configuring LiveCycle Products to Access LDAP” on page 82</a>

Task	Topic
<input type="checkbox"/> Configure SSL on the application server, if required.	<a href="#">"Configuring SSL on WebLogic" on page 87</a>
<input type="checkbox"/> (LiveCycle Workflow) Create the BAM metadata database and configure the application server for BAM Server.	<a href="#">"Manually Configuring BAM Server for WebLogic" on page 90</a>
<input type="checkbox"/> Check the log file.	<a href="#">"Viewing log files" on page 78</a>

## Manual installation and deployment checklist

The following table includes the steps required for installing LiveCycle products using the manual method. Your application server must be installed before you perform the installation.

**Note:** If you are installing multiple products, ensure that they are all installed before running Configuration Manager to configure and deploy them.

Task	Topic
<input type="checkbox"/> Ensure that you have the required software installed in the target environment.	<a href="#">"System requirements" on page 13</a>
<input type="checkbox"/> Run the installation program.	<a href="#">"Installing LiveCycle Products" on page 19</a>
<input type="checkbox"/> Create the database to use with User Management and install and prepare the application server.	<a href="#">"Preparing Your Environment" on page 26</a>
<input type="checkbox"/> Run Configuration Manager and select the Custom Configuration Wizard. This will configure and assemble the products.	<a href="#">"Configuring LiveCycle Products for Deployment" on page 62</a>
<input type="checkbox"/> Configure WebLogic settings. A variety of settings must be configured.	<a href="#">"Manually Configuring WebLogic" on page 66</a>
<input type="checkbox"/> Deploy the product deployment files to the application server.	<a href="#">"Manually Deploying to WebLogic" on page 76</a>
<input type="checkbox"/> Run Configuration Manager to initialize the database.	<a href="#">"Initializing the Database" on page 79</a>
<input type="checkbox"/> Access Administrator and User Management.	<a href="#">"Accessing Administrator" on page 53</a>
<input type="checkbox"/> Configure LDAP access.	<a href="#">"Configuring LiveCycle Products to Access LDAP" on page 82</a>
<input type="checkbox"/> Configure SSL on the application server, if required.	<a href="#">"Configuring SSL on WebLogic" on page 87</a>

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Task	Topic
<input type="checkbox"/> (LiveCycle Workflow) Create the BAM metadata database and configure the application server for BAM Server.	<a href="#">"Manually Configuring BAM Server for WebLogic" on page 90</a>
<input type="checkbox"/> Check the log file.	<a href="#">"Viewing log files" on page 78</a>

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## Updated LiveCycle product information

Adobe Systems has posted a Knowledge Center article to communicate any updated LiveCycle product information with customers. You can access the Knowledge Center article at:  
[www.adobe.com/support/products/enterprise/knowledgecenter/c4811.pdf](http://www.adobe.com/support/products/enterprise/knowledgecenter/c4811.pdf)

# 2

## Installing LiveCycle Products

---

This chapter describes how to use the installation program to install LiveCycle products on a Windows, Linux, or UNIX operating system.

If you are installing LiveCycle PDF Generator (all versions), see [Installing LiveCycle PDF Generator](#).

**Note:** If you are installing multiple LiveCycle products we recommend you install LiveCycle PDF Generator first. If you install LiveCycle PDF Generator after installing other LiveCycle products you must complete the steps in [“To install LiveCycle PDF Generator with previously installed LiveCycle products:” on page 20](#).

If you are installing any of the following LiveCycle products, see [“Installing LiveCycle products” on page 21](#):

- LiveCycle Assembler
- LiveCycle Forms
- LiveCycle Form Manager
- LiveCycle Workflow

If you are installing LiveCycle Print (for use with LiveCycle Forms), see [“Installing LiveCycle Print” on page 23](#).

**Note:** You must install LiveCycle Forms prior to installing LiveCycle Print.

If you are installing Watched Folder (for use with LiveCycle Workflow and LiveCycle Assembler), see [“Installing Watched Folder” on page 24](#).

Before you install the products, you must ensure that your environment includes the software and hardware required to run LiveCycle products. You should also understand the installation options and have prepared the environment as required. (See [“Before You Install” on page 11](#).)

If you are installing to a location where a LiveCycle product is already installed, install the new product, run Configuration Manager to reassemble the products, undeploy the deployed product from the application server, and then redeploy the files to the application server.

### Installing LiveCycle PDF Generator

The procedure in this section applies to LiveCycle PDF Generator Professional, LiveCycle PDF Generator Elements, and LiveCycle PDF Generator for PostScript.

When you run the installation program, you need the following information:

- The serial number for the product you are installing.
- The type of installation and configuration you are performing. (See [“Methods for installing, configuring, and deploying LiveCycle products” on page 12](#).)

**Note:** To successfully install, you need read and write permissions on the installation directory. The following are the default installation directories, although you can specify a different directory as required:

- Windows: C:\Adobe\LiveCycle\
- Linux and UNIX: /opt/adobe/livecycle/

If you are installing LiveCycle PDF Generator Professional or LiveCycle PDF Generator Elements, ensure that Acrobat is not installed on the computer.

When installing on Linux, the installation program uses the logged-in user's home directory as a temporary directory for storing files. As a result, messages such as the following may appear in the console:

```
WARNING: could not delete temporary file /home/<username>/ismpp001/1556006
```

When you complete the installation, you must manually delete the temporary files.

**Tip:** To improve the speed of installation, disable any on-access virus scanning software for the duration of the installation.

► **To install LiveCycle PDF Generator with previously installed LiveCycle products:**

If you installed other LiveCycle products previously you must complete these steps before installing LiveCycle PDF Generator.

1. From the Windows services panel, select **WebLogic for Adobe LiveCycle**.
2. Stop the service if it is running.
3. Right-click the service and open the properties.
4. Select the **Log On** tab.
5. Select **This account**.
6. Enter the user name and password used when installing the Microsoft Office and Adobe Acrobat applications
7. Start the **WebLogic for Adobe LiveCycle** service.

► **To install LiveCycle PDF Generator for manual deployment:**

1. At the root level of the installation media, start the installation program:
  - (Windows) Double-click the .exe file.
  - (Linux, UNIX) From a command prompt, type: `file_name.bin`

**Note:** You may have to change the permissions on the install program under Linux or UNIX. To do so, type: `chmod +x filename.bin`

2. If prompted, select a language for the installation program and click **OK**.
3. On the Welcome screen, click **Next**.
4. Type the serial number in the text box and click **Next**.
5. (LiveCycle PDF Generator Professional, LiveCycle PDF Generator Elements) On the Adobe LiveCycle PDF Generator 7.2 preinstallation requirements screen, review the preinstallation requirements and click **Next**.
6. If you are prompted to disable on-access virus scanning software, click **Next**. It is recommended that you disable any virus scanning software during the installation process to improve the speed of the installation.

7. Read the Product License Agreement, select **I accept the terms of the license agreement**, and then click **Next**.
8. Accept the default directory as listed or click **Browse** and navigate to the directory where you want to install the product, and then click **Next**.
9. If prompted, select the application server you are deploying the product to and click **Next**.
10. (LiveCycle PDF Generator Professional, LiveCycle PDF Generator Elements) On the Corel WordPerfect screen, browse to the Corel WordPerfect executable file (if installed) and click **Next** or, if Corel WordPerfect is not installed, click **Next**.
11. (LiveCycle PDF Generator Professional, LiveCycle PDF Generator Elements) On the Adobe Photoshop screen, browse to the Adobe Photoshop executable file (if installed) and click **Next** or, if Photoshop is not installed, click **Next**.
12. Review the installation details, and then click **Install**. The installation program displays the progress of the installation. A summary screen appears when the product installation is completed.
13. Ensure that the **Start Configuration Manager** option is not selected, and then click **Finish**.

**Caution:** Do not run Configuration Manager until you have installed all of the products you require and have prepared your environment. (See [“Preparing Your Environment” on page 26.](#)) After you have completed installing all of the products and preparing your environment, you only need to run Configuration Manager once to configure and assemble the deployable components. If you add another LiveCycle product later, you can run Configuration Manager again to configure, assemble and deploy the product modules. (See [“Configuring LiveCycle Products for Deployment” on page 62.](#))

## Installing LiveCycle products

***This section applies only to LiveCycle Assembler, LiveCycle Forms, LiveCycle Form Manager, and LiveCycle WorkFlow.***

When you run an installation program, you need the following information:

- The serial number for the product you are installing.
- The type of installation and configuration you are performing. (See [“Methods for installing, configuring, and deploying LiveCycle products” on page 12.](#))

**Note:** To successfully install, you need read and write permissions on the installation directory. The following are the default installation directories, although you can specify a different directory as required:

- Windows: C:\Adobe\LiveCycle\
- Linux and UNIX®: /opt/adobe/livecycle/

**Note:** If you select Japanese when installing LiveCycle Forms on a Japanese localized computer, the character set is not updated. You can change this setting post-deployment by using Administrator to access the Internationalization settings. This ensures that Japanese characters render properly. (See [“Accessing Administrator” on page 53.](#))

When installing on Linux, the installation program uses the logged-in user's home directory as a temporary directory for storing files. As a result, messages such as the following may appear in the console:

```
WARNING: could not delete temporary file /home/<username>/ismp001/1556006
```

When you complete the installation, you must manually delete the temporary files.

**Caution:** Ensure that the temporary directory for your operating system that you are using has a minimum of 3 GB of free space available for the installation program:

- (Windows) TMP or TEMP path as set in the Environment Variables
- (Linux) Logged-in user's home directory
- (Solaris) /var/tmp

► **To install LiveCycle products for manual deployment:**

1. Navigate to the root directory of the installation media. For Workflow navigate to the `AdobeLiveCycleWorkflow7.2` directory.
2. Start the installation program:
  - (Windows) Double-click the .exe file.
  - (Linux, UNIX) From a command prompt, type: `file_name.bin`

**Caution:** When you are installing the product on a Linux or UNIX operating system, you must be logged in as the root user to successfully install the product to the default location, `/opt/adobe/livecycle/`. If you are logged in as a non-root user, you must change the installation directory to one for which you have permissions (for example, `$HOME/adobe/livecycle`).

3. If prompted, select a language for the installation program and click **OK**.
  4. On the Welcome screen, click **Next**.
  5. On the Read Before Install screen, if you are upgrading from a previous version, ensure that you have complied with the upgrade instructions, and then click **Next**. If you are not upgrading, click **Next**.
  6. Type the serial number in the text box and click **Next**.
  7. If you are prompted to disable on-access virus scanning, click **Next**. It is recommended that you disable any virus scanning software during the installation process to improve the speed of the installation.
  8. Read the Product License Agreement, select **I accept the terms of the license agreement**, and then click **Next**.
- Note:** Depending on the product you are installing, the next two steps may appear in reverse order.
9. Select the application server you are deploying the product to and click **Next**.
  10. Accept the default directory as listed or click **Browse** and navigate to the directory where you want to install the product, and then click **Next**.

**Note:** If you type in the name of a directory that does not exist, it will be created for you.

**Caution:** When you install the product, you can specify a different installation location. If you are installing on Linux, or UNIX, the directory you specify should not contain any spaces; otherwise, the installation program does not install the product.

11. Review the installation details, and then click **Install**. The installation program displays the progress of the installation. A summary screen appears when the product installation is completed.
12. Ensure that the **Start Configuration Manager** option is not selected, and then click **Finish**.

**Caution:** Do not run Configuration Manager until you have installed all of the products you require and have prepared your environment. (See [“Preparing Your Environment” on page 26.](#)) After you have completed installing all of the products and preparing your environment, you only need to run Configuration Manager once to configure and assemble the deployable components. If you add another LiveCycle product later, you can run Configuration Manager again to configure, assemble and deploy the product modules. (See [“Configuring LiveCycle Products for Deployment” on page 62.](#))

**Note:** If you installed LiveCycle Workflow, you can now install Watched Folder. (See [“Installing Watched Folder” on page 24.](#))

**Note:** If you installed LiveCycle Forms, you can now install LiveCycle Print. (See [“Installing LiveCycle Print” on page 23.](#))

## Installing LiveCycle Print

Before installing LiveCycle Print you must first install LiveCycle Forms. (See [“Installing LiveCycle Products” on page 19.](#))

### ► To install LiveCycle Print:

1. At the root level of the installation media, start the installation program:
  - (Windows) Double-click the `adobe_lifecycle_print_7_2.exe` file.
  - (Linux, UNIX) From a command prompt, type: `adobe_lifecycle_print_7_2.bin`

**Note:** You may have to change the permissions on the install program under Linux or UNIX. To do so, type: `chmod +x filename.bin`
2. If prompted, select a language for the install program and click **OK**.
3. On the Welcome screen, click **Next**.
4. On the Read Before Install screen, if you are upgrading from a previous version, ensure that you have complied with the upgrade instructions, and then click **Next**. If you are not upgrading, click **Next**.
5. Type the serial number in the text box and click **Next**.
6. Read the Product License Agreement, select **I accept the terms of the license agreement**, and then click **Next**.
7. Accept the default directory as listed or click **Browse** and navigate to the `[LiveCycle root]` directory where you installed LiveCycle Forms.

**Note:** You must install LiveCycle Print in the same `[LiveCycle root]` directory as LiveCycle Forms.
8. Review the installation details, and then click **Install**. The installation program displays the progress of the installation. A summary screen appears when the product installation is completed.

9. Ensure that the **Start Configuration Manager** option is not selected, and then click **Finish**.

**Caution:** Do not run Configuration Manager until you have installed all of the products you require and have prepared your environment. (See [“Preparing Your Environment” on page 26.](#)) After you have completed installing all of the products and preparing your environment, you only need to run Configuration Manager once to configure and assemble the deployable components. If you add another LiveCycle product later, you can run Configuration Manager again to configure, assemble and deploy the product modules. (See [“Configuring LiveCycle Products for Deployment” on page 62.](#))

**Note:** In order to test your installation with the LiveCycle Print sample applications, you need to deploy the adobe-printSubmitter.ear file. (See [“Deploying and running the PrintlVS web application” on page 56.](#))

## Installing Watched Folder

Installing Watched Folder places the files required for configuration and deployment onto your computer. Ensure that you have already installed LiveCycle Workflow and LiveCycle Assembler before performing this procedure.

### ► To install Watched Folder:

1. From the Watched Folder directory on the Adobe LiveCycle Assembler installation DVD, start the installation program:
  - (Windows) Double-click the setupwin32.exe file.
  - (Linux) From a command prompt, type: `setupLinux.bin`
  - (Solaris) From a command prompt, type: `setupSolaris.bin`
2. If prompted, select a language for the installation and click **OK**.
3. Click **Next** on the Welcome screen.
4. If you want to increase the speed of the installation, disable any virus scanning software, and then click **Next**.
5. Read the Product License Agreement, select **I accept the terms of the license agreement**, and then click **Next**.
6. Accept the default location, or click **Browse** and navigate to the location where you want to install Watched Folder, and then click **Next**.
7. Review the installation details, and then click **Install**. A summary screen appears when the product installation is completed.
8. Ensure that the **Start Configuration Manager** option is not selected, and then click **Finish**.

**Caution:** Do not run Configuration Manager until you have installed all of the products you require and have prepared your environment. (See [“Preparing Your Environment” on page 26.](#)) After you have completed installing all of the products and preparing your environment, you only need to run Configuration Manager once to configure and assemble the deployable components. If you add another LiveCycle product later, you can run Configuration Manager again to configure, assemble and deploy the product modules. (See [“Configuring LiveCycle Products for Deployment” on page 62.](#))

## Viewing the error log

If any errors occur during the installation, the installation program creates a log file called log.txt, which contains the error messages. The log file is located in the *[LiveCycle root]* directory.

## Next steps

You must now prepare your database and application server for hosting LiveCycle products. (See [“Preparing Your Environment” on page 26.](#))

# 3

## Preparing Your Environment

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This chapter describes how to prepare your environment for hosting LiveCycle products. You must perform the tasks provided in this chapter before you configure LiveCycle products:

- [“Creating the database” on page 26](#)
- [“Preparing the application server” on page 28.](#)

### Creating the database

This section describes how to set up the database that stores LiveCycle configuration information and run-time data. The procedures described in this section apply to all LiveCycle products that use User Management. If you previously configured the database for deploying other LiveCycle products, you do not need to perform the tasks again.

**Note:** User Management is an optional feature for LiveCycle Forms.

If this is the first installation of a LiveCycle product, you must create an empty database. All of the tables required to support LiveCycle products will be created by Configuration Manager when you initialize the database. (See [“Initializing the Database” on page 79.](#))

Before creating the database, you must ensure that you have read the preinstallation requirements and have the required software installed. (See [“Before You Install” on page 11.](#))

For information on creating the BAM metadata database for LiveCycle Workflow Server, see [“Creating the BAM metadata database” on page 90.](#)

### Creating an Oracle database

If you prefer not to use the default database that was created when you installed Oracle 9i or 10g, create a new database using the Database Configuration Assistant tool.

If any of the LDAP directories that the new database will synchronize with for authenticating LiveCycle users includes records with UTF-8 characters, you must create a database that uses the UTF-8 character set.

You must also create a new user on the database and assign it the DBA, CONNECT and RESOURCE roles, as well as the ACCESS\_ANY\_WORKSPACE, UNLIMITED TABLESPACE, and CREATE VIEW system privileges. For deployments on Linux and UNIX, the user name must not exceed 8 characters and, on Windows, it must not exceed 12 characters.

The user name and password of the new user you create on the database is used again when you create the data source.

For information about using Oracle 9i or 10g, see the Oracle 9i or 10g user documentation.

## Creating a SQL Server database

You can create a SQL Server database that LiveCycle products will use to store run-time and configuration data. For information on creating a SQL Server database, refer to the SQL Server documentation. LiveCycle products support SQL Server 2000 SP3a.

Create a SQL Server database and create a user with DB\_OWNER privileges that can be used when configuring the data source on the application server. For information about creating the database and user, see the SQL Server documentation.

The SQL Server database can be configured with the Windows or SQL Server authentication types.

If the WebLogic host computer belongs to a Windows workgroup, the SQL Server host computer must belong to a workgroup and not a domain.

You must also install JTA stored procedures on SQL Server. (See [Installing JTA stored procedures](#).) If SQL Server runs on Windows 2003, you need to enable XA transactions at the operating system level. (See ["Enabling XA transactions for Windows Server 2003" on page 28](#).)

## Installing JTA stored procedures

The database driver that LiveCycle products deployed to WebLogic use to connect to the SQL Server database require stored procedures for JTA on the SQL Server computer. You need to obtain and install updated SQL Server install files for JTA stored procedures.

### ► To install JTA stored procedures:

1. Obtain and install SQL Server 2000 Driver for JDBC SP3 from the [www.microsoft.com/sql/downloads](http://www.microsoft.com/sql/downloads) website.
2. Copy the sqljdbc.dll file from the Microsoft SQL Server 2000 Driver for JDBC\SQLServer JTA directory to the *[install directory]*\Microsoft SQL Server\MSSQL\Binn directory, where *[install directory]* is the location where SQL Server is installed.
3. Log into SQL Server 2000 Query Analyzer using a user account that is a member of the sysadmin group. The default member is sa.
4. In the menu of available databases, ensure that **master** is selected.
5. Open the instjdbc.sql file from the Microsoft SQL Server 2000 Driver for JDBC\SQLServer JTA directory, and then execute it.

If you are running this query for the first time, you will see several messages that indicate "xp\_xxx" cannot be dropped. These messages are warnings and do not indicate that the installation failed. The last message should read "instxa.sql completed successfully".

The instjdbc.sql script generates many messages. In general, these messages can be ignored, however, the system administrator should scan the output for any messages that may indicate an execution error. The last message should indicate that instjdbc.sql ran successfully. The script fails when there is insufficient space available in the master database to store the JDBC XA procedures or to log changes to existing procedures.

6. Ensure that MS DTC is started for SQL Server 2000:
  - Start SQL Server Service Manager.
  - In the **Services** list, select **Distributed Transaction Coordinator**.
  - Click **Start/Continue**.
  - If you want MS DTC to start automatically when the computer starts, select **Auto-start service when OS starts**.

## Enabling XA transactions for Windows Server 2003

If you are running SQL Server 2000 on Windows Server 2003 (Standard Edition or Enterprise Edition), XA transactions must be enabled at the operating system level. Before you perform the tasks in this section, you must verify whether XA transactions are already enabled for Windows Server 2003.

To enable XA transactions on the operating system, you need to perform the following tasks:

- Enable XA transactions for the MS DTC
- Create a registry entry for the sqljdbc.dll database drivers file that you are using

### ► To enable XA transactions for MS DTC:

1. Select **Start > Programs > Administrative Tools > Component Services**.
2. Select **Component Services > Computers**.
3. Right-click the computer name that you want to support for XA transactions and click **Properties**.
4. Click the **MSDTC** tab and click **Security Configuration**.
5. Under Security Settings, select **Enable XA Transactions**.
6. Click **OK**, and then click **OK** again.

### ► To create registry entries for the driver file:

1. Use a registry editor (such as regedit) to navigate to the registry key named HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\MSDTC\XADLL.
2. Create a new String Value registry named value that has the following properties:
  - **Name:** sqljdbc.dll
  - **Type:** String (REG\_SZ)
  - **Value:** The full path name (including the file name) of the DLL file:  
*[install directory]\Microsoft SQL Server\MSSQL\Binn\sqljdbc.dll*
3. Restart the computer so that the changes to the registry take effect.

## Preparing the application server

You must install the application server that you will use to run LiveCycle products. You also need to perform some preliminary configuration on the application server.

### ► Installing WebLogic Server

You must install BEA WebLogic Server 8.1, Service Pack 5 for running LiveCycle products. You can obtain the service pack at this location:

[http://commerce.bea.com/siteinfo/previous\\_releases.jsp](http://commerce.bea.com/siteinfo/previous_releases.jsp)

## Creating the WebLogic Server domain

To develop and deploy applications on WebLogic Server, you must create a WebLogic Server domain. A domain is the basic administrative unit for WebLogic Server. WebLogic Server domains consist of one or more Managed Servers that can share related resources and services.

You must deploy LiveCycle applications on Managed Servers in a domain; the Administration Server should be reserved for management tasks. For information about creating a server domain and about Administration and Managed Servers, see the BEA WebLogic product documentation.

**Note:** For properties that are not provided, accept the existing settings. For more information about these screens, see *WebLogic Help*.

### ► To create a WebLogic domain:

1. From a command prompt, start the WebLogic Configuration Wizard by navigating to the `[appserver root]/common/bin` directory and entering the following command:
  - (Windows) `.\config.cmd`
  - (Linux, UNIX) `./config.sh`
2. On the Create or Extend a Configuration screen, select **Create a new WebLogic configuration** and click **Next**.
3. On the Select a Configuration Template screen, select **Basic WebLogic Server Domain** and click **Next**.
4. On the Choose Express or Custom Configuration screen, select **Express** and click **Next**.
5. Type your user name and password, confirm the password by retyping it, and then click **Next**.
6. In the left panel, select **Production Mode**.
7. In the right panel, select **BEA Supplied SDKs** and **Sun SDK 1.4.2\_08@BEA\_HOME/jdk142\_08**, and then click **Next**.
8. On the Create WebLogic Configuration screen, from the **Summary View** list, select **Deployment** and click **Create**.
9. On the Creating Configuration screen, when the configuration creation is 100% complete, do the following:
  - (Windows) Select **Start Admin Server** and click **Done**.
  - (Linux, UNIX) Click **Done**. Start the server by navigating, from a command prompt, to the `[appserverdomain]` and entering `./startWebLogic.sh`
10. When prompted, enter the user name and password you entered in step [5](#).

► **To create a new WebLogic Managed Server:**

1. If WebLogic Administration Server is not already running, from a command prompt, navigate to the `BEA_HOME\user_projects\domains\[domainname]` directory, and enter the following command:
  - (Windows) `startWebLogic.cmd`
  - (Linux, UNIX) `./startWebLogic.sh`
2. Start WebLogic Administration Console by typing `http://[host name]:7001/console` in the URL line of a web browser.
3. Type the user name and password that was used in creating this WebLogic configuration, and then click **Sign In**.
4. Right-click **Servers** and select **Configure a New Server**.
5. Name the new server (for example, `server1`) and, in the **Listen Port** box, type a different value, such as `8001`. (Port 7001 is already being used by the Administration Server.)
6. Click **Create**.
7. From a command prompt, stop WebLogic by navigating to the `BEA_HOME\user_projects\domains\[domainname]` directory, and entering the following command:
  - (Windows) `stopWebLogic.cmd adminusername`
  - (Linux, UNIX) `./stopWebLogic.sh adminusername`
8. When prompted, type the administrator password and press **Enter**.
9. Start WebLogic Administration Server by entering the following command:
  - (Windows) `startWebLogic.cmd`
  - (Linux, UNIX) `./startWebLogic.sh`
10. Start Node Manager by navigating to the `[appserver root]/server/bin` directory and entering the following command:
  - (Windows) `startNodeManager.cmd`
  - (Linux, UNIX) `./startNodeManager.sh`
11. Start WebLogic Administration Console by typing `http://[host name]:7001/console` in the URL line of a web browser.
12. In the navigation tree, click **Machines**.
13. Click **Configure a New Machine**.
14. Type a name for the new machine, and then click **Create**.
15. Select **Servers**, and then select the WebLogic Managed Server you just created.
16. Click **Apply**.
17. Start the WebLogic Managed Server by selecting **mydomain** > **Control tab** and clicking **Start all Managed Servers**.

## Configuring anonymous admin lookup

You must enable anonymous admin lookup on the application server.

► **To enable anonymous admin lookup:**

1. Start WebLogic Server Administration Console by typing `http://[host name]:7001/console` in the URL line of a web browser.
2. In the navigation tree, click **Security**.
3. On the General tab of the Configuration tab, select **Anonymous Admin Lookup Enabled** and click **Apply**.
4. Restart the Managed Server.

## Configuring the WebLogic transaction time-out

You must increase the WebLogic transaction time-out value. The default value of 30 seconds is insufficient for running your applications. This time-out value must be higher than the value configured at the Job Source (through Administrator). The recommended value is 84600 seconds.

► **To set the WebLogic transaction time-out:**

1. Start the WebLogic Server Administration Console by typing `http://[host name]:[port]/console` in the URL line of a web browser.
2. Type the user name and password that you created for the WebLogic domain, and then click **Sign In**.
3. In the navigation tree, select **[domain name]**, click **Configuration**, and then click the **JTA** tab.
4. In the **Timeout Seconds** box, type `84600`, and then click **Apply**.
5. In the navigation tree, select **[domain name] > Servers > [servername]** and click the **Tuning** tab.
6. In the **Stuck Thread Max Time** box, type `1200` and click **Apply**.
7. Restart WebLogic.

## Creating an endorsed directory

You must create an endorsed directory and copy Java library files to the directory. This directory is required to ensure that the Java run-time environment (JRE) that runs WebLogic uses the classes from the libraries in the endorsed directory instead of the same-named classes that are identified in the system classpath.

► **To create an endorsed directory:**

1. Navigate to the `BEA_HOME/jdk142_08/jre/lib` directory and create a directory called *endorsed*.
2. Copy the following files from the `[LiveCycle root]/components/um/endorsed` directory to the endorsed directory you just created:
  - `dom3-xercesImpl-2.4.0.jar`
  - `dom3-xml-apis-2.4.0.jar`
  - `xalan-2.4.1.jar`

## Copying LiveCycle JAR files

You need to copy one or more LiveCycle JAR files from the LiveCycle installation directories to the WebLogic directories.

► **To copy LiveCycle JAR files:**

1. In the *[appserverdomain]* directory, create a directory called *lib*.
2. Copy the DocumentServicesLibrary.jar file from the *[LiveCycle root]/components/csa/weblogic/lib/adobe* directory to the *[appserverdomain]/lib* directory.

## Installing database drivers

You must install database drivers to the installation directories of the application server. Drivers are required to enable Configuration Manager and the application server to connect to the LiveCycle database. You must install the drivers for the type of database that you use for the LiveCycle database.

► **To install the Oracle driver:**

1. From a browser, navigate to [http://www.oracle.com/technetwork/software/tech/java/sqlj\\_jdbc/htdocs/jdbc\\_10201.html](http://www.oracle.com/technetwork/software/tech/java/sqlj_jdbc/htdocs/jdbc_10201.html)
2. Under **Oracle Database 10g Release 2 (10.2.0.1.0) JDBC Drivers**, download the ojdbc14.jar file.
3. Replace the ojdbc14.jar file in the *[appserver root]/server/lib* directory with release 2 driver you just downloaded.

► **To install the SQL Server driver:**

1. Start the WebLogic Server Administration Console by typing:  
`http://[host name]:[port]/console`  
in the URL line of a web browser.
2. Type the user name and password that was used in creating this WebLogic configuration, and then click **Sign In**.
3. In the navigation tree, select **[domain name]**, click **Servers**, and then click the server you created.
4. Click the **Remote Start** tab on the Configuration tab.
5. Add the following text to the **Class Path** box:

- (Windows)

```
%WL_HOME%\server\lib\wlbase.jar;%WL_HOME%\server\lib\wlsqserver.jar;  
%WL_HOME%\server\lib\wlutil.jar;
```

- (Linux and UNIX)

```
${WL_HOME}/server/lib/wlbase.jar:${WL_HOME}/server/lib/wlsqserver.jar  
:${WL_HOME}/server/lib/wlutil.jar:
```

**Note:** Use the “;” separator (Windows) or the “:” separator (Linux and UNIX).

## Registering required JAR files

You must configure WebLogic to use the JAR files that you copied to the WebLogic computer. (See [“Creating an endorsed directory” on page 31](#) and [“Copying LiveCycle JAR files” on page 32](#).) The server referred to in this section is the Managed Server.

► **To modify the startManagedWebLogic command:**

1. Start the WebLogic Server Administration Console by typing:

```
http://[host name]:[port]/console
```

in the URL line of a web browser.

2. Type the user name and password that was used in creating this WebLogic configuration, and then click **Sign In**.
3. In the navigation tree, select **[domain name]**, click **Servers**, and then click the server you created.
4. Click the **Remote Start** tab on the Configuration tab.
5. In the **Java Home** box, type the path to the jdk142\_08 directory.
6. In the **BEA Home** box, type the path to the WebLogic installation directory.
7. In the **Class Path** box, type the paths to the DocumentServicesLibrary.jar file and the database drivers. For example:

```
[appserverdomain]/lib/DocumentServicesLibrary.jar;  
[appserver root]/server/lib/<database driver>;%CLASSPATH%;
```

**Note:** If you receive errors with %CLASSPATH%, type the paths to the jar files. For example:

```
BEA_HOME/jdk142_08/lib/tools.jar; [appserver root]/server/lib/weblogic  
_sp.jar; [appserver root]/server/lib/weblogic.jar;
```

**Note:** Use the “;” separator (Windows) or the “:” separator (Linux and UNIX).

8. In the **Arguments** box, type the following text:

```
-Dweblogic.Name=[servername] -Dweblogic.ProductionModeEnabled=true  
-Djava.endorsed.dirs=BEA_HOME/jdk142_08/jre/lib/endorsed  
-Dadobeidp.RootDirectory=BEA_HOME/user_projects/domains  
/[domainname]  
-Djava.security.policy=[appserver_root]/server/lib/weblogic.policy  
-Xms512m -Xmx1024m
```

(LiveCycle Form Manager) Add the following text in the argument just before “-Xms512m”:

```
-Dorg.apache.lucene.writeLockTimeout=10000
```

(LiveCycle Workflow) Add the following text in the argument just before “-Xms512m”:


```
-Dadobe.workflow.scheduler.java.naming.factory.initial=weblogic.jndi.  
WLInitialContextFactory  
-Dadobe.workflow.scheduler.java.naming.provider.  
url=t3://[host name]:[port]
```

(Solaris, LiveCycle Form Manager) Also add the following argument after “-Xmx1024m”:

```
-XX:NewRatio=8.
```

**Caution:** These commands must all be on one line with one space between them and no other separators. If you are copying and pasting text directly from this document, remove any hard returns or extraneous text that may get copied along with the required code.

9. In the **User Name** box, type the WebLogic user name.
10. In the **Password** and **Confirm Password** boxes, type the WebLogic user password.
11. Click **Apply**.

**Note:** Ensure that the yellow  icon flashes after you click **Apply**. This indicates that the changes have been applied. If the icon does not flash, click **Apply** again.

► **To register LiveCycle JAR files:**

1. In the WebLogic Administration Console navigation tree, select **[domain name]**, click **Servers**, and then click the server you created.
2. Click the **Remote Start** tab on the Configuration tab.
3. Add the following text to the **Class Path** box:  

```
[appserverdomain]/lib/DocumentServicesLibrary.jar
```
4. Click **Apply**.
5. Restart WebLogic.

## Next step

You must now configure the product for deployment using the instructions for either an automatic configuration or a manual configuration. (See [“Automatically Configuring LiveCycle Products” on page 36](#) or [“Configuring LiveCycle Products for Deployment” on page 62.](#))

# Part I: Automatic Configuration and Deployment

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This section of the guide describes how to automatically configure and deploy your LiveCycle products.

For information on the manual configuration and deployment of the products, see [“Manual Configuration, and Deployment” on page 61](#).

# 4

## Automatically Configuring LiveCycle Products

---

This chapter describes how to use Configuration Manager to automatically configure and assemble LiveCycle products and deploy the products to the application server, or to manually configure and assemble LiveCycle products and automatically perform the remaining tasks of configuring the application server and deploying the LiveCycle products.

This chapter assumes that you have prepared your environment for hosting LiveCycle products and installed the products. If you have not done this, see [“Preparing Your Environment” on page 26](#) and [“Installing LiveCycle Products” on page 19](#).

### About Configuration Manager

Configuration Manager is a wizard-like tool that you can use to automatically perform all of the tasks required for getting LiveCycle products running on the application server.

Configuration Manager is installed with every LiveCycle product. The instance of Configuration Manager installed with a LiveCycle 7.2 product can be used with all other LiveCycle 7.2 products. When you run Configuration Manager, you specify the LiveCycle products you are configuring, as well as the type of application server that you are leveraging in the solution.

You can start Configuration Manager from the installation program to configure the products during the installation process, or you can start Configuration Manager any time after the installation to configure the products. The application server must be started to enable Configuration Manager to perform configuration tasks on the application server.

You can configure an application server that is installed on a different computer than the one on which you are running Configuration Manager. However, the application server must also be installed on the Configuration Manager computer so that Configuration Manager can use the application server library files.

### Configuration tasks

Configuration Manager provides a wizard-like interface that prompts you for information so that it can automatically accomplish the following tasks:

1. Configure and assemble LiveCycle product properties and assemble them in an EAR file for deploying to the application server.
2. Configure application server properties so that the application server can run LiveCycle products.
3. Validate that the application server is configured correctly for running LiveCycle products.
4. Deploy LiveCycle products to the application server.
5. Bootstrap the database so that the database can store the run-time data that deployed LiveCycle products generate.
6. Verify that the deployed LiveCycle products are available and operational.

Optionally, steps [2](#) (configure application server properties) and [4](#) (deploy LiveCycle products) can be performed manually (without using Configuration Manager). (See ["Configuration modes" on page 37.](#))

Regardless of whether all of the tasks are performed automatically by Configuration Manager or some are performed manually, the tasks must be performed in the order in which they are listed.

## Configuration modes

Configuration Manager can run in two different modes:

**Typical Configuration Wizard:** In this mode, Configuration Manager performs all of the tasks required to get LiveCycle products running on the application server. When configuring the LiveCycle product properties, Configuration Manager uses all of the default values.

**Custom Configuration Wizard:** In this mode, you can select the tasks that you want Configuration Manager to perform automatically. When configuring the LiveCycle product properties, you can use the default values or specify custom values.

The Custom Configuration Wizard mode is useful when you want to perform some of the configuration steps manually, and some automatically. For example, if you want to configure the application server manually and use Configuration Manager to automatically perform the remaining configuration tasks, you could follow these steps:

1. Run Configuration Manager in the Custom Configuration Wizard mode and use it to configure and assemble LiveCycle products in an EAR file.
2. Manually configure the application server.
3. Run Configuration Manager again in the Custom Configuration Wizard mode to validate the application server, deploy LiveCycle products, initialize the database, and verify that the products are available and operational.

## Running Configuration Manager more than once

Configuration Manager stores the values that you enter for configuration properties and lets you skip configuration properties. This is useful when you run Configuration Manager more than once.

### Stored property values

Configuration Manager stores all of the values (except for passwords) that you enter in its configuration screens to prevent you from having to retype the values. When you subsequently run Configuration Manager, you can use the previously-entered values as defaults for the configuration properties.

### Do Not Apply option

Some of the Configuration Manager screens have a Do Not Apply option. When you select the Do Not Apply option, Configuration Manager does not set the properties that are associated with the screen, and preserves the current configuration.

You should only select the Do Not Apply option if you have previously set the properties associated with the screen. If some of the properties are not set, subsequent Configuration Manager tasks can fail.

For example, when configuring the application server, a Configuration Manager screen collects information about the LiveCycle database so that Configuration Manager can configure the data source on the application server. Later, when performing the Bootstrap Database task, Configuration Manager uses the data source to connect to the database and initialize the database schemas. If the database screen is always skipped, the data source is not created and the Bootstrap Database task fails.

**Caution:** Selecting Do Not Apply is not the same as not specifying any property values. Selecting Do Not Apply does not configure any values and the previous values are retained.

## Performing a typical configuration

In a typical configuration, Configuration Manager automatically performs all of the tasks required to get LiveCycle products running on the application server.

If you want Configuration Manager to automatically perform only a subset of the configuration tasks, see [“Performing a custom configuration” on page 41](#).

**Note:** If you have previously performed a typical configuration and deployed LiveCycle.ear, you must first uninstall the product EAR files. (See [“Uninstalling EAR files” on page 52](#).)

If you are configuring a remote application server, ensure that the application server is installed on the Configuration Manager computer so that Configuration Manager can use the application server library files.

**Caution:** Some of the screens in this procedure have a Do Not Apply option. Selecting Do Not Apply is not the same as not specifying any property values. Selecting Do Not Apply does not configure any values and the previous values are retained.

**Tip:** Configuration Manager verifies the values specified on each screen when you click Next. If it cannot validate a value, the property on the screen turns red and you cannot proceed until you enter a valid value.

Before performing a typical configuration, you must have already created the LiveCycle database and prepared the application server. (See [“Preparing Your Environment” on page 26](#).)

### ► To perform a typical configuration:

1. Start the application server.
2. Start Configuration Manager by navigating to the *[LiveCycle root]/configurationManager* directory and entering the following command:
  - (Windows) `ConfigurationManager.exe`
  - (Linux, UNIX) `ConfigurationManager.bin`
3. On the Welcome screen, click **Next**.
4. Select **Typical Configuration Wizard** and click **Next**.
5. If prompted, on the Configuration Preferences screen, select either **Use Previously Entered Values** or **Revert to Default Values**, and then click **Next**. The Configuration Preferences screen only appears if you have previously run Configuration Manager.

6. On the Product Selection screen, select **Foundation**, select the products that you want to configure and deploy, and then click **Next**.
7. (LiveCycle Forms) On the Adobe User Management Selection screen, select either **LiveCycle Forms with User Management and Administration** or **LiveCycle Forms without User Management and Administration**, and then click **Next**.
8. On the Configuration and Assemble Products screen, click **Next**.
9. Review the Application Configuration and Assembly Summary information and click **Back** to change any settings or click **Next** to continue. When you continue, Configuration Manager configures the LiveCycle product properties using the default values and assembles the products into the LiveCycle.ear file and, for LiveCycle PDF Generator, the additional pdfg-all.ear or pdfg-ps-all.ear file.
10. Click **Next** when the configuration and assembly is complete.
11. On the Java Home Selection screen, type the path or browse to the directory where the JDK is installed, and then click **Next**. For example, the directory is C:\bea\jdk142\_08 (Windows) or /opt/bea/jdk142\_08 (Linux and UNIX).

**Note:** You must use the JDK that is included with the application server.

12. On the Application Server Configuration Details screen, specify values for the following properties, and then click **Next**:
  - **Deploy Type:** Specifies whether you are deploying to a standalone computer or to a cluster. Select Standalone.
  - **Remote Server:** Select this option only if the application server is running on a different computer than the computer that is running Configuration Manager.
  - **Hostname:** The fully qualified name or IP address of the computer that hosts the application server.
  - **Admin Port:** The port used to provide access to the administration service on the application server. The default port is 7001.
  - **Server Instance Name:** The name of the application server that you want to configure. The name of the default server instance that is created upon installing the application server is *server1*.
  - **Username and Password:** (Optional) If the application server requires user credentials to perform administration tasks, the user name and password of an application server administration account.
  - **Local Application Server Root Directory:** The root directory of the application server installation on the computer that is running Configuration Manager. For example, the directory is C:\bea\weblogic81 (Windows) or /opt/bea/weblogic81 (Linux and UNIX).

**Caution:** The Remote Server property cannot be used to configure LiveCycle PDF Generator Professional or LiveCycle PDF Generator Elements because Acrobat cannot be installed remotely. However, the property can be used to configure LiveCycle PDF Generator for PostScript.

13. On the Configure Application Server for LiveCycle screen, click **Next**.
14. On the JVM Settings screen, specify values for the following properties of the JVM that runs the application server, and then click **Next**:
  - **Do Not Apply:** Select this option if you do not want to configure JVM properties at this time. If you select this option, you do not need to provide values for the remaining properties on this screen.
  - **Initial Heap Size:** The initial amount of memory allocated for the JVM. Specify 512.

- **Maximum Heap Size:** The maximum amount of memory that can be dynamically allocated for the JVM. Specify 1024.
- **Additional JVM Arguments:** Any additional arguments you require.

**Note:** Initial Heap Size and Maximum Heap Size must not be greater than 2048. For more information about setting these values, see [“Optimizing inline documents and impact on JVM memory” on page 148.](#)

15. (LiveCycle PDF Generator, LiveCycle Form Manager, LiveCycle Workflow) On the JMS settings screen, click **Next**. There are no values that you need to configure on this screen.
16. On the Datasource Creation screen, specify values for the following properties of the LiveCycle database so that Configuration Manager can configure the database connection on the application server, and then click **Next**:
  - **Do Not Apply:** Select this option if you do not want to configure the database connection at this time. If you select this option, you do not need to provide values for the remaining properties on this screen.
  - **Datasource:** The JNDI name of the data source to create on the application server. Select IDP\_DS.
  - **DB Type:** The type of database you are using for the LiveCycle database.
  - **DB Name:** The name of the database.
  - **DB Server Hostname:** The name or IP address of the computer that hosts the database server.
  - **Port:** The port used to access the database service.
  - **DB Username:** The name of the user account that you created for LiveCycle products to access the LiveCycle database.
  - **DB Password:** The password for the user account specified for DB Username.
  - **JDBC driver in local application server lib:** The name and path of the driver file that the application server uses to connect to the database. If the driver consists of more than one file, you only need to specify the main file, as specified in the following list:
    - (Oracle) [appserver root]/server/lib/ojdbc14.jar
    - (SQL Server) [appserver root]/server/lib/wlsqserver.jar
  - **JDBC Connection Pool Name:** The name to use for the JDBC connection pool that is created for the data source. The default value is IDPConnectionPool.
17. On the Database Connection Tester screen, click **Test Database Now** to verify that Configuration Manager can connect to the database and, when the test is successful, click **Next**.
18. On the Configure Application Server screen, click **Apply Settings Now** and, when the task is complete, click **Next**.
19. Restart the application server to ensure that the settings are in effect and on the Application Server/Cluster Restart screen, click **Next**.
20. On the Validate Application Server settings screen, click **Next**.
21. On the Deploy LCM.ear screen, click **Execute** and, when the deployment is complete, click **Next**.
22. On the Validate Application Server Settings screen, click **Validate Settings Now** and, when the task is complete, click **Next**.

23. On the Deploy LiveCycle screen, click **Next**.
24. On the Confirm Products to Deploy screen, select the archives that you are deploying and click **Next**.
25. On the Deploy Products screen, click **Deploy Products Now** and, when the deployment is complete, click **Next**.
26. On the Application Server URL screen, type the URL that Configuration Manager can use to connect to the application server in the **Application Server Base URL** box, and then click **Next**. The URL must be in the following format:  

```
http://[host name]:[port]
```

where *[host name]* is the name or IP address of the computer that hosts the application server, and *[port]* is the HTTP service port that the application server uses (for example, `http://localhost:8001`).  
**Note:** To verify the port number to use for this setting, navigate to **Application servers > [server]**, select the Configuration tab, then click **Communications > Ports** and look for the **WC\_defaulthost** value.
27. On the Prepare database for LiveCycle screen, click **Next**.
28. On the Database Initialization screen, click **Initialize Database Now** and, when the task is complete, click **Next**.
29. On the Verify the installation screen, click **Next**.
30. On the Verify Deployed Products screen, click **Run Product Tests Now** and, when the task is complete, click **Next**.
31. On the Tasks Complete screen, click **Finish**.

## Performing a custom configuration

In a custom configuration, you can select the tasks that you want Configuration Manager to perform automatically. If you want Configuration Manager to automatically perform all of the configuration tasks, see [“Performing a typical configuration” on page 38](#).

The following procedure explains how to use Configuration Manager to select the tasks that you want to perform. After you select the tasks, proceed to the subsequent topics in this chapter for information about how to use the screens that appear for completing each task.

**Tip:** Configuration Manager verifies the values specified on each screen when you click Next. If it cannot validate a value, the property on the screen turns red and you cannot proceed until you enter a valid value.

### ► To perform a custom configuration:

1. Start the application server.
2. Start the Configuration Manager by navigating to the `[LiveCycle root]/configurationManager` directory and entering the following command:
  - (Windows) `ConfigurationManager.exe`
  - (Linux, UNIX) `ConfigurationManager.bin`

3. On the Welcome screen, click **Next**.
4. Select **Custom Configuration Wizard** and click **Next**.
5. If prompted, on the Configuration Preferences screen, select either **Use Previously Entered Values** or **Revert to Default Values**, and then click **Next**. The Configuration Preferences screen only appears if you have previously run Configuration Manager.
6. On the Product Selection screen, select **Foundation**, select the products that you want to configure and deploy, and then click **Next**.
7. (LiveCycle Forms) On the Adobe User Management Selection screen, select either **LiveCycle Forms with User Management and Administration** or **LiveCycle Forms without User Management and Administration**, and then click **Next**.
8. On the Task Selection screen, select the tasks that you want Configuration Manager to automatically perform, and then click **Next**.

The screen that appears next depends on the first task that you selected. If you selected more than one task, the screens for the next task will appear immediately following the completion of the screens for the preceding task. For information on how to complete the Configuration Manager screens for each task, see the corresponding section:

- [“Configuring and assembling LiveCycle products” on page 42](#)
- [“Changing the application server settings” on page 45](#)
- [“Validating application server settings” on page 47](#)
- [“Automatically deploying LiveCycle products” on page 48](#)
- [“Initializing the database” on page 49](#)
- [“Verifying deployed LiveCycle products” on page 50](#)

## Configuring and assembling LiveCycle products

The procedure in this section is a continuation of the procedure for performing a custom configuration. (See [“Performing a custom configuration” on page 41](#).)

When you select the Configure and Assemble products task for Configuration Manager to perform automatically, follow the procedure in this section to complete the Configuration Manager screens that appear.

When Configuration Manager completes the configuration of the product, it places the deployable files (LiveCycle.ear and adobe-FontManager.ear, adobe-printSubmitter.ear for LiveCycle Print, and, for LiveCycle PDF Generator, pdfg-all.ear or pdfg-ps-all.ear) in the following directory:

- (Windows) `[LiveCycle root]\configurationManager\export`
- (Linux, UNIX) `[LiveCycle root]/configurationManager/export`

► **To configure and assemble LiveCycle products:**

1. On the Configure and Assemble products screen, click **Next**.
2. (Optional) On the Data Manager Module Configuration screen, if you are using SSL security on your application server, select **Enable SSL** and type the SSL credential password.  
If you have not yet set up your SSL credential, you can type a password here and use it when you create an SSL credential. (See [“Configuring SSL on WebLogic” on page 87.](#))
3. Enter a directory to use for **Adobe LiveCycle products temp file**, and then click **Next**.

**Note:** (Linux and UNIX) If you are logged in as a non-root user, specify a directory under your home directory.

For more information on the Adobe LiveCycle products temp file, see [“Optimizing inline documents and impact on JVM memory” on page 148.](#)

4. On the Data Manager Module Configuration continued screen, accept the default values for the following properties or specify new values, and then click **Next**:
  - **Local storage sweep interval (in seconds):** The amount of time between attempts to delete any files that are no longer needed and were used to pass the document data between LiveCycle services running on the same computer.
  - **Global storage sweep interval (in seconds):** The amount of time between attempts to delete any obsolete files that were used to pass the document data between LiveCycle services running on the different computers. Specify this property only when deploying LiveCycle products in a clustered environment.
  - **Default maximum inline size (in bytes):** The maximum number of bytes kept in memory when passing documents between different LiveCycle components. Documents that exceed this maximum are stored on the hard drive. Use this property for performance tuning. (See [“Optimizing inline documents and impact on JVM memory” on page 148.](#))
  - **Default disposal time-out (in seconds):** The maximum amount of time during which a document being passed between different LiveCycle components is considered active. After this time has passed, any files used to store this document are subject to removal. Use this property to control the usage of disk space.
  - **Use NFS protocol (Windows only):** Select this option when deploying LiveCycle products in a clustered environment. Additional NFS software should be installed on your computer running Windows before enabling this option. This option does not affect deployments on Linux or UNIX.
  - **Global storage directory:** A path to a shared directory used to store long-lived documents that are passed between LiveCycle products. LiveCycle Workflow uses this directory to share process-related files among cluster nodes. LiveCycle Form Manager uses this directory to store index files used for full-text searches. Using an NFS shared directory can help to improve performance.

(LiveCycle PDF Generator) When LiveCycle PDF Generator is running as a service, to specify a network folder for the Global storage directory property, you must use the network address of the folder, and not the path of a mapped drive. For example, \\computer\_name\temp is the network address of the temp folder on the computer named computer\_name.

For more information on the Global storage directory property, see [“Optimizing inline documents and impact on JVM memory” on page 148.](#)

5. (LiveCycle Forms, LiveCycle Form Manager, LiveCycle Workflow, LiveCycle Assembler) (Optional) On the Font Manager Module Configuration screen, select fonts for LiveCycle Forms to use in addition to the fonts that are included with the product. In the **Fonts directory** box, type the path or browse to the directory that contains the fonts to add, and then click **Next**.

**Note:** Your right to use fonts provided by parties other than Adobe is governed by the license agreements provided to you by such parties in connection with those fonts, and is not covered under your license to use Adobe software. Adobe recommends that you review and ensure you are in compliance with all applicable non-Adobe license agreements before using non-Adobe fonts with Adobe software, particularly with respect to use of fonts in a server environment.

6. (LiveCycle Assembler) (Optional) On the Assembler Security Group configuration screen, specify the type of security you want to implement controlling permission to execute Assembler DDX jobs, and then click **Next**. Two types of user authentication are available:
  - Type an asterisk (\*) to allow any user with a valid entry in the LDAP system to log in.
  - Leave the field blank to allow any user to log in.
7. (LiveCycle Forms, LiveCycle Form Manager, LiveCycle Workflow) (Optional) On the Form Server Module Configuration screen, accept the default values for the following properties or specify new values, and then click **Next**:
  - **Validation UI:** The type of UI to use on HTML forms if a validation error occurs. If you select **List**, all validation errors on the form are displayed as links. If you select **MessageBox**, each error message is displayed in a dialog box controlled by clicking next and previous buttons. The location of the list or buttons depends on the option selected for Validation Reporting.
  - **Validation Reporting:** The location in which the validation messages are displayed. Select one of the following options:
    - **Frame Left** - Displays validation messages within a frame on the left side of the web browser.
    - **Frame Right** - Displays validation messages within a frame on the right side of the web browser.
    - **Frame Top** - Displays validation messages within a frame at the top of the web browser.
    - **Frame Bottom** - Displays validation messages within a frame at the bottom of the web browser.
    - **No Frame Left** - Displays validation messages in the same window on the left side of the web browser.
    - **No Frame Right** - Displays validation messages in the same window on the right side of the web browser.
    - **No Frame Top** - Displays validation messages in the same window at the top of the web browser.
    - **No Frame Bottom** - Displays validation messages in the same window at the bottom of the web browser.
    - **None** - Does not display validation messages.
    - **No UI** - Returns the validation messages through the API (with data). The validation messages are not displayed on-screen.
    - **No UI With Form** - Returns the validation messages through the API (with the form). The validation messages are not displayed on-screen.
  - **Validation Border:** The frame border size (in pixels) when Validation Reporting is set to Frame Left, Frame Right, Frame Top, or Frame Bottom. The frame border size must be equal to or greater than 0.

- **Output Type:** The type of HTML output returned to the web browser. Select **Full HTML** to render the form within full HTML tags (a complete HTML page) or select **Form Body** to render the form within div tags (not a complete HTML page).
  - **Locale:** The language to be used for validation messages sent to client devices, such as web browsers, as part of HTML transformations. The default value is English (United States). For information on applicable values, see “Language and Locale Combinations” in the *Developing Custom Applications* guide that is installed with LiveCycle Forms.
  - **Charset:** The character set used to encode the output byte stream. This property is dependent on the `sFormPreference` parameter specified through the API. For HTML transformations, the Form Server Module supports character encoding values defined by the `java.nio.charset` package. To view a list of supported values, go to <http://java.sun.com/j2se/1.4.2/docs/guide/intl/encoding.doc.html>.
  - **Cache Enabled:** Select this option to optimize performance. This option works with the form design’s caching property. For information on configuring this value in the form design, see *Adobe LiveCycle Designer Help*.
8. (LiveCycle Forms, LiveCycle Form Manager, LiveCycle Workflow) (Optional) On the XMLForm Module Configuration screen, accept the default values for the following properties or specify new values, and then click **Next**:
- **Pool Max:** The maximum number of processes that can be running. The recommended value for PoolMax is the total number of CPUs \* 2 + constant (1 or 2). When the PoolMax limit is reached, service instances are created from PoolSize.
  - **Trace Level:** The trace level. The following options are available:
    - **None** - Tracing is not enabled.
    - **Enter/Exit** - Messages are logged each time a method is entered and exited.
    - **Parameters** - Messages are logged each time a method is entered and exited, and the value of all parameters passed into each method is logged.
    - **Details** - Messages are logged each time a method is entered and exited, the value of all parameters passed into each method and any extra messages are logged.
  - **Report timing information:** Select this option to monitor the start and end time of calls. You can use this information for performance tuning.
9. On the Application Configuration and Assembly Summary screen, review the configuration details, and then click **Next**.
10. On the Configure and Assemble Products Summary screen, click **Next**.
11. On the Tasks Completed screen, click **Next** (if you selected another task for Configuration Manager to perform) or click **Finish** to close Configuration Manager.

## Changing the application server settings

The procedure in this section is a continuation of the procedure for performing a custom configuration. (See [“Performing a custom configuration” on page 41.](#))

When you select the Change Application Server settings task for Configuration Manager to perform automatically, follow the procedure in this section to complete the Configuration Manager screens that appear for the task.

If you are configuring a remote application server, ensure that the application server is installed on the Configuration Manager computer so that Configuration Manager can use the application server library files.

**Caution:** Some of the screens in this procedure have a Do Not Apply option. Selecting Do Not Apply is not the same as not specifying any property values. Selecting Do Not Apply does not configure any values and the previous values are retained.

► **To configure the application server:**

1. Specify the home directory of the JDK that is used to run the application server, and then click **Next**. For example, the directory is C:\bea\jdk142\_08 (Windows) or /opt/bea/jdk142\_08 (Linux and UNIX).
2. On the Application Server Configuration Details screen, specify values for the following properties, and then click Next:
  - **Deploy Type:** Specifies whether you are deploying to a standalone computer or to a cluster. Select Standalone.
  - **Remote Server:** Select this option only if the application server is running on a different computer than the computer that is running Configuration Manager.
  - **Hostname:** The fully qualified name or IP address of the computer that hosts the application server.
  - **Admin Port:** The port used to provide access to the administration service on the application server. The default port is 7001.
  - **Server Instance Name:** The name of the application server that you want to configure. The name of the default server instance that is created upon installing the application server is *server1*.
  - **Username and Password:** (Optional) If the application server requires user credentials to perform administration tasks, the user name and password of an application server administration account.
  - **Local Application Server Root Directory:** The root directory of the application server installation on the computer that is running Configuration Manager. For example, the directory is C:\bea\weblogic81 (Windows) or /opt/bea/weblogic81 (Linux and UNIX).

**Caution:** The Remote Server property cannot be used to configure LiveCycle PDF Generator Professional or LiveCycle PDF Generator Elements because Acrobat cannot be installed remotely. However, the property can be used to configure LiveCycle PDF Generator for PostScript.

3. On the Change Application Server settings page, click **Next**.
4. On the Configure Application Server for LiveCycle screen, click **Next**.
5. On the JVM Settings screen, specify values for the following properties of the JVM that runs the application server, and then click **Next**:
  - **Do Not Apply:** Select this option if you do not want to configure JVM properties at this time. If you select this option, you do not need to provide values for the remaining properties on this screen.
  - **Initial Heap Size:** The initial amount of memory allocated for the JVM. Specify 512.
  - **Maximum Heap Size:** The maximum amount of memory that can be dynamically allocated for the JVM. Specify 1024.
  - **Additional JVM Arguments:** Any additional arguments you require.

**Note:** Initial Heap Size and Maximum Heap Size must not be greater than 2048. For more information about setting these values, see [“Optimizing inline documents and impact on JVM memory” on page 148](#).

6. (LiveCycle PDF Generator, LiveCycle Form Manager, LiveCycle Workflow) On the JMS settings screen, click **Next**. There are no values that you need to configure on this screen.
7. On the Datasource Creation screen, specify values for the following properties of the LiveCycle database so that Configuration Manager can configure the database connection on the application server, and then click **Next**:
  - **Do Not Apply**: Select this option if you do not want to configure the database connection at this time. If you select this option, you do not need to provide values for the remaining properties on this screen.
  - **Datasource**: The JNDI name of the data source to create on the application server. Select `IDP_DS`.
  - **DB Type**: The type of database you are using for the LiveCycle database.
  - **DB Name**: The name of the database.
  - **DB Server Hostname**: The name or IP address of the computer that hosts the database server.
  - **Port**: The port used to access the database service.
  - **DB Username**: The name of the user account that you created for LiveCycle products to access the LiveCycle database.
  - **DB Password**: The password for the user account specified for DB Username.
  - **JDBC driver in local application server lib**: The name and path of the driver file that the application server uses to connect to the database. If the driver consists of more than one file, you only need to specify the main file, as specified in the following list:
    - (Oracle) `[appserver root]/server/lib/ojdbc14.jar`
    - (SQL Server) `[appserver root]/server/lib/wlsqserver.jar`
  - **JDBC Connection Pool Name**: The name to use for the JDBC connection pool that is created for the data source. The default value is `IDPConnectionPool`.
8. On the Database Connection Tester screen, you can click **Test Database Now** to verify the database settings, or click **Next** to continue.
9. On the Configure Application Server screen, click **Apply Settings Now** to configure your application server, and, when the task is complete, click **Next**.
10. Restart the application server and, on the Application Server/Cluster Restart screen, click **Next** (if you selected another task for Configuration Manager to perform) or click **Finish** to close Configuration Manager.

## Validating application server settings

When you select the Validate Application Server settings task for Configuration Manager to perform, follow the procedure in this section to complete the Configuration Manager screens that appear for the task.

The procedure in this section is a continuation from the Change Application Server Settings task. If you are continuing directly from step [10](#) in the previous section, the Configuration Manager will jump to step [2](#) below.

**Note:** If you did not restart the application server after changing the application server settings using Configuration Manager, restart it before validating the settings.

When Configuration Manager validates application server settings, it deploys and communicates with the applications in the LCM.ear file.

If you are running Configuration Manager solely to perform the Validate Application Server Settings task, you will need to perform steps [2](#) through [9](#) in the previous section prior to performing the validation steps in this section.

If you are validating a remote application server, ensure that the application server is installed on the Configuration Manager computer so that Configuration Manager can use the application server library files.

**Caution:** Some of the screens in this procedure have a Do Not Apply option. Selecting Do Not Apply is not the same as not specifying any property values. Selecting Do Not Apply does not configure any values and the previous values are retained.

➤ **To validate application server settings:**

1. On the Validate Application Server settings screen, click **Next**.
2. On the Deploy LCM.ear screen, click **Execute** or click **Next**.
3. On the Validate Application Server Settings screen, click **Validate Settings Now** and, when the task is complete, click **Next** (if you selected another task for Configuration Manager to perform) or click **Finish** to close Configuration Manager.

**Note:** When validating, you must not have any LiveCycle applications running other than the LCM.

## Automatically deploying LiveCycle products

The procedure in this section is a continuation of the procedure for performing a custom configuration. (See [“Performing a custom configuration” on page 41.](#))

When you select the Deploy Products task for Configuration Manager to perform, follow the procedure in this section to complete the Configuration Manager screens that appear for automatically deploying LiveCycle products to the application server.

**Note:** If you are redeploying LiveCycle.ear, you must first uninstall product EAR files. (See [“Uninstalling EAR files” on page 52.](#))

If you are continuing directly from a previous task, Configuration Manager will jump to step [3](#) below.

If you are running Configuration Manager solely to perform the Deploy products task, you will need to perform all of the steps in this section.

**Note:** Perform this procedure only after you have configured the application server.

If you are deploying to a remote application server, ensure that the application server is installed on the Configuration Manager computer so that Configuration Manager can use the application server library files.

If you want to deploy LiveCycle products manually, see [“Manually Deploying to WebLogic” on page 76.](#)

**Note:** (LiveCycle Workflow) Configuration Manager does not deploy BAM Server. For information about manually deploying BAM Server, see [“Deploying BAM Server to WebLogic” on page 96.](#)

► **To automatically deploy LiveCycle products:**

1. Specify the home directory of the JDK that is used to run the application server, and then click **Next**. For example, the directory is C:\bea\jdk142\_08 (Windows) or /opt/bea/jdk142\_08 (Linux and UNIX).
  2. On the Application Server Configuration Details screen, specify values for the following properties, and then click **Next**:
    - **Deploy Type:** Specifies whether you are deploying to a standalone computer or to a cluster. Select Standalone.
    - **Remote Server:** Select this option only if the application server is running on a different computer than the computer that is running Configuration Manager.
    - **Hostname:** The fully qualified name or IP address of the computer that hosts the application server.
    - **Admin Port:** The port used to provide access to the administration service on the application server. The default port is 7001.
    - **Server Instance Name:** The name of the application server that you want to configure. The name of the default server instance that is created upon installing the application server is *server1*.
    - **Username and Password:** (Optional) If the application server requires user credentials to perform administration tasks, the user name and password of an application server administration account.
    - **Local Application Server Root Directory:** The root directory of the application server installation on the computer that is running Configuration Manager. For example, the directory is C:\bea\weblogic81 (Windows) or /opt/bea/weblogic81 (Linux and UNIX).
- Caution:** The Remote Server property cannot be used to configure LiveCycle PDF Generator Professional or LiveCycle PDF Generator Elements because Acrobat cannot be installed remotely. However, the property can be used to configure LiveCycle PDF Generator for PostScript.
3. On the Deploy LiveCycle screen, click **Next**.
  4. On the Confirm Products to Deploy screen, select the archives that you are deploying and click **Next**.
  5. On the Deploy Products screen, click **Deploy Products Now**, and, when the task is complete, click **Next**.
  6. Click **Next** (if you selected another task for Configuration Manager to perform) or click **Finish** to close Configuration Manager.

## Initializing the database

The procedure in this section is a continuation of the procedure for performing a custom configuration. (See ["Performing a custom configuration" on page 41.](#))

When you select the Bootstrap Database task for Configuration Manager to perform, follow the procedure in this section to complete the Configuration Manager screens that appear for initializing the LiveCycle database.

If you are continuing directly from a previous task, Configuration Manager will jump to step [4](#) below.

If you are running Configuration Manager solely to perform the Bootstrap database task, you will need to perform all of the steps in this section.

**Note:** There is no method for manually initializing the database.

If you are using User Management with LiveCycle products, you must run Configuration Manager to initialize the database for integration with User Management. When you run Configuration Manager, the

application server must be running. Initializing the database is a process that prepares a database for use with LiveCycle products by creating tables and optionally adding data to them. You only need to initialize the database the first time you deploy the product.

If you have deployed LiveCycle products to a remote application server, ensure that the application server is installed on the Configuration Manager computer so that Configuration Manager can use the application server library files.

This section assumes that you have configured the database for integration with the product and have deployed the product to the application server. If you have not done this, see [“Preparing Your Environment” on page 26](#), and [“Manually Deploying to WebLogic” on page 76](#).

► **To initialize the database:**

1. Specify the home directory of the JDK that is used to run the application server, and then click **Next**. For example, the directory is C:\bea\jdk142\_08 (Windows) or /opt/bea/jdk142\_08 (Linux and UNIX).
2. On the Application Server URL screen, type the URL that Configuration Manager can use to connect to the application server in the **Application Server Base URL** box, and then click **Next**. The URL must be in the following format:

```
http:// [host name] : [port]
```

where *[host name]* is the name or IP address of the computer that hosts the application server, and *[port]* is the HTTP service port that the application server uses (for example, `http://localhost:8001`).

3. On the Prepare database for LiveCycle screen, click **Next**.
4. On the Deploy LCM.ear screen, click **Execute** or click **Next**.
5. On the Database Initialization screen, click **Initialize Database Now**, and, when the task is complete, click **Next**.
6. Click **Next** (if you selected another task for Configuration Manager to perform) or click **Finish** to close Configuration Manager.

## Verifying deployed LiveCycle products

The procedure in this section is a continuation of the procedure for performing a custom configuration. (see [“Performing a custom configuration” on page 41](#).)

When you select the Verify Deployed Products task for Configuration Manager to perform, follow the procedure in this section to complete the Configuration Manager screens that appear for verifying that the LiveCycle services are accessible and functioning.

If you are continuing directly from a previous task, Configuration Manager will jump to step [4](#) below.

If you are running Configuration Manager solely to perform the Verify Deployed Products task, you will need to perform all of the steps in this section.

If you are verifying the deployment to a remote application server, ensure that the application server is installed on the Configuration Manager computer so that Configuration Manager can use the application server library files.

**Tip:** You can perform this procedure if you have deployed LiveCycle products manually or automatically with Configuration Manager.

► **To verify deployed LiveCycle products:**

1. Specify the home directory of the JDK that is used to run the application server, and then click **Next**. For example, the directory is C:\bea\jdk142\_08 (Windows) or /opt/bea/jdk142\_08 (Linux and UNIX).
2. On the Application Server URL screen, type the URL that Configuration Manager can use to connect to the application server in the **Application Server Base URL** box, and then click **Next**. The URL must be in the following format:

```
http://[host name]:[port]
```

where *[host name]* is the name or IP address of the computer that hosts the application server, and *[port]* is the HTTP service port that the application server uses (for example, http://localhost:7001.)

**Note:** To verify the port number to use for this setting, navigate to **Application servers** > [server], select the Configuration tab, then click **Communications** > **Ports** and look for the **WC\_defaulthost** value.

3. On the Application Server Configuration Details screen, specify values for the following properties, and then click **Next**:
  - **Deploy Type:** Specifies whether you are deploying to a standalone computer or to a cluster. Select Standalone.
  - **Remote Server:** Select this option only if the application server is running on a different computer than the computer that is running Configuration Manager.
  - **Hostname:** The fully qualified name or IP address of the computer that hosts the application server.
  - **Admin Port:** The port used to provide access to the administration service on the application server. The default port is 7001.
  - **Server Instance Name:** The name of the application server that you want to configure. The name of the default server instance that is created upon installing the application server is *server1*.
  - **Username and Password:** (Optional) If the application server requires user credentials to perform administration tasks, the user name and password of an application server administration account.
  - **Local Application Server Root Directory:** The root directory of the application server installation on the computer that is running Configuration Manager. For example, the directory is C:\bea\weblogic81 (Windows) or /opt/bea/weblogic81 (Linux and UNIX).

**Caution:** The Remote Server property cannot be used to configure LiveCycle PDF Generator Professional or LiveCycle PDF Generator Elements because Acrobat cannot be installed remotely. However, the property can be used to configure LiveCycle PDF Generator for PostScript.

4. On the Verify the installation screen, click **Next**.
5. On the Deploy LCM.4ear screen, click **Execute** or click **Next**.
6. On the Verify Deployed Products screen, click **Run Product Tests Now**, and, when the task is complete, click **Next**.
7. Click **Finish**.

## Uninstalling EAR files

If you need to redeploy a LiveCycle product, you must first uninstall the LiveCycle, LiveCycle Configuration Manager, and Font Manager Module applications from the application server.

For example, if you have assembled LiveCycle products again to configure product properties differently, and the previous LiveCycle.ear file is already deployed, you need to uninstall the LiveCycle, LCM, and Font Manager Module applications before deploying the newly assembled EAR file.

► **To uninstall the ear files:**

1. Start the Administration Server and the Managed Server. (See [“Starting and Stopping WebLogic” on page 67.](#))
2. Start WebLogic Server Administration Console by typing `http://localhost:7001/console` in the URL line of a web browser.
3. In the navigation tree, select **Deployments** and click **Applications**.
4. Click the **LiveCycle** application.
5. On the Deploy tab, click **Stop Application**.
6. Click the **Garbage Can** icon for the stopped application, click **Yes**, and then click **Continue**.
7. Repeat steps [4](#) to [6](#) for the LCM and the Font Manager Module applications.
8. Stop and start the Administration Server and the Managed Server.

After uninstalling the ear file, you will need to reconfigure your ear file and redeploy, see [“Performing a typical configuration” on page 38](#) or [“Performing a custom configuration” on page 41](#).

## Next step

You can now access Administrator and User Management. (See [“Post-deployment” on page 53](#), [“Accessing Administrator” on page 53](#), and [“Accessing User Management” on page 54](#).)

You can also now configure LiveCycle products to access LDAP. (See [“Configuring LiveCycle Products to Access LDAP” on page 82](#).)

If you are using SSL for authentication, you can configure SSL on the application server. (See [“Configuring SSL on WebLogic” on page 84](#).)

If you are using LiveCycle Workflow, you can now install LiveCycle Workflow Designer. (See [“Installing LiveCycle Workflow Designer” on page 106](#).)

This chapter describes how to get started using your LiveCycle products after they have been installed, configured, and deployed to your application server:

- [“Accessing Administrator” on page 53](#)
- [“Accessing User Management” on page 54](#)
- [“LiveCycle Assembler post-deployment tasks” on page 54](#)
- [“LiveCycle Forms post-deployment tasks” on page 55](#)
- [“LiveCycle Print post-deployment tasks” on page 56](#)
- [“LiveCycle Form Manager post-deployment tasks” on page 58](#)
- [“LiveCycle PDF Generator post-deployment tasks” on page 59](#)

## Accessing Administrator

Administrator is the web-based portal for accessing a variety of configuration pages that let you set run-time properties that control the way LiveCycle products operate. When you log into Administrator, you can access User Management, Adobe JMX Monitor, Watched Folder configuration (installed with Watched Folder), Process Manager and server settings (installed with LiveCycle Workflow), and administrative configuration options for other LiveCycle products.

The default user name and password for logging into Administrator is *administrator* and *password*. After you log in the first time, you can access User Management and change the password.

Before you access Administrator, the LiveCycle products must be deployed and running on your application server.

For information on using Administrator, see *Adobe Administration Help* (available from the Help menu of the Administrator window).

### ► To access Administrator:

1. Type the following URL in a web browser:

```
http://[host name]:[port]/adminui
```

The default port number for WebLogic is 7001. (When you created a new managed server, you may have set a different port.)

2. In the **User Name** field, type `administrator` and, in the **Password** field, type `password`.
3. After logging in, you can click **Services** to access the LiveCycle product Administrator pages, or **Settings** to access the User Management pages.

## Accessing User Management

User Management allows administrators to maintain a database for all users and groups that are synchronized with one or more third-party user directories. User Management provides authentication, authorization, and user management for LiveCycle products, including LiveCycle PDF Generator, LiveCycle Assembler, LiveCycle Form Manager, LiveCycle Forms, and LiveCycle Workflow.

User Management allows you to enable single sign-on (SSO) between LiveCycle products and Netegrity SiteMinder protected applications using Security Assertion Markup Language (SAML). When SSO is implemented, the LiveCycle user login pages are not required and do not appear if the user has already been authenticated via their company portal.

For information about using User Management, see *Adobe User Management Administration Help* (available from the Help menu of the User Management window).

### ► To access User Management:

1. From the home page of Administrator, click **Settings**.
2. On the Settings page, click **User Management**.

**Note:** For information about configuring users with User Management, click **User Management Help** in the upper right corner of the User Management page.

### ► (LiveCycle Forms) To access Administrator without User Management:

- Type the following URL in a web browser:

```
http:// [host name] : [port] /FormServerAdmin/settings.html
```

## LiveCycle Assembler post-deployment tasks

This section describes the post-deployment tasks specific to LiveCycle Assembler.

### Verifying the LiveCycle Assembler deployment

You can verify that LiveCycle Assembler is deployed and running properly by deploying the prebuilt sample. (See the *Samples Guide for LiveCycle Assembler*, located in the `[LiveCycle root]/Assembler/samples/docs` directory.)

### ► To deploy the LiveCycle Assembler sample:

1. Copy the `weblogic.sample-assembler7.ear` file from the `[LiveCycle root]/Assembler/samples/build/prebuilt` directory to the `[appserverdomain]/applications` directory.
2. In the WebLogic Server Administration Console navigation tree, select **Deployments > Application > Deploy a New Application**.
3. On the page that appears, click the **applications** directory, select the `weblogic.sample-assembler7.ear` file, and then click **Continue**.
4. Under Identity, in the **Name** box, type `_appsdir_weblogic.sample-assembler7_ear` and click **Deploy**. A new panel appears displaying the status of the deployment.

5. Type the following URL in a web browser:  
`http://localhost:7001/adobe/livecycle/samples/assembler7/`
6. Click **About Assembler** and confirm that the LiveCycle Assembler information is returned to the Result window.

You can now create applications for LiveCycle Assembler. (See the *Developing Applications for LiveCycle Assembler* guide.)

## LiveCycle Forms post-deployment tasks

This section describes the post-deployment tasks specific to LiveCycle Forms.

You can now create custom applications for LiveCycle Forms. (See the *Developing Custom Applications* guide.) For details on the Form Server Module, see the *Form Server Module API Reference*. For details on the XML Form Module API, see the *XML Form Module API Reference*.

You can optionally install LiveCycle Print to enable LiveCycle Forms to output forms as Adobe PostScript, Printer Control Language (PCL), and Zebra Programming Language (ZPL) print streams, in addition to PDF and HTML forms. Without LiveCycle Print, LiveCycle Forms cannot output forms as print streams. Instead, LiveCycle Forms sends forms across a network and renders them to client devices, such as web browsers, as PDF or HTML forms.

## Verifying the LiveCycle Forms deployment

You can verify that LiveCycle Forms is deployed and running properly by accessing the Installation Verification Sample application that is installed with the product.

### ► To access the Installation Verification Sample:

1. Copy the FormsIVS.ear file from the `[LiveCycle root]/components/forms/samples/common` directory to the `[appserverdomain]/applications` directory.
2. Start WebLogic Server Administration Console by typing `http://localhost:7001/console` in the URL line of a web browser and sign in as an administrator.
3. In the navigation tree, select **Deployments > Applications > Deploy a New Application**.
4. On the page that appears, click the applications directory, select the FormsIVS.ear module to deploy, and then click **Target Application**.
5. On the Select targets for this application page, select the servers on which this module will be deployed and then click **Continue**.
6. On the page that appears in the **Source Accessibility** area, select **Copy this application onto every target for me** and click **Deploy**. A new panel appears displaying the status of the deployment.
7. Type the following URL in a web browser:

```
http://[host name]:[port]/FormsIVS
```

where `[host name]` is the name of the server on which Forms has been deployed. If you are invoking FormsIVS on the server itself, provide the server name instead of "localhost".

**Note:** For information about using the sample application, click the Help link in the Samples page in the web browser.

## LiveCycle Print post-deployment tasks

This section describes the post-deployment tasks specific to LiveCycle Print.

### Verifying deployment

You can verify that LiveCycle Print is deployed and running properly using any of the following methods:

- Deploying and running the Print Installation and Verification Sample (PrintIVS) web application.
- Running the Print Submitter console application (you do not have to deploy this application).  
Both of these applications invoke LiveCycle Print by using the LiveCycle Print API (this API consumes the LiveCycle Print web service).
- Running the Forms Installation and Verification Sample (FormsIVS) application. If LiveCycle Print is deployed, the Output format list contains three additional options: PostScript, ZPL, and PCL. For information about the Installation Verification Sample application, see [“Verifying the LiveCycle Forms deployment” on page 55](#).

In addition to running the two sample print applications, you can also invoke LiveCycle Print by using the Form Server Module API Print application. This sample Print application is a console application that invokes LiveCycle Print by using the Form Server Module API. (See [“Running the Form Server Module API Print application” on page 57](#).)

### Deploying and running the PrintIVS web application

The PrintIVS web application is packaged in the `adobe-printSubmitter.ear` file, which is located in the `[LiveCycle root]/components/print/common/ear` directory. After you run Configuration Manager, the PrintIVS is deployed by default and is located in the `[LiveCycle root]/configurationManager/export` directory.

To run this application, you must understand the print specification because this application requires the same values as the print specification. (See “About the print specification” in the LiveCycle Print *Getting Started* guide.)

#### ► To deploy and run the PrintIVS web application:

1. `[LiveCycle root]/components/print/common/ear` Start WebLogic Server Administration Console by typing `http://localhost:7001/console` in the URL line of a web browser and sign in as an administrator.
2. From the Welcome page, select **Helpful Tools > Deploy a New Application**.
3. Click the **Upload your file(s)** link and on the page that appears, browse to the `adobe-printSubmitter.ear` file in the `[LiveCycle root]/components/print/common/ear` or `[LiveCycle root]/configurationManager/export` directory, and then click **Upload**.
4. On the Deploy an Application page, select the `adobe-printSubmitter.ear` file, and then click **Continue**.
5. On the **Review your choices and deploy** page, click **Deploy**. A new panel appears displaying the status of the deployment.
6. To run the sample application, type `http://[host name]:[port]/PrintIVS` in the URL line of a web browser.
7. Enter the required values and click **Print**.

## Running the Print Submitter application

The Print Submitter application consists of the `lcprint.bat` (Windows) or `lcprint.sh` (UNIX or Linux) file, which is located in the `[LiveCycle root]/components/print/samples/common/lcprint` directory.

You can run the Print Submitter application from a command prompt to invoke LiveCycle Print.

### ► To run the Print Submitter application:

1. From a command prompt, navigate to the `[LiveCycle root]/components/print/samples/common/lcprint` directory.

If you have not installed to the default directory, create a new environment variable named `LiveCycleRoot` and set the value to the installation directory used on your system.

2. Enter the following command:

```
lcprint <-d,--dataFile filename> <-f,--specFile filename> <-s,--server  
server:port>
```

The first argument, which is optional, is a fully qualified path to the data file. A series of data files accompanies LiveCycle Print and are located in the `[LiveCycle root]/components/print/samples/common/lcprint /data` directory.

Most of these files contain multiple records. For example, `PurchaseOrder_batch_25.xml` contains 25 records. You can create multiple print streams by using a data file that contains multiple records. (See “Working with multiple data records” in the LiveCycle Print *Getting Started* guide.)

The second argument is a fully qualified path to the print specification that is sent to LiveCycle Print. You can amend the `PrintSpecTemplate.xml` file and use this file. The `PrintSpecTemplate.xml` file is located in the same directory as the `lcprint.bat` file. (See “About the print specification” in the LiveCycle Print *Getting Started* guide.)

One value that you must specify within the print specification is the location of the form design on which a print stream is based. Sample form designs are located in the `[LiveCycle root]/components/print/samples/common/lcprint /forms` directory.

The third argument, which is required, specifies the server name and port.

You can also use the Print Submitter console application to retrieve information about a previous request. To perform this task, use the following command:

```
lcprint <-r,--result requestId>
```

where `requestId` is a string value, such as `59572cd82`, that specifies a request identifier. This command returns result data that specifies the status of a request. (See “About result data” in the LiveCycle Print *Getting Started* guide.)

## Running the Form Server Module API Print application

The Form Server Module API Print application uses the Form Server Module API to invoke LiveCycle Print from a command prompt. (See “Working with the Form Server Module” in the LiveCycle Print *Getting Started* guide.)

The Form Server Module API Print application consists of a Java file named `FsPrint.java`, which is located in the `[LiveCycle root]/components/print/samples/common/fsprint` directory. If you are using Windows, you must run the `fsprint.bat` file located in this directory. If you are using UNIX or Linux, you must run the `fsprint.sh` file.

**Note:** The Form Server Module API Print application creates a `SOAPClient` object that specifies a valid SOAP endpoint. The default SOAP endpoint in the `FsPrint.java` file is configured for the default SOAP endpoint that JBoss uses. If LiveCycle Forms is deployed on a different J2EE application server, you must edit the `FsPrint.java` file by commenting and uncommenting the appropriate SOAP endpoint. For more information about using a `SOAPClient` object, see the LiveCycle Forms *Developing Custom Applications* guide.

► **To run the Form Server Module API Print application:**

1. From a command prompt, navigate to the application `[LiveCycle root]/components/print/samples/common/fsprint` directory.

If you have not installed to the default directory, create a new environment variable named `LiveCycleRoot` and set the value to the installation directory used on your system.

2. Enter the following command:

```
fsprint <-argument 1> <-argument2>
```

The first argument is a fully qualified path to the form design (an XDP file). You can use a sample form design that is located in the `[LiveCycle root]/components/print/samples/common/lcprint/forms` directory.

The second argument, which is optional, defines the print stream destination. For example, you can define a file URI to a PostScript file. If this value is not specified, output is written to the standard output. This value is similar to the `PrintURI` element that is located in the print specification. (See “About the print specification” in the LiveCycle Print *Getting Started* guide.)

**Tip:** The source code for the Form Server Module API Print application is located in the `FsPrint.java` file. You can open this file to see the application logic that invokes LiveCycle Print by using the Form Server Module API.

## LiveCycle Form Manager post-deployment tasks

This section describes the post-deployment tasks specific to LiveCycle Form Manager.

### Accessing the LiveCycle Form Manager end-user pages

After you configure User Management to connect to your organization’s LDAP server, users can access the LiveCycle Form Manager end-user pages by going to the following URL:

```
http://[host name]:[port]/fm
```

The default port number for WebLogic is 7001.

You can also access the end-user pages using the default administration user name (`Administrator`) and password (`password`).

For information about using the LiveCycle Form Manager end-user pages, see *LiveCycle Form Manager Help* (available from the Help menu of the LiveCycle Form Manager window).

## LiveCycle PDF Generator post-deployment tasks

This section describes the post-deployment tasks specific to LiveCycle PDF Generator.

### Setting up job sources

You can configure LiveCycle PDF Generator to accept jobs from watched folders, email, and the web UI (sample code). (See *LiveCycle PDF Generator Administration Help*.)

Additionally, LiveCycle PDF Generator can accept jobs submitted with the LiveCycle PDF Generator web services interface. To enable this, the sample web services client application installed with LiveCycle PDF Generator requires developer modifications before it can be used for job submission. For more information on configuring these job sources, see the LiveCycle PDF Generator *Developing Custom Applications* guide.

### Setting Adobe PDF Printer as the default printer

**This section applies to LiveCycle PDF Generator Professional and Elements only.**

You must set up the Adobe PDF Printer as the default printer on the server.

► **To set up Adobe PDF Printer as the default printer:**

1. Navigate to the printer panel in your operating system.
2. Set **Adobe PDF** as the default printer.

### Installing fonts

You can install the fonts that are used in documents converted by LiveCycle PDF Generator. Fonts may be referenced by PostScript or EPS documents, or they may be referenced by native file formats, such as those used by Microsoft Word or Microsoft Excel.

To make additional fonts available to any application, install the fonts using one of these methods:

- Install the fonts in the appropriate folder:
  - (Windows) C:\Windows\Fonts
  - (Solaris) /usr/openwin/lib/X11/fonts
  - (Linux) /usr/X11R6/lib/X11/fonts
- Using Configuration Manager, on the Font Manager Module Configuration screen, browse to the directory that contains the fonts and then redeploy the Font Manager Module. For information about deploying the Font Manager Module, see [“Configuring LiveCycle Products for Deployment” on page 62](#).

For a list of fonts installed with the Font Manager Module, see [“Fonts Installed with the Font Manager Module” on page 112](#).

**Note:** Fonts in the Font Manager Module are not available to the native applications that LiveCycle PDF Generator uses to convert native file formats. Such native applications include Microsoft Word and Acrobat. To make a font available to native applications, you must install it in the system font folder. If your LiveCycle PDF Generator server is clustered, the font must be installed on each computer used to host native applications.

## Satisfying font references

This section applies to LiveCycle PDF Generator Elements and LiveCycle PDF Generator Professional only.

For font references in a native file, LiveCycle PDF Generator Elements and LiveCycle PDF Generator Professional use the native application with the Adobe PDF printer to convert a native file format to PDF. The native application satisfies font references from the C:\Windows\Fonts directory.

For font references in a PDF document, these products attempt to satisfy the font references from the following sources in the following order:

- Fonts embedded in the PDF document
- Font Manager Module
- C:\WINDOWS\Fonts

## Setting the LiveCycle PDF Generator conversion time-out

You can configure LiveCycle PDF Generator conversion time-out settings at the application server level or job source level. If the time-out setting is configured at more than one level, the lowest level is applicable.

For details about configuring the setting at the application server level, see [“Manually Configuring WebLogic” on page 66](#).

### ► To set the conversion time-out settings at the job source level:

- In Administrator, select **Create PDF** and, in the **Specify a timeout** box, type a value in seconds. By default, this value is read from the server.aes.properties file.

### ► To set the conversion time-out settings for watched folders and email sources:

1. In Administrator, select **Services > Adobe LiveCycle PDF Generator > Configuration Files > Export Configuration**.
2. Select **Download entire configuration** and click **Download**. By default, this value is read from the server.aes.properties file.
3. Edit the native2pdfconfig.xml file in a text editor and set the <timeout> level.
4. Upload your changes by selecting **Import Configuration**, browsing to the location of the native2pdfconfig.xml file, and then clicking **Import**.

**Note:** The time-out level for the web services APIs is read from the server.aes.properties file.

## Next Step

If you have installed and configured LiveCycle Workflow, you must now configure the JBoss application server for BAM Server. (See [“Manually Configuring BAM Server for WebLogic” on page 90](#).)

## Part II: Manual Configuration, and Deployment

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This section of the guide describes how to manually configure and deploy your LiveCycle products.

For information on the automatic configuration and deployment of the products, see [“Automatic Configuration and Deployment” on page 35](#).

# 6

## Configuring LiveCycle Products for Deployment

This chapter describes how to configure LiveCycle products for deployment.

This chapter assumes that you have installed LiveCycle products. If you have not installed the products, see [“Installing LiveCycle Products” on page 19](#).

The instance of Configuration Manager that is installed with one LiveCycle product can be used with all LiveCycle products. When you run Configuration Manager, you can specify the LiveCycle products that you are configuring as well as the type of application server that you are leveraging in the solution. You can also set run-time properties for LiveCycle products and enable or disable security.

If you are already running one or more LiveCycle products, you must configure and assemble those existing products with the new one that you want to configure. To do this, you must undeploy the previously deployed products and select all of the products that you want to assemble during configuration. The previously deployed products are then included in the LiveCycle.ear file and deployed with the new product when you deploy the file to the application server.

**Note:** To assemble multiple LiveCycle products, each product must be installed in the same *[LiveCycle root]* directory.

When Configuration Manager completes the configuration of the products, it places the files to be deployed to the application server (LiveCycle.ear, adobe-FontManager.ear, and the product-related ear files) in the following directory:

- (Windows) *[LiveCycle root]*\configurationManager\export
- (Linux, UNIX) *[LiveCycle root]*/configurationManager/export

### ► To configure the products for deployment:

1. Navigate to the *[LiveCycle root]*/configurationManager directory and start Configuration Manager:
  - (Windows) Double-click **ConfigurationManager.exe**.
  - (Linux, UNIX) From a command prompt, type: `ConfigurationManager.bin`
2. If prompted, select a language for Configuration Manager and click **OK**.
3. On the Configuration Manager Welcome screen, click **Next**.
4. Select **Custom Configuration Wizard** and click **Next**.
5. If prompted, on the Configuration Preferences screen, select either **Use Previously Entered Values** or **Revert to Default Values**, and then click **Next**.
6. Select the application server you have installed, select **Foundation** and the products that you want to configure, and then click **Next**.
7. (LiveCycle Forms) On the Adobe User Management Selection screen, select either **LiveCycle Forms with User Management and Administration** or **LiveCycle Forms without User Management and Administration**, and then click **Next**.

8. Ensure that only **Configure and assemble LiveCycle products** is selected, and then click **Next**.
9. On the Configure and Assemble products screen, click **Next**.
10. (Optional) On the Data Manager Module Configuration screen, if you are using SSL security on your application server, select **Enable SSL** and type the SSL credential password.  
If you have not yet set up your SSL credential, you can type a password here and use it when you create an SSL credential. (See [“Configuring SSL on WebLogic” on page 87.](#))
11. Enter a directory to use for **Adobe LiveCycle products temp file**, and then click **Next**.

**Note:** (Linux and UNIX) If you are logged in as a non-root user, specify a directory under your home directory.

For more information on the Adobe LiveCycle products temp file, see [“Optimizing inline documents and impact on JVM memory” on page 148.](#)

12. On the Data Manager Module Configuration continued screen, accept the default values for the following properties or specify new values, and then click **Next**:
  - **Local storage sweep interval (in seconds):** The amount of time between attempts to delete any files that are no longer needed and were used to pass the document data between LiveCycle services running on the same computer.
  - **Global storage sweep interval (in seconds):** The amount of time between attempts to delete any obsolete files that were used to pass the document data between LiveCycle services running on the different computers. Specify this property only when deploying LiveCycle products in a clustered environment.
  - **Default maximum inline size (in bytes):** The maximum number of bytes kept in memory when passing documents between different LiveCycle components. Documents that exceed this maximum are stored on the hard drive. Use this property for performance tuning. (See [“Optimizing inline documents and impact on JVM memory” on page 148.](#))
  - **Default disposal time-out (in seconds):** The maximum amount of time during which a document being passed between different LiveCycle components is considered active. After this time has passed, any files used to store this document are subject to removal. Use this property to control the usage of disk space.
  - **Use NFS protocol (Windows only):** Select this option when deploying LiveCycle products in a clustered environment. Additional NFS software should be installed on your computer running Windows before enabling this option. This option does not affect deployments on Linux or UNIX.
  - **Global storage directory:** A path to a shared directory used to store long-lived documents that are passed between LiveCycle products. LiveCycle Workflow uses this directory to share process-related files among cluster nodes. LiveCycle Form Manager uses this directory to store index files used for full-text searches. Using an NFS shared directory can help to improve performance.

(LiveCycle PDF Generator) When LiveCycle PDF Generator is running as a service, to specify a network folder for the Global storage directory property, you must use the network address of the folder, and not the path of a mapped drive. For example, \\computer\_name\temp is the network address of the temp folder on the computer named computer\_name.

For more information on the Global storage directory property, see [“Optimizing inline documents and impact on JVM memory” on page 148.](#)

13. (LiveCycle Forms, LiveCycle Form Manager, LiveCycle Workflow, LiveCycle Assembler) (Optional) On the Font Manager Module Configuration screen, select fonts for LiveCycle Forms to use in addition to the fonts that are included with the product. In the **Fonts directory** box, type the path or browse to the directory that contains the fonts to add, and then click **Next**.

**Note:** Your right to use fonts provided by parties other than Adobe is governed by the license agreements provided to you by such parties in connection with those fonts, and is not covered under your license to use Adobe software. Adobe recommends that you review and ensure you are in compliance with all applicable non-Adobe license agreements before using non-Adobe fonts with Adobe software, particularly with respect to use of fonts in a server environment.

14. (LiveCycle Assembler) (Optional) On the Assembler Security Group configuration screen, specify the type of security you want to implement controlling permission to execute Assembler DDX jobs, and then click **Next**. Two types of user authentication are available:
  - Type an asterisk (\*) to allow any user with a valid entry in the LDAP system to log in.
  - Leave the field blank to allow any user to log in.
15. (LiveCycle Forms, LiveCycle Form Manager, LiveCycle Workflow) (Optional) On the Form Server Module Configuration screen, accept the default values for the following properties or specify new values, and then click **Next**:
  - **Validation UI:** The type of UI to use on HTML forms if a validation error occurs. If you select **List**, all validation errors on the form are displayed as links. If you select **MessageBox**, each error message is displayed in a dialog box controlled by clicking next and previous buttons. The location of the list or buttons depends on the option selected for Validation Reporting.
  - **Validation Reporting:** The location in which the validation messages are displayed. Select one of the following options:
    - **Frame Left** - Displays validation messages within a frame on the left side of the web browser.
    - **Frame Right** - Displays validation messages within a frame on the right side of the web browser.
    - **Frame Top** - Displays validation messages within a frame at the top of the web browser.
    - **Frame Bottom** - Displays validation messages within a frame at the bottom of the web browser.
    - **No Frame Left** - Displays validation messages in the same window on the left side of the web browser.
    - **No Frame Right** - Displays validation messages in the same window on the right side of the web browser.
    - **No Frame Top** - Displays validation messages in the same window at the top of the web browser.
    - **No Frame Bottom** - Displays validation messages in the same window at the bottom of the web browser.
    - **None** - Does not display validation messages.
    - **No UI** - Returns the validation messages through the API (with data). The validation messages are not displayed on-screen.
    - **No UI With Form** - Returns the validation messages through the API (with the form). The validation messages are not displayed on-screen.
  - **Validation Border:** The frame border size (in pixels) when Validation Reporting is set to Frame Left, Frame Right, Frame Top, or Frame Bottom. The frame border size must be equal to or greater than 0.

- **Output Type:** The type of HTML output returned to the web browser. Select **Full HTML** to render the form within full HTML tags (a complete HTML page) or select **Form Body** to render the form within div tags (not a complete HTML page).
  - **Locale:** The language to be used for validation messages sent to client devices, such as web browsers, as part of HTML transformations. The default value is English (United States). For information on applicable values, see “Language and Locale Combinations” in the *Developing Custom Applications* guide that is installed with LiveCycle Forms.
  - **Charset:** The character set used to encode the output byte stream. This property is dependent on the `sFormPreference` parameter specified through the API. For HTML transformations, the Form Server Module supports character encoding values defined by the `java.nio.charset` package. To view a list of supported values, go to <http://java.sun.com/j2se/1.4.2/docs/guide/intl/encoding.doc.html>.
  - **Cache Enabled:** Select this option to optimize performance. This option works with the form design’s caching property. For information on configuring this value in the form design, see *Adobe LiveCycle Designer Help*.
16. (LiveCycle Forms, LiveCycle Form Manager, LiveCycle Workflow) (Optional) On the XMLForm Module Configuration screen, accept the default values for the following properties or specify new values, and then click **Next**:
- **Pool Max:** The maximum number of processes that can be running. The recommended value for PoolMax is the total number of CPUs \* 2 + constant (1 or 2). When the PoolMax limit is reached, service instances are created from PoolSize.
  - **Trace Level:** The trace level. The following options are available:
    - **None** - Tracing is not enabled.
    - **Enter/Exit** - Messages are logged each time a method is entered and exited.
    - **Parameters** - Messages are logged each time a method is entered and exited, and the value of all parameters passed into each method is logged.
    - **Details** - Messages are logged each time a method is entered and exited, the value of all parameters passed into each method and any extra messages are logged.
  - **Report timing information:** Select this option to monitor the start and end time of calls. You can use this information for performance tuning.
17. On the Application Configuration and Assembly Summary screen, review the configuration details, and then click **Next**.
18. On the Configure and Assemble Products Summary screen, click **Next**.
19. On the Tasks Completed screen, click **Next** (if you selected another task for Configuration Manager to perform) or click **Finish** to close Configuration Manager.

## Next step

You must now configure your application server. (See [“Manually Configuring WebLogic” on page 66.](#))

This chapter describes how to manually configure the WebLogic application server to prepare for the manual deployment of LiveCycle products. For information on how to automatically configure your application server, see [“Automatically Configuring LiveCycle Products” on page 36](#).

You must perform the following tasks to configure WebLogic so that LiveCycle products run correctly:

- Point WebLogic to the LiveCycle JAR files and the endorsed directory that you created and configure JVM arguments. (See [“Creating an endorsed directory” on page 31](#) and [“Registering required JAR files” on page 33](#).)
- Increase the WebLogic Server thread count from the default value. (See [“Increasing the WebLogic Server thread count” on page 68](#).)
- Increase the WebLogic transaction time-out value. (See [“Configuring the Oracle database connectivity” on page 69](#).)
- Configure various WebLogic and database settings on the instance of WebLogic that hosts LiveCycle products. (See [“Configuring the Oracle database connectivity” on page 69](#), or [“Configuring the SQL database connectivity” on page 70](#).)
- Configure Java Message Service (JMS) resources for WebLogic. (See [“Configuring JMS Resources for WebLogic” on page 71](#).)
- Ensure that WebLogic is stopped or running, depending on the task you are performing.

Activity	Required WebLogic state
Creating a new WebLogic domain	Stopped
Creating a new WebLogic managed server	Running
Increasing the server thread count	Running
Deploying LiveCycle products	Running

**Note:** If you are running WebLogic Server on Red Hat Enterprise Linux Advanced Server 3.0, you must set the environment variable `LD_ASSUME_KERNEL` to 2.4.19 using the `export LD_ASSUME_KERNEL=2.4.19` command. You must then run WebLogic Server from the same shell in which you set this environment variable.

The procedures in this chapter are for configuring the application server for all LiveCycle products. If a specific product requires a different process, the steps are highlighted. If you previously configured your application server for deploying other LiveCycle products, you do not need to perform the procedures in this chapter again.

This chapter assumes that you have installed your LiveCycle products, configured your database, and created a database user account. If you have not done this, see [“Preparing Your Environment” on page 26](#).

Before deploying to WebLogic, you must ensure that the application server is preconfigured according to your needs. You must create a domain and, if you are deploying in a run-time environment, create at least one Managed Server within the domain. (See [“Creating the WebLogic Server domain” on page 29](#).)

This chapter uses the following naming conventions for common file paths:

- *BEA\_HOME* - Refers to the BEA install directory. For example, the directory is "C:\bea" (Windows) or "opt/bea" (Linux and UNIX).
- *[appserver root]* - Refers to the WebLogic Server home directory, "BEA\_HOME/weblogic81".
- *[appserverdomain]* - Refers to the configured domain. The default domain is *BEA\_HOME/user\_projects/domains/mydomain*.
- *[LiveCycle root]* - Refers to the location where LiveCycle products and components are installed.

## Starting and Stopping WebLogic

Several procedures in this chapter require you to stop and start the instance of WebLogic where you want to deploy LiveCycle products.

### ► To start WebLogic Server Administration Console:

1. From a command prompt, navigate to *BEA\_HOME/user\_projects/domains/[appserverdomain]*.
2. Enter the following command:
  - (Windows) `startWebLogic.cmd`
  - (Linux, UNIX) `./startWebLogic.sh`

### ► To start Node Manager:

1. Ensure that the WebLogic Server Administration Console is running.
2. From a command prompt, navigate to *[appserver root]/server/bin*.
3. Enter the following command:
  - (Windows) `startNodeManager.cmd`
  - (Linux, UNIX) `./startNodeManager.sh`

### ► To start a WebLogic Managed Server:

1. Ensure that the WebLogic Server Administration Console and Node Manager are running.
2. Select the Managed Server in the navigation tree, and select the Control tab.
3. Click **Start this server**.

### ► To stop WebLogic Server Administration Console:

1. From a command prompt, navigate to *BEA\_HOME/user\_projects/domains/[appserverdomain]*.
2. Enter the following command:
  - (Windows) `stopWebLogic.cmd adminusername`
  - (Linux, UNIX) `./stopWebLogic.sh adminusername`
3. When prompted, type the administrator password and click **Enter**.

► **To stop a WebLogic Managed Server:**

1. Start WebLogic Server Administration Console by typing `http:// [host name] : [port] /console` in the URL line of a web browser.
2. From the Domain Configurations, click **[domain\_name]**.
3. Select the **Control** tab.
4. Click the **Start/Stop** button next to the managed server you want to stop.
5. Select one of the following options:
  - **Graceful shutdown of all Managed Servers**  
This option initiates a graceful shutdown of the selected server, causing the Managed Server to notify its subsystems to complete all in-work requests. A graceful shutdown gives the WebLogic Server subsystems time to complete certain application processing currently in progress.
  - **Force shutdown of all Managed Servers.**  
This option initiates a forced shut down causing the Managed Server to instruct subsystems to immediately drop in-work requests.
6. At the WebLogic Server Administration Console prompt, click **Yes** to confirm the command.

**Tip:** You can verify that the Managed Server has been shut down by viewing the table at the bottom of the Control tab. The table displays a list of all of the servers and indicates their current state.

## Increasing the WebLogic Server thread count

Before deploying LiveCycle products to WebLogic Server, you must increase the server thread count. The default value of 25 may be insufficient for running your applications.

► **To increase the WebLogic Server thread count:**

1. Start WebLogic Server Administration Console by typing `http:// [host name] : [port] /console` in the URL line of a web browser.
2. Type the user name and password that you created for the WebLogic domain, and then click **Sign In**.
3. Select **Servers**, right-click the server name, and select **View Execute Queues**.
4. Click **weblogic.kernel.Default**.
5. In the **Thread Count** box, type a new value (for example, 40) and, on the lower right, click **Apply**.
6. Restart WebLogic.

## Configuring the Oracle database connectivity

To enable WebLogic and your LiveCycle deployment to connect to the Oracle 9i or 10g database, you must create a database connection for WebLogic by setting up a connection pool and a data source.

Before performing the following procedures, you must have already created an Oracle database and a user on the database. (See [“Creating an Oracle database” on page 26.](#)) Ensure that you have installed the correct database drivers. (See [“Installing database drivers” on page 32.](#))

### ► To set up a connection pool:

1. Start WebLogic Server Administration Console by typing `http://[host name]:[port]/console` in the URL line of a web browser.
2. Type the user name and password that you created for the WebLogic domain, and then click **Sign In**.
3. In the navigation tree, select **Services > JDBC > Connection Pools**.
4. Click **Configure a new JDBC Connection Pool**.
5. Under Database Type, select **Oracle** and, under Database Driver, select either **Oracle’s Driver (Thin) Versions: 8.1.7** or **Oracle’s Driver (Thin) Versions: 9.0.1,9.2.0,10**, and then click **Continue**.
6. On the Define Connection Properties screen, type a name for the connection pool.
7. In the **Database Name** box, type the name of the database you have created.
8. In the **Host Name** box, type the name or IP address of the computer on which Oracle is running.

**Note:** Do not edit the **Port** value.

9. In the **Database User** box, type the name of the user you created on the Oracle database and, in the **Password** box and the **Confirm Password** box, type the associated password, and then click **Continue**.
10. On the Test Database Connection screen, click **Test Driver Configuration**.
11. On the Create and Deploy screen, in the **Independent Servers** table, select the server and click **Create and deploy**.
12. (All products except LiveCycle PDF Generator or LiveCycle Assembler) Perform the following additional steps:
  - In the navigation tree, select the connection pool you created.
  - Click the **Configuration** tab, and then click the **Connections** tab.
  - In the **Maximum Capacity** box, type 100 and, in the **Statement Cache Size** box, type 80, and then click **Apply**.
  - Click **Show Advanced Options**, select **Test Reserved Connections**, **Test Created Connections**, and **Test Released Connections**, and then click **Apply**.
  - In the **Test Frequency** box, set the test frequency to more than 0 seconds, and then click **Apply**.
  - Click the **Testing** tab and click **Test Pool**.

► **To set up a data source:**

1. In the navigation tree, select **Services > JDBC > Data Sources** and select **Configure a new JDBC Data Source**.
2. In the **Name** box, type a name for the JDBC data source and, in the **JNDI Name** box, type: `IDP_DS`
3. (All products except LiveCycle PDF Generator and LiveCycle Forms) Select **Honour Global Transactions**, select **Emulate Two-Phase Commit for non-XA Driver**, and then click **Continue**.
4. On the Connect to Connection Pool screen, select the pool you created and click **Continue**.
5. On the Target the Data Source screen, select the server on which to deploy the JDBC data source and click **Create**.
6. Restart WebLogic.

## Configuring the SQL database connectivity

To enable WebLogic and your LiveCycle deployment to connect to the SQL Server database, you must create a database connection for WebLogic by setting up a connection pool and data source.

Before performing the following procedures, you must have already created the SQL Server database. (See ["Creating a SQL Server database" on page 27.](#))

Connect JDBC drivers have the XA DLL `sqljdbc.dll` file that is normally installed under `[SQLServer_Install_Root]\MSSQL\Binn` (for example, `c:\Program Files\Microsoft SQL Server\MSSQL\Binn`). The registry values required for XA transactions are not created automatically. You must create the values manually.

► **To set up a connection pool:**

1. Start WebLogic Server Administration Console by typing `http://[host name]:[port]/console` in the URL line of a web browser.
2. Type the user name and password that you created for the WebLogic domain, and then click **Sign In**.
3. In the navigation tree, select **Services > JDBC > Connection Pools**.
4. Click **Configure a new JDBC Connection Pool**.
5. Under **Database Type**, select **MS SQL Server** and, under **Database Driver**, select **BEA's MS SQL Server Driver (Type 4) Versions: 7.0.2000**, and then click **Continue**.
6. Specify values for the following properties, and then click **Continue**:
  - **Name:** A name for the pool.
  - **Database Name:** The name of the database you created to store LiveCycle data.
  - **Host Name:** The name of the computer that hosts SQL Server.
  - **Port:** The port that SQL server uses for connections. The default is 1433.
  - **Database User Name:** The user name of an account that has the `DBOwner` role of the LiveCycle database.
  - **Password and Confirm Password:** The password for the database user account.

7. Ensure that the following properties have the specified values:
    - **Driver Classname:** `weblogic.jdbcx.sqlserver.SQLServerDriver`
    - **URL:** `jdbc:microsoft:sqlserver:// [host name] : [port]`
  8. Click **Test Driver Configuration**.
  9. On the Create and Deploy screen, in the **Independent Servers** table, select the target server (if more than one server is defined) and click **Create and deploy**.
  10. (All products except LiveCycle PDF Generator) Perform the following additional steps:
    - In the table of JDBC connection pools, click the pool that you just created.
    - Click the **Configuration** tab, and then click the **Connections** tab.
    - Click **Show Advanced Options** and select **Test Reserved Connections, Test Created Connections, and Test Released Connections**.
    - In the **Test Frequency** box, set the test frequency to more than 0 seconds.
    - In the **Test Table Name** box, type: `SQL SELECT 1`
  11. Click **Apply**.
  12. Click the **Testing** tab and click **Test Pools**.
- **To set up a data source:**
1. In the navigation tree, select **Services > JDBC > Data Sources** and select **Configure a new JDBC Data Source**.
  2. Type name for the JDBC data source and, in the **JNDI Name** box: type `IDP_DS`
  3. Select **Honor Global Transactions**, select **Emulate Two-Phase Commit for non-XA Driver**, and then click **Continue**.
  4. On the Connect to Connection Pool screen, select the pool you created and click **Continue**.
  5. On the Target the Data Source screen, select the server on which to deploy the JDBC data source and click **Create**.
  6. On the JDBC Data Sources screen, select the data source you created.
  7. Click the **Target and Deploy** tab and click **Apply**.
  8. Restart WebLogic.

## Configuring JMS Resources for WebLogic

***This section applies to LiveCycle Form Manager, LiveCycle PDF Generator, LiveCycle Workflow, or Watched Folder only.***

You must configure JMS Resources for WebLogic by performing the following tasks:

- Configure JMS connection factories.
- Configure a persistent JMS store
- Configure a JMS server
- Set up JMS queues
- Set up JMS topics

➤ **To configure JMS connection factories:**

1. In the WebLogic Server Administration Console navigation tree, select **Services > JMS > Connection Factories** and select **Configure a new JMS Connection Factory**.
2. On the JMS Connection Factory screen, type a **Name** and **JNDI Name** for the JMS connection factories listed in the table below.

(LiveCycle Workflow, Watched Folder, LiveCycle Form Manager)

<b>Topic connection factory</b>	<b>JNDI name</b>
IDPQueueConnectionFactory	IDPQueueConnectionFactory
IDPTopicConnectionFactory	IDPTopicConnectionFactory
RegistryConnectionFactory	RegistryConnectionFactory
AdobeQueueConnectionFactory	QueueConnectionFactory
(Watched Folder only) WFTopicConnectionFactory	(Watched Folder only) WFTopicConnectionFactory

(LiveCycle PDF Generator)

<b>Topic connection factory</b>	<b>JNDI name</b>
AESQueueConnectionFactory	jms/QueueConnectionFactory
AESTopicConnectionFactory	jms/TopicConnectionFactory

3. Accept the defaults for the remaining settings on the screen, and then click **Create**.
4. Click the **Configuration** tab, click the **Transactions** tab, select **XA Connection Factory Enabled**, and then click **Apply**.
5. Click the **Target and Deploy** tab, select the server to deploy the connection factory to, and then click **Apply**.
6. Restart the application server.

➤ **To configure a persistent store:**

1. In the navigation tree, select **Services > JMS > Stores** and select **Configure a New JMS JDBC Store**.
2. On the screen that appears, type in the **Name** box the name of the JMS JDBC Store, for example `IDP_JMSStore`.
3. From the **Connection Pool list**, select the connection pool you created earlier.
4. In the **Prefix Name box**, type `jms`, and then click **Create**.

► **To configure a paging store:**

1. Create a physical directory on your server and name it `PagingFileStore`.
2. In the navigation tree, select **Services > JMS > Stores** and select **Configure a New JMS File Store**.
3. On the **Create a New JMS File Store screen**, type in the **Name box** a name for the JMS file store.
4. In the **Directory box**, type the full path to the paging directory you created in step [1](#) and then click **Create**.

► **To configure a JMS server:**

1. In the navigation tree, select **Services > JMS > Servers** and select **Configure a New JMS Server**.
2. On the screen that appears, type in the **Name box** the name of the JMS Server, for example `IDP_JMSServer`.
3. From the **Persistent Store list**, select the persistent store you created in step [4](#) above.
4. From the **Paging Store list**, select the paging store you created in step [4](#) and then click **Create**.
5. Click the **Target and Deploy** tab, select the server and click **Apply**.

► **To set up JMS queues:**

1. In the navigation tree, select **Services > JMS > Servers > [new\_server] > Configure Destinations** and select **Configure a new JMS Queue**. (*[new\_server]* is the JMS server you just created.)

**Note:** For LiveCycle PDF Generator, *[new\_server]* is `WSSStoreForwardInternalJMSServermyserver`.

2. Create the following JMS queues by completing steps [3](#) for each queue.  
(LiveCycle Workflow, LiveCycle Form Manager)

JMS queue name	JNDI name
adobe_ObjectDeletionQueue	adobe_ObjectDeletionQueue
adobe_PEDCommandQueue	adobe_PEDCommandQueue
adobe_PECCommandQueue	adobe_PECCommandQueue
adobe_PEDLongLivedQueue	adobe_PEDLongLivedQueue
adobe_PELongLivedQueue	adobe_PELongLivedQueue
adobe_PEScheduledMsgQueue	adobe_PEScheduledMsgQueue

(LiveCycle PDF Generator)

JMS queue name	JNDI name
AESJobQueue	queue/AESJobQueue
PDFGCompletedJobsQueue	queue/PDFGCompletedJobsQueue

3. On the Create a new JMS Queue screen, type one of the queue names listed in step 2 in the **Name** and **JNDI Name** boxes, accept the defaults for all of the remaining options on the screen, and then click **Create**.
4. In the navigation tree, select **Services > JMS > Servers > [new\_server] > Configure Destinations** and click **adobe\_PECOMMANDQueue**.
5. Click the **Redelivery** tab and, in the **Redelivery Limit** box, type: 5
6. In the **Error Destination** menu, select **adobe\_PEDCOMMANDQueue** and click **Apply**.
7. In the navigation tree, select **Services > JMS > Servers > [new\_server] > Destinations** and click **adobe\_PELongLivedQueue**.
8. Click the **Redelivery** tab and, in the **Redelivery Limit** box, type: 5
9. In the **Error Destination** menu, select **adobe\_PEDLongLivedQueue** and click **Apply**.
10. (LiveCycle PDF Generator) In the navigation tree, select **Services > JMS > Servers > [new\_server] > Configure Destinations > AESJobQueue**.
11. (LiveCycle PDF Generator) Click the **Redelivery** tab, and in the **Redelivery Limit** box, type 0 and click **Apply**.
12. Restart the application server.

► **To set up JMS topics:**

1. In the navigation tree, select **Services > JMS > Servers > [new\_server] > Configure Destinations** and select **Configure a new JMS Topic**.
2. Create the following JMS topics by completing steps 3 to 5 for each topic.  
(LiveCycle Workflow, Watched Folder, LiveCycle Form Manager)

JMS topic name	JNDI name
adobe_RegistryCacheMonitorTopic	topic/adobe_RegistryCacheMonitorTopic
adobe_POFObjectTopic	adobe_POFObjectTopic
adobe_POFSchemaTopic	adobe_POFSchemaTopic
adobe_ProcessEventTopic	adobe_ProcessEventTopic
adobe_TaskEventTopic	adobe_TaskEventTopic
adobe_TemplateEventTopic	adobe_TemplateEventTopic
(for Watched Folder only) WatchedFolderConfigManagerTopic	(for Watched Folder only) topic/WatchedFolderConfigManagerTopic

(LiveCycle PDF Generator)

JMS topic name	JNDI name
AESConfigUpdatesTopic	topic/AesConfigUpdatesTopic

3. On the Create a new JMS Topic screen, type one of the topic names listed in step [2](#) in the **Name** and **JNDI Name** boxes, accept the defaults for all of the remaining options, and then click **Create**.
4. (All products except LiveCycle PDF Generator) Configure the queue and topic throttling by clicking the **Thresholds & Quotas** tab and ensuring the following properties have the specified values:
  - **Messages Threshold High:** 2000
  - **Messages Threshold Low:** 500
  - **Messages Paging Enabled:** true
5. Click **Apply** and save your changes.
6. Restart the application server.

## Next step

If you are installing and configuring LiveCycle Workflow and plan to install and configure BAM Server as well, you must now manually configure WebLogic for use with BAM Server. (See [“Manually Configuring BAM Server for WebLogic” on page 90.](#))

If you are not installing LiveCycle Workflow, you must now deploy the products to the application server database. (See [“Deploying to WebLogic” on page 77.](#))

This chapter describes how to configure the WebLogic Server for LiveCycle products and deploy the LiveCycle applications:

- [“About deploying LiveCycle products” on page 76](#)
- [“Deploying to WebLogic” on page 77](#)
- [“Viewing log files” on page 78](#)

## About deploying LiveCycle products

Before you deploy LiveCycle products, ensure that you have met the following requirements:

- You have installed the required software and files and know the location of the directories you will be working with. (See [“System requirements” on page 13.](#))
- You have run Configuration Manager to configure and assemble the products according to your system and application server requirements. If you need to make any further changes to the properties after deployment, you can run Configuration Manager to make the changes, and then redeploy the updated EAR file. (See [“Configuring LiveCycle Products for Deployment” on page 62.](#))

If you are deploying the products for the first time, you must initialize the database after you deploy the product. (See [“Initializing the Database” on page 79.](#))

If you have a web server installed, see your web server documentation for information on the configuration required to allow access to the application server.

This chapter uses the following naming conventions for common file paths.

- *BEA\_HOME* - Refers to the BEA install directory. For example, the directory is C:\bea (Windows) or opt/bea (Linux and UNIX).
- *[appserver root]* - Refers to the WebLogic Server home directory, *BEA\_HOME/weblogic81*.
- *[appserverdomain]* - Refers to the configured domain. The default domain is *BEA\_HOME/user\_projects/domains/mydomain*.
- *[LiveCycle root]* - Refers to the location where LiveCycle products and components are installed.

## Summary of deployable components

This table lists the deployable components for LiveCycle products.

Component	LiveCycle product
adobe-FontManager.ear	All
LCM.ear	All
LiveCycle.ear	All
adobe-printSubmitter.ear	LiveCycle Print

Component	LiveCycle product
adobe-Assembler7.ear	LiveCycle Assembler
FormsIVS.ear	LiveCycle Forms
pdfg-all.ear	LiveCycle PDF Generator Professional and LiveCycle PDF Generator Elements
pdfg-ps-all.ear	LiveCycle PDF Generator for PostScript

**Note:** For information about deploying FormsIVS.ear, see [“Verifying the LiveCycle Forms deployment” on page 55](#).

## Deploying to WebLogic

Before deploying LiveCycle products to WebLogic, ensure that the application server is preconfigured based on your requirements. You must create a domain and, if you are deploying in a run-time environment, create at least one Managed Server within the domain.

### ► To deploy LiveCycle products to WebLogic:

1. Start the Administration Server and the Managed Server.
2. Copy the following modules from the `[LiveCycle root]/configurationManager/export` directory to the `[appserverdomain]/applications` directory:
  - adobe-FontManager.ear
  - LiveCycle.ear
  - (LiveCycle Print) adobe-printSubmitter.ear
  - (LiveCycle Assembler) adobe-Assembler7.ear
  - (LiveCycle PDF Generator Professional, LiveCycle PDF Generator Elements) pdfg-all.ear
  - (LiveCycle PDF Generator for PostScript) pdfg-ps-all.ear
3. Copy the LCM.ear file from the `[LiveCycle root]/configurationManager/deploy/weblogic` directory to the `[appserverdomain]/applications` directory.
4. Start WebLogic Server Administration Console by typing `http://localhost:7001/console` in the URL line of a web browser.
5. In the navigation tree, select **Deployments > Applications > Deploy a New Application**.
6. On the page that appears, click the **applications** directory, select the module to deploy (for example, adobe-FontManager.ear or LCM.ear), and then click **Target Application**.
7. On the Select targets for this application page, select the servers on which this module will be deployed, and then click **Continue**.
8. On the page that appears, in the Source Accessibility area, select **Copy this application onto every target for me**.

9. Under Identity in the **Name** box, type `_appsdir_defaultname_ear` and click Deploy. The *defaultnames* are listed below. A new panel appears displaying the status of the deployment.
  - `adobe-FontManager.ear: Font_Manager_Module`
  - `LiveCycle.ear: LiveCycle`
  - `adobe-printSubmitter.ear: Adobe_LiveCycle_Print`
  - `adobe-Assembler7.ear: adobe-Assembler7`
  - `pdfg-all.ear: pdfg-all`
  - `pdfg-ps-all.ear: pdfg-ps-all`
  - `LCM.ear: LCM`
10. Complete steps [5](#) to [8](#) for each deployable component for your installed products. (See [“Summary of deployable components” on page 76.](#))
11. In the navigation tree, select **Deployments > Applications**.
12. On the Configuration screen, click the name of each file, and then set the **Load Order** for the file as follows:
  - `LiveCycle.ear = 10`
  - `LCM.ear = 20`
  - `adobe-FontManager.ear = 30`
  - `adobe-printSubmitter.ear = 30`
  - `adobe-Assembler7.ear = 40`
  - `pdfg-ps-all.ear = 40`
  - `pdfg-all.ear = 40`

**Note:** For LiveCycle Assembler, you must set the Load Order value for each file to 100.
13. (Solaris) Edit the `config.xml` file in the `[appserverdomain]` directory by adding a forward slash (/) to the application path:

```
/home/aes/bea/user_projects/...
```
14. Restart WebLogic.

## Viewing log files

Events, such as run-time or startup errors, are recorded to the application server log files. If you have any problems deploying to the application server, you can use the log files to help you find the problem. You can open the log files using any text editor.

Domain log files are located in the `[appserverdomain]` directory, and server log files are located in the `[appserverdomain]/[appserver name]` directory.

## Next step

You must now initialize the database using Configuration Manager. (See [“Initializing the Database” on page 79.](#))

This chapter describes how to manually initialize the LiveCycle database.

If you are using User Management with LiveCycle products, you must run Configuration Manager to initialize the database for integration with User Management. When you run Configuration Manager, the application server must be running. Initializing the database is a process that prepares a database for use with LiveCycle products by creating tables and optionally adding data to them. You only need to initialize the database the first time you deploy the product.

During database initialization, provide an SSL-enabled port only if the application server has trusted SSL certificates. If the application server does not have trusted SSL certificates, a non-SSL enabled port must be provided to complete database initialization. (See [“Configuring SSL on WebLogic” on page 84.](#))

This chapter assumes that you have configured the LiveCycle database for integration with the product and have deployed the product to the application server. If you have not done this, see [“Preparing Your Environment” on page 26](#) and [“Manually Deploying to WebLogic” on page 76](#).

► **To initialize the database:**

1. Start the application server.
2. Start Configuration Manager by navigating to the *[LiveCycle root]/configurationManager* directory and entering the following command:
  - (Windows) `ConfigurationManager.exe`
  - (Linux, UNIX) `ConfigurationManager.bin`
3. On the Welcome screen, click **Next**.
4. On the Configuration Mode screen, select **Custom Configuration Wizard** and click **Next**.
5. If prompted, on the Configuration Preferences screen, select either **Use Previously Entered Values** or **Revert to Default Values**, and then click **Next**.
6. On the Product Selection screen, select **Foundation**, select the products that you want to configure and deploy, and then click **Next**.
7. On the Task Selection screen, select **Bootstrap database** and click **Next**.

**Note:** You must only select the Bootstrap database; no other options are required.

8. On the Java Home Selection screen, specify the home directory of the Java Development Kit (JDK) that is used to run the application server, and then click Next.

For example, the directory is `C:\bea\jdk142_08` on Windows and `/opt/bea/jdk142_08` on Linux and UNIX.

9. On the Application Server Configuration Details screen, specify values for the following properties, and then click **Next**:
  - **Deploy Type**: Specifies whether you are deploying to a standalone computer or to a cluster. Select Standalone.
  - **Remote Server**: Select this option only if the application server is running on a different computer than the computer that is running Configuration Manager.
  - **Hostname**: The fully qualified name or IP address of the computer that hosts the application server.
  - **Admin Port**: The port used to provide access to the administration service on the application server. The default port is 7001.
  - **Server Instance Name**: The name of the application server that you want to configure. The name of the default server instance that is created upon installing the application server is *server1*.
  - **Username and Password**: (Optional) If the application server requires user credentials to perform administration tasks, the user name and password of an application server administration account.
  - **Local Application Server Root Directory**: The root directory of the application server installation on the computer that is running Configuration Manager. For example, the directory is C:\bea\weblogic81 (Windows) or /opt/bea/weblogic81 (Linux and UNIX).
- Caution**: The Remote Server property cannot be used to configure LiveCycle PDF Generator Professional or LiveCycle PDF Generator Elements because Acrobat cannot be installed remotely. However, the property can be used to configure LiveCycle PDF Generator for PostScript.
10. On the Application Server URL screen, type the URL that Configuration Manager can use to connect to the application server in the **Application Server Base URL** box, and then click **Next**. The URL must be in the following format:

```
http://[host name]:[port]
```

where *[host name]* is the fully qualified domain name or IP address of the computer that hosts the application server, and *[port]* is the HTTP service port that the application server uses. (for example, `http://localhost:8001`).
11. On the Prepare database for LiveCycle screen, click **Next**.
12. On the Deploy LCM.ear screen, click **Next**.
13. On the Database Initialization screen, click **Initialize Database Now** and, when the task is complete, click **Next**.
14. On the Tasks Completed screen, click **Finish**.

## Next step

You can now access User Management and Administrator. (See ["Post-deployment" on page 53](#).)

You can also configure LiveCycle products to access LDAP. (See ["Configuring LiveCycle Products to Access LDAP" on page 82](#).)

If you are using LiveCycle Workflow, you can now install LiveCycle Workflow Designer. (See ["Installing LiveCycle Workflow Designer" on page 106](#).)

## Part III: Post-Deployment Configuration

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This section of the guide describes the additional configuration tasks that you need to perform after LiveCycle products are deployed to the application server and the LiveCycle database is initialized.

This chapter describes how to configure LiveCycle products with LDAP or LDAP over SSL (LDAPS).

- [“Configuring LiveCycle products with LDAP” on page 82](#)
- [“Configuring LiveCycle products with LDAPS” on page 83](#)

**Caution:** If you are installing and deploying more than one LiveCycle product, you must consult the appropriate *Installing and Configuring* guide to obtain specific SSL and security settings for each of the LiveCycle products you have installed.

## Configuring LiveCycle products with LDAP

Use the following procedure as a guideline when configuring User Management to support authentication using LDAP.

➤ **To configure User Management with LDAP:**

1. Open a web browser, navigate to `http:// [host name] : [port] /adminui`, and log in. (See [“Accessing Administrator” on page 53.](#))
2. Select **Settings > User Management > Domain Management** and click **New Domain**.
3. In the **ID** box, type a unique identifier for the domain.
4. In the **Name** box, type a descriptive name for the domain.
5. Click **Add Authentication** and, in the Authentication Provider list, select **LDAP**.  
**Note:** JAAS has been deprecated for User Management in LiveCycle 7.2.
6. Click **OK**.
7. Click **Add Directory**.
8. Under **Populate Page With**, select a directory settings option such as **Default Sun ONE values**.
9. Specify values in the **Server, Port, SSL** and **Binding** boxes as required. For details on the settings, see Directory settings in the online help.
10. Configure the **User Settings** and **Group Settings** as required. For details on the settings, see Directory settings in the online help.
11. (Optional) Test your configuration:
  - Click **Test**.
  - On the Test Directory pane, in the **Find** box, enter an object name and, in the **using** box, select the object’s type, such as **Login ID**.
  - Click **Test**. If successful, your object’s details will be displayed, then click **Back**.
12. Click **OK** to exit the Add Directory page, and click **OK** again to exit.

## Configuring LiveCycle products with LDAPS

Use the following procedure as a guideline when configuring User Management to support authentication using LDAPS.

► **To configure User Management with LDAPS:**

1. Enable SSL on the directory server. For details, see the documentation provided by your directory vendor.
2. Export a client certificate from the directory server.
3. Use the keytool program to import the client certificate file into the default JVM certificate store. The procedure for this varies depending on your JVM and client install paths. For example, if you are using JDK 1.4.2, from a command prompt, type the following code:

```
keytool -import -file client_certificate -alias myalias -keystore  
BEA_HOME/jdk142_08/jre/lib/security/cacerts
```

When prompted, enter the password (for Java, the default password is `changeit`). You will receive a message stating that the certificate was imported successfully.

4. Enable SSL in User Management. To access the User Management settings, select **Settings > User Management** in the Administrator pages. When configuring the directory settings, select **Yes** for the **SSL** property, and change the **Port** property accordingly. The default port number is 636.

### Troubleshooting

If you experience problems when using SSL, use an LDAP browser to check whether it can access the LDAP system when using SSL. If the LDAP browser cannot access the LDAP system, the issue is related to the configuration of your certificate and application server. If the LDAP browser can access the LDAP system, User Management is not configured properly.

# 11

## Configuring SSL on WebLogic

This chapter describes how to create SSL credentials and configure SSL on the application server to enhance the security of communication with your application server.

**Note:** It is recommended that you complete the installation, configuration and deployment of your LiveCycle products and ensure that the products are running correctly before configuring SSL on the application server.

It is important to ensure that the security settings configured on the application server and in the LiveCycle.ear file are consistent.

**Caution:** If you are installing and deploying more than one LiveCycle product, you must consult the appropriate *Installing and Configuring* guide to obtain specific SSL and security settings for each of the LiveCycle products you have installed.

If you have not already enabled SSL in the Data Manager Module (assembled as part of the LiveCycle.ear file), run Configuration Manager to reconfigure and reassemble the products with SSL enabled, and then redeploy the LiveCycle.ear file. The SSL password that you specify in Configuration Manager must match the password that you provide when configuring SSL on the application server. (See [“Configuring LiveCycle Products for Deployment” on page 62.](#))

To configure SSL on the application server, you must perform the following tasks:

- [“Creating an SSL Credential” on page 84](#)
- [“Configuring SSL on WebLogic” on page 87](#)

### Creating an SSL Credential

To configure SSL on WebLogic, you need an SSL credential for authentication. You can use the IBM Key Management tool that is installed with Java keytool to perform the following tasks to create a credential:

- Create a public/private key pair, wrap the public key in an X.509 v1 self-signed certificate that is stored as a single-element certificate chain, and then store the certificate chain and the private key in a new keystore. This is the application server’s Custom Identity keystore.
- Extract the certificate and insert it into a new keystore. This is the application server’s Custom Trust keystore.

The keytool command is typically located in the Java jre/bin directory and must include several options and option values, which are listed in the following table.

Keytool option	Description	Option value
-alias	The alias of the keystore.	<ul style="list-style-type: none"><li>• Custom Identity keystore: <code>ads-credentials</code></li><li>• Custom Trust keystore: <code>bedrock</code></li></ul>
-keyalg	The algorithm to use to generate the key pair.	RSA You can use a different algorithm, depending on your company’s policy.

Keytool option	Description	Option value
-keystore	<p>The location and name of the keystore file.</p> <p>The location can include the absolute path of the file, or can be relative to the current directory of the command prompt where the keytool command is entered.</p>	<ul style="list-style-type: none"> <li>• Custom Identity keystore: <i>[appserverdomain]/adobe/[server name]/ads-ssl.jks</i></li> <li>• Custom Trust keystore: <i>[appserverdomain]/adobe/[server name]/ads-ca.jks</i></li> </ul>
-file	The location and name of the certificate file.	ads-ca.cer
-validity	The number of days that the certificate is considered valid.	<p>3650</p> <p>You can use a different value, depending on your company's policy.</p>
-storepass	The password that protects the contents of the keystore.	<p>Custom Identity keystore: The keystore password must correspond with the SSL credential password that was specified for the Data Manager Module using Configuration Manager.</p> <p>Custom Trust keystore: Use the same password that you used for the Custom Identity keystore.</p>
-keypass	The password that protects the private key of the key pair.	Use the same password that you used for the -storepass option. The key password must be at least 6 characters in length.
-dname	The distinguished name that identifies the person who owns the keystore.	<p>"CN=<i>[User name]</i>, OU=<i>[Group Name]</i>, O=<i>[Company Name]</i>, L=<i>[City Name]</i>, S=<i>[State or province]</i>, C=<i>[Country Code]</i>"</p> <ul style="list-style-type: none"> <li>• <i>[User name]</i> is the identification of the user who owns the keystore.</li> <li>• <i>[Group Name]</i> is the identification of the corporate group to which the keystore owner belongs.</li> <li>• <i>[Company Name]</i> is your organization's name.</li> <li>• <i>[City Name]</i> is the city in which your organization is located.</li> <li>• <i>[State or province]</i> is the state or province in which your organization is located.</li> <li>• <i>[Country Code]</i> is the two-letter code for the country in which your organization is located.</li> </ul>

For more information about using the keytool command, see the keytool.html file that is part of your JDK documentation.

► To create the Custom Identity and Trust keystores:

1. From a command prompt, navigate to `[appserverdomain]/adobe/[server name]`.
2. Enter the following command:

```
[JAVA_HOME]/bin/keytool -genkey -v -alias ads-credentials -keyalg RSA  
-keystore "ads-credentials.jks" -validity 3650 -storepass store_password  
-keypass key_password -dname "CN=User ID, OU=Group Name, O=Company Name,  
L=City Name, S=State, C=Country Code"
```

**Note:** You must replace `[JAVA_HOME]` with the directory where the JDK is installed, and replace the text in bold with values that correspond with your environment.

The keystore file is created in the `[appserverdomain]/adobe/[server name]` directory.

3. Extract the certificate from the ads-credentials keystore by entering the following command:

```
[JAVA_HOME]/bin/keytool -export -v -alias ads-credentials  
-file "ads-ca.cer" -keystore "ads-credentials.jks"  
-storepass store_password
```

**Note:** You must replace `[JAVA_HOME]` with the directory where the JDK is installed, and replace `store_password` with the password for the Custom Identity keystore.

The certificate file is created in the `[appserverdomain]/adobe/[server name]` directory.

4. Copy the ads-ca.cer file to any host computers that need secure communication with the application server.
5. Navigate to the directory where you created ads-ca.cer and enter the following commands:

```
[JAVA_HOME]bin>keytool -import -file ads-ca.cer -keystore  
[JAVA_HOME]\jre\lib\security\cacerts
```

**Note:** You must replace `[JAVA_HOME]` with the directory where the JDK is installed.

6. Enter `changeit` when prompted for a password.
7. Enter `yes` when prompted to trust the certificate. A response confirms successful addition of the certificate.
8. Insert the certificate into a new keystore file (the Custom Trust keystore) by entering the following command:

```
[JAVA_HOME]/bin/keytool -import -v -noprompt -alias bedrock  
-file "ads-ca.cer" -keystore "ads-ca.jks" -storepass store_password  
-keypass key_password
```

**Note:** You must replace `[JAVA_HOME]` with the directory where the JDK is installed and replace `store_password` and `key_password` with your own passwords.

The keystore file is created in the `[appserverdomain]/adobe/[server]` directory.

## Configuring SSL on WebLogic

You need to configure WebLogic so that it uses the Custom Identity keystore and Custom Trust keystore that you created. You also need to disable the WebLogic Hostname Verification feature because the distinguished name used to create the keystore files did not include the name of the computer that hosts WebLogic.

**Note:** You must configure SSL on the Managed Server, Node Manager, and Administrative Server. Use the same identity and trust store for each server.

### ► To configure WebLogic to use SSL:

1. Start the WebLogic Server Administration Console by typing `http://[host name]:7001/console` in the URL line of a web browser.
2. In the navigation tree, select **Servers** > *[server]* > **Configuration** > **General**.
3. Ensure that **Listen Port Enabled** and **SSL Listen Port Enabled** are selected.
4. If this server is a Managed Server, change **Listen Port** to an unused port value (such as 8001) and **SSL Listen Port** to an unused port value (such as 8002). On a stand-alone server, the default SSL port is 7002.
5. Click **Apply** on the lower right.
6. Select **Configuration** > **Keystores & SSL**.
7. On the Keystore Configuration page, click **Change**, select **Custom Identity And Custom Trust** in the list, and then click **Continue**.
8. Under Custom Identity, specify the following values as:
  - **Custom Identity Key Store File Name:** *[appserverdomain]/adobe/[server name]/ads-credentials.jks*, where *[appserverdomain]* is the actual path and *[server name]* is the name of the application server.
  - **Custom Identity Key Store Type:** JKS
  - **Custom Identity Key Store Pass Phrase:** *mypassword*
  - **Confirm Custom Identity Key Store Pass Phrase:** *mypassword*
9. Under Custom Trust, specify the following values as:
  - **Custom Trust Key Store File Name:** *[appserverdomain]/adobe/[server]/ads-ca.jks*, where *[appserverdomain]* is the actual path
  - **Custom Trust Key Store Type:** JKS
  - **Custom Trust Key Store Pass Phrase:** *mypassword*
  - **Confirm Custom Trust Key Store Pass Phrase:** *mypassword*
10. Click **Continue** and specify the following values as:
  - **Private Key Alias:** *ads-credentials*
  - **Passphrase:** *mypassword*
  - **Confirm Passphrase:** *mypassword*
11. Click **Continue**, and then click **Finish**.

► **To disable the Hostname Verification feature:**

1. In **Advanced Options** on the Keystore & SSL page, click the **Show** link and set **Hostname Verification** to None.

If Hostname Verification is not disabled, the CN must contain the server host name.

2. Click **Apply** to save your changes.
3. Stop the application server.
4. Open a command prompt window on the application server and navigate to the `[appserver root]/weblogic81/common/nodemanager` directory.
5. Open the `nodemanager.properties` file and add (or modify if already present) the following entries:

**CustomTrustKeyStorePassPhrase:** `<password>`

**KeyStores:** `CustomIdentityAndCustomTrust`

**CustomIdentityKeyStoreFileName:** `[appserver root]/user_projects/domains/mydomain/adobe/Server1/ads-credentials.jks`

**CustomIdentityKeyStorePassPhrase:** `<password>`

**CustomTrustKeyStoreType:** `JKS`

**CustomIdentityAlias:** `ads-credentials`

**CustomTrustKeyStoreFileName:** `[appserver root]/user_projects/domains/mydomain/adobe/Server1/ads-ca.jks`

**CustomIdentityPrivateKeyPassPhrase:** `<password>`

**CustomIdentityKeyStoreType:** `JKS`

6. Save the `nodemanager.properties` file.
7. Open the `startWebLogic.sh` file and append the following line to the JAVA OPTIONS:  
`-Dweblogic.webservice.client.ssl.strictcertchecking=false`
8. Save the `startWebLogic.sh` file.
9. Restart the application server.

## Next step

If you are installing LiveCycle Workflow Business Activity Monitor, you can now configure an application server for hosting BAM Server. (See [“Manually Configuring BAM Server for WebLogic” on page 90.](#)) You can also install LiveCycle Workflow Designer. (See [“Installing LiveCycle Workflow Designer” on page 106.](#))

## Part IV: Additional LiveCycle Workflow Configuration

---

This section of the guide describes the additional configuration required for LiveCycle Workflow installations.

***This chapter only applies to LiveCycle Workflow licenses that permit the use of Business Activity Monitor.***

This chapter describes how to create the BAM metadata database, configure a WebLogic application server for BAM Server, and deploy BAM Server. BAM Server is a component of LiveCycle Workflow.

This chapter assumes that you have configured the LiveCycle database. If you have not done this, see [“Preparing Your Environment” on page 26](#).

## Creating the BAM metadata database

You must create a LiveCycle Workflow Business Activity Monitor metadata database to store the definitions of the process metrics that BAM Server monitors, as well as the details of any alerts and object run-time data that need to be persisted to disk.

Because Business Activity Monitor metadata can grow quite large, you must allocate at least 50 MB for the BAM metadata database. For production deployments, allocate at least 200 MB.

BAM Server can require specific settings for some aspects of the Business Activity Monitor metadata database configuration. The settings depend on the type of application server that is hosting BAM Server and the type of database server used to store the Business Activity Monitor metadata.

### User accounts

You must also create a user account that BAM Server can use to connect to the Business Activity Monitor metadata database. The user account must have create, modify, and update privileges on the database.

For Oracle, the database user account must be associated with a tablespace that you create specifically for Business Activity Monitor metadata.

## Configuring WebLogic for BAM Server

If you are installing LiveCycle Workflow and manually deploying to WebLogic, you must manually configure a separate WebLogic Server so that BAM Server runs correctly. You must perform the following tasks:

- If you have not already done so, create a separate WebLogic domain for hosting BAM Server. (See [“Creating the WebLogic Server domain” on page 29](#).)
- Install the database driver files that you require to communicate with the BAM metadata database and the LiveCycle database. (See [Installing database drivers for BAM Server](#).)
- Configure the connection to the BAM metadata database. (See [“Configuring the connection to the BAM metadata database” on page 91](#).)
- Configure the connection to the LiveCycle database. (See [“Configuring the connection to the LiveCycle database” on page 93](#).)
- Modify the WebLogic JVM. (See [“Configuring the WebLogic JVM” on page 94](#).)

## Installing database drivers for BAM Server

You must install the database drivers that BAM Server requires to communicate with the BAM metadata database and the LiveCycle database:

- For connecting to the BAM metadata database for SQL Server, you must install the Microsoft drivers. For other database types, BAM Server uses the default drivers that you installed for WebLogic in [“Installing database drivers” on page 32](#).
- For connecting to the LiveCycle database, you must install the driver for the type of database that stores LiveCycle data.

**Note:** LiveCycle Workflow Server and BAM Server use the Oracle 10g driver. You may have already installed the Oracle driver when you configured WebLogic for LiveCycle Workflow Server. (See [“Installing database drivers” on page 32](#).)

### ► To install the Oracle database driver file:

1. From a browser, navigate to [http://www.oracle.com/technology/software/tech/java/sqlj\\_jdbc/htdocs/jdbc\\_10201.html](http://www.oracle.com/technology/software/tech/java/sqlj_jdbc/htdocs/jdbc_10201.html)
2. Under **Oracle Database 10g Release 2 (10.2.0.1.0) JDBC Drivers**, download the ojdbc14.jar file.
3. Replace the ojdbc14.jar file in the `[appserver root]/server/lib` directory with release 2 driver you just downloaded.

### ► To install the SQL Server database driver files:

1. Download SQL Server 2000 Driver for JDBC for SQL Server 2000 SP3a from [www.microsoft.com](http://www.microsoft.com), and install the driver on the computer that runs the application server.
2. Copy the msbase.jar, mssqlserver.jar, and msutil.jar files from where you installed SQL Server 2000 Driver for JDBC to the `[appserver root]/server/lib` directory.
3. Navigate to the `BEA_HOME\user_projects\domains\[bam_domain_name]` directory and open the WebLogic startup script file in a text editor:
  - (Windows) `startWebLogic.cmd`
  - (Linux and UNIX) `startWebLogic.sh`

4. (Windows) Add the following text to the `set CLASSPATH` command:

```
%WL_HOME%\server\lib\msbase.jar;%WL_HOME%\server\lib\mssqlserver.jar;  
%WL_HOME%\server\lib\msutil.jar;
```

5. (Linux, UNIX) Add the following text to the `CLASSPATH` command:

```
${WL_HOME}/server/lib/msbase.jar:${WL_HOME}/server/lib/mssqlserver.jar:  
${WL_HOME}/server/lib/msutil.jar:
```

6. Save and close the file.

## Configuring the connection to the BAM metadata database

You must configure a data source on WebLogic for the BAM metadata database so that BAM Server can retrieve information about process metrics that it needs to monitor.

► **To create the connection to the BAM metadata database:**

1. If WebLogic is not running, from a command prompt, navigate to the `BEA_HOME\user_projects\domains\[domain_name]` directory and enter the following command:
  - (Windows) `startWebLogic.cmd`
  - (Linux, UNIX) `startWebLogic.sh`
2. Start WebLogic Server Administration Console by typing `http://[host name]:[port]/console` in the URL line of a web browser (for example, `http://localhost:8001/console`).
3. In the navigation tree, select **Services > JDBC > Connection Pools** and click **Configure a New JDBC Connection Pool**.
4. Under Database Type, select the type of database you are using to store BAM metadata.
5. Under Database Driver, select the appropriate database driver, and then click **Continue**:
  - (MS SQL Server) Microsoft MS SQL Server Driver (Type 4)
  - (Oracle) Oracle's Driver (Thin) versions 9.x, 10
6. Specify values for the following properties, and then click **Continue**:
  - **Name:** A name for the pool.
  - **Database Name:** The name of the database (SQL Server) or database instance (Oracle).
  - **Host Name:** The network name or IP address of the database host computer.
  - **Database User Name:** The name of a user account that can access the database.
  - **Password/Confirm Password:** The password that corresponds with the user name you provided.
7. Click **Test Driver Configuration**.
8. On the Create and Deploy screen, click **Create and deploy**.
9. In the navigation tree, select **Services > JDBC > Connection Pools** and select the connection pool you created.
10. Select **Configuration > Connection** and, in the **Maximum Capacity** box, type 200. Accept the default values for all of the remaining properties, and then click **Apply**.
11. Click **Target and Deploy**, select the appropriate server, and then click **Apply**.
12. In the navigation tree, select **Services > JDBC > Data Sources** and select **Configure a new JDBC Data Source**.
13. Specify the following values for the properties, and then click **Continue**:
  - **Name:** `com.cequest.metadata.metaDataSource`
  - **JNDI Name:** `com.cequest.metadata.metaDataSource`
  - **Honour Global Transactions:** Deselect this option
14. From the **Pool Name** list, select the connection pool you created for the BAM metadata database and click **Continue**.
15. Select the appropriate server and click **Create**.

## Configuring the connection to the LiveCycle database

You must configure a data source on WebLogic for the LiveCycle database so that BAM Server can retrieve LiveCycle Workflow run-time data.

► **To create the connection to the LiveCycle database:**

1. If WebLogic is not running, from a command prompt, navigate to the `BEA_HOME\user_projects\domains\domain_name` directory and enter the following command:
  - (Windows) `startWebLogic.cmd`
  - (Linux and UNIX) `startWebLogic.sh`
2. Start WebLogic Server Administration Console by typing `http://[host name]:[port]/console` in the URL line of a web browser (for example, `http://localhost:8001/console`).
3. In the navigation tree, select **Services > JDBC > Connection Pools** and click **Configure a New JDBC Connection Pool**.
4. Under Database Type, select the type of database you are using to store LiveCycle data.
5. Under Database Driver, select the appropriate database driver, and then click **Continue**:
  - (MS SQL Server) Microsoft MS SQL Server Driver (Type 4)
  - (Oracle) Oracle's Driver (Thin) versions 9.x, 10
6. On the Define Connection Properties screen, specify values for the following properties, and then click **Continue**:
  - **Name:** A name for the pool.
  - **Database Name:** The name of the database (SQL Server) or database instance (Oracle).
  - **Host Name:** The network name or IP address of the database host computer.
  - **Database User Name:** The name of an administrator account that can access the database.
  - **Password/Confirm Password:** The administrator's password.
7. Click **Test Driver Configuration**.
8. On the Create and Deploy screen, click **Create and deploy**.
9. In the navigation tree, select **Services > JDBC > Connection Pools** and select the connection pool you created.
10. Navigate to **Configuration > Connection** and, in the **Maximum Capacity** box, type 200. Accept the default values for all of the remaining attributes, and then click **Apply**.
11. Click **Target and Deploy**, select the appropriate server, and then click **Apply**.
12. In the navigation tree, select **Services > JDBC > Data Sources** and select **Configure a new JDBC Data Source**.
13. Specify the following values for the properties, and then click **Continue**:
  - **Name:** `com.celequest.adobe`
  - **JNDI Name:** `com.celequest.adobe`
  - **Honour Global Transactions:** Deselect

14. Under **Pool Name**, select the connection pool you created for the LiveCycle database and click **Continue**.
15. Select the appropriate server and click **Create**.

## Configuring the WebLogic JVM

You must configure the JVM properties to support BAM Server:

- For information about the JVM properties that you must set, see [“Configuring required JVM properties” on page 94](#).
- For information about the JVM properties that you can set but are not mandatory, see [“Optional JVM properties for BAM metadata properties” on page 95](#).

### Configuring required JVM properties

You must configure the WebLogic JVM so that it can support BAM Server.

#### ► To configure the WebLogic JVM:

1. If WebLogic is running, shut down the server:
  - In the WebLogic Server Administration Console navigation tree, select **Servers**.
  - Click the targeted server name in the right panel. This server is the same server domain created for this installation and deployment.
  - On the page that appears, click the **Control** tab.
  - Click **Graceful shutdown of this server**.
2. Navigate to the `BEA_HOME/user_projects/domains/[domain_name]` directory and open the WebLogic startup script file in a text editor by entering the following command:
  - (Windows) `StartWebLogic.cmd`
  - (UNIX) `StartWebLogic.sh`
3. Locate and modify the `set JAVA_HOME` command and change the location to where the current Sun JDK is installed. By default, `JAVA_HOME` is set to the JDK that is installed with WebLogic (such as `set JAVA_HOME=C:\bea\jdk142_05`).

The following is an example of the changed command in a Windows environment:

```
set JAVA_HOME=C:\j2sdk1.4.2_08
```

4. Add the following command to set the memory parameters:

- Windows:

```
set MEM_ARGS=-XX:MaxPermSize=128M -Xms96m -Xmx512m
```

- Linux and UNIX:

```
MEM_ARGS=-XX:MaxPermSize=128M -Xms96m -Xmx512m
```

**Note:** The memory settings used in the `set MEM_ARGS` command are recommended minimum values. You can set them to a higher value according to your system's capacity.

5. Add the following line to the `JAVA_OPTIONS` environment variable to enable UTF-8 character support:

```
-Dfile.encoding=utf8
```

6. Locate the `JAVA_OPTIONS` environment variable and add the commands to set the optional BAM metadata properties that you want to use. (See [“Optional JVM properties for BAM metadata properties” on page 95.](#))
7. Save and close the startup script file.

## Optional JVM properties for BAM metadata properties

You can set several optional JVM parameters that are related to the Business Activity Monitor metadata database, including language, country, and collation strength. These JVM parameters are expressed using commands in the following format:

```
-Dcom.celequest.property.[PARAMETER]=[VALUE]
```

This table provides valid values for `[PARAMETER]` and `[VALUE]`.

Parameter	Description
LANGUAGE	<p>The ISO language code for the server.</p> <p>For example, the following command sets the LANGUAGE parameter to Portuguese:</p> <pre>-Dcom.celequest.property.LANGUAGE=PT</pre>
COUNTRY	<p>The ISO country code for the server.</p>
LOCALESORT	<p>This option specifies whether locale-sensitive string comparisons are performed. Valid values are <code>true</code> and <code>false</code>:</p> <ul style="list-style-type: none"><li>• Specify <code>true</code> if you want locale-sensitive string comparisons performed.</li><li>• Specify <code>false</code> if you do not want locale-sensitive string comparisons performed.</li></ul> <p>The default value is <code>false</code>.</p>
STRENGTH	<p>The level of collation strength, which is the extent to which non-English characters are compared and collated.</p> <p>Valid values (in order of least discriminating to most discriminating) are <code>primary</code>, <code>secondary</code>, <code>tertiary</code>, and <code>identical</code>. The default value is <code>tertiary</code>.</p> <p>For more information about collation parameters, see the Sun Java documentation at <a href="http://java.sun.com/j2se/1.4.2/docs/api/java/util/Locale.html">http://java.sun.com/j2se/1.4.2/docs/api/java/util/Locale.html</a>.</p> <p><b>Note:</b> This setting is functional only if <code>LOCALESORT</code> is set to <code>true</code>.</p>
DECOMPOSITION	<p>The mode of collation decomposition. Valid values are <code>none</code>, <code>canonical</code>, and <code>full</code>. The default value is <code>canonical</code>.</p> <p>For more information about collation parameters, see the Sun Java documentation at <a href="http://java.sun.com/j2se/1.4.2/docs/api/java/util/Locale.html">http://java.sun.com/j2se/1.4.2/docs/api/java/util/Locale.html</a></p> <p><b>Note:</b> This setting is functional only if <code>LOCALESORT</code> is set to <code>true</code>.</p>

To set multiple properties, separate each command with a space. For example, the following commands set the language to Portuguese and the locale to Brazil:

```
-Dcom.celequest.property.LANGUAGE=PT -Dcom.celequest.property.LOCALE=BR
```

## Deploying BAM Server to WebLogic

You use WebLogic Server Administration Console to deploy the BAM Server EAR file to WebLogic. The BAM Server EAR file (CAS\_Adobe.ear) file you need to deploy is installed in the `[LiveCycle root]/components/bam/common` directory.

After you deploy the BAM Server EAR file, you need to modify the configuration of the JDBC connection pool to increase its maximum capacity.

**Note:** Ensure that you deploy the EAR file to the WebLogic application server that you configured for BAM Server.

### ► To deploy BAM Server to WebLogic:

1. Start the Administration Server and, if applicable, the Managed Server.
2. Start WebLogic Server Administration Console by typing `http://[host name]:[port]/console` in the URL line of a web browser (for example, `http://localhost:8001/console`).
3. In the navigation tree, select **Deployments > Applications** and click **Deploy a new Application**.
4. Click **Upload your files**, browse to the `[LiveCycle root]/components/bam/common` directory, select the `CAS_Adobe.ear` file, and then click **Upload**.
5. If more than one valid file path is displayed, select the most appropriate path.
6. Click **Continue**, and then click **Deploy**.

### ► To deploy the CQIntegration.ear file to WebLogic:

**Note:** The CQIntegration.ear is deployed to the server where LiveCycle is running.

1. Copy the CQIntegration.ear file from the `[LiveCycle root]/components/bam/common` directory to the `[appserverdomain]/applications` directory.
2. In the navigation tree, select **Deployments > Applications** and click **Deploy a New Application**.
3. On the page that appears, click **applications**, select **CQIntegration.ear**, and then click **Target Application**.
4. On the page that appears, select the server on which to deploy the module and click **Continue**.
5. The **Review your choices and deploy** panel appears, click **Deploy**.
6. In the navigation tree, select **Deployments > Applications**. On the Configuration screen, click the name of the file, and then set the **Load Order** for each file as follows:
  - LiveCycle.ear = 10
  - LCM.ear = 20
  - adobe-FontManager.ear = 30
  - adobe-printSubmitter.ear = 30
  - adobe-Assembler7.ear = 40
  - pdfg-ps-all.ear = 40
  - pdfg-all.ear = 40
  - CQIntegration.ear = 50

**Note:** For LiveCycle Assembler, you must set the Load Order for each file to 100.

7. (Solaris) Edit the config.xml file in the *[appserverdomain]* directory by adding a forward slash (/) to the application path:

```
/home/aes/bea/user_projects/....
```

8. Restart the application server.

## Next step

You must now configure the BAM properties on LiveCycle Workflow Server and BAM Server. (See [“Getting Started with BAM Server” on page 98.](#))

This chapter describes how to perform the initial configuration of LiveCycle Workflow Server to enable BAM Server to monitor process activity. You must configure settings on both LiveCycle Workflow Server and BAM Server:

- [“Configuring LiveCycle Workflow Server for BAM Server” on page 98](#)
- [“Configuring BAM Server” on page 99](#)

## Configuring LiveCycle Workflow Server for BAM Server

You can configure LiveCycle Workflow Server to connect to BAM Server using Administrator. You must specify the server on which BAM Server is running and the user account information with which to access BAM Server.

► **To configure LiveCycle Workflow Server for BAM Server:**

1. Log into Administrator. (See [“Accessing Administrator” on page 53.](#))
2. Click **Services**, and then click **Adobe LiveCycle Workflow**.
3. Click **Server Settings**, and then click **BAM Configuration Settings**.
4. Specify values for the following properties:
  - **Host:** The host name or IP address of the server on which BAM Server is running. The default value is `localhost`.
  - **Port:** The service port of the application server on which BAM Server is running. The default value is the default port of the application server for which LiveCycle Workflow was installed.
  - **User Name:** (Optional) The user name of the administrator user account that LiveCycle Workflow Server uses to access BAM Server. The default user name is `system`.

**Note:** If you specify the user name for a different user account, you must ensure that the user has complete administrative privileges for BAM Server. For information about administering BAM user accounts, see *BAM Workbench Help* or the *Using LiveCycle Workflow Workbench* guide.

  - **Password:** (Optional) A valid password for the user name specified above. The default password is `manager`.
5. Click **Save** and restart the LiveCycle.ear.

## Accessing BAM Workbench and BAM Dashboard

After BAM Server is deployed and running on the application server, you can access BAM Workbench and Business Activity Monitor (BAM) Dashboard through a web browser. BAM Workbench includes tools for administering BAM Server and for setting up reports that users view in BAM Dashboard.

A user name and password are required to log into the Business Activity Monitor pages. When you deploy BAM Server, a default administration account is created with the user name *system* and password *manager*.

**Tip:** You can create a different user for administration or modify the existing one using BAM Workbench. If you modify the existing one, you must change the corresponding properties on LiveCycle Workflow Server. (See [“Configuring LiveCycle Workflow Server for BAM Server” on page 98.](#))

For information on using the tools provided with the administration framework, log into BAM Workbench and see the Help.

### ► To access BAM Workbench:

1. Start BAM Workbench by typing `http:// [host name] : [port] /celequest/workbench` in the URL line of a web browser.
2. In the **User Name** box, type a valid user name, and in the **Password** box, type the associated password. You can use the default user name *system*, and the default password *manager*.

### ► To access BAM Dashboard:

1. Start BAM Dashboard by typing `http:// [host name] : [port] /celequest/dashboard` in the URL line of a web browser.
2. In the **User Name** box, type a valid user name, and in the **Password** box, type the associated password. You can use the default user name *system*, and the default password *manager*.

## Configuring BAM Server

You can configure BAM Server to monitor LiveCycle Workflow processes using BAM Workbench. (See [“Accessing BAM Workbench and BAM Dashboard” on page 99.](#))

You need to use BAM Workbench to perform the following tasks:

- Configure the SMTP server settings for sending email messages.
- Import the metadata definitions used for monitoring LiveCycle Workflow processes.
- Start the JDBC agent.
- Configure the LDAP settings for BAM Server.

### Configuring the SMTP settings

BAM Server uses an SMTP server to send email messages to Business Activity Monitor users. You must specify the server on which the SMTP server is running and the user account information with which the BAM Server can access the SMTP server.

► **To configure the SMTP settings:**

1. Ensure that the LiveCycle Workflow Server and the BAM Server applications are started.
2. Ensure that your BAM metadata database is started.
3. Start BAM Workbench by typing `http:// [host name] : [port] /celequest/workbench` in the URL line of a web browser.
4. Log in using the user name and password that is configured for Business Activity Monitor administration. You can use the default user name `system`, and the default password `manager`.
5. If this is your first time logging into BAM Workbench, the First Time Setup dialog box appears. If the dialog box appears, click **Open System Settings**, and then click the **SMTP Configuration** tab.
6. Specify values for the following properties:
  - **SMTP Host:** The network name or IP address of the SMTP server that BAM Server uses to send email messages.
  - **SMTP From Address:** The email address that BAM Server uses to receive email messages.
  - **SMTP User:** The user name for the email account that BAM Server uses.
  - **SMTP Password:** The password that corresponds with the SMTP user.
7. Select the **Checkpoint Configuration** tab, and in the **Recovery Log Directory** box, type the location of the recovery log directory.
8. Select the **Logging** tab, and in the **Logging Directory** box, type the location of the logging directory.
9. Click **OK**.

## Importing LiveCycle Workflow metadata definitions

You must import LiveCycle Workflow metadata definitions to configure the process metrics that BAM Server monitors. Importing the LiveCycle Workflow metadata file creates the Adobe JDBC agent.

► **To import LiveCycle Workflow metadata definitions:**

1. Ensure that the LiveCycle Workflow Server and the BAM Server applications are running.
2. Ensure that the BAM metadata database is started.
3. Start BAM Workbench by typing `http:// [host name] : [port] /celequest/workbench` in the URL line of a web browser.
4. Click the **Administration Console** tab, and then click **Import/Export**.
5. Select **Import Metadata from a JAR file (upload)** and type the full path to the location of the LiveCycle Workflow BAM metadata template that is appropriate for the type of database that you are using for the LiveCycle database:
  - (SQL Server) `adobeimport_SQLServer.jar`
  - (Oracle) `adobeimport_Oracle.jar`These files are installed in the `[LiveCycle root]/Workflow/bam/BAMAppTemplate` directory.
6. Click **OK**.

## Starting the JDBC agent

You must start the JDBC agent named *adobe*.

► **To start the JDBC agent:**

1. Ensure that the LiveCycle Workflow Server and BAM Server applications are started.
2. Open BAM Workbench in a web browser. (See [“Accessing BAM Workbench and BAM Dashboard” on page 99.](#))
3. Click the **Administration Console** tab and, in the left panel, select **Agents**.
4. In the Agents table, click the icon in the Status column to enable the agent called **adobe**.
5. When prompted, click **Enable All** to enable all dependent objects. The status should change to enabled.

## Configuring LDAP settings for BAM Server

In addition to manually creating users and user permissions, Business Activity Monitor lets you to import user information from supported LDAP providers. You can schedule automatic synchronizations or perform manual synchronizations with the LDAP server to automatically update the existing users and roles.

When synchronizing with the LDAP server, the user base DN, login identification and password, full name, description, and email address properties are cached in the BAM metadata database.

When BAM Server imports users from the LDAP server, LDAP groups are converted to Business Activity Monitor roles. Users are assigned roles according to the group they belong to in LDAP. For more information, see [“Limitations of BAM Server LDAP connectivity” on page 101.](#)

**Note:** BAM Server integrates with any LDAP provider that supports LDAP version 3 protocol.

## Limitations of BAM Server LDAP connectivity

The following limitations apply to the BAM Server connectivity with the LDAP server:

- You can configure a connection to only one LDAP server.
- BAM Server creates roles based on groups that are defined on the LDAP server. When BAM Server encounters a group for which a role is not yet created, it creates the role and assigns it a set of zero permissions. You can later modify the permissions as required. (See [“Configuring LDAP role mapping” on page 104.](#))
- If BAM Server imports a user and the user does not belong to a group to which a Business Activity Monitor role corresponds, the user is created but remains unassigned to any roles.
- You cannot change the role that a user is assigned to if the user is imported from the LDAP server. Role assignments for imported users can be accomplished by making changes to the LDAP server. However, you can assign manually-created users to roles that are created based on LDAP groups.

## Best practices for BAM Server LDAP connectivity

When setting up the BAM Server connectivity with the LDAP server, it is strongly recommended you adhere to the following best practices:

- If the connection to the LDAP server is not secure, you should use SSL.
- For authentication, Simple Authentication and Security Layer (SASL) is the recommended method and is well supported by LDAP.
- For security reasons, the access permissions of the LDAP synchronization user should be limited to querying the LDAP server. For more information on the synchronization user, see [“Configuring automatic LDAP synchronization” on page 102](#).

**Caution:** The password for this user is stored in the BAM Server metadata using reversible symmetric encryption. Therefore, anyone with access to the metadata can obtain this password.

## Configuring automatic LDAP synchronization

You can schedule the automatic synchronization of BAM Server with the LDAP server. Synchronization ensures that the user accounts and role definitions that BAM Server caches in the BAM metadata database are up to date with the content of the LDAP server.

During synchronization, BAM Server creates new roles based on any new groups in the LDAP server and removes existing roles based on any groups that have been removed from the LDAP server since the previous synchronization.

**Note:** Roles are removed even if users that were created manually are assigned to the roles. For these users, if the roles are removed due to synchronization, the user accounts still exist but are no longer assigned to the roles.

### ► To configure automatic LDAP synchronization:

1. Start BAM Workbench by typing `http://[host name]:[port]/cequest/workbench` in the URL line of a web browser.
2. Click the **Administration Console** tab, and then click **System Settings**.
3. Click the **LDAP Synchronization** tab.
4. Select the **LDAP Enabled** option, if it is not already selected.
5. Specify values for the following properties:
  - **Initial Context Factory:** The JNDI name through which BAM Server connects to the LDAP server. The default value is `com.sun.jndi.ldap.LdapCtxFactory`. You probably do not need to change this value.
  - **LDAP Server:** The DNS name or IP address of the LDAP server.
  - **LDAP Port:** The port on which the LDAP server is running. The default port is typically 389. However, if you select the SSL option, the default port is typically 636. You must confirm with your LDAP administrator which port to specify.
  - **LDAP SSL:** Select this option if the LDAP server is configured to use SSL. Selecting this option may affect the LDAP Port setting.

- **LDAP Authentication:** The authentication method used by the LDAP server. Select one of the following options:
    - Simple
    - SASL (Simple Authentication and Security Layer). Select this option for Sun ONE.
    - Compare Encrypted Password
  - **LDAP Principal DN Prefix:** For the simple authentication method, the text you specify will be inserted before the user's login name:
    - For LDAP servers that require DN login, set this to the appropriate property value followed by an equal sign (for example, `cn=` or `uid=`).
    - For ActiveDirectory, leave this value blank.
  - **LDAP Principal DN Suffix:** For the simple authentication method, the text you specify will be inserted after the user's login name:
    - For LDAP servers that require DN login, set this to the appropriate chain of values. The first character of the suffix must be a comma (","). For example:  
`,ou=Users,dc=domain,dc=name`
    - For ActiveDirectory, which requires a simple login with an email address, set this to an at symbol (@) followed by the domain name that is set for ActiveDirectory.
  - **LDAP Synchronization User:** The user that binds to the server and reads the lists of users and roles. For security purposes, you must specify a user account that can only read the LDAP directory.
  - **LDAP Synchronization Password:** The password associated with the user specified for the LDAP Synchronization User option.
6. Click **Test Connection**. The connection and the user mapping and role mapping configuration are tested. If the connection settings are correct, a message will indicate that the connection was successful. If you have not yet configured LDAP User Mapping and LDAP Role Mapping, the message returns an error.
  7. To set the LDAP Synchronization Schedule, use the **Add Schedule**, **Edit Schedule**, and **Remove Schedule** buttons to create the desired schedule.

**Note:** You should set synchronization for a time when the fewest number of users are likely to be logged in.
  8. Click **OK**.

## Configuring LDAP user mapping

You can configure the user mapping parameters that determine which users are imported and synchronized from the LDAP server. The parameters you specify depend on the LDAP server provider that you are using.

### ► To configure the LDAP user mapping parameters:

1. Start BAM Workbench by typing `http://[host name]:[port]/celequest/workbench` in the URL line of a web browser.
2. Click the **Administration Console** tab, and then click **System Settings**.
3. Click the **LDAP User Mapping** tab.

4. Specify values for the following parameters:
  - **LDAP User Base DN:** The root of the tree that will be searched for users. For example:
    - (Sun ONE) `OU=people,DC=your_domain,DC=com`
    - (Active Directory) `CN=Users,DC=yourdomain,DC=com`
  - **LDAP User Search Filter:** The format that is appropriate for the type of LDAP server you are using. For example, your LDAP server could have a special group for Business Activity Monitor users. This filter could then ensure that only users with this group membership are imported.
  - **LDAP User LoginID:** The login ID of the indicated provider. This value will become the user's login ID in Business Activity Monitor.
  - **LDAP User Full Name:** Enter `cn` if you are using either Sun ONE or Active Directory.
  - **LDAP User Description:** Enter `description` if you are using either Sun ONE or Active Directory.
  - **LDAP User PrimaryEmail:** Enter `userPrincipalName`. This refers to the user's email address in the LDAP directory.
  - **LDAP User EncryptedPassword:** Enter the password associated with the specified user if you are using either Sun ONE or Tivolie. Leave blank for Active Directory.
5. Click the **LDAP Synchronization** tab and click **Test Connection** to see if the users are imported successfully.
6. Click **OK**.

## Configuring LDAP role mapping

You can configure the role mapping parameters that determine which groups or roles are imported or synchronized, or both. The parameters you specify depend on the LDAP server provider that you are using.

### ► To configure the LDAP role mapping parameters:

1. Start BAM Workbench by typing `http://[host_name]:[port]/celequest/workbench` in the URL line of a web browser.
2. Click the **Administration Console** tab, and then click **System Settings**.
3. Click the **LDAP Role Mapping** tab.
4. Specify values for the following parameters:
  - **LDAP Role Base DN:** The format that is appropriate for the type of LDAP server you are using:
    - (Sun ONE) `OU=Groups,DC=your_domain,DC=com`
    - (Active Directory) `CN=Users,DC=yourdomain,DC=com`
  - **LDAP Role Search Filter:** The format that is appropriate for the type of LDAP server you are using:
    - (Sun ONE) `(&(objectclass=groupOfUniqueNames))`
    - (Active Directory) `(&(objectclass=group))`
  - **LDAP Role LoginID:** Enter `cn` if you are using either Sun ONE or Active Directory.
  - **LDAP Role Full Name:** Enter `displayname` if you are using either Sun ONE or Active Directory.
  - **LDAP Role Description:** Enter `description` if you are using either Sun ONE or Active Directory.

- **LDAP Role Member:** The name of the multivalued property that contains role members:
    - (Sun ONE) `uniqueMember`
    - (Active Directory) `member`
  - **LDAP Role Member is:** Use one of the following options:
    - `Distinguished Name`, if the role member properties identify users by distinguished names, such as `cn=jadmin,ou=people,dc=your domain,dc=com`.
    - `Login identification`, if the role member properties identify users by the value of the property used as the Business Activity Monitor login ID.
5. Click the **LDAP Synchronization** tab and click **Test Connection** to see if the users are imported successfully.
  6. Click **OK**.

## Manually synchronizing with the LDAP server

You can manually synchronize BAM Server with the LDAP server at any time. Synchronization requests are queued to prevent concurrent synchronizations.

### ► To manually synchronize with the LDAP server:

1. Start BAM Workbench by typing `http://[host name]:[port]/celequest/workbench` in the URL line of a web browser.
2. Click the **Administration Console** tab, and then click **System Settings**.
3. Click the **LDAP Synchronization** tab.
4. Click **Synchronize Now**. The time required to synchronize depends on your environment. A message appears when the synchronization is complete.
5. Click **OK**.

## Next steps

You can now install LiveCycle Workflow Designer. (See [“Installing LiveCycle Workflow Designer” on page 106.](#))

# 14 Installing LiveCycle Workflow Designer

This chapter describes how to install LiveCycle Workflow Designer.

## Installing LiveCycle Workflow Designer

You must run an installation program to install LiveCycle Workflow Designer and to configure a connection to LiveCycle Workflow Server. When you run the installation program, you need to provide the name of the server where LiveCycle Workflow Server is deployed.

Before you install LiveCycle Workflow Designer, you must have J2SDK version 1.4.2\_05, or a later release of 1.4.2 installed (version 1.4.2\_10 is not supported).

When LiveCycle Workflow Server is deployed to WebLogic, you must copy the `weblogic.jar` file from the `[appserver root]/server/lib` directory to the computer on which you are installing LiveCycle Workflow Designer. During the installation, you are prompted to navigate to the `weblogic.jar` file. For more information, see the WebLogic documentation.

LiveCycle Workflow Designer is installed in the following location by default:

- (Windows) `C:\Adobe\LiveCycle\WorkflowDesigner`
- (Linux) `/opt/adobe/livecycle/workflow_designer`

### ► To install LiveCycle Workflow Designer:

1. At the root level of the installation media, run the installation program by entering the following command:
  - (Windows) `adobe_lc_workflow_721_des.exe`
  - (Linux) `adobe_lc_workflow_721_des.bin`
2. On the Welcome screen, click **Next**.
3. Read the license agreement, select **I accept the terms of the license agreement**, and then click **Next**.
4. Accept the default installation directory or click **Browse** and navigate to the directory where you want to install the product, and then click **Next**.

**Note:** If you type in the name of a directory that does not exist, it will be created for you.

5. Select BEA WebLogic as the type of application server that hosts LiveCycle Workflow Server and click **Next**.
6. Navigate to the `weblogic.jar` file.
7. In the text box, type the name of the computer running LiveCycle Workflow Server, and then click **Next**.
8. Review the installation details, and then click **Back** to change any settings or click **Install** to continue.

9. Click **Finish**.
10. If you are not installing LiveCycle Workflow Designer on the same computer as where LiveCycle Workflow Server is deployed, ensure that the system clock is set to the correct time.  
If the system clock is not within two hours of the correct time for the current time zone, LiveCycle Workflow Designer will not be able to connect to the application server. The system clock of the application server must also be set to the correct time.

## Connecting to application servers using non-default ports

The default configuration of LiveCycle Workflow Designer uses default JNDI and HTTP ports to connect to the application server. If the application server uses non-default port numbers, you must manually modify the LiveCycle Workflow Designer configuration file.

► **To change the port used for JNDI and HTTP connections:**

1. Open the `qlc-config.xml` file in a text editor from the following location:
  - (Windows) `[LiveCycle root]/WorkflowDesigner/qlc/`
  - (Linux) `[LiveCycle root]/workflow_designer/qlc/`
2. Locate the property element with the name attribute of `java.naming.provider.url`, and change the URL in the `value` attribute so that it includes the port that you use for JNDI connections.  
For example, the following property element configures the port to use for JNDI connections to 7001: 

```
<property name="java.naming.provider.url" value="t3://localhost:7001"/>
```
3. Locate the `application-services` element and change the value of the `port` attribute to the port that your application server uses for HTTP connections.  
For example, the following `application-services` element configures the port to use for HTTP connections to 7001: 

```
<application-services host="localhost" port="7001" context="adobe-services"/>
```
4. Save and close the file.

## Uninstalling LiveCycle Workflow Designer

LiveCycle Workflow Designer includes an uninstall program that is created during installation. The uninstall program removes the product files.

► **To remove LiveCycle Workflow Designer:**

1. Start the uninstall program:
  - (Windows) Navigate to `[LiveCycle root]/WorkflowDesigner/_uninst/` and double-click **uninstall.exe**.
  - (Linux) Navigate to `[LiveCycle root]/workflow_designer/_uninst/` and run `uninstall.bin`.
2. If prompted, select a language for the uninstall program and click **OK**.
3. On the Welcome screen, click **Next**.

4. Review the summary information and click **Uninstall**.
5. If a Remove Existing File dialog box appears, select **Yes To All**.
6. Click **Finish**.

## Next steps

You can now deploy QPACs. (See the *Creating Workflows* guide or *LiveCycle Workflow Designer Help*.)

If you have installed Watched Folder and LiveCycle Assembler, you can create workflows that involve Watched Folder using the LiveCycle Assembler QPACs. (See ["Invoking LiveCycle Assembler Using LiveCycle Workflow and Watched Folder" on page 113.](#))

# A

## Supported Platform and Software Combinations

This appendix provides the supported platforms and software combinations for LiveCycle products. For a summary of the platforms combinations, see [“Before You Install” on page 11](#).

**Note:** LiveCycle PDF Generator Elements and LiveCycle PDF Generator Professional run only on the Windows Server 2003 Enterprise Edition platform.

Platform	Application server	JDK	Database
Windows Server 2003, Standard Edition	JBoss® 3.2.5	J2SDK version 1.4.2_04	MS SQL Server 2000 SP3
	JBoss 3.2.5	J2SDK version 1.4.2_04	MySQL 4.1
Windows Server 2003, Enterprise Edition	JBoss 3.2.5	J2SDK version 1.4.2_04	IBM DB2 8.2 (Version 8.1 Fix Pack 7)
	JBoss 3.2.5	J2SDK version 1.4.2_04	Oracle 9i
	JBoss 3.2.5	J2SDK version 1.4.2_04	Oracle 10g
	IBM WebSphere® 5.1.1.5	IBM JDK installed with WebSphere	Oracle 9i
	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 9i
	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 10g
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 10g
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	IBM DB2 8.2 (Version 8.1 Fix Pack 7)
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	MS SQL Server 2000 SP3

<b>Platform</b>	<b>Application server</b>	<b>JDK</b>	<b>Database</b>
Red Hat Linux Advanced Server 2.1 Update 3	JBoss 3.2.5	J2SDK version 1.4.2_04	MS SQL Server 2000 SP3
	JBoss 3.2.5	J2SDK version 1.4.2_04	MySQL 4.1
	JBoss 3.2.5	J2SDK version 1.4.2_04	Oracle 9i
	JBoss 3.2.5	J2SDK version 1.4.2_04	Oracle 10g
	JBoss 3.2.5	J2SDK version 1.4.2_04	IBM DB2 8.2 (Version 8.1 Fix Pack 7)
	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 9i
	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 10g
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	IBM DB2 8.2 (Version 8.1 Fix Pack 7)
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 10g
Red Hat Linux Advanced Server 3.0	JBoss 3.2.5	J2SDK version 1.4.2_04	MySQL 4.1
	JBoss 3.2.5	J2SDK version 1.4.2_04	Oracle 9i
	JBoss 3.2.5	J2SDK version 1.4.2_04	Oracle 10g
	JBoss 3.2.5	J2SDK version 1.4.2_04	IBM DB2 8.2 (Version 8.1 Fix Pack 7)
	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 9i
	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 10g
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	IBM DB2 8.2 (Version 8.1 Fix Pack 7)
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 10g
IBM AIX® 5.2	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 10g
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	IBM DB2 8.2 (Version 8.1 Fix Pack 7)

<b>Platform</b>	<b>Application server</b>	<b>JDK</b>	<b>Database</b>
IBM AIX 5.3	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 10g
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	IBM DB2 8.2 (Version 8.1 Fix Pack 7)
Sun Solaris 8	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 9i
	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 10g
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	IBM DB2 8.2 (Version 8.1 Fix Pack 7)
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 10g
Sun Solaris 9	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 10g
SUSE Linux ES 9.0	JBoss 3.2.5	J2SDK version 1.4.2_04	MS SQL Server 2000 SP3
	JBoss 3.2.5	J2SDK version 1.4.2_04	Oracle 9i
	JBoss 3.2.5	J2SDK version 1.4.2_04	Oracle 10g
	JBoss 3.2.5	J2SDK version 1.4.2_04	MySQL 4.1
	BEA WebLogic Server 8.1 SP5	J2SDK version 1.4.2_08	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 9i
	IBM WebSphere 5.1.1.5	IBM JDK installed with WebSphere	Oracle 10g

# B

## Fonts Installed with the Font Manager Module

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Some modules require access to fonts that are installed with the Font Manager Module. The Font Manager Module contains a number of bundled fonts that you can use in your custom applications.

The Font Manager Module is not used when converting native documents into PDF documents or when converting PDF documents into some other format.

You can add fonts to the Font Manager Module, which is subsequently packaged in the LiveCycle.ear file. For information about adding your own fonts, see [“Configuring LiveCycle Products for Deployment” on page 62](#).

The following fonts are installed with the Font Manager Module:

- Adobe Serif MM
- Adobe Sans MM
- Adobe Ming Std Light
- Adobe Song Std Light
- Adobe Myungjo Std Medium
- Adobe Pi Std
- Bell Gothic Std Light
- Bell Gothic Std Bold
- Bell Gothic Std Black
- Courier Std
- Courier Std Bold
- Courier Std Bold Oblique
- Courier Std Oblique
- EuroSign (TTF)
- Kozuka Gothic® Std Extra Light
- Kozuka Gothic Std Light
- Kozuka Gothic Std Regular
- Kozuka Gothic Std Medium
- Kozuka Gothic Std Bold
- Kozuka Gothic Std Heavy
- Kozuka Gothic Pro Medium
- Kozuka Mincho® Std Extra Light
- Kozuka Mincho Std Light
- Kozuka Mincho Std Regular
- Kozuka Mincho Std Medium
- Kozuka Mincho Std Bold
- Kozuka Mincho Std Heavy
- Kozuka Mincho Pro-VI Regular
- Letter Gothic Std Medium
- Letter Gothic Std Slanted
- Letter Gothic Std Bold
- Letter Gothic Std Bold Slanted
- Minion® Pro Italic
- Minion Pro Semibold
- Minion Pro Semibold Italic
- Minion Pro Bold
- Minion Pro Bold Italic
- Minion Pro Regular
- Myriad® Pro Light
- Myriad Pro Light Italic
- Myriad Pro Regular
- Myriad Pro Italic
- Myriad Pro Bold
- Myriad Pro Semibold
- Myriad Pro Semibold Italic
- Myriad Pro Bold Italic
- Myriad Pro Black
- Myriad Pro Black Italic
- Symbol

# C

## Invoking LiveCycle Assembler Using LiveCycle Workflow and Watched Folder

This appendix describes how to invoke LiveCycle Assembler through LiveCycle Workflow, using the LiveCycle Assembler QPACs and Watched Folder.

This appendix assumes that you have installed, configured, and deployed LiveCycle Assembler, LiveCycle Workflow, and Watched Folder.

**Note:** Watched folders can be implemented for use with LiveCycle PDF Generator, but need to be configured separately. The contents of this chapter refer only to the Watched Folder service that integrates LiveCycle Workflow and LiveCycle Assembler. For information on setting up watched folders for LiveCycle PDF Generator, see *LiveCycle PDF Generator Administration Help*, available from the LiveCycle PDF Generator web interface.

### Summary of tasks

Using either Watched Folder or a client application you developed, you can direct LiveCycle Workflow to initiate a workflow that activates a LiveCycle Assembler QPAC.

This section outlines the tasks required to set up a workflow that completes a LiveCycle Assembler process that is invoked by Watched Folder. The detailed steps required to complete the tasks are located in the section or document indicated. You must perform the tasks in the order that they are listed in the table.

**Note:** Do not run Configuration Manager until you have completed installing the files for each of the products.

Step	Task	See
1	Deploy LiveCycle Assembler QPACs to LiveCycle Workflow Designer.	<i>Using LiveCycle Assembler QPACs</i> (available on the LiveCycle Assembler installation DVD or on the LiveCycle Workflow SDK website)
2	Create and deploy a workflow that includes a LiveCycle Assembler QPAC.	<a href="#">“Deploying QPACs and creating a workflow process” on page 114</a> <i>LiveCycle Workflow Creating Workflows</i> <i>LiveCycle Workflow Designer Help</i>
3	Create a watched folder on the file system.	<a href="#">“Creating and configuring a watched folder” on page 117</a>
4	Log into Administrator and create and configure a watched folder.	<a href="#">“Creating and configuring a watched folder” on page 117</a> <i>Watched Folder Administration Help</i>
5	Create a JobConfig.xml file.	<a href="#">“Creating a JobConfig.xml file” on page 118</a> <i>Watched Folder Administration Help</i>

Step	Task	See
6	Prepare the test or production collateral, which includes input PDF files and a DDX file.	<a href="#">“Preparing PDF and DDX files” on page 120</a> <i>Developing Applications for LiveCycle Assembler</i> <i>Document Description XML Reference</i>
7	Submit the LiveCycle Assembler job for processing.	<a href="#">“Submitting the LiveCycle Assembler job for processing” on page 120</a> <i>Developing Custom Applications for LiveCycle Workflow</i>

## Deploying QPACs and creating a workflow process

There are two QPACs used to create workflows for LiveCycle Assembler: the Assembler QPAC and the CreateDocumentList QPAC. The Assembler QPAC is used for all LiveCycle Assembler workflows, whether you are using Watched Folder or another method of initiating the process (for example, client applications or web services).

This section describes how to create a workflow process that uses the Assembler QPAC, including how to create the required variables and action properties in LiveCycle Workflow Designer. For information on creating a workflow process that uses the CreateDocumentList QPAC, see the *Using LiveCycle Assembler QPACs* guide.

The steps for creating a workflow process that includes an Assembler QPAC are similar to those for creating any workflow process using LiveCycle Workflow Designer. The procedure here provides details specific to the Assembler QPAC. For more information on creating workflows, setting up variables, and setting action properties in a QPAC, see the *Creating Workflows* and *Using LiveCycle Assembler QPACs* guides.

### Using dynamic or static DDX files

When you submit jobs to Watched Folder for processing by LiveCycle Workflow and LiveCycle Assembler, you can use a dynamic or a static DDX file. When you create or use an application to submit jobs to LiveCycle Assembler that uses only the QPAC workflow (without Watched Folder), you must use a static DDX file.

A workflow that uses a dynamic DDX file processes the DDX file that is included in the input folder in a watched folder. To use a dynamic DDX file in your workflow process, you must create an `<inputddx>` variable and specify it in the action properties of the QPAC.

A workflow that uses a static DDX file processes a particular DDX file that is loaded into the QPAC and used every time that the process is called by the JobConfig.xml file. To use a static DDX file in your workflow process, you must browse to the DDX file and load it into the QPAC when you set the action properties for the workflow. You can use a static DDX if you are using a watched folder, or if you are running the process using only the QPACs.

## Configuring an Assembler QPAC in a workflow process

When you create a new workflow process in LiveCycle Workflow Designer, you must create variables that will be used by the workflow process. When you add the Assembler QPAC to the workflow, you must set the action properties for the QPAC. The action properties use the variables that you created.

The selections you make on the Action Properties dialog box depend on whether you are using a dynamic or static DDX file.

**Note:** The variable names used in this chapter, such as `<inputddx>` and `<inputdocmap>`, are user-defined in LiveCycle Workflow Designer; you can use any name when you create the variable.

### Variables for the Assembler QPAC

Variable	Property values
<code>&lt;inputdocmap&gt;</code>	Type: map of document in: selected out: not selected required: not selected
<code>&lt;inputddx&gt;</code> (required for dynamic DDX file only)	Type: document in: selected out: not selected required: not selected
<code>&lt;outputmap&gt;</code>	Type: map and document in: not selected out: selected required: not selected
<code>&lt;joblog&gt;</code> (not required when Logging Level is set to Off)	Type: Document in: not selected out: selected required: not selected

### Action properties for the Assembler QPAC

Type of workflow	Select on Input tab	Select on Output tab
Using Watched Folder with a dynamic DDX file	<b>Use a Document Variable to load the DDX file:</b> Click the ellipsis button and select the <code>&lt;inputddx&gt;</code> variable. <b>Input Document Map Variable:</b> Select the <code>&lt;inputdocmap&gt;</code> variable.	<b>Output Document Map:</b> Click the ellipsis button and select the <code>&lt;outputmap&gt;</code> variable.
Using Watched Folder with a static DDX file	<b>Use the Browse button to locate the DDX file:</b> Browse to the DDX file that you want to use. <b>Input Document Map Variable:</b> Select the <code>&lt;inputdocmap&gt;</code> variable.	<b>Output Document Map:</b> Click the ellipsis button and select the <code>&lt;outputmap&gt;</code> variable.

Type of workflow	Select on Input tab	Select on Output tab
Using QPAC only (with a static DDX file)	<b>Input Document Map:</b> Do not select <b>Use the Browse button to locate the DDX file:</b> Browse to the DDX file that you want to use.	<b>Output Document Map:</b> Click the ellipsis button and select the <outputmap> variable.

**Note:** For information about selecting options on the Configuration tab, see the next section, [Error logging and fail modes in the Assembler QPAC workflows.](#)

### Error logging and fail modes in the Assembler QPAC workflows

When you set up a workflow using the Assembler QPAC, you can select the error logging level and the fail mode that LiveCycle Workflow uses when exceptions occur.

You can set the error logging level to Off (no logging), Normal (brief messages), or Debug (detailed descriptions of errors). You can associate a process variable (for example, <joblog>) of type Document to the Output Log Document field in order to store the log messages.

You can set the fail mode to Stall Process or Terminate Process to direct the Assembler QPAC to stall or terminate a process when an exception occurs in LiveCycle Assembler.

When a job fails with Stall Process selected, the workflow process stalls, but is not terminated. If logging is set to Normal or Debug, information about the exception appears on the LiveCycle Workflow Stalled Action page in Administrator. Component administrators should search for the process and terminate it, and then return to Administrator and delete the stalled action if desired. The logged messages are displayed on the stalled action page, but not on the process page.

When a job fails with Terminate Process selected, the workflow process terminates when an exception is thrown. If logging is set to Normal or Debug, information about the exception is written to the log file for the component for which the exception was thrown. For Watched Folder, the log file is the activity.log file that is placed in the /failure subdirectory of the configured watched folder.

If you are configuring an Assembler QPAC for use with Watched Folder, you should set the fail mode to Terminate Process. Watched Folder users may not have access to Administrator, so if processes stall but are not terminated, users do not receive messages about the exception until the process is terminated. Setting the fail mode to Terminate Process ensures that error messages are logged to the activity.log file, which is available in the [watchedfolder]/failure directory (when the logging level is set to Normal or Debug).

For information on setting error logging and fail modes, see *Using LiveCycle Assembler QPACs*.

#### ► To create a workflow that includes an Assembler QPAC:

1. Deploy the Assembler QPAC to LiveCycle Workflow Designer. (See *Using LiveCycle Assembler QPACs*.)
2. In LiveCycle Workflow Designer, select **File > New > Process Category**.
3. Select the new process category and select **File > New > Process Type**.
4. Right-click the new process type and select **New Workflow**.
5. Name the workflow and use the default values for the remaining options (synchronous is selected and the other options are unchecked).

6. Create the variables for the workflow, as described in the [“Variables for the Assembler QPAC” on page 115](#) table, by clicking the green plus (+) button on the Variables palette. For more information on creating variables, see *LiveCycle Workflow Designer Help*.
7. Create a new component category. (See *Creating Workflows*.)
8. Add the Assembler QPAC (deploy the component) to the new component category, and set the action properties for the workflow, as described in the [“Action properties for the Assembler QPAC” on page 115](#) table.
9. Save and deploy the workflow process.

## Creating and configuring a watched folder

You must create a directory on your file system that you can configure as a watched folder. After you have configured the watched folder using the Watched Folder configuration interface, the watched folder contains the following subdirectories:

```
/[watchedfolder]
  /input
  /stage
  /failure
  /result
  /preserve
```

For information on the subdirectories, see *Watched Folder Administration Help*.

To submit files for processing, you place them in the `/[watched folder]/input` directory.

When multiple files need to be included in the LiveCycle Assembler process, do not transfer the individual files to the input directory; instead, create a separate collection directory, place all of the required files in it (that is, the input PDF files and, if required, the DDX file), and then place the collection directory in the input directory of the watched folder.

### ► To create and configure a watched folder:

1. Create a directory to be a watched folder on your file system on your server.
2. Log into Administrator.
3. Click **Services**, click **Watched Folder**, and then click **Watched Folder Management and Status**.
4. Click **New Watched Folder**.
5. In the **Watched Folder Name** box, type a name for the watched folder. (This does not have to match the name of the directory you created on the file system in step [1](#), but it is recommended for tracking purposes.)
6. In the **Watched Folder Path** box, type the full path to the directory you created on the file system.
7. In the **Include File Pattern(s)** box, type the name of the directory you created to contain the input PDF files (that you will place in the input directory of the watched folder). You can specify more than one file or name, if you intend to place multiple files and folders in the watched folder.

8. Set the other options according to your requirements. For information on the options available, see *Watched Folder Administration Help*.
9. Click **OK**.

**Tip:** If you are transferring a large number of source files to the watched folder, it may take several minutes or longer. It is possible that Watched Folder might scan the watched folder, recognize a new collection directory, and initiate a workflow process before all of the files in the directory have been copied over. To avoid this, you must name the collection directory something other than the name that Watched Folder is scanning for while you copy the directory to the input directory. When all of the input files have been copied over, you must rename the collection directory to the name specified in the Watched Folder configuration (the **Include File Pattern(s)** value).

## Creating a JobConfig.xml file

The JobConfig.xml file can be placed at the root of the input directory or inside the collection directory together with the other collateral files.

If you plan to place multiple jobs (collection directories) in the watched folder for different workflows that use dynamic DDX files, the JobConfig.xml file must be placed in the individual collection directories that are submitted to the input directory in the watched folder.

If you plan to submit multiple jobs for the same workflow that uses a static DDX file, you can place the JobConfig.xml at the root of the input directory. Subsequent incoming jobs use this same JobConfig.xml file.

To create a JobConfig.xml file, create an XML file similar to the following examples.

### Example C.1 A JobConfig.xml file for a dynamic DDX file

```
<?xml version="1.0" encoding="UTF-8"?>
<process-config xmlns="http://adobe.com/watchedfolder"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://adobe.com/watchedfolder
C:\WatchedFolder\schemas\JobConfiguration.xsd">
  <process-type>myworkflow</process-type>
  <process-variables>
    <process-variable>
      <filter-pattern>*.pdf</filter-pattern>
      <process-variable-type>map</process-variable-type>
      <process-variable-name>inputdocmap</process-variable-name>
      <process-variable-datatype>document</process-variable-datatype>
      <process-input>>true</process-input>
    </process-variable>
    <process-variable>
      <filter-pattern>*.ddx</filter-pattern>
      <process-variable-type>single</process-variable-type>
      <process-variable-name>inputddx</process-variable-name>
      <process-variable-datatype>document</process-variable-datatype>
      <process-input>>true</process-input>
    </process-variable>
  </process-variables>
</process-config>
```

### Example C.2 A JobConfig.xml file for a static DDX file

Use the same JobConfig.xml described previously, but omit the <inputddx> process variable.

```
<?xml version="1.0" encoding="UTF-8"?>
<process-config xmlns="http://adobe.com/watchedfolder"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://adobe.com/watchedfolder
C:\WatchedFolder\schemas\JobConfiguration.xsd">
  <process-type>myworkflow</process-type>
  <process-variables>
    <process-variable>
      <filter-pattern>*.pdf</filter-pattern>
      <process-variable-type>map</process-variable-type>
      <process-variable-name>inputdocmap</process-variable-name>
      <process-variable-datatype>document</process-variable-datatype>
      <process-input>true</process-input>
    </process-variable>
  </process-variables>
</process-config>
```

The content of the JobConfig.xml file maps to the variables and actions defined in the workflow process described in [“Configuring an Assembler QPAC in a workflow process” on page 115](#).

Node	Description
process-config	The root of the job configuration file.
process-type	The name of the workflow process type. This value must match the value specified in the workflow process in LiveCycle Workflow Designer.
process-variables	Contains multiple process-variable nodes.
process-variable	Each process-variable node maps to a variable included in the workflow process. Its subelements specify property values for each process variable.
filter-pattern	The pattern used to filter all of the files from the input set that will be set for the process variable. This pattern matches the type of files to be processed in relation to the variable.
process-variable-type	The type of input variable: single, list, or map.  In the example above, <i>list</i> is used for the <inputdocmap> variable, because the variable specified a series of documents (all of the files that will be placed in the watched folder). For the <inputddx> variable, <i>single</i> is specified, because only one file will be included.
process-variable-name	The name of the workflow variable as defined in the workflow. In the example above, the variable names match those created in <a href="#">“Configuring an Assembler QPAC in a workflow process” on page 115</a> : <i>inputdocmap</i> and <i>inputddx</i>

Node	Description
process-variable-datatype	The type of workflow variable. Two types of variables are supported: document and xml. This matches the containedtype attribute of the variable (not the collectiontype attribute).
process-input	Watched Folder does not currently use this setting. Leave the value set to true.

For more information on creating the JobConfig.xml file, see *Watched Folder Administration Help*.

## Preparing PDF and DDX files

The PDF files included in the input directory or defined by the Assembler QPAC must correspond to the file pattern value defined for the `source` element in the DDX file.

When using Watched Folder with LiveCycle Assembler, you must specify the Input Document Map variable (as described in [“Configuring an Assembler QPAC in a workflow process” on page 115](#)). You must use the `sourceMatch` attribute for the source element to define the file pattern. For information on setting the regular expression pattern for the `sourceMatch` attribute, see the *Document Description XML Reference*.

For example, in the DDX file, the PDF source can be specified in the following ways:

- Pattern matching for specific file names:  
`<PDF source="mysource" sourceMatch="appendix[\d]+[.]pdf" select="1-last"/>`
- Pattern matching with wildcard value:  
`<PDF source="mysource" sourceMatch=".[.]pdf" select="1-last"/>`

In the examples above, pattern-matching matches any input PDF files that begin with the characters `appendix` followed by a digit, and then followed with the file name extension `.pdf`. The wildcard value matches at least one input PDF file with any characters that include digits and end with `.pdf`.

For more information on setting the source element in the DDX file, see “Specifying multiple input streams” in the *Developing Applications for LiveCycle Assembler* guide and the *Document Description XML Reference*.

## Submitting the LiveCycle Assembler job for processing

You can submit a LiveCycle Assembler job to Watched Folder programmatically using a batch file that transfers the package containing the required files to the configured watched folder. (Instructions for creating a batch file or script to complete this action is beyond the scope of this guide.) You can also submit a job manually by dragging or copying the package of files to Watched Folder.

If you have created a LiveCycle Assembler workflow in LiveCycle Workflow Designer that does not use Watched Folder, you can submit the job for processing using a client application that you create using the LiveCycle Workflow Java API. For information on developing custom client applications for LiveCycle Workflow, see the *Developing Custom Applications for LiveCycle Workflow* guide, available with the LiveCycle Workflow SDK.

You can also submit jobs for processing using a variety of other mechanisms available with LiveCycle Workflow, such as web services, email, and messaging queues, as well by using online forms. For more information, see the *Developing Custom Applications for LiveCycle Workflow* and *Developing Custom QPACs* guides.

**Note:** When NFS sharing is set up for Watched Folder, temporary files and directories related to Watched Folder jobs are placed in the Global storage directory, but are not automatically deleted when the job processing is complete. To prevent performance issues, you should regularly remove files with name Session *[NNNN]*, where *NNNN* is the workflow process ID from the Global storage directory.

The default location of the Global storage directory is *{TempDir}/AdobeDocumentStorage/global*. If *[TempDir]* is not specified by the user in Configuration Manager, the default location is `java.io.tmpdir`.

# D

## Developing Forms for LiveCycle

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This appendix provides information that is useful for form developers, including how to use WebDAV with LiveCycle Form Manager and which items LiveCycle products require for different types of forms.

### Publishing files from client software

Form developers and form owners can use WebDAV-enabled client software to publish and access their files in the LiveCycle products repository used by LiveCycle Form Manager.

To use WebDAV, your computer must be running file management software (such as Microsoft Windows Explorer) that can connect to WebDAV servers.

To create a connection to a WebDAV directory, you must specify the URL of the directory. The following URL is the default URL of the LiveCycle Form Manager repository:

```
http:// [host name] : [port] /appstore/Forms
```

where *[host name]* is the name of the computer that is running LiveCycle products and *[port]* is the port being used for LiveCycle products.

For example, the form developers in your company use LiveCycle Designer to create forms. The form developers want to use the Publish menu command in LiveCycle Designer to copy forms and their supporting files to the LiveCycle products repository. However, they first use Windows Explorer to add a network place, which creates a connection to the URL of the LiveCycle products repository. The connection appears as a folder in My Network Places. After adding the network place, the form developers can use the folder to publish files to the repository.

### Designing forms for LiveCycle products

To use forms with LiveCycle products, there may be requirements for the design of the form, the configuration of LiveCycle products, or both. The following types of forms have special requirements for use with LiveCycle products:

- Dynamic forms
- PDF/A-compliant forms
- Forms that include subform objects
- PDF forms created with Acrobat

For information on designing forms for use with LiveCycle Workflow, see the *Creating Workflows* guide, which is installed with LiveCycle Workflow.

## Using dynamic forms with LiveCycle products

Dynamic forms can expand or shrink to accommodate the amount of incoming data. Dynamic forms typically include buttons that request form data from LiveCycle Forms. LiveCycle Forms renders the form with the data and returns it to the client. The client's browser is refreshed with the form, which has been expanded or contracted, depending on the amount of new data.

For example, some forms enable users to query a database by specifying search criteria. The returned data appears on the same form (a subform) in a table. The returned data determines the number of rows in the table. To submit the query, the user clicks a button, which sends the request to LiveCycle Forms.

LiveCycle products support the use of the following types of buttons for dynamic forms:

- One that updates the data on a dynamic form
- One that returns a PDF document to a client, who can then save a local copy of the document or print the document

LiveCycle products use specific button names to recognize these buttons. Dynamic forms must use these button names. You can use the default names, or you can go to the Administrator pages and configure LiveCycle products to use different names.

Property	Default	Description and options
Re-render Button name	RENDERAGAIN	The button name that indicates to LiveCycle products that this button sends a request to LiveCycle Forms to render the current form again with updated data.
Print Button Name	PRINTFORM	The button name that indicates to LiveCycle products that this button creates a PDF document from the current form and returns it to the end user.

## Embedding fonts in PDF/A-compliant forms

When creating a form design that is intended for the creation of a PDF/A Level 1B-compliant form when rendered by LiveCycle Forms, all of the fonts used must be embedded in the form design. If the fonts are not embedded, the rendered form is not PDF/A Level 1B-compliant, although it is a valid PDF form.

Only fonts licensed for a minimum of View and Print usage can be embedded in the form design. The fonts included in the Font Manager Module meet this criteria.

This chapter describe how to uninstall the LiveCycle product files.

## Removing the product files

The uninstall program located in the *[product root]* directory does not remove any files that you deployed to your application server or modules that are shared with other LiveCycle products.

**Caution:** By running the uninstall program, all of the contents within the product installation directory are subject to removal without further warning. Before proceeding, back up any data you do not want to lose.

► **To remove the files from your computer:**

1. Navigate to the *[product root]/\_uninst/* directory and start the unstall program:
  - (Windows) Double-click the .exe file. Alternatively, you can use the Add or Remove Programs function.
  - (Linux, UNIX) From a command prompt, type: `file_name.bin`
2. If prompted, select a language for the uninstall program and click **OK**.
3. Follow the on-screen instructions, and then click **Finish**.

# Upgrading LiveCycle Products to Version 7.2 or 7.2.1

---

This chapter describes the tasks required to upgrade your current LiveCycle products to version 7.2, or to version 7.2.1 for LiveCycle Assembler and LiveCycle Workflow.

This document should be used in conjunction with the *Installing and Configuring LiveCycle* guide or the *Installing and Configuring LiveCycle Security Products* guide for your application server. Throughout this document, specific sections in these installing and configuring guides are listed when more detailed information is available.

For a complete list of the supported platforms and system requirements for LiveCycle 7.2 products, see the “Before You Install” chapter in this guide.

This chapter uses the following naming conventions for common file paths:

**[LiveCycle root]** Refers to the location where LiveCycle products and components earlier than versions 7.2 or 7.2.1 are installed.

**[LiveCycle72 root]** Refers to the location where LiveCycle products and components with versions 7.2 and 7.2.1 are installed.

The *Installing and Configuring LiveCycle* guides apply to the following products:

- LiveCycle Assembler 7.2.1
- Adobe LiveCycle Forms 7.2
- Adobe LiveCycle Form Manager 7.2
- Adobe LiveCycle PDF Generator 7.2
- Adobe LiveCycle Print 7.2
- Adobe LiveCycle Workflow 7.2.1
- Adobe LiveCycle Workflow Designer 7.2.1
- Watched Folder 1.1

The *Installing and Configuring LiveCycle Security Products* guides apply to the following products:

- Adobe LiveCycle Document Security 7.2
- Adobe LiveCycle Reader Extensions 7.2
- Adobe LiveCycle Policy Server 7.2

## Upgrade guidelines

This section describes guidelines you must follow when upgrading LiveCycle products to version 7.2 or version 7.2.1.

### Updating your application server

Ensure that you apply the required patches and fix packs to the application server on which you are running LiveCycle products, and obtain the updated database drivers. Your environment must meet the system requirements described in the “Support software” chapter in this guide.

## Using automatic or turnkey installations for upgrading

For installations for deployment to WebSphere or WebLogic, you can use Configuration Manager to configure and deploy the product, initialize the database, and verify the deployment.

Before using Configuration Manager to automatically configure LiveCycle products, the existing LiveCycle components must be undeployed and the application server restarted.

For installations for deployment to JBoss, you can configure the products for deployment and initialize the database using Configuration Manager, but you must deploy the product components manually. The turnkey installation option is only supported for upgrading LiveCycle Reader Extensions.

If you are running LiveCycle products that were originally installed using the turnkey installation option, you can upgrade to version 7.2 or 7.2.1 by following the manual or the auto-configuration upgrade instructions that are included in this guide. Instructions for upgrading LiveCycle Reader Extensions using the turnkey installation option are also included in this chapter.

## Configuring using Configuration Manager during the upgrade process

It is recommended that you do not automatically configure the WebSphere or WebLogic application server using Configuration Manager because current configuration settings on your application server may be overwritten.

During the upgrade process, you will configure some product and application server run-time properties using Configuration Manager. For upgrades from 7.x versions, you should configure the upgraded product using the same property values. The “Configuring LiveCycle Products for Deployment” chapter in the *Installing and Configuring* guides provides information about the properties that you will configure when you upgrade the product.

## Summary of manual upgrade process

This checklist describes the high-level tasks that you must perform to upgrade from a LiveCycle 7.x product to a LiveCycle 7.2 or 7.2.1 product. For detailed information, see the specific upgrade procedures for the product you are upgrading.

The sections referenced in the “See” column are in the *Installing and Configuring* guides for your application server, depending on the product you are installing.

Task	See
Back up the database that contains the current LiveCycle configuration and run-time data.	The database server documentation.
Back up copies of the currently deployed LiveCycle EAR and WAR files to a separate directory.	
(JBoss) Stop services, if applicable (JBoss for Adobe LiveCycle, MySQL for Adobe LiveCycle, JBoss for Workflow BAM, AdobeDocumentSecurity, or AdobeReaderExtensions).	

Task	See
Undeploy LiveCycle components from the application server.	Refer to the application server documentation.
Uninstall the previous version of LiveCycle products using the uninstaller program.	The “Uninstalling LiveCycle Products” chapter
Apply the required patches and fix packs to the application server and obtain the updated database drivers.	The “Supported software” section of the “Before You Install” chapter
Install the LiveCycle 7.2 or 7.2.1 product to a new (non-default) location on your file system. Do not install to the same directory where your previous LiveCycle products are installed.	The “Installing LiveCycle Products” chapter
Run Configuration Manager to configure the product. Apply the configuration data that you used in the original installation. For WebSphere and WebLogic, you can automatically deploy the product, initialize the database, and verify the deployment using Configuration Manager.	(JBoss) The “Configuring LiveCycle Products for Deployment” chapter  (WebLogic, WebSphere) The “Automatically Configuring LiveCycle Products” or “Configuring LiveCycle Products for Deployment” chapter
(JBoss) Deploy the product components to the application server.	The “Manually deploying to JBoss” chapter
(JBoss) Run Configuration Manager to initialize the database.	The “Initializing the Database” chapter

## LiveCycle Forms and LiveCycle Print

This section provides upgrading instructions for LiveCycle Forms 7.2 and LiveCycle Print 7.2.

**Note:** You must install LiveCycle Forms 7.2 before installing LiveCycle Print 7.2.

### Upgrading from Adobe Form Server 6.0 to LiveCycle Forms 7.2

This procedure describes how to upgrade from Adobe Form Server 6.0 to LiveCycle Forms 7.2.

► **To upgrade from Form Server 6.0 to LiveCycle Forms 7.2:**

1. Undeploy the earlier product from the application server. (For information, see your application server documentation.)
2. Uninstall the earlier product using the uninstaller program. (For information, see the Form Server 6.0 *Installation and Configuration Guide*.)
3. Upgrade the application server and database to ensure that they meet the system and software requirements for LiveCycle 7.2 products.

4. Install and deploy LiveCycle Forms 7.2, and initialize the database using the instructions in this document for the manual installation and deployment option. For WebSphere and WebLogic, you can automatically deploy the product, initialize the database, and verify the deployment using Configuration Manager.

**Note:** If you did not include User Management with the installation and configuration of LiveCycle Forms, you do not need to connect to a database, and you do not need to follow steps to initialize the database.

## LiveCycle Forms and LiveCycle Print 7.x to LiveCycle Forms and LiveCycle Print 7.2

This procedure describes how to upgrade from LiveCycle Forms 7.0 or 7.1 to LiveCycle Forms 7.2, and from LiveCycle Print 7.1 to LiveCycle Print 7.2.

It is recommended that you install LiveCycle Forms 7.2 to a new directory so that you do not overwrite the previously installed version.

► **To retrieve form configuration properties (for LiveCycle Forms 7.0 or 7.1 configured *without* User Management):**

1. Type the following URL in a web browser:

```
http:// [host_name] : [port] /FormServerAdmin/settings.html
```

The default port number for WebLogic is 7001. If you are running a Managed Server, you may have configured the application server to use a different port number, such as 8001. The default port for WebSphere is 9080; the default port for JBoss is 8080.

2. Record the settings that appear on this page.

► **To retrieve form configuration properties (for LiveCycle Forms 7.0 or 7.1 configured *with* User Management):**

1. Type the following URL in a web browser:

```
http:// [host_name] : [port] /adminui
```

The default port number for WebLogic is 7001. If you are running a Managed Server, you may have configured the application server to use a different port number, such as 8001. The default port for WebSphere is 9080; the default port for JBoss is 8080.

2. Log into Administrator.
3. Click **Services**, and then click **Adobe LiveCycle Forms**.
4. Record the settings that appear on this page.
5. These properties must be set for the new installation on the Form Server Module Configuration screen on Configuration Manager when you install and configure LiveCycle Forms 7.2.

► **To upgrade to LiveCycle Forms 7.2 and LiveCycle Print 7.2:**

1. Back up the database that currently contains the LiveCycle Forms 7.0 or 7.1 configuration and run-time data.
2. Ensure that you have a back-up copy of the currently deployed LiveCycle EAR and WAR files that are configured for the current production system that you are planning to upgrade.
3. Back up the XDC files from LiveCycle Print 7.1.
4. (JBoss) If your LiveCycle deployment is running on a JBoss Application Server with a MySQL database that you installed using the turnkey option, stop the JBoss for Adobe LiveCycle service and the MySQL for Adobe LiveCycle service.
5. Undeploy the following files from your application server:
  - LiveCycle.ear
  - FormsIVS.ear
  - adobe-FontManager.war
  - LCMBootstrapper.war
  - adobe-printSubmitter.ear (LiveCycle Print only)

For information about undeploying from WebLogic or WebSphere, see “Uninstalling EAR files” in the *Installing and Configuring LiveCycle* guide.

**Note:** When the LiveCycle.ear file is undeployed, LiveCycle Print 7.1 does not work.

6. Stop the WebLogic Server or WebSphere Application Server.
7. Uninstall the previous versions of LiveCycle products using the uninstaller program. (See “Uninstalling LiveCycle Products” in the related *Installing and Configuring LiveCycle* guide.)
8. Upgrade the application server and database to ensure that they meet the system and software requirements for LiveCycle Forms 7.2.
9. Install LiveCycle Forms 7.2 to a new (non-default) directory (for example, C:\Adobe\LiveCycle72\ or /opt/adobe/livecycle72/). Follow the instructions in “Installing LiveCycle Products” in the *Installing and Configuring LiveCycle* guide.

**Note:** If you are installing or upgrading multiple LiveCycle 7.2 products, be sure to install them to the same root [*LiveCycle72 root*] directory.
10. Copy the DocumentServicesLibrary.jar file, according to your application server:
  - (WebLogic) From the [*LiveCycle72 root*]/components/csa/weblogic/lib/adobe directory to the [*appserverdomain*]/lib directory.
  - (WebSphere) From the [*LiveCycle72 root*]/components/csa/websphere/lib/adobe directory to the [*appserver root*]/optionalLibraries.
  - (JBoss) From the [*LiveCycle72 root*]/components/csa/jboss/lib/adobe directory to the [*appserver root*]/server/all/lib directory.

**Note:** Modify the XDC files installed with LiveCycle Print 7.2 to match those that you are using with version 7.1, and use these modified files. For information about the XDC files included with LiveCycle Print, see the *Getting Started* guide and the *Editing XDC Files to Customize Printing Workflows* guide for LiveCycle Print.

11. Start the application server.
12. Configure LiveCycle Forms 7.2 using Configuration Manager. (See the “Configuring LiveCycle Products for Deployment” chapter in the *Installing and Configuring LiveCycle* guide.) As you proceed through the Configuration Manager screens, choose the following options:
  - **Configuration Mode:** Select **Custom Configuration Wizard**.
  - **Product Selection:** Select the application server you are using, as well as **Foundation, LiveCycle Forms**, and **LiveCycle Print** (if applicable).
  - **Adobe User Management Selection:** Select one of the following options:
    - **LiveCycle Forms with User Management and Administrator** if you used LiveCycle Forms with User Management in the previous deployment
    - **LiveCycle Forms without User Management and Administrator** if you did not previously use LiveCycle Forms with User Management
  - **Task Selection:** Select the following options:
    - **Configure and Assemble products**
    - **Bootstrap Database** (only if you are including User Management in the configuration)

For WebSphere and WebLogic, also select these options:

- **Deploy products**
- **Verify deployed products**

13. Follow the instructions on the remaining Configuration Manager screens. Accept the default values in Configuration Manager whether you are configuring with User Management and Administrator or without User Management and Administrator.

**Note:** When prompted to specify the Global Storage Directory location, specify the same location that you currently use for this directory.

If you are deploying to WebSphere or WebLogic, complete steps 14 and 15. If you are deploying to JBoss, complete steps 16 and 17.

14. (WebSphere and WebLogic) On the Confirm Products to Deploy screen, select these EAR files:
  - LiveCycle.ear
  - adobe-FontManager.ear.
  - adobe-printSubmitter.ear (LiveCycle Print only)
15. (WebSphere and WebLogic) Follow the instructions on the Configuration Manager screens to initialize the database and verify the deployed products.
16. (JBoss) Deploy LiveCycle Forms 7.2. (See “Manually Deploying to JBoss” in the *Installing and Configuring LiveCycle* guide.)
17. (JBoss) (User Management configuration) Run Configuration Manager to initialize the database. Select **Custom Configuration Wizard**, and then select **Bootstrap** database.

**Note:** Initializing the database is necessary to add new table columns to the database schema. Initializing the database does not alter existing data.

18. Deploy the FormsIVS.ear files according to the steps required for your application server. (See “LiveCycle Forms post-deployment tasks” in the *Installing and Configuring LiveCycle* guide.)

19. Verify the deployment by following the instructions in “LiveCycle Forms post-deployment tasks” in the *Installing and Configuring LiveCycle* guide.
20. Update your application’s class path with the location of these JAR files: `formserver-client.jar`, `adobe-common.jar`, `datamanager-client.jar`, and `AdobeCSAUtils.jar`. Add the `um-client.jar` file to the application class path if the application passes an `InvocationContext` object in the Form Server Module API. For details about these files, see *Developing Custom Applications* located in the `[LiveCycle72 root]/forms/documentation` directory.

► **To configure LiveCycle Forms (when not using User Management):**

1. Type the following URL in a web browser:

```
http://[host_name]:[port]/FormServerAdmin/settings.html
```

The default port number for WebLogic is 7001. If you are running a Managed Server, you may have configured the application server to use a different port number, such as 8001. The default port for WebSphere is 9080; the default port for JBoss is 8080.

2. Enter the settings that you recorded when you retrieved the LiveCycle Forms configuration settings from the previous LiveCycle.ear file. (See [“To retrieve form configuration properties \(for LiveCycle Forms 7.0 or 7.1 configured without User Management\):”](#) on page 128.)
3. Click **Save**.

**Note:** The settings modified here are not retained when the application server is restarted.

► **To configure LiveCycle Forms (when using User Management):**

1. Type the following URL in a web browser:

```
http://[host_name]:[port]/adminui
```

2. The default port number for WebLogic is 7001. If you are running a Managed Server, you may have configured the application server to use a different port number, such as 8001. The default port for WebSphere is 9080; the default port for JBoss is 8080.
3. Log into Administrator.
4. Click **Services**, and then click **Adobe LiveCycle Forms**.
5. Enter the settings you recorded when you retrieved the LiveCycle Forms configuration settings from the previous LiveCycle.ear file. (See [“To retrieve form configuration properties \(for LiveCycle Forms 7.0 or 7.1 configured with User Management\):”](#) on page 128.)
6. Click **Save**.

## LiveCycle Form Manager

This section provides instructions for upgrading from LiveCycle Form Manager 7.0.1 to LiveCycle Form Manager 7.2. To perform this upgrade, you must update the server components that are deployed to the application server and initialize the database.

It is recommended that you install LiveCycle Form Manager 7.2 to a new directory so that you do not overwrite the previously installed version.

► **To upgrade LiveCycle Form Manager 7.0.1 to 7.2:**

1. Back up the database that currently contains the LiveCycle Form Manager 7.0.1 configuration and run-time data.
2. Ensure that you have a back-up copy of the currently deployed LiveCycle EAR and WAR files that are configured for the current production system that you are planning to upgrade.
3. (JBoss) If your LiveCycle deployment is running on a JBoss Application Server with a MySQL database that you installed using the turnkey option, stop the JBoss for Adobe LiveCycle service and the MySQL for Adobe LiveCycle service.
4. Undeploy the following LiveCycle Form Manager 7.0.1 components by following the instructions in the *Installing and Configuring* guide for LiveCycle Form Manager 7.0.1:
  - adobe-FontManager.war
  - LiveCycle.ear
  - LCMBostrapper.war

For information about undeploying from WebLogic or WebSphere, see “Uninstalling EAR files” in this *Installing and Configuring LiveCycle* guide.

5. Stop the WebLogic Server or WebSphere Application Server.
6. Uninstall the previous version of LiveCycle products using the uninstaller program. (See “Uninstalling LiveCycle Products” in the related *Installing and Configuring LiveCycle* guide.)
7. Upgrade the application server and database to ensure that they meet the system and software requirements for LiveCycle 7.2 products.
8. Install LiveCycle Form Manager 7.2 to a new (non-default) directory (for example, C:\Adobe\LiveCycle72\ **or** /opt/adobe/livecycle72/). Follow the instructions in “Installing LiveCycle Products” in the *Installing and Configuring LiveCycle* guide.

**Note:** If you are installing or upgrading multiple LiveCycle 7.2 products, be sure to install them to the same *[LiveCycle72 root]* directory.

9. Copy the DocumentServicesLibrary.jar file, according to your application server:
  - (WebLogic) From the *[LiveCycle72 root]/components/csa/weblogic/lib/adobe* directory to the *[appserverdomain root]/lib* directory
  - (WebSphere) From the *[LiveCycle72 root]/components/csa/websphere/lib/adobe* directory to the *[appserver root]/optionalLibraries* directory
  - (JBoss) From the *[LiveCycle72 root]/components/csa/jboss/lib/adobe* directory to the *[appserver root]/server/all/lib* directory
10. Start the application server.

11. Configure LiveCycle Form Manager 7.2 using Configuration Manager. (See “Configuring LiveCycle Products for Deployment” in the *Installing and Configuring LiveCycle* guide.) As you proceed through the Configuration Manager screens, choose the following options:
  - **Configuration Mode:** Select **Custom Configuration Wizard**.
  - **Product Selection:** Select the application server you are using, as well as **Foundation** and the product you are configuring.
  - **Task Selection:** Select the following options:
    - **Configure and Assemble products**
    - **Bootstrap Database**

For WebSphere and WebLogic, also select these options:

  - **Deploy products**
  - **Verify deployed products**
12. Follow the instructions on the Configuration Manager screens to configure the LiveCycle.ear file. Ensure that you configure your LiveCycle 7.2 EAR file with the same settings that you chose for version 7.0.1. If you are deploying to WebSphere or WebLogic, complete steps 13 and 14. If you are deploying to JBoss, complete steps 15 and 16.

**Note:** When prompted to specify the Global Storage Directory location, specify the same location that you currently use for this directory.

13. (WebSphere and WebLogic) On the Confirm Products to Deploy screen, select these EAR files:
  - LiveCycle.ear
  - adobe-FontManager.ear
14. (WebSphere and WebLogic) Follow the instructions on the Configuration Manager screens to initialize the database and verify the deployed products.
15. (JBoss) Deploy LiveCycle Form Manager 7.2 components. (See “Manually Deploying to JBoss” in the *Installing and Configuring LiveCycle* guide.)
16. (JBoss) Run Configuration Manager to initialize the database. Select **Custom Configuration Wizard**, and then select **Bootstrap database**. (See “Initializing the Database” in the *Installing and Configuring LiveCycle* guide.)

**Note:** Initializing the database is necessary to add new table columns to the database schema. Initializing the database does not alter existing data.

17. Verify the deployment by following the instructions in “LiveCycle Form Manager post-deployment tasks” the *Installing and Configuring LiveCycle* guide.

**Note:** You can also verify your installation and configuration by using the samples available at [www.adobe.com/devnet/livecycle/samples.html](http://www.adobe.com/devnet/livecycle/samples.html).

## LiveCycle Assembler, LiveCycle Workflow, and Watched Folder

This section describes how to upgrade any or all of the following products:

- LiveCycle Workflow 7.0.1 or 7.2 to LiveCycle Workflow 7.2.1
- LiveCycle Assembler 7.2 to LiveCycle Assembler 7.2.1
- Watched Folder 1.0 to Watched Folder 1.1

If you are upgrading LiveCycle Workflow as a stand-alone product, do not include the steps that pertain to Watched Folder or LiveCycle Assembler. Watched Folder is intended for use with LiveCycle Assembler and LiveCycle Workflow; you must install LiveCycle Workflow before installing Watched Folder.

To perform this upgrade, you must update the server components that are deployed to the application server and initialize the database. It is recommended that you install LiveCycle Assembler 7.2.1 to a new directory so that you do not overwrite the previously installed version.

When you configure LiveCycle Assembler 7.2.1 using Configuration Manager, ensure that you set the Security Groups option to the same value that you have set for LiveCycle Assembler 7.2. (The value can be set to an asterisk (\*), which only allows users with a valid entry in the LDAP system to log in, or to no value, which allows any user to log in.)

### ► To upgrade to LiveCycle Assembler 7.2.1, LiveCycle Workflow 7.2.1, and Watched Folder 1.1:

1. Back up the database that currently contains the LiveCycle Workflow 7.0.1 or 7.2 configuration and run-time data.
2. Ensure that you have a back-up copy of the currently deployed LiveCycle EAR and WAR files that are configured for the current production system that you are planning to upgrade.
3. (JBoss) If your LiveCycle deployment is running on a JBoss Application Server with a MySQL database that you installed using the turnkey option, stop the JBoss for Adobe LiveCycle service and the MySQL for Adobe LiveCycle service.
4. Undeploy the following files from your application server:
  - LiveCycle.ear
  - adobe-FontManager.war
  - LCMBootstrapper.war
  - adobe-Assembler7.ear (LiveCycle Assembler only)

For information about undeploying from WebLogic or WebSphere, see “Uninstalling EAR files” in the *Installing and Configuring LiveCycle* guide.

5. (WebSphere and WebLogic) Stop the application server.
6. Uninstall the previous versions of LiveCycle products using the uninstaller program. (See “Uninstalling LiveCycle Products” in the *Installing and Configuring LiveCycle* guide.)
7. Install LiveCycle Assembler 7.2.1 to a new (non-default) directory (for example, C:\Adobe\LiveCycle72\ or /opt/adobe/livecycle72/). Follow the instructions in “Installing LiveCycle Products” in the *Installing and Configuring LiveCycle* guide.

8. Install LiveCycle Workflow 7.2.1 to the same directory where you installed LiveCycle Assembler 7.2.1 by following the instructions in “Installing LiveCycle Products” in the related *Installing and Configuring LiveCycle* guide.

**Note:** You can install LiveCycle Assembler and LiveCycle Workflow in any order.

9. Install Watched Folder to the same directory where you installed LiveCycle Workflow by following the instructions in “Installing Watched Folder” in the *Installing and Configuring LiveCycle* guide. LiveCycle Workflow must already be installed.

**Note:** If you are installing or upgrading multiple LiveCycle 7.2 products, be sure to install them to the same *[LiveCycle72 root]* directory.

10. Copy the DocumentServicesLibrary.jar file, according to your application server:
  - (WebLogic) From the *[LiveCycle72 root]/components/csa/weblogic/lib/adobe* directory to the *[appserverdomain]/lib* directory.
  - (WebSphere) From the *[LiveCycle72 root]/components/csa/websphere/lib/adobe* directory to the *[appserver root]/optionalLibraries*.
  - (JBoss) From the *[LiveCycle72 root]/components/csa/jboss /lib/adobe* directory to the *[appserver root]/server/all/lib* directory. Copy the adobe-service.xml file from the *[LiveCycle72\_root]/configurationManager/deploy/jboss* directory to the *[appserver root]/server/all/deploy/jms* directory.
11. Start the application server.
12. Configure the LiveCycle products by using Configuration Manager. (See “Configuring LiveCycle Products for Deployment” in the *Installing and Configuring LiveCycle* guide.) As you proceed through the Configuration Manager screens, choose the following options:
  - **Configuration Mode:** Select **Custom Configuration Wizard**.
  - **Product Selection:** Select the application server you are using, and then select **Foundation**, as well as all of the products that you installed.
  - **Task Selection:** Select the following options:
    - **Configure and Assemble products**
    - **Bootstrap Database**For WebSphere and WebLogic, also select these options:
    - **Deploy products**
    - **Verify deployed products**
13. Follow the instructions on the remaining Configuration Manager screens. Ensure that you configure your 7.2.1 EAR file with the same settings you chose for version 7.0.1 or 7.2. If you are deploying to WebSphere or WebLogic, complete steps 14 and 15. If you are deploying to JBoss, complete steps 16 and 17.

**Note:** When prompted to specify the Global Storage Directory location, specify the same location that you currently use for this directory.
14. (WebSphere and WebLogic) On the **Confirm Products to Deploy** screen, select the archives that you are deploying:
  - adobe-FontManager.ear
  - LiveCycle.ear
  - adobe-Assembler7.ear (LiveCycle Assembler only)

15. (WebSphere and WebLogic) Follow the instructions on the Configuration Manager screens to initialize the database and verify the deployed products.
  16. (JBoss) Deploy LiveCycle Assembler, LiveCycle Workflow, and Watch Folder 7.2. (See “Manually Deploying to JBoss” in the *Installing and Configuring LiveCycle* guide.) These components consist of these EAR files:
    - LiveCycle.ear
    - adobe-FontManager.ear
    - LCM.ear
    - adobe-Assembler7.ear
  17. (JBoss) Run Configuration Manager to reinitialize the database. Select **Custom Configuration Wizard**, and then select **Bootstrap database**. (See “Initializing the Database” in the *Installing and Configuring LiveCycle* guide.)
  18. Upgrade the Assembler QPAC. (See *Upgrading LiveCycle Workflow Designer* or the *Creating Workflows* guide, available with the LiveCycle Workflow documentation set.)
- Note:** Initializing the database is necessary to add new table columns to the database schema. Initializing the database does not alter existing data.
19. Verify the deployment by following the instructions in the “Post Deployment” section in the *Installing and Configuring LiveCycle* guide.

**Note:** You can also verify your installation and configuration by using the samples available at [www.adobe.com/devnet/livecycle/samples.html](http://www.adobe.com/devnet/livecycle/samples.html).

## LiveCycle Workflow Designer

You need to use the version of LiveCycle Workflow Designer that LiveCycle Workflow 7.2.1 provides. If you want to use the new User QPAC with existing workflows, you need to migrate your workflows.

You must upgrade your LiveCycle QPACs from LiveCycle Workflow 7.0.1 or 7.2 to version 7.2.1. See “Updating components” in the *Creating Workflows* guide that is included with LiveCycle Workflow Designer.

### ► To upgrade LiveCycle Workflow Designer:

1. Uninstall LiveCycle Workflow 7.0.1 Designer.
2. Install LiveCycle Workflow 7.2.1 Designer. (See “Installing LiveCycle Workflow Designer” in the *Installing and Configuring LiveCycle* guide.)

**Note:** LiveCycle Workflow 7.2.1 provides an updated User QPAC that includes new features. If any of your workflows include User actions and you want to use the new features, you must migrate your workflows. For more information, see the topic “Migrating Workflows from Older Versions” in the *Creating Workflows* guide or in *LiveCycle Workflow Designer Help*.

## BAM Server for LiveCycle Workflow

This section describes general best practices to follow when upgrading to a new version of BAM Server. You must use the BAM Server upgrade utility to upgrade metadata XML files that you export from LiveCycle Workflow Business Activity Monitor during the upgrade process.

Upgrading BAM Server involves performing the following tasks:

- Exporting the BAM metadata using BAM Workbench
- Upgrading the BAM metadata using the BAM Server upgrade utility
- Undeploying the BAM Server EAR file from the application server
- Removing recovery log files and dropping existing tables into the BAM metadata database
- Deploying the BAM Server EAR file that LiveCycle Workflow 7.2.1 provides
- Importing the upgraded BAM metadata using BAM Workbench

### About the BAM Server upgrade utility

The BAM Server upgrade utility upgrades exported metadata files so that they include new features required for the current product version.

The BAM Server upgrade utility is packaged in the `cqupgrade.jar` file. When you install LiveCycle Workflow, this file is located in the `[LiveCycle root]/Workflow/bam/CQUpgrade` directory.

**Note:** The upgrade utility generates the message “Error parsing input file” when files cannot be upgraded. If this error is generated, the file specified in the error message may be damaged. Contact Adobe Systems for assistance.

#### Syntax

The following command upgrades metadata files that have been exported to a JAR file:

```
java -jar cqupgrade.jar -jar -i inJar.jar [-o outJar.jar]
```

#### Parameters

You can use the following parameters in the BAM Server upgrade utility command:

*inJar.jar*: The path to the JAR file that contains the exported metadata to upgrade.

*outJar.jar* (optional): The path to the upgraded JAR file. If you omit this parameter, the upgraded files are saved in the JAR file specified in *inJar.jar*.

The following examples show commands that you can use to upgrade metadata stored in JAR files using the BAM Server upgrade utility:

- The following command upgrades the metadata files that are stored in a JAR file named `toUpgrade.jar`, which is located in the same directory as `cqupgrade.jar`:

```
java -jar cqupgrade.jar -i toUpgrade.jar
```

- The following command upgrades the metadata files in the `toUpgrade.jar` file and saves the upgraded files to a different JAR file named `upgraded.jar`. The file is saved in the same directory as `cqupgrade.jar`:

```
java -jar cqupgrade.jar -i toUpgrade.jar -o upgraded.jar
```

► **To upgrade Business Activity Monitor:**

1. Log into BAM Workbench.
2. Click the **Administration** tab and then click **Import/Export**.
3. In the **Operations** menu, select **Export Metadata to a JAR File (download)**.
4. In the File Download dialog box, click **Save**.
5. Specify a location and file name for the exported JAR file, and click **Save**.
6. Click **Close** in the Download Complete dialog box.
7. Click **System Settings**, and then click the **Checkpoint Configuration** tab. Note the directory path in the **Recovery Log Directory** box. You will need to know where the recovery log directory is at a later step in this procedure.
8. Shut down Business Activity Monitor.
9. Use the BAM Server upgrade utility (cqupgrade.jar) to upgrade the metadata that you exported in a JAR file. (See [“About the BAM Server upgrade utility” on page 137.](#))
10. Undeploy the BAM Server EAR file by following the instructions for your application server:
  - (JBoss) Remove the following directories:
    - `[jboss bam root]/server/default/work`
    - `[jboss bam root]/server/default/tmp`
    - `[jboss bam root]/server/default/data`
    - `[jboss bam root]/server/conf/jboss.web`
  - (WebSphere) Undeploy the old BAM Server EAR file using WebSphere Administrative Console.
  - (WebLogic) Undeploy the old BAM Server EAR file using WebLogic Server Administration Console.
11. Delete all of the files from the recovery log directory that have names similar to the following patterns:
  - `filestore*.dat`
  - `DEFAULTRECOVERYLOGGER_*`
  - `chkpoint_.x`
12. Use your database management tools to drop the database tables that store the BAM metadata. Alternatively, you may want to create a new BAM metadata database. For more information about the BAM metadata database, see “Creating the BAM metadata database” in the *Installing and Configuring LiveCycle* guide for your application server.
13. Deploy the new version of BAM Server to the application server. (See “Deploying BAM Server” in the *Installing and Configuring LiveCycle* guide.)
14. Log into BAM Workbench.
15. Review the BAM Server configuration settings to determine if updates are required. (See “Getting Started with BAM Server” in the *Installing and Configuring LiveCycle* guide.)
16. Click the **Administration** tab and then click **Import/Export**.

17. In the **Operations** menu, select **Import Metadata from a JAR File (upload)**.
18. Click **Browse** to locate the JAR file that contains the upgraded BAM metadata, and then click **OK**.
19. Restart the BAM Server instance.

## LiveCycle PDF Generator

To upgrade from LiveCycle PDF Generator 7.0.1 or 7.0.2 to LiveCycle PDF Generator 7.2, you must undeploy the product you are currently using before installing and deploying the new product.

The instructions in this section apply to LiveCycle PDF Generator for PostScript, LiveCycle PDF Generator Elements, and LiveCycle PDF Generator Professional.

### ► To upgrade LiveCycle PDF Generator 7.0.2 to LiveCycle PDF Generator 7.2:

1. Back up the database that currently contains the LiveCycle PDF Generator 7.0.1 or 7.0.2 configuration and run-time data.
2. Ensure that you have a back-up copy of the currently deployed LiveCycle EAR and WAR files that are configured for the current production system that you are planning to upgrade.
3. (JBoss) If your LiveCycle PDF Generator deployment is running on a JBoss Application Server with a MySQL database that you installed using the turnkey option, stop the JBoss for Adobe LiveCycle service.
4. If you are installing LiveCycle PDF Generator Professional or LiveCycle PDF Generator Elements, uninstall Adobe Acrobat 7.0.5 from the Add/Remove programs window in the Microsoft Windows Control Panel, and then reboot your system.
5. Undeploy the following LiveCycle PDF Generator components by following the instructions in the *Installing and Configuring* guide for LiveCycle PDF Generator 7.0.2:
  - pdfg-all.ear (or pdfg-ps-all.ear)
  - LiveCycle.ear
  - adobe-FontManager.war
  - LCMBootstrapper.war

For information about undeploying from WebLogic or WebSphere, see “Uninstalling EAR files” in the *Installing and Configuring LiveCycle* guide.

6. (WebSphere and WebLogic) Stop the application server.
7. Uninstall the previous versions of LiveCycle products by using the uninstaller program. (See “Uninstalling LiveCycle Products” in the *Installing and Configuring LiveCycle* guide.)
8. Install LiveCycle PDF Generator 7.2 to a new (non-default) directory (for example, C:\Adobe\LiveCycle72\ **or** /opt/adobe/livecycle72/). Follow the instructions in “Installing LiveCycle Products” in the *Installing and Configuring LiveCycle* guide.

**Note:** If you are installing or upgrading multiple LiveCycle 7.2 products, be sure to install them to the same [LiveCycle72 root] directory.

9. Copy the DocumentServicesLibrary.jar file, according to your application server:
  - (WebLogic) From the `[LiveCycle72 root]/components/csa/weblogic/lib/adobe` directory to the `[appserverdomain]/lib` directory
  - (WebSphere) From the `[LiveCycle72 root]/components/csa/websphere/lib/adobe` directory to the `[appserver root]/optionalLibraries`
  - (JBoss) From the `[LiveCycle72 root]/components/csa/jboss/lib/adobe` directory to the `[appserver root]/server/all/lib` directory. Copy the `adobe-service.xml` file from the `[LiveCycle72_root]/configurationManager/deploy/jboss` directory to the `[appserver root]/server/all/deploy/jms` directory.
10. Start the application server.
11. Configure the LiveCycle products by using Configuration Manager. (See “Configuring LiveCycle Products for Deployment” in the *Installing and Configuring LiveCycle* guide.) As you proceed through the Configuration Manager screens, choose the following options:
  - **Configuration Mode:** Select **Custom Configuration Wizard**.
  - **Product Selection:** Select the application server you are using, and then select **Foundation**, and **LiveCycle PDF Generator**.
  - **Task Selection:** Select all of the following options:
    - **Configure and Assemble products**
    - **Bootstrap Database**For WebSphere and WebLogic, also select these options:
    - **Deploy products**
    - **Verify deployed products**
12. Follow the instructions on the remaining Configuration Manager screens. Ensure that you configure your LiveCycle 7.2 EAR file with the same settings you chose for version 7.0.2. If you are deploying to WebSphere or WebLogic, complete steps 13 and 14. If you are deploying to JBoss, complete steps 15 and 16.

**Note:** When prompted to specify the Global Storage Directory location, specify the same location that you currently use for this directory.
13. (WebSphere and WebLogic) On the Confirm Products to Deploy screen, select the archives that you are deploying:
  - pdfg-all.ear (or pdfg-ps-all.ear)
  - adobe-FontManager.ear
  - LiveCycle.ear
14. (WebSphere and WebLogic) Follow the instructions on the Configuration Manager screens to initialize the database and verify the deployed products.
15. (JBoss) Deploy the LiveCycle PDG Generator 7.2 components:
  - LiveCycle.ear
  - adobe-FontManager.ear
  - LCM.ear
  - pdfg-all.ear (or pdfg-ps-all.ear)(See “Manually Deploying to JBoss” in the *Installing and Configuring LiveCycle* guide.)

16. (JBoss) Run Configuration Manager to reinitialize the database. Select **Custom Configuration Wizard**, and then select **Bootstrap database**. (See “Initializing the Database” in the *Installing and Configuring LiveCycle* guide.)

**Note:** Initializing the database is necessary to add new table columns to the database schema. Initializing the database does not alter existing data.

17. Verify the deployment by following the instructions in “LiveCycle PDF Generator post-deployment tasks” in the *Installing and Configuring LiveCycle* guide.

**Note:** You can also verify your installation and configuration by using the samples available at [www.adobe.com/devnet/livecycle/samples.html](http://www.adobe.com/devnet/livecycle/samples.html).

► **To configure JMS Messaging for WebSphere running on Windows:**

1. In the WebSphere Administrative Console, delete the JMS queues, topics, and listener ports for each server.
2. Configure WebSphere MQ by following the instructions in “Configuring JMS resources for WebSphere MQ” in the *Installing and Configuring LiveCycle* guide.
3. Run the scripts provided by Configuration Manager to create queues in the MQ installation by following the instructions in “Preparing WebSphere MQ” in the *Installing and Configuring LiveCycle* guide.
4. Run Configuration Manager again and select the **Configure the Application Server** task. Follow the instructions on the Configuration Manager screens to configure application server details. (See “Changing the application server settings” in the *Installing and Configuring LiveCycle* guide.) As you proceed through the Configuration Manager screens, choose the following options:
  - **JVM Settings:** Select **Do Not Apply**.
  - **JMS settings:** Specify values for the properties of the MQ service.
  - **Datasource Creation:** Select **Do Not Apply**.
5. On the Configure Application Server screen, click **Apply Settings Now** to configure your application server, and, when the task is complete, click **Next**.
6. Restart the application server and, on the Application Server/Cluster Restart screen, click **Next** if you selected another task for Configuration Manager to perform, or click **Finish** to close Configuration Manager.
7. Verify that the applications start correctly.

## LiveCycle Document Security

This section provides instructions for upgrading from LiveCycle Document Security 7.0 or 7.1 to LiveCycle Document Security 7.2. To perform this upgrade, you must update the server components that are deployed to the application server.

It is recommended that you install LiveCycle Document Security 7.2 to a new directory so that you do not overwrite the previously installed version.

► **To upgrade to LiveCycle Document Security 7.2:**

1. Back up the following files and folders:
  - ../trust.xml
  - ../credentials/
  - ../certificates/
  - ../CRLs/
  - ../keystore
  - ../trust.sig
2. Ensure that you have a back-up copy of the currently deployed LiveCycle EAR and WAR files that are configured for the current production system that you are planning to upgrade.
3. Undeploy the following LiveCycle Document Security components by following the instructions in the *Installing and Configuring* guide for LiveCycle Document Security 7.0 or 7.1:

<b>WebSphere and WebLogic</b>	<b>JBoss</b>
adobe-FontManager.war	adobe-FontManager.bar
adobe-PDFManipulation.war	adobe-PDFManipulation.bar
adobe-TrustManager.war	adobe-TrustManager.bar
DataManagerService.war	AdobeServices.sar
ServicesNatives-2.war	ServicesNatives-2.war
adobe-APSPProxy.war	adobe-APSPProxy.bar

4. (WebSphere) Set up default users, roles, and login files by following in the instructions in the procedure "To map users to roles" in the *Installing and Configuring LiveCycle Security Products* guide. (This procedure must be completed each time the LiveCycle-security.ear file is redeployed.)
5. Restart the application server.
6. Uninstall the previous version of LiveCycle products by using the uninstaller program. (See "Uninstalling LiveCycle Products" in the related *Installing and Configuring LiveCycle* guide.)
7. Install LiveCycle Document Security 7.2 to a new (non-default) directory (for example, C:\Adobe\LiveCycle72\ **or** /opt/adobe/livecycle72/). Follow the instructions in "Installing LiveCycle Products" in the *Installing and Configuring LiveCycle Security Products* guide.

**Note:** If you are installing or upgrading multiple LiveCycle 7.2 products, be sure to install them to the same [LiveCycle72 root] directory.
8. Copy the DocumentServicesLibrary.jar file, according to your application server:
  - (JBoss) From the [LiveCycle72 root]/components/csa/jboss/lib/adobe directory to the [appserver root]/server/all/lib directory.
  - (WebLogic) From the [LiveCycle72 root]/components/csa/weblogic/lib/adobe directory to the [appserver domain]/lib directory.
  - (WebSphere) From the [LiveCycle72 root]/components/csa/websphere/lib/adobe directory to the [appserver root]/optionalLibraries directory.

9. Configure LiveCycle Document Security 7.2 using Configuration Manager. (See “Configuring LiveCycle Products”.) As you proceed through the Configuration Manager screens, choose the following options:
  - **Configuration Mode:** Select **Custom Configuration Wizard**.
  - **Product Selection:** Select the application server you are using, as well as **Foundation** and the product you are configuring.
  - **Task Selection:** Select the following options:
    - **Configure and Assemble products**
    - **Bootstrap Database**For WebSphere and WebLogic, also select these options:
    - **Deploy products**
    - **Verify deployed products**
  - **Trust Directory Selection:** Select **Create a new trust directory**.
  - **Keystore Selection:** Select **Create a new keystore and pair**.
10. Follow the instructions on the remaining Configuration Manager screens. Ensure that you configure your 7.2 EAR file with the same settings you chose for version 7.0 or 7.1. If you are deploying to WebSphere or WebLogic, complete steps 11 and 12. If you are deploying to JBoss, complete steps 13 and 14.

**Note:** When prompted to specify the Global Storage Directory location, specify the same location that you currently use for the “Directory for Adobe LiveCycle products” temp file.
11. (WebSphere and WebLogic) On the Confirm Products to Deploy screen, select the archives that you are deploying:
  - adobe-FontManager.ear
  - LiveCycle.ear
  - LiveCycle-security.ear
12. (WebSphere and WebLogic) Follow the instructions on the Configuration Manager screens to initialize the database and verify the deployed products.
13. (JBoss) Deploy LiveCycle Document Security 7.2. (See “Manually Deploying to JBoss” in the *Installing and Configuring LiveCycle Security Products* guide.)
14. (JBoss) Run Configuration Manager to reinitialize the database. Select **Custom Configuration Wizard**, and then select **Bootstrap database**. (See “Initializing the Database” in the *Installing and Configuring LiveCycle Security Products* guide.)
15. Restart the application server.
16. Verify your installation and configuration by using the samples available at [www.adobe.com/devnet/livecycle/samples.html](http://www.adobe.com/devnet/livecycle/samples.html).

## LiveCycle Reader Extensions

This section provides instructions for upgrading from LiveCycle Reader Extensions 7.0 or 7.0.2 to LiveCycle Reader Extensions 7.2. To perform this upgrade, you must update the server components that are deployed to the application server.

**Note:** (JBoss) If you previously installed LiveCycle Reader Extensions on Windows for deployment to JBoss using the turnkey method, see “To upgrade LiveCycle Reader Extensions using the turnkey method” in the *Installing and Configuring LiveCycle Security Products* guide for the turnkey upgrade instructions.

It is recommended that you install LiveCycle Reader Extensions 7.2 to a new directory so that you do not overwrite the previously installed version.

If you are using an existing credential, ensure the credential has not expired and is still valid. (See “LiveCycle Reader Extensions Rights credential” in the *Installing and Configuring LiveCycle Security Products* guide.)

Custom applications using existing APIs supported in Adobe Document Services 6.0 for Reader Extensions are not supported in LiveCycle Reader Extensions 7.2. Custom applications using existing APIs supported in Adobe Reader Extensions Server 6.1 are supported by and continue to work with LiveCycle Reader Extensions 7.2.

Digital certificates issued for use with Reader Extensions Server 6.1 are compatible for use with LiveCycle Reader Extensions 7.2. If you are upgrading from version 6.1 to 7.2, you will not receive a new Rights credential.

### ► To upgrade LiveCycle Reader Extensions to 7.2:

1. Back up the following files and folders in the *[LiveCycle root]/ReaderExtensions/trust* directory:
  - ../trust.xml
  - ../credentials/
  - ../certificates/
  - ../CRLs/
  - ../keystore
  - ../trust.sig
2. Ensure that you have a back-up copy of the currently deployed LiveCycle EAR and WAR files that are configured for the current production system that you are planning to upgrade.
3. Undeploy the following LiveCycle Reader Extensions components by following the instructions in the *Installing and Configuring* guide for LiveCycle Reader Extensions 7.0 or 7.0.2:

WebSphere and WebLogic	JBoss
adobe-FontManager.war	adobe-FontManager.bar
adobe-PDFManipulation.war	adobe-PDFManipulation.bar
adobe-TrustManager.war	adobe-TrustManager.bar
DataManagerService.war	AdobeServices.sar

WebSphere and WebLogic	JBoss
ServicesNatives-2.war	ServicesNatives-2.war
ares.ear	ares.ear
adobe-CredentialSecurityEJB.ear	adobe-CredentialSecurityEJB.ear
adobe-APSPProxy.war	adobe-APSPProxy.bar

- Restart the application server.
- Uninstall the previous version of LiveCycle products y using the uninstaller program. (See “Uninstalling LiveCycle Products” in the related *Installing and Configuring LiveCycle* guide.)
- Install LiveCycle Reader Extensions 7.2 to a new (non-default) directory (for example, C:\Adobe\LiveCycle72\ or /opt/adobe/livecycle72/. Follow the instructions in “Installing LiveCycle Products” in the *Installing and Configuring LiveCycle Security Products* guide.

**Note:** If you are installing or upgrading multiple LiveCycle 7.2 products, be sure to install them to the same *[LiveCycle72 root]* directory.

- Copy the DocumentServicesLibrary.jar file, according to you application server:
  - (WebLogic) From the *[LiveCycle72 root]/components/csa/weblogic/lib/adobe* directory to the *[appserver domain]/lib* directory.
  - (WebSphere) From the *[LiveCycle72 root]/components/csa/websphere/lib/adobe* directory to the *[appserver root]/optionalLibraries* directory.
  - (JBoss) From the *[LiveCycle72 root]/components/csa/jboss/lib/adobe* directory to the *[appserver root]/server/all/lib* directory.
- Configure LiveCycle Reader Extensions 7.2 by using Configuration Manager. (See “Configuring LiveCycle Products” in the *Installing and Configuring LiveCycle Security Products* guide.) As you proceed through the Configuration Manager screens, choose the following options:
  - Configuration Mode:** Select **Custom Configuration Wizard**.
  - Product Selection:** Select the application server you are using, as well as **Foundation** and the product you are configuring.
  - Task Selection:** Select the following options:
    - Configure and Assemble products**For WebSphere and WebLogic, also select these options:
    - Deploy products**
    - Verify deployed products**
  - Trust Directory Selection:** Select **Create a new trust directory**.
  - Keystore Selection:** Select **Create a new keystore and pair**.
- Follow the instructions on the remaining Configuration Manager screens. Ensure that you configure your 7.2 EAR file with the same settings you chose for version 7.0 or 7.1. If you are deploying to WebSphere or WebLogic, complete steps 10 and 11. If you are deploying to JBoss, complete step 12.

**Note:** When prompted to specify the Global Storage Directory location, specify the same location that you currently use for the “Directory for Adobe LiveCycle products” temp file.

10. (WebSphere and WebLogic) On the Confirm Products to Deploy screen, select the archives that you are deploying:
  - adobe-FontManager.ear
  - LiveCycle.ear
  - LiveCycle-security.ear
11. (WebSphere and WebLogic) Follow the instructions on the Configuration Manager screens to initialize the database and verify the deployed products.
12. (JBoss) Deploy LiveCycle Reader Extensions 7.2. (See “Manually Deploying to JBoss” in the *Installing and Configuring LiveCycle Security Products* guide.)
13. Restart the application server.
14. Verify the installation and configuration by going to the appropriate URL:
  - (WebLogic) `http://[host_name]:7001/ReaderExtensions` **or**  
`http://[host_name]:8001/ReaderExtensions` (Managed Server)
  - (WebSphere) `http://[host_name]:9080/ReaderExtensions`
  - (JBoss) `http://[host_name]:8080/ReaderExtensions`
15. Type the user name and password you created when you configured the LiveCycle Reader Extensions user. (See “Setting up users, roles, and login files” for JBoss or WebLogic or “To map users to roles” for WebSphere in the *Installing and Configuring LiveCycle Security Products* guide.)

► **(JBoss) To upgrade LiveCycle Reader Extensions using the turnkey method:**

1. Stop the AdobeReaderExtensions Windows service from the Services window in the Administrative Tools area of the Windows Control Panel.
2. Verify that port 8080 is not being used.
3. The turnkey installation specifies “localhost” as the host and “8080” as the port for use by JBoss. If JBoss is already installed, ensure that it is not using port 8080. You cannot configure an alternative host or port for JBoss during the turnkey installation and configuration process.
4. Install LiveCycle Reader Extensions 7.2 using the turnkey method to a new (non-default) directory (for example, C:\Adobe\LiveCycle72\). Follow the instructions in “Installing LiveCycle Reader Extensions or LiveCycle Document Security” in the *Installing and Configuring LiveCycle Security Products* guide.
5. Verify the installation and configuration by going to the URL  
`http://[host_name]:8080/ReaderExtensions`.

**Note:** For turnkey installations, the default user name is administrator and the default password is password. To edit these values, see “Setting up users, roles, and login files” in the *Installing and Configuring LiveCycle Security Products* guide.

**Note:** You can also verify your installation and configuration by using the samples available at [www.adobe.com/devnet/livecycle/samples.html](http://www.adobe.com/devnet/livecycle/samples.html).

## LiveCycle Policy Server

This section provides instructions for upgrading from LiveCycle Policy Server 7.0.2 to LiveCycle Policy Server 7.2. To perform this upgrade, you must update the server components that are deployed to the application server and initialize the database.

It is recommended that you install LiveCycle Policy Server 7.2 to a new directory so that you do not overwrite the previously installed version.

### ► To upgrade LiveCycle Policy Server to 7.2:

1. Back up the database that currently contains the LiveCycle Policy Server 7.0.2 configuration and run-time data.
2. Ensure that you have a back-up copy of the currently deployed LiveCycle EAR and WAR files that are configured for the current production system that you are planning to upgrade.
3. Undeploy the following LiveCycle Policy Server 7.0.2 components:
  - asn1.jar
  - jsafe.jar
  - jsafeJCE.jar
  - edc-server-spi.jar
  - edc-server.ear
4. Remove the dom\*.jar files from the `[appserver root]/java/jre/lib/endorsed` directory.
5. Uninstall the previous version of LiveCycle products by using the uninstaller program. (See “Uninstalling LiveCycle Products” in the relevant *Installing and Configuring LiveCycle* guide.)
6. Install LiveCycle Policy Server 7.2 to a new (non-default) directory (for example, `C:\Adobe\LiveCycle72\` or `/opt/Adobe/livecycle72/`). Follow the instructions in “Installing LiveCycle Products” in the *Installing and Configuring LiveCycle Security Products* guide.

**Note:** If you are installing or upgrading multiple LiveCycle 7.2 products, be sure to install them to the same `[LiveCycle72 root]` directory.

7. Deploy LiveCycle Policy Server 7.2. (See the chapter about manually deploying to the application server in the *Installing and Configuring LiveCycle Security Products* guide for your application server.)
8. Run Configuration Manager to reinitialize the database. Select **Custom Configuration Wizard**, and then select **Bootstrap database**. (See “Initializing the Database” in the *Installing and Configuring LiveCycle Security Products* guide.)

**Note:** Initializing the database is necessary to add new table columns to the database schema. Initializing the database does not alter existing data.

9. Configure various run-time settings for LiveCycle Policy Server. (See the “Post-deployment” section of the *Installing and Configuring LiveCycle Security Products* guide.)

**Note:** You can verify your installation and configuration by using the samples available at [www.adobe.com/devnet/livecycle/samples.html](http://www.adobe.com/devnet/livecycle/samples.html).

This appendix provides general tips that you can use to improve server performance when using LiveCycle products.

## Optimizing inline documents and impact on JVM memory

If you are typically processing documents of a relatively small size, you can improve the performance associated with the document transfer speed and storage space by implementing the following LiveCycle product configurations:

- Increase the maximum inline size for LiveCycle products so that it is larger than the size of most documents.
- For processing larger files, specify storage directories that are located on a high-speed disk system or a RAM disk.

The default maximum inline size and the storage directories (the Adobe LiveCycle products temporary file directory and the Global storage directory) are properties of the Data Manager Module. You can configure the Data Manager Module using Configuration Manager. (See [“Performing a custom configuration” on page 41.](#))

**Note:** The default maximum inline size is 65536 bytes.

### Document size and maximum inline size

When a document that is sent for processing by LiveCycle products is less than or equal to the maximum inline size, the document is stored on the server inline and the document is serialized as an Adobe Document object. Storing documents inline can have significant performance benefits. However, if you are using LiveCycle Workflow, the content may also be stored in the database for tracking purposes, and so increasing the maximum inline size might affect the database size.

A document that is larger than the maximum inline size is stored on the local file system (in the storage directories specified using Configuration Manager), and the Adobe Document object that is transferred to and from the server is only a pointer to that file.

When document content is inlined (that is, less than the maximum inline size), the content is stored in the database (as part of the Document's serialization payload). So, increasing the maximum inline size might affect the database size.

### JVM maximum heap size

An increase in the maximum inline size requires more memory for storing the serialized documents and so generally also requires an increase in the JVM maximum heap size. The maximum JVM heap size should not exceed 2GB.

A heavily-loaded system that is processing a large number of documents can rapidly saturate the JVM heap memory. To avoid an `OutOfMemoryError`, the JVM maximum heap size must be increased by an amount corresponding to the size of the inline documents multiplied by the number of documents that are typically executed at any given time.

JVM maximum heap size increase = (inline documents size) x (average number of documents processed)

### **Example G.1 Calculating the JVM maximum heap size**

In this example, the current JVM maximum heap is set to 512 MB and the maximum inline size is 64 KB. The server needs to be configured for the scenario where 10 jobs are run simultaneously, and each job has 9 input files and 1 result file (a total of 10 files per job, and 100 files processed simultaneously). All of the files are under 512 KB in size.

To store all of the files inline, the maximum inline size must be set to at least 512 KB.

The required increase in the JVM maximum heap size is calculated using the following equation:

$$(512 \text{ KB}) \times (100) = 51200 \text{ KB, or } 512 \text{ MB}$$

The JVM maximum heap size must be increased by 512 MB for a total of 1GB.

### **Considering heap fragmentation**

Setting the size of inline documents to large values raises the risk of an `OutOfMemoryError` on systems that are prone to heap fragmentation. To store a document inline, there must be sufficient contiguous space in the JVM heap memory. Some operating systems, JVMs, and garbage collection algorithms are prone to heap fragmentation. Fragmentation decreases the amount of contiguous heap space, and can lead to an `OutOfMemoryError` even when sufficient total free space exists.

For example, previous operations on the application server have left the JVM heap in a fragmented state, and the garbage collector is unable to compact the heap sufficiently to regain large blocks of free space. An `OutOfMemoryError` can occur even though the JVM maximum heap size has been adjusted for an increase in maximum inline size.

To account for heap fragmentation, the inline document size must not be set higher than 0.1% of the total heap size. For example, a JVM maximum heap size of 512 MB can support a maximum inline size of  $512 \text{ MB} \times 0.001 = 0.512 \text{ MB}$ , or 512 KB.

## **Cleaning up temporary files in the Global storage directory**

When a workflow process is executed, temporary files are placed in the Global storage directory, but are not deleted when the process is complete. These files are placed under subdirectories with the name, `Session[NNNN]`, where `NNNN` is the workflow process ID. To prevent running out of disk space, you must regularly remove the Session directories associated with fully completed processes.

If the Global storage directory is not set explicitly in Configuration Manager, the default location of the Global storage directory is `[TempDir]/AdobeDocumentStorage/global`. If `[TempDir]` is also not specified by the user in Configuration Manager, the default location is `java.io.tmpdir`.

## **Improving Windows Server Performance with LDAP**

Using connection pooling on the search connection can decrease the number of ports need by as much as 50%, since that connection always uses the same credentials for a given domain, and the context and related objects are closed explicitly.

► **To configure your Windows Server for connection pooling:**

1. Start the registry editor by clicking **Start** > **Run** and in the **Open** box type `regedit` and click **OK**.
2. Navigate to the registry key:  
`HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters`
3. In the right pane of the registry editor, look for the **TcpTimedWaitDelay** value name. If the name does not appear, you can add it by selecting **Edit** > **New** > **DWORD Value** from the menu bar.
4. In the **name** box, type `TcpTimedWaitDelay`.  
**Note:** If you do not see a flashing cursor and `New Value #` inside the box, right-click inside the right panel, select **Rename** from the menu, then in the **name** box, type `TcpTimedWaitDelay`.
5. Repeat this step [4](#) for the following value names: `MaxUserPort`, `MaxHashTableSize`, and `MaxFreeTcbs`.
6. Double-click inside the right pane to set the **TcpTimedWaitDelay** value. Under **Base**, select **Decimal**, and in the **Value** box, type `30`.
7. Double-click inside the right pane to set the **MaxUserPort** value. Under **Base**, select **Decimal**, and in the **Value** box, type `65534`.
8. Double-click inside the right pane to set the **MaxHashTableSize** value. Under **Base**, select **Decimal**, and in the **Value** box, type `65536`.
9. Double-click inside the right pane to set the **MaxFreeTcbs** value. Under **Base**, select **Decimal**, and in the **Value** box, type `16000`.

**Caution:** Serious problems might occur if you modify the registry incorrectly by using Registry Editor or by using another method. These problems might require that you reinstall your operating system. Modify the registry at your own risk.

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