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About This Document

This document is one of several resources available to help you learn about Adobe® LiveCycle® ES2 (Enterprise Suite) Update 1. LiveCycle ES2 is a flexible, extensible platform that helps automate and accelerate the flow of business-critical information to and from customers, partners, constituents, and employees.

This document provides information about how to install and configure the following modules in a clustered environment on Microsoft® Windows®, Linux®, IBM® AIX®, and Sun™ Solaris™, and how to deploy the modules to IBM WebSphere® Application Server:

- Adobe LiveCycle ES2 Connector for EMC Documentum
- Adobe LiveCycle ES2 Connector for IBM FileNet
- Adobe LiveCycle ES2 Connector for IBM Content Manager
- Adobe LiveCycle Content Services ES2
- Adobe LiveCycle Digital Signatures ES2
- Adobe LiveCycle Forms ES2
- Adobe LiveCycle Foundation
- Adobe LiveCycle Output ES2
- Adobe LiveCycle PDF Generator ES2
- Adobe LiveCycle PDF Generator 3D ES2
- Adobe LiveCycle Process Management ES2
- Adobe LiveCycle Reader Extensions ES2
- Adobe LiveCycle Rights Management ES2

Who should read this document?

This document provides information for administrators or developers who are responsible for installing, configuring, administering, or deploying LiveCycle ES2 components in a clustered environment. The information provided assumes that readers are familiar with Java™ 2 Platform, Enterprise Edition (J2EE) application servers; Linux, Windows, AIX, or Solaris operating systems; Oracle®, DB2®, or SQL Server database servers; and web environments.
Conventions used in this document

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Default value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[LiveCycleES2 root]</td>
<td>Windows: C:\Adobe\Adobe LiveCycle ES2\Linux and UNIX: /opt/adobe/adobe livecycle es2/</td>
<td>The installation directory that is used for all LiveCycle ES2 modules. The installation directory contains subdirectories for LiveCycle Configuration Manager and the LiveCycle ES2 SDK.</td>
</tr>
<tr>
<td>[appserver root]</td>
<td>WebSphere on Windows: C:\Program Files\IBM\WebSphere\AppServer\WebSphere on Linux and Solaris: /opt/IBM/WebSphere/AppServer/</td>
<td>The home directory of the application server that runs the LiveCycle ES2 services.</td>
</tr>
<tr>
<td>[profiles root]</td>
<td>Application Server: [appserver root]/profiles</td>
<td>The directory location that stores profiles. The directory paths listed indicate the default locations; however, administrators may specify their own profiles directory location.</td>
</tr>
<tr>
<td>[server name]</td>
<td>server1</td>
<td>The name of the server configured on your application server.</td>
</tr>
<tr>
<td>[dbserver root]</td>
<td>The location where the LiveCycle ES2 database server is installed.</td>
<td>Depends on the database type and your specification during installation.</td>
</tr>
</tbody>
</table>

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

Additional information

The resources in this table can help you learn more about LiveCycle ES2.

<table>
<thead>
<tr>
<th>For information about</th>
<th>See</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparing to install LiveCycle ES2 on a server cluster</td>
<td>Preparing to Install LiveCycle ES2 (Server Cluster)</td>
</tr>
<tr>
<td>Performing administrative tasks for LiveCycle ES2</td>
<td>LiveCycle Administration Console Help</td>
</tr>
<tr>
<td>Installing LiveCycle Workbench ES2</td>
<td>Installing Your Development Environment</td>
</tr>
<tr>
<td>For information about</td>
<td>See</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Other services and products that integrate with</td>
<td><strong><a href="http://www.adobe.com">www.adobe.com</a></strong></td>
</tr>
<tr>
<td>LiveCycle ES2</td>
<td></td>
</tr>
<tr>
<td>Patch updates, technical notes, and additional information</td>
<td><strong>LiveCycle Technical Support</strong></td>
</tr>
<tr>
<td>on this product version</td>
<td></td>
</tr>
</tbody>
</table>
Introduction

This chapter provides information to help you understand how to prepare your cluster to install LiveCycle ES2, the type of installation and deployment you should perform for LiveCycle ES2, and information that will help you understand the LiveCycle ES2 installation, configuration, and deployment process:

- "Preparing your server cluster to install LiveCycle ES2" on page 9
- "Installation, configuration, and deployment process" on page 9
- "LiveCycle ES2 installation, configuration, and deployment lists" on page 11

For information about preparing your system to create your server cluster and install LiveCycle ES2, including system requirements, preparing the database, and configuring LiveCycle Reader Extensions ES2 credentials, see Preparing to Install LiveCycle ES2 (Server Cluster).

1.1 Preparing your server cluster to install LiveCycle ES2

You must create and configure your server cluster before you install, configure, and deploy LiveCycle ES2. (See "Creating a WebSphere Application Server Cluster" on page 13.)

1.2 Installation, configuration, and deployment process

Installing, configuring, and deploying LiveCycle ES2 involves the following processes:

**Installing:** Install LiveCycle ES2 by running the installation program. Installing LiveCycle ES2 places all of the required files onto your computer, within one installation directory structure. The default installation directory is C:\Adobe\Adobe LiveCycle ES2 (Windows) or /opt/adobe_livecycle_es2 (AIX, Linux, and Solaris); however, you can install the files to a different directory. In this document, the default installation directory is referred to as [LiveCycleES2 root]. (See “Installing the LiveCycle ES2 Modules” on page 25.)

**Configuring and assembling:** Configuring LiveCycle ES2 modifies various settings that determine how LiveCycle ES2 works. Assembling the product places all of the installed components into several deployable EAR and JAR files, according to your configuration instructions. Configure and assemble the components for deployment by running LiveCycle Configuration Manager. (See “Configuring LiveCycle ES2 for Deployment” on page 33.) You can configure and assemble multiple LiveCycle ES2 modules at the same time.

**Deploying:** Deploying the product involves deploying the assembled EAR files and supporting files to the WebSphere Application Server cluster on which you plan to run your LiveCycle ES2 solution. If you have configured and assembled multiple modules, the deployable components are packaged within the deployable EAR files. Components and LiveCycle ES2 archive (LCA) files are packaged as JAR files.

**Initializing the LiveCycle ES2 database:** Initializing the database to be used with LiveCycle ES2 creates tables for use with User Management and other components. Deploying any module that connects to the LiveCycle ES2 database requires you to initialize the LiveCycle ES2 database after the deployment process.
1.3 Selecting tasks for configuring and deploying

After you perform an installation, you can run LiveCycle Configuration Manager to perform various tasks:

- Configure LiveCycle ES2 modules in an EAR file for deploying to the application server cluster
- Configure application server properties across all servers of the cluster to support LiveCycle ES2
- Validate application server cluster configuration
- Deploy LiveCycle ES2 EAR files
- Initialize LiveCycle ES2 database
- Deploy LiveCycle ES2 components
- Validate LiveCycle ES2 component deployment
- Import LiveCycle ES2 Samples into LiveCycle ES2 (optional)

**Note:** In addition to the LiveCycle ES2 samples that you can import, you can access more samples from Adobe web site.

- Configure LiveCycle ES2 components

If you install Reader Extensions ES2, you can also specify and import the Reader Extensions ES2 Rights credential that is required for applying usage rights to PDF documents.

If you want to install Business Activity Monitoring, see the “Configuring LiveCycle Business Activity Monitoring ES2” section in the single server install guide for WebSphere after you install all other LiveCycle ES2 components.

Although you can use LiveCycle Configuration Manager to configure the application server cluster and set up data sources to the database, you may prefer to complete these steps manually.

You may want to configure your application server cluster manually for these reasons:

- You have other applications running on the application server cluster and are concerned about possible conflicting configurations.
- Corporate security procedures for configuration management dictate finer control.
- You are performing deployments where automatic configuration is not available.

In the manual configuration case, do these tasks:

- Use LiveCycle Configuration Manager to configure LiveCycle ES2 components with the required font, temp, and GDS directories
- Manually configure the application server cluster, configure data sources, and deploy LiveCycle ES2 EAR files
- Run LiveCycle Configuration Manager to initialize the database
- Run LiveCycle Configuration Manager to deploy LiveCycle ES2 components and validate the LiveCycle ES2 component deployment.
- Configure LiveCycle ES2 components.

1.4 Upgrading to LiveCycle ES2

If you are upgrading from LiveCycle 7.x, review the *Upgrading from LiveCycle 7.x to LiveCycle ES2* guide.
If you are upgrading to LiveCycle ES2 from LiveCycle 8.x and later, ensure that you completed the tasks that are described in Preparing to Upgrade to LiveCycle ES2 and refer to the Upgrading to LiveCycle ES2 from LiveCycle ES guide for your application server.

1.5 LiveCycle ES2 installation, configuration, and deployment lists

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

**Automatic method:** Refers to using LiveCycle Configuration Manager to configure and deploy LiveCycle ES2 EAR files, configure the application server cluster, initialize the database, and deploy the modules to the server cluster. Use the automatic method if you want to have limited input into the installation, configuration, and deployment of LiveCycle ES2.

**Manual method:** Refers to using LiveCycle Configuration Manager only to configure LiveCycle ES2 EAR files, initialize the database, and deploy the modules to the server cluster. Configuring the application server cluster, connecting to the database, and deploying LiveCycle ES2 EAR files to the server cluster is done manually by the administrator by following the instructions later in this document. Use the manual method if you want to have precise input into the installation, configuration, and deployment of LiveCycle ES2. For example, this method may be used in a locked-down server environment.

1.5.1 Automatic installation and deployment list

The following list includes the steps that are required for installing LiveCycle ES2 modules by using the automatic method. The WebSphere Application Server cluster must be installed before you perform the installation:

- Ensure that you have the required software installed in the target environment. (See Preparing to Install LiveCycle ES2 and “Creating a WebSphere Application Server Cluster” on page 13 and “Manually Configuring a WebSphere Cluster” on page 48).
- Run the installation program. (See “Installing the LiveCycle ES2 Modules” on page 25.)
- Run LiveCycle Configuration Manager and select all the tasks on the Task Selection screen. This step configures and assembles the LiveCycle ES2 EAR files, configures application server settings, deploys the EAR files and other components to the application server cluster, initializes the LiveCycle ES2 database, and verifies the deployment. (See “Configuring LiveCycle ES2 for Deployment” on page 33.)
- Access the LiveCycle Administration Console and User Management. (See “Accessing LiveCycle Administration Console” on page 70.)
- (Optional) Configure LDAP access. (See “Configuring LiveCycle ES2 to access LDAP” on page 86.)

1.5.2 Manual installation and deployment list

The following list includes the steps that are required for installing LiveCycle ES2 by using the manual method. Your application server cluster must be installed and configured before you perform the installation.

- Ensure that you have the required software installed and configured in the target environment. (See Preparing to Install LiveCycle ES2 (Server Cluster).}
● Ensure that you created and configured the application server cluster in the target environment. (See “Creating a WebSphere Application Server Cluster” on page 13 and “Manually Configuring a WebSphere Cluster” on page 48.)

● Run the installation program. (See “Installing the LiveCycle ES2 Modules” on page 25.)

● Run LiveCycle Configuration Manager and select the Configure LiveCycle ES2 EARs task. This task configures and assembles LiveCycle ES2. (See “Configuring LiveCycle ES2 for Deployment” on page 33.)

● Configure WebSphere Application Server settings. A variety of settings must be configured. (See “Manually Configuring a WebSphere Cluster” on page 48.)

● Deploy the EAR files to the application server cluster. You can do this manually or use LiveCycle Configuration Manager. (See “Appendix - Manually Deploying to WebSphere” on page 66.)

● Run LiveCycle Configuration Manager to deploy LiveCycle ES2 component files, initialize the LiveCycle ES2 database, and (optionally) deploy product samples. (See “Configuring LiveCycle ES2 for Deployment” on page 33.)

● Access LiveCycle Administration Console and User Management. (See “Accessing LiveCycle Administration Console” on page 70.)

● (Optional) Configure LDAP access. (See “Configuring LiveCycle ES2 to access LDAP” on page 86.)
Creating a WebSphere Application Server Cluster

You must install the WebSphere Application Server Network Deployment software to create your WebSphere cluster. Perform the following tasks:

- Ensure that you properly prepared all computers in the cluster. (See “Preparing to install” on page 13.)
- Install the WebSphere Application Server Network Deployment software. (See “Installing WebSphere Network Deployment software” on page 14.)
- Create your WebSphere Application Server cluster. (See “Creating and configuring the WebSphere cluster” on page 14.)
- Test the WebSphere Application Server cluster configuration. (See “Testing the WebSphere Application Server cluster” on page 24.)

2.1 Preparing to install

Before you install WebSphere Application Server on the computers of your cluster, ensure that your system meets the following configuration requirements:

**Disk space:** Ensure that the partition that will hold the application server has a minimum of 10 GB of free disk space. In addition to the space required to install the product, your environment variable `TEMP` or `TMP` must point to a valid temporary directory with at least 500 MB of free disk space. The downloadable executable requires approximately 500 MB, plus an additional 1.0 GB to unpack the images.

**IP address settings:** All the computers must have a fixed IP address that is managed through a single DNS.

**IP multicast:** All the computers must fully support IP multicast packet propagation, which means that all routers and other tunneling technologies must be configured to propagate multicast messages to clustered server instances. The network latency must be low enough to ensure that most multicast messages reach their final destination within 200 to 300 milliseconds. Also, the multicast time-to-live (TTL) value for the cluster must be high enough to ensure that routers do not discard multicast packets before they reach their final destination.

**Versions:** All the computers in the cluster must have the same version and same service pack of WebSphere Application Server software.

**Horizontal clustering:** If your configuration is horizontally clustered (that is, instances of WebSphere Application Server are installed on separate computers), ensure that all computers are on the same network subnet and that the computer clocks are synchronized. (See Preparing to Install LiveCycle ES2 (Server Cluster).)

**Account privileges:** (Windows) You must install and run WebSphere Application Server under a user account that has administrator privileges.

**Shared network drive:** You must have a secure shared network drive created that all computers in the cluster can access with read and write permissions. (See Preparing to Install LiveCycle ES2 (Server Cluster).)
2.2 Installing WebSphere Network Deployment software

You must install WebSphere Application Server Network Deployment software on each node of the cluster to create your WebSphere Deployment Manager and application server instances.

WebSphere Deployment Manager allows you to manage your WebSphere Application Server cluster. You can install WebSphere Application Server Network Deployment on a dedicated administrative computer or on any node in the cluster that has sufficient capacity to install and run the Deployment Manager. (See this WebSphere Application Server site.)

**Note:** Make sure you install WebSphere Application Server 6.1.0 Fixpack 21 (6.1.0.21) with IBM JDK 1.5 SR8 service release or WebSphere Application Server 7.0 Fixpack 5 (7.0.0.5) with IBM JDK 1.6 SR5 service release.

- For information about the fix packs, see Fix list for IBM WebSphere Application Server version 6.1 or Fix list for IBM WebSphere Application Server version 7.0.
- For information about the service releases, see Java SDK 1.5 SR8 Cumulative Fix for WebSphere Application Server or Java SDK 1.6 SR5 Cumulative Fix for WebSphere Application Server.

2.2.1 Modes of installing the WebSphere Network Deployment software

You can install the WebSphere Network Deployment software in one of the following ways:

- Choose **None** on the WebSphere Application Server Environments screen to install the WebSphere Network Deployment Software without creating any profiles. Later, you can create a Deployment Manager or application server profile using the manageprofiles script. See “Creating WebSphere profiles” on page 15.
- Choose **Application server** on the WebSphere Application Server Environments screen to install the WebSphere Network Deployment software along with a single application server profile.
- Choose **Deployment Manager** (WebSphere 6.x) or **Management** (WebSphere 7.x) on the WebSphere Application Server Environments screen to install the WebSphere Network Deployment software along with the Deployment Manager profile.
- Select the **Cell** (Deployment Manager and a Managed Node) option on the WebSphere Application Server Environments screen to install the WebSphere Network Deployment software along with a cell that includes a Deployment Manager and a managed node application server profile. Selecting this option during installation saves the effort of manually creating the profiles later.

For more information about installing WebSphere Application Server software, see this WebSphere Application Server site.

**Note:** While installing the WebSphere Network Deployment software on nodes where you want to host only the application server, choose the **Application server** option on the WebSphere Application Server Environments screen.

**Note:** You can use the manageprofiles script to create Deployment Manager or application server profiles any time after installing WebSphere Network Deployment software in one of the above ways.

2.3 Creating and configuring the WebSphere cluster

Configure your WebSphere Application Server cluster by performing the following tasks:
● Create WebSphere Deployment Manager and WebSphere Application Server profiles. (See “Creating WebSphere profiles” on page 15.)
● Federate the nodes to the Deployment Manager. (See “Federating WebSphere Application Server profiles” on page 18.)
● Create the cluster. (See “Creating the WebSphere cluster” on page 20.)
● Modify the SOAP connection time-out. (See “Modifying the SOAP connection time-out settings” on page 23.)

Creating profiles creates empty nodes that do not contain an administrative console or server. After federating these nodes, use the Deployment Manager to create a cluster of servers that use these nodes.

2.3.1 Creating WebSphere profiles

Once you have installed WebSphere Network Deployment software in one of the ways listed in “Modes of installing the WebSphere Network Deployment software” on page 14, you can create different types of WebSphere profiles. Create WebSphere profiles for your WebSphere Deployment Manager and for your WebSphere Application Server instances.

● For 64-bit WebSphere Application Server, see “Creating WebSphere profiles for 64-bit WebSphere Application Server” on page 15.

If you selected the Cell (Deployment Manager and a Managed Node) option (on the WebSphere Application Server environments screen) when you installed WebSphere Application Server Network Deployment software, the Deployment Manager and managed application server profiles were created automatically for you.

2.3.1.1 Creating WebSphere profiles for 64-bit WebSphere Application Server

Use the WebSphere manageprofiles script (manageprofiles.bat on Windows and manageprofiles.sh on Linux or UNIX) to create profiles on a 64-bit WebSphere Application Server.

Create a Deployment Manager profile on the node that you selected to host the WebSphere Deployment Manager. This profile contains the WebSphere Administrative Console and also hosts the cell to which the nodes of your cluster will be federated.

You must also create profiles for each of the WebSphere Application Server instances that will comprise your cluster.

➤ To create a WebSphere profile with the manageprofiles script:

1. On the computer that you will create the profile for, open a command prompt and navigate to the [appserver root]/bin/ directory.
2. Start the WebSphere Profile Management Tool by entering the following command:
   ● (Windows) manageprofiles.bat
   ● (Linux/UNIX) ./manageprofiles.sh
3. Type a command with the appropriate options to create a profile with the manageprofiles script. For example, type the following text:
   ● (Windows):
Configuring LiveCycle E52 Application Server Clusters Using WebSphere

2.3.2 Configuring WebSphere Application Server if global security is enabled

If your installation uses global security, you must run WebSphere Application Server as a user with the appropriate roles. You can employ one of the following options to configure WebSphere Application Server to run if WebSphere global security is enabled:

- Create a new user with the necessary roles, and run WebSphere Application Server as that user (see “To create a new WebSphere Application Server user (WebSphere 6.1):” on page 17 or “To create a new WebSphere Application Server user (WebSphere 7.0):” on page 17). If a user already exists to run WebSphere Application Server, assign the necessary roles to that user. (see “To configure an existing WebSphere Application Server user:“ on page 17).

Note: You can specify the `nodeName`, `cellName`, and `hostname` by setting the following arguments:
- `nodeName`
- `cellName`
- `hostName`

For more information about parameters that you can use with this command, refer to this article in the WebSphere Application Server documentation.

Note: You can view a list of the allowable options for the `manageprofiles` script by typing `manageprofiles.sh -help -create` from a command line. You should typically specify the following options:

- The template path, which is the path where profile templates reside. The profile path is usually `appserver root/profileTemplates.default`, `cell`, `dmgr`, `managed`, `management`, and `secureproxy` are examples of profile templates.
- The profile path. For more information about the profile path, see “Conventions used in this document” on page 7.
- The profile name. Specify a profile name that readily identifies the WebSphere Application Server that the profile applies to (for example, include the identifier LCES for LiveCycle E52).
- If the profile is the default profile for the WebSphere Application Server. The `isDefault` option specifies that the profile is the default profile. On a cluster that uses Network Deployment, the `dmgr01` profile typically exists as the default profile.

Note: Depending on the option that you select on the WebSphere Application Server Environments screen, you may need to execute `managedprofiles.bat` or `managedprofiles.sh` after installation for creating profiles. For example, if you select None on the WebSphere Application Server Environments screen, you need to execute the appropriate command twice—once for the Deployment Manager and then for the application server node.
Caution: Ensure that you start WebSphere Application Server as this user. Some WebSphere processes may fail if you start WebSphere Application Server as a different user while global security is enabled.

In a secure environment, it is recommended that you employ this option.

- Configure the EVERYONE group with the necessary roles. (See “To configure the EVERYONE group (WebSphere 6.1 only)” on page 17).

➤ To create a new WebSphere Application Server user (WebSphere 6.1):

1. In the WebSphere Administrative Console navigation tree, click Environment > Naming > CORBA Naming Service Users, and then in the right pane, click Add.

2. In User, type the name of the user that will run WebSphere Application Server, and in Roles, select all the roles (Cos Naming Read, Cos Naming Write, Cos Naming Create, Cos Naming Delete).

3. Click OK or Apply.

4. Click Save directly to master configuration.

➤ To create a new WebSphere Application Server user (WebSphere 7.0):

1. In the WebSphere Administrative Console navigation tree, click Environment > Naming > CORBA Naming Service Users, and then in the right pane, click Add.

2. In Roles, select all the roles.

3. Under Search and Select Users, select the User Realm.

4. In the search box, type the search string and click Search.

Note: To retrieve all users, type an asterisk (*).

5. From the Available text box, select the required users and click the right arrow to add them to the Mapped to role box.

6. Click OK or Apply.

7. Click Save directly to master configuration.

➤ To configure an existing WebSphere Application Server user:

1. In the WebSphere Administrative Console navigation tree, click Environment > Naming > CORBA Naming Service Users, and then in the right pane, select the user.

2. In Roles, select all the roles (Cos Naming Read, Cos Naming Write, Cos Naming Create, Cos Naming Delete).

3. Click OK or Apply.

4. Click Save directly to master configuration.

➤ To configure the EVERYONE group (WebSphere 6.1 only)

1. In the WebSphere Administrative Console navigation tree, click Environment > Naming > CORBA Naming Service Groups.
2. Enable **Select from special subjects**, and then from the Special subjects list, select the **EVERYONE** group.

3. In **Roles**, select **select all the roles (Cos Naming Read, Cos Naming Write, Cos Naming Create, Cos Naming Delete)**.

4. Click **OK** or **Apply**.

5. Click **Save** directly to master configuration.

➤ **To configure the EVERYONE group (WebSphere 7.0 only)**

1. In the WebSphere Administrative Console navigation tree, click **Environment > Naming > CORBA Naming Service Groups**.

2. In **Roles**, select **all the roles**.

3. Enable **Select from special subjects**, and then from the Special subjects list, select the **EVERYONE** group.

**Note:** If the EVERYONE group is already configured, the group will not be shown in the Special subjects list. You only need to assign the required roles to this group if not already done so.

4. Click **OK** or **Apply**.

5. Click **Save** directly to master configuration.

### 2.3.3 Federating WebSphere Application Server profiles

You must now federate individual servers by adding the profiles that you created for each WebSphere Application Server instance into the Deployment Manager profile. (See “Adding profiles” on page 18.)

You can also remove a WebSphere Application Server instance from an existing WebSphere cell by removing its profile from the Deployment Manager profile. (See “Removing and deleting profiles” on page 19.)

#### 2.3.3.1 Adding profiles

Before you add WebSphere Application Server profiles, ensure that the Deployment Manager is running. Also ensure that you can connect to the Deployment Manager from the WebSphere Application Server instance by using the name of the Deployment Manager as well as the IP address.

**Caution:** Before you add WebSphere Application Server profiles, ensure that the system clocks of all WebSphere Application Server instances are synchronized.

➤ **To add a custom profile to the Deployment Manager:**

1. If the Deployment Manager is not running, navigate to the bin directory of the Deployment Manager Profile and run the appropriate script:
   - (Windows) `startManager.bat`
● (Linux, UNIX) 
/startManager.sh

If you installed WebSphere Application Server using the **Cell (deployment manager and a managed node)** option, navigate to the directory `[appserver root]/profiles/<profile_name>/bin` and start the node agent by running the appropriate command:

- (Windows) `startNode.bat`
- (Linux, UNIX) 
/startNode.sh

**Note:** You do not need to execute `startNode.bat` or `startNode.sh` for the application server node profile unless the node is added to the cell. After this node is added to the cell, you can start the node by executing the appropriate `startNode` command. For information on adding nodes to a cell, refer to step 3. Run `startNode.bat` or `startNode.sh` only for the managed node installed with the Deployment Manager.

2. From a command prompt, navigate to the `[profiles root]/<profile name>` directory of the WebSphere Application Server instance you want to add.

3. Run the `addNode` script by using the computer name as a parameter; for example, type this text:
   - (Windows) `addNode.bat [dmgr_host] [dmgr_port]`
   - (UNIX/Linux) 
./addNode.sh [dmgr_host] [dmgr_port]

**Note:** The `dmgr_host` argument is required. All of the other arguments are optional. The default port number is 8879 for the default SOAP port of the deployment manager. For more information, see this article in the WebSphere Application Server documentation.

In addition to federating the node to the cell, `addNode` also starts the node agent process. After the node is federated to a cell, the node agent is started with the `startNode` command, which is also located in the bin directory of the WebSphere Application Server profile. During this process, the node being federated communicates to the Deployment Manager by using port 8879 by default.

It is a good practice to add the node agent as an operating system daemon process in UNIX. You can add the node agent as a service in Windows by using WASService, which is available in the bin directory of the base application server installation.

### 2.3.3.2 Removing and deleting profiles

You can remove a WebSphere Application Server profile from the cell by removing its profile from the WebSphere Deployment Manager. You can execute this task by using either a pair of script files or the Deployment Manager Administrative Console.

**Note:** Removing a profile from the cell only removes the server from the cluster; it does not delete the profile. The profile remains (and can be added back to the cell later, if needed). To completely remove a profile, delete the profile as a separate task.

You can delete profiles that you no longer need on your Deployment Manager and servers.

➤ **To remove a WebSphere Application Server using script files:**

1. If the Deployment Manager is not running, navigate to the bin directory of the Deployment Manager Profile and run the appropriate script:
   - (Windows) `startManager.bat`
   - (Linux, UNIX) 
/startManager.sh
2. On each WebSphere Application Server that you want to remove, navigate to the bin directory of the profile that is running the node agent and run the appropriate `removeNode` script:
   - (Windows) `removeNode.bat`
   - (Linux, UNIX) `./removeNode.sh`

3. Navigate to the bin directory of the Deployment Manager profile and run the appropriate `cleanup` script:
   - (Windows) `cleanupNode.bat <node name> [deploymgr host] [deploymgr port] [options]`
   - (Linux, UNIX) `./cleanupNode.sh <node name> [deploymgr host] [deploymgr port] [options]`

   For more information, refer to this article in the WebSphere Application Server documentation.

➤ To remove a WebSphere Application Server using the Deployment Manager:

1. Verify that the Deployment Manager is running.

2. In a web browser, type the URL to the Deployment Manager; for example, type `http://<servername>:<port>/ibm/console`

   **Note:** By default, the Deployment Manager Administrative Console web application listens on port 9060.

3. In the left pane, select **System Administration** and click **Nodes**.

4. Select the node to remove and click **Remove Node**.

5. To verify that the node is removed, navigate to **System Administration > Nodes** and confirm that the node is not listed.

➤ To delete a profile:

1. Open a command prompt and navigate to the `{appserver root}/bin` directory.

2. Run the following command from the console:
   - (Windows) `manageprofiles.bat -delete -profileName [profileName]`
   - (UNIX/Linux) `./manageprofiles.sh -delete -profileName [profileName]`

   **Note:** The profile directory and log files are not deleted. You must manually delete the profile directory. Any attempt to create a profile by using the same name as the deleted profile without first deleting the directory causes an error.

2.3.4 Creating the WebSphere cluster

You must now create the WebSphere cluster by perform the following tasks:
   - Creating the cluster by using the Deployment Manager.
   - Configuring the distributed environment settings for the cluster.
   - Add ports and host aliases for WebSphere Application Server instances of the cluster.

By default, the WebSphere Administrative Console web application listens on port 9060.
To create a cluster using the Deployment Manager:

1. Log in to the WebSphere Administrative Console of the computer hosting Deployment Manager.

2. In a web browser, enter the URL to the Deployment Manager; for example, type 
   http://<servername>:<port>/ibm/console

   **Note:** By default, the Deployment Manager Administrative Console web application listens on port 9060.

3. (WebSphere 6.x) In the WebSphere Administrative Console navigation tree, click **Servers > Clusters**, and then click **New**.
   
   (WebSphere 7.x) In the WebSphere Administrative Console navigation tree, click **Servers > Clusters > WebSphere application server clusters**, and then click **New**.

4. In the **Enter Basic Cluster Information** box, enter the name of the cluster; for example, type `lc9_cluster`.

5. In the **Member name** box in the right pane, enter a member name. This name is for the first WebSphere Application Server in the cluster.

6. In the **Select Node** list, select the node that this cluster member will reside on.

7. Select **Create the member using an application server template**, select **default** from the list, and then click **Next**.

8. In the **Member Name** box, enter the name of another member to add to the cluster.

9. In the **Select Node** list, select the node that this cluster member will reside on.

10. Select **Generate unique HTTP ports** and click **Add Member**.

11. Repeat steps 8 to 10 to add WebSphere Application Servers to the cluster, entering the new member name.

12. After you add all members, click **Next**.

13. Click **Finish** and then click **Save**.

14. Click **System Administration > Save Changes to Master Repository**, select **Synchronize changes with Nodes**, and then click **Save**.

To configure distributed environment settings for the cluster:

1. In the WebSphere Administrative Console navigation tree, click **System administration > Nodes**, and ensure that the nodes are listed, that their status is **Synchronized**, and that all WebSphere Application Server instances of the cluster are started.

2. (WebSphere 6.x) Click **Servers > Application servers** and, in the right pane, click the server name.

   (WebSphere 7.x) Click **Servers > Server Types > WebSphere application servers** and, in the right pane, click the server name.

3. Click the **Configuration** tab and, under **Container Settings**, click **Session management**.

4. Under Additional Properties, click **Distributed environment settings**.
5. Under General Properties, click None and then OK.
6. Click Save directly to the master configuration.
8. On the next screen, under Additional Properties, click Custom tuning parameters.
9. Select Low (optimize for failover) and then click OK.
10. In the navigation tree, click Servers > Application servers and, in the right pane, click the server name.
12. On the next screen, select Enable Performance Monitoring Infrastructure (PMI).
13. Under Currently Monitored Statistics Set, select Basic and then click OK.
14. Repeat steps 2 to 13 for each server in your cluster.
15. In the Messages box, click Save directly to the master configuration.

➤ To configure WebSphere Application Server ports and aliases:

1. In a web browser, type the URL to the Deployment Manager; for example, type http://<servername>:<port>/ibm/console
   
   Note: By default, the WebSphere Administrative Console listens on port 9060.

2. In the navigation tree, click Servers > Application servers and, in the right pane, click the server name.
3. On the next screen, under Communications, click Ports.
4. In the table, click WC_defaulthost and assign a unique port address for each server in the cluster.
5. Repeat steps 2 to 4 for each server in the cluster.
6. Click Save directly to the master configuration.
7. In the navigation tree, click Environment > Virtual Hosts and, in the right pane, click default_host.
8. Under Additional Properties, click Host Aliases.
9. On the next screen, click New and add the port you assigned for a server in the cluster.
10. In the Host Name box, enter an asterisk (*).
11. Repeat step 9 and 10 for each port that is assigned in step 4.
12. Click OK and then click Save directly to master configuration.
13. (WebSphere 6.x) Restart the server. Click Servers > Application servers and select the check box beside the server name. Click Stop and then click Start.
    (WebSphere 7.x) Restart the server. Click Servers > Server Types > WebSphere application servers, select the check box beside the server name, and then click Restart.
2.3.5 Adding a new node to an existing cluster

Do the following to add a new node to a cluster:

1. Create a WebSphere profile. See “Creating WebSphere profiles” on page 15 for details.

2. Federate the profile you created. See “Federating WebSphere Application Server profiles” on page 18 for details.

3. *(WebSphere 6.x)* Click **Servers > Clusters.**
   *(WebSphere 7.x)* Click **Servers > Clusters > WebSphere application server.**

4. In the right pane, click the name of the cluster to which you want to add a node.

5. Click **Additional Properties > Cluster members** in the right pane.

6. Click **New.**

7. On the Create additional cluster members screen, specify a name for the new member and then select the node that you want to add to the cluster.

8. Click **Add Member** and then click **Next.**

9. Review the summary screen and click **Finish.**

10. Click **Save directly to the master configuration.**

2.3.5.1 Further configuration for the new node

Refer to “Manually Configuring a WebSphere Cluster” on page 48 to complete the following activities for the newly added node:

1. Configuring time-out settings

2. Setting the relevant JVM arguments

Finally, start the newly added node.

2.3.6 Modifying the SOAP connection time-out settings

Modify the SOAP connection time-out settings for each WebSphere Application Server in the cluster.

➤ **To modify SOAP connection time-out settings**

1. *(WebSphere 6.x)* Log in to the WebSphere Administrative Console and, in the navigation tree, click **Servers > Clusters.**
   *(WebSphere 7.x)* Log in to the WebSphere Administrative Console and, in the navigation tree, click **Servers > Cluster > WebSphere application server clusters.**

2. In the right pane, stop all clusters.

3. Navigate to \(\textit{appserver root}/\textit{profiles}/\textit{<profile name>}/\textit{properties} \) and open the soap.client.props file in a text editor.
4. Configure the `com.ibm.SOAP.requestTimeout` property to 1800.

5. Save the edited file.

6. Repeat steps 3 to 5 for each server in the cluster.

7. Restart the cluster along the node manager.

### 2.4 Testing the WebSphere Application Server cluster

You can test the WebSphere Application Server cluster to ensure that all members are active and that the cluster operates according to your design. You should ensure that the WebSphere Application Server cluster functions correctly before you proceed to install and configure LiveCycle ES2.

➤ **To test the WebSphere Application Server cluster:**

1. Ensure that all WebSphere Application Server instances of the cluster are started.

2. View the server.log file located in `[/appserver root]/profiles/[profile name]/logs/[application server name]/SystemOut.log`. Messages such as the following one confirm the active members of the cluster:

   ```
   [1/22/08 13:50:09:643 PDT] 00000018 PtpConnectedC I DCSV1031I: DCS Stack DefaultCoreGroup.lc9_cluster at Member LCcell\Node01\Node01Server1: Received a connection from an undefined member LCcell\Node02\Node02Server1. Source address is /11.11.11.11.
   [1/22/08 13:50:09:696 PDT] 0000001f RoleMember I DCSV8051I: DCS Stack DefaultCoreGroup.lc9_cluster at Member LCcell\Node01\Node01Server1: Core group membership set changed. Added: [LCcell\Node02\Node02Server1].
   [1/22/08 13:50:09:704 PDT] 0000001d RecoveryDirec I CWRLS0012I: All persistent services have been directed to perform recovery processing for this WebSphere server (LCcell\Node01\Node01Server1).
   [1/22/08 13:50:09:712 PDT] 00000018 MbuRmmAdapter I DCSV1032I: DCS Stack DefaultCoreGroup.lc9_cluster at Member LCcell\Node01\Node01Server1: Connected a defined member LCcell\Node02\Node02Server1.
   [1/22/08 13:50:26:764 PDT] 0000001f RoleMergeLead I DCSV8054I: DCS Stack DefaultCoreGroup.lc9_cluster at Member LCcell\Node01\Node01Server1: View change in process.
   [1/22/08 13:50:26:764 PDT] 00000018 VSyncAlgo1 I DCSV2004I: DCS Stack DefaultCoreGroup.lc9_cluster at Member LCcell\Node01\Node01Server1: View synchronization completed successfully. The View Identifier is (1:0.LCcell\Node01\Node01Server1). The internal details are None.
   ```

### 2.5 Next steps

You must now install the LiveCycle ES2 solution component files. (See “Installing the LiveCycle ES2 Modules” on page 25.)
This section describes the first phase of setting up a LiveCycle ES2 system that is running the LiveCycle ES2 installation program on Windows, AIX, Linux, and Solaris. A subsequent phase will include running LiveCycle Configuration Manager to configure and deploy LiveCycle ES2.

Before you install the modules, ensure that your environment includes the software and hardware that is required to run LiveCycle ES2. You should also understand the installation options and have the environment prepared as required. (See "Preparing to Install LiveCycle ES2 (Server Cluster)."

LiveCycle ES2 also provides a command line interface (CLI) for the installation program. See “Appendix - Install Command Line Interface” on page 114 for instructions on using the CLI. There is also a CLI for LiveCycle Configuration Manager. See “Appendix - LCM Command Line Interface” on page 118. These CLIs are intended to be used by advanced users of LiveCycle ES2 or in server environments that do not support the use of the graphical user interface of the installation program or of LiveCycle Configuration Manager.

This chapter covers the following topics:

- “Checking the installer” on page 25
- “Installing the product files” on page 26
- “Viewing the error log” on page 29
- “Configuring the caching locators (caching using TCP only)” on page 29
- “Configuring the font directories” on page 32

3.1 Checking the installer

Observe the following best practices with the installer files before you begin the installation process.

➤ Check the DVD installation media:

Ensure that the installation media that you received is not damaged. If you copy the installer media contents to the hard disk of your computer where you are installing LiveCycle ES2, ensure that you copy the entire DVD contents on to the hard disk. To avoid installation errors, do not copy the DVD install image to a directory path that exceeds the Windows maximum path length limit. Also, do not use special characters such as the number sign character (#) in the local path. If you use special characters in the local path, the appropriate license information may not be displayed during installation.

➤ Check the downloaded files:

If you downloaded the installer from the Adobe web site, verify the integrity of the installer file using the MD5 checksum. Do one of the following to calculate and compare the MD5 checksum of the downloaded file with the checksum published on the Adobe download web page:

- **Linux:** Use the `md5sum` command.
- **Solaris:** Use the `digest` command in Solaris.
- **Windows:** Use a tool such as WinMD5.
Expanding the downloaded archive files:

If you downloaded the ESD from the Adobe web site, extract the entire `{appserver}_DVD.zip` (Windows) or `{appserver}_DVD_unix.tar.gz` (AIX, Linux, or Solaris) archive file to your computer. For Solaris, use `gunzip` to extract the `.gz` file.

**Note:** Be sure to keep the directory hierarchy unchanged from the original ESD file.

3.2 Installing the product files

To successfully install, you need read and write permissions for the installation directory. The following installation directories are the defaults; however, you can specify a different directory as required:

- (Windows) `C:\Adobe\Adobe LiveCycle ES2`
- (AIX, Linux, or Solaris) `/opt/adobe/adobe_livecycle_es2`

If the LiveCycle ES2 installation path contains international characters and the UTF-8 locale is not set on the system, LiveCycle ES2 does not recognize the fonts installation directory within the internationalized `{LiveCycleES2 root}`. To avoid this issue, create a new fonts directory with the UTF-8 locale set and then run the LiveCycle Configuration Manager with UTF-8 locale, by adding the `-Dfile.encoding=utf8` argument in the `ConfigurationManager.bat` or `ConfigurationManager.sh` script.

**Caution:** When installing LiveCycle ES2, do not use double byte or extended latin characters (such as àâçéèêëîïôùûÄÖßÜ€) in the installation path.

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 text 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 meets the minimum requirements as outlined in [Preparing to Install LiveCycle ES2 (Server Cluster)](Preparing to Install LiveCycle ES2 (Server Cluster)). The temporary directory is one of the following locations:

- (Windows) `TMP` or `TEMP` path as set in the environment variables
- (AIX, Linux, or Solaris) Logged-in user's home directory

On UNIX-like systems, a non-root user can use the following directory as the temporary directory:

- (Solaris) `/var/tmp`
- (AIX) `/tmp`

When you are installing the modules on UNIX-like systems, you must be logged in as the root user to successfully install the modules to the default location, which is `/opt/adobe/adobe_livecycle_es2`. If you are logged in as a non-root user, change the installation directory to one that you have permissions (read-write-execute privileges) for. For example, you can change the directory to `/home/username/adobe_livecycle_es2`.

On Windows, you must have administrator privileges to install LiveCycle ES2. When you run the LiveCycle ES2 installer, you should run it as the same user that installed WebSphere Application Server.
Temporary files are generated in the system default temp directory or in the directory that you specified. In certain instances, the generated temporary files may remain after the installer is closed. You can remove these files manually.

On Windows, improve the speed of installation by disabling any on-access virus scanning software during installation.

### 3.2.1 Installing on a Windows staging platform for Linux or UNIX

LiveCycle ES2 can be installed and configured on Windows for deployment on a Linux or UNIX platform. You can use this functionality for installing on a locked-down Linux or UNIX environment. For example, a locked-down environment does not have a graphical user interface installed.

When you run the installation program on Windows, you can choose a Linux or UNIX operating system as the target platform for deploying LiveCycle ES2. The installation program installs binaries for AIX, Linux, or Solaris that are also used by LiveCycle Configuration Manager when you configure the product.

The computer running Windows can then be used as a staging location for the deployable objects, which can be copied to a Linux or UNIX computer for deployment to the application server. The application server that you are targeting must be consistent with what you choose during installation and configuration, regardless of the operating system.

### 3.2.2 Configuring the JAVA_HOME environment variable

The JAVA_HOME environment variable must point to the Java SDK for your application server as outlined in the Supported Software table in *Preparing to Install LiveCycle ES2 (Server Cluster)*.

### 3.2.3 Installing LiveCycle ES2

This section covers the initial installation of LiveCycle ES2 product files. For information about configuration and deployment, see “Configuring LiveCycle ES2 for Deployment” on page 33.

**Note:** To avoid permission issues during deployment, ensure that you run the LiveCycle ES2 installer and LiveCycle Configuration Manager as the same user who will run the application server.

*➤* **Install LiveCycle ES2:**

1. Ensure that the `JAVA_HOME` environment variable points to `/appserver root!/java/`.

2. Start the installation program:
   - (Windows) Do one of the following:
     - Navigate to the `livecycle_server` directory on the installation media or the folder in your hard disk, and launch the `run_windows_installer.bat` file. This batch file launches the appropriate installer (32-bit or 64-bit), depending on the Windows version.
     - Navigate to the appropriate directory on the installation media or folder on your hard disk where you copied the installer, and double-click the `install.exe` file.
       - (Windows 32-bit) `\livecycle_server\9.0\Disk1\InstData\Windows\VM`
       - (Windows 64-bit) `\livecycle_server\9.0\Disk1\InstData\Windows_64bit\VM`

**Note:** LiveCycle ES2 installations for WebSphere are not supported on 32-bit operating systems. It is recommended that you do not proceed with the installation.
(AIX, Linux, Solaris) Navigate to the appropriate directory, and from a command prompt, type .\install.bin.

(AIX) /livecycle_server/9.0/Disk1/InstData/AIX/VM
(VM)

(Linux) /livecycle_server/9.0/Disk1/InstData/Linux/NoVM

(Solaris) /livecycle_server/9.0/Disk1/InstData/Solaris/NoVM

Note: If you are installing on UNIX or Linux and you are not installing directly from a release DVD, set executable permissions on the installation file.

3. When prompted, select the language for the installation to use and click OK.


5. If you have a previous version of LiveCycle ES (8.x) installed on the computer where you are running the installer, the Preparation for Upgrade screen appears. You can choose to prepare for an upgrade to LiveCycle ES2 or perform a new installation of LiveCycle ES2. Select Next to continue installing LiveCycle ES2.

- Prepare to upgrade existing installation to LiveCycle ES2 v9.0: Installation program prepares the data from your existing LiveCycle ES (8.x) installation for an upgrade to LiveCycle ES2. If you select this option, update your module license in LiveCycle Administration Console after the installation.

6. Install LiveCycle ES2 v9.0: Installation program installs LiveCycle ES2. On the Choose Installation Folder screen, accept the default directory as listed or click Choose and navigate to the directory where you intend to install LiveCycle ES2, and then click Next.

If you type the name of a directory that does not exist, it is created for you.

Caution: 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 module.

7. (Windows only and when Manual installation is selected) On the Manual Installation Options screen, select the target deployment option and click Next:

- Windows (Local): Select this option if you are installing and deploying LiveCycle ES2 on the local server.

- Staged (Installed on Windows targeting remote systems): Select this option if you plan to use Windows as a staging platform for your deployment and then select the target operating system on the remote server. You can select a UNIX operating system as the target for deployment even if you are installing on Windows. (See “Installing on a Windows staging platform for Linux or UNIX” on page 27.)

Note: adobe-livecycle-weblogic.ear and adobe-contentservices.ear files fail to deploy on a remote machine if secured datasources are used with WebLogic. For more information, see TechNote

8. Read the LiveCycle ES2 Server License Agreement, select I Accept to accept the terms of the license agreement and then click Next. If you do not accept the license agreement, you cannot continue.

9. On the Pre-Installation Summary screen, review the details and click Install. The installation program displays the progress of the installation.

10. Review the Release Notes information and click Next.

12. The **Start LiveCycle Configuration Manager** checkbox is selected by default. Click **Done** to run the LiveCycle Configuration Manager.

**Note:** To run LiveCycle Configuration Manager later, deselect the **Start LiveCycle Configuration Manager** option before you click **Done**. You can start LiveCycle Configuration Manager later using the appropriate script in the \[LiveCycleES2 root\]/configurationManager/bin directory. See “Configuring LiveCycle ES2 for Deployment” on page 33.

**Note:** *(Windows only)* Make sure that LiveCycle Configuration Manager is running using appropriate JDK. WebSphere installations typically use the IBM JDK. If your WebSphere installation does not use the IBM JDK, re-launch LiveCycle Configuration Manager using the \[LiveCycleES2 root\]/configurationManager/bin/ConfigurationManager.bat script. Do not use \[LiveCycleES2 root\]/configurationManager/bin/ConfigurationManager.exe.

**Note:** *(PDF Generator ES2 or PDF Generator 3D ES2 for Windows only)* If Acrobat 9.2 is not installed on all nodes in the cluster, install it now. Then complete the steps in “Configuring Acrobat Professional” on page 77.

3.3 **Viewing the error log**

If errors occur during the installation, the installation program creates the Adobe_LiveCycle_ES2_InstallLog.log file, which contains the error messages. This log file is created in the \[LiveCycleES2_root\]/log directory.

3.4 **Configuring the caching locators (caching using TCP only)**

If you implement caching for your LiveCycle ES2 cluster by using TCP, configure the TCP locators to find other members of the LiveCycle ES2 cluster.

**Note:** This section does not apply if you implement caching for your LiveCycle ES2 cluster by using UDP. (See “Modifying the JVM properties” on page 49 to configure caching for your LiveCycle ES2 cluster using UDP.)

Do the following to enable LiveCycle ES2 cluster caching using TCP:

- Ensure that the TCP locators are installed and configured. TCP locators are installed in the \[LiveCycle ES2 root\]/lib/caching directory, with a default configuration, when you install LiveCycle ES2. You can change the default configuration. (See “Modifying the TCP locators” on page 29.)

- Configure each node in the LiveCycle ES2 cluster to use the locators. (See “Modifying the JVM properties” on page 49.)

- Ensure that the TCP locators are running. (See “Starting the TCP locators” on page 31.)

3.4.1 **Modifying the TCP locators**

The LiveCycle ES2 installer creates a default configuration of the TCP locators that is ready to use without modification. You can move the locators to any computer on your network and run them on that computer. The locators do not have to reside on a computer that is a member of the LiveCycle ES2 cluster. You can also create additional failover locators to support high availability in your cluster.

You can also modify the TCP locators to use a port other than the default port (22345).
To install the TCP locators:

1. Log on to the computer where you installed LiveCycle ES2 and navigate to the [LiveCycle ES2 root]/lib/caching directory.

2. Copy the caching directory and its contents to the computer on which you want to run the locators.

To modify the default locator port (Windows):

1. Open the startlocator.bat file in a text editor. The startlocator file for a default installation is on the computer where you installed LiveCycle ES2, in the [LiveCycle ES2 root]/lib/caching directory.

2. Change the default port number (22345) to your preferred port number in the following properties:
   
   ```
   set port=22345
   ```

   The port number can be any available port between 1 and 65535.

   Caution: Ensure that the port number that is configured here matches the port number that is configured in the JVM argument of each node of the LiveCycle ES2 cluster. (See “Modifying the JVM properties” on page 49.)

3. (Computers with multiple network cards only) If the computer hosting the locator has multiple network cards, set the following properties in the script:
   
   ```
   set bindaddr=<bind IP address>
   ```

   Where `<bind IP address>` is the IP address that the locator will listen on. You must specify the `<bind IP address>` for the JVM argument adobe.cache.cluster-locators on each node in your LiveCycle ES2 cluster.

   See “Modifying the JVM properties” on page 49.

   Note: If you do not specify the bind address and the bind port in the startlocator script, you will be prompted to input these values when you execute the script. However, for IPv6, you must specify the bind address and the bind port in the startlocator script itself.

4. Save the edited file.

5. Repeat steps 1 to 4 on any additional locators for your LiveCycle ES2 cluster.

To modify the default locator port (UNIX):

1. Open the startlocator.sh file in a text editor. The startlocator file for a default installation is located on the computer where you installed LiveCycle ES2, in the [LiveCycle ES2 root]/lib/caching directory.

2. Change the default port number (22345) to your preferred port number in the following properties:
   
   ```
   GF_PORT=22345
   ```

   The port number can be any available port between 1 and 65535.

   Caution: Ensure that the port number that is configured here matches the port number that is configured in the JVM argument of each node of the LiveCycle ES2 cluster.

   See “Modifying the JVM properties” on page 49.

3. (Computers with multiple network cards only) If the computer hosting the locators has multiple network cards, modify the following argument:
GF_BIND_ADDRESS="<bind IP address>"

Where <bind IP address> is the IP address that the locator will listen on. You must specify the <bind IP address> for the JVM argument adobe.cache.cluster-locators on each node in your LiveCycle ES2 cluster.

See "Modifying the JVM properties" on page 49.

**Note:** For IPv6, it is recommended that you specify the bind address and the bind port in the `startlocator` script itself.

4. Save the edited file.

5. Repeat steps 1 to 4 on any additional locators for your LiveCycle ES2 cluster.

### 3.4.2 Starting the TCP locators

You must start the TCP locators before you start your cluster. If the TCP locators are not running when you start the members of the LiveCycle ES2 cluster, caching will not function.

➤ **To start the TCP locators:**

1. On the computer where the TCP locators are installed, navigate to the caching directory. For a default installation, the TCP locators are installed on the computer where you installed LiveCycle ES2, in the \[LiveCycle ES2 root\]/lib/caching directory.

2. *(IPv6 only)* Modify `startlocator.bat` (Windows) or `startlocator.sh` (UNIX) and add the following JVM arguments:
   
   ```
   -Djava.net.preferIPv6Stack=true
   -Djava.net.preferIPv6Addresses=true
   ```

3. Run the appropriate file:
   
   - (Windows) `startlocator.bat`
   - (UNIX) `startlocator.sh`

4. Repeat steps 1 to 3 on any additional locators for your LiveCycle ES2 cluster.

➤ **To stop the TCP locators:**

1. On the computer where the TCP locators are installed, navigate to the caching directory. For a default installation, the TCP locators are installed on the computer where you installed LiveCycle ES2, in the \[LiveCycle ES2 root\]/lib/caching directory.

2. Run the appropriate file:
   
   - (Windows) `stoplocator.bat`
   - (UNIX) `stoplocator.sh`

3. Repeat steps 1 to 3 on any additional locators for your LiveCycle ES2 cluster.

**Note:** If you are not using the default values in the `startlocator` script and mentioned specific IP address and port values, specify the same values in the `stoplocator` script. Otherwise, the `stoplocator` script may fail to stop the locators.
3.5 Configuring the font directories

You must configure the font directories for each node in the cluster, including the LiveCycle ES2 fonts that are installed in the [LiveCycleES2 root]\fonts directory.

The fonts must exist in the same path on each node, and the directory must have identical contents on all nodes in the cluster. To ensure this, use one of the following options:

- Use a shared directory that all nodes in the cluster can access.
- Copy the [LiveCycle ES2 root]\fonts directory to each node in the cluster in an identical path.

Record the location where you create these shared directories for later use when you configure LiveCycle ES2 using LiveCycle Configuration Manager.

**Caution:** The font directories must be distinct from the GDS directory. However, they may be distinct sibling subdirectories of a single shared parent directory.

3.6 Next steps

*New for 9.5*

You must now configure LiveCycle ES2 for deployment. (See “Configuring LiveCycle ES2 for Deployment” on page 33.) You may choose to configure LiveCycle ES2 later if you plan to install LiveCycle ES2.5 Solution Accelerators. In that case, you are required to first apply LiveCycle ES2 service pack 2 or later and install LiveCycle ES2.5 Solution Accelerators.

For more information about installing Solution Accelerators, see Installing and Deploying LiveCycle ES2.5 Solution Accelerators.
4 Configuring LiveCycle ES2 for Deployment

This chapter describes how to perform the following tasks:

- Configure LiveCycle ES2 modules in EAR files for deploying to the application server
- Configure application server properties to support LiveCycle ES2
- Validate application server configuration
- Deploy LiveCycle ES2 EAR files
- Initialize the LiveCycle ES2 database
- Deploy LiveCycle ES2 components
- Configure LiveCycle ES2 components
- Validate the LiveCycle ES2 component deployment
- (Optional) Configure the LiveCycle ES2 Connectors for ECM, Reader Extensions ES2, PDF Generator ES2, and PDF Generator 3D ES2 modules

Note: (Optional) LiveCycle Configuration Manager does not support configuration, deployment and database initialization for LiveCycle Business Activity Monitoring ES2 on manual installation option. See "Configuring LiveCycle Business Activity Monitoring ES2" in the single server install guide for your application server if you want to install BAM.

- (Optional) Import the LiveCycle ES2 samples into LiveCycle ES2

4.1 About LiveCycle Configuration Manager

LiveCycle Configuration Manager is a wizard-like tool used to configure, deploy, and validate LiveCycle ES2 components for deployment to the application server. You can optionally use LiveCycle Configuration Manager to configure the application server and deploy the product EAR files to the application server.

LiveCycle Configuration Manager is installed with the module files when you run the LiveCycle ES2 installation program. When you run LiveCycle Configuration Manager, you specify the LiveCycle ES2 modules you are configuring, and the tasks that you want LiveCycle Configuration Manager to perform.

You can start LiveCycle Configuration Manager from the installation program or any time after the installation. If you plan to use LiveCycle Configuration Manager to configure the application server or deploy to the application server, the application server must be started.

You can configure an application server that is installed on a different computer. However, an application server must also be installed (but does not have to be running) on the computer that is running LiveCycle Configuration Manager so that LiveCycle Configuration Manager can use the application server library files.

4.2.1 Running Configuration Manager in a distributed environment

If you are installing in a distributed environment to a secured server, you will encounter SSL handshake exceptions when running LiveCycle Configuration Manager. To avoid this error, run the following executable file before running LiveCycle Configuration Manager: [appserver root]/bin/retrieveSigners.bat.
The retrieveSigners utility retrieves the certificates from the WebSphere Deployment Manager server and adds them to the local server’s trust store. See the article "Retrieving signers using the retrieveSigners utility at the client" available from the IBM Information Center.

4.3.2 CLI versus GUI versions of LiveCycle Configuration Manager

This section describes the GUI version of LiveCycle Configuration Manager. For instructions about using the command line interface (CLI) version of LiveCycle Configuration Manager, see “Appendix - LCM Command Line Interface” on page 118.

You can configure LiveCycle using LCM in GUI, CLI, and manual modes. The following table summarizes the configuration steps and their corresponding valid modes (GUI, CLI, or manual).

<table>
<thead>
<tr>
<th>LiveCycle ES2 configuration task</th>
<th>LCM GUI</th>
<th>LCM CLI</th>
<th>Manual (Non-LCM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configure LiveCycle ES2</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Configure application server</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Validate application server configuration</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Deploy LiveCycle ES2 EARs</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Initialize LiveCycle ES2 database</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Initialize Business Activity Monitoring ES2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Validate LiveCycle ES2 server connection</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Deploy LiveCycle ES2 components</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Validate LiveCycle ES2 component deployment</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Configure LiveCycle components (Includes the following tasks)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>● Configure ECM connectors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Configure PDF Generator ES2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Configure Reader Extensions ES2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Import Samples</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

4.4 Determining the application server SOAP port

On some LiveCycle Configuration Manager screens, you must provide the SOAP port of the application server. Use the steps in this topic to determine which port is used for SOAP connections with the application server. The default port is 8880.

➤ To determine the SOAP port on a WebSphere application server instance:

1. In the navigation panel of the WebSphere Administrative Console, do the following:
   - (WebSphere 6.1) Click Servers > Applications Servers > [servername] > Communications > Ports.
4.5 Configuring and deploying LiveCycle ES2

When you run LiveCycle Configuration Manager, you can select the tasks that you want the program to perform automatically.

**Note:** Using LiveCycle Configuration Manager to deploy LiveCycle ES2 modules to remote servers is supported only for managed application servers, not for stand-alone application servers.

**Tip:** LiveCycle Configuration Manager verifies the values that are specified on each screen when you click Next. If it cannot validate a value, a warning message appears, the property on the screen becomes red, and you cannot proceed until you enter a valid value.

**Tip:** If you are running LiveCycle Configuration Manager again after an earlier run, parameters that are already configured are shown as non-editable. Click Edit configurations to make these fields editable and make changes.

After LiveCycle Configuration Manager configures the LiveCycle ES2 EAR files, it places the following files in the \( \text{[LiveCycleES2 root]} / \text{configurationManager/export} \) directory:

- adobe-livecycle-native-websphere-\( \text{[OS]} \).ear
- adobe-livecycle-websphere.ear
- adobe-workspace-client.ear (if you installed LiveCycle Process Management ES2)
- and adobe-contentservices.ear (if you installed LiveCycle Content Services ES2)

If you use LiveCycle Configuration Manager to deploy the EAR files, LiveCycle Configuration Manager accesses these files and deploys them to the application server. When you manually deploy the LiveCycle ES2 EAR files, you can access the files in this directory and deploy them to the application server.

**Note:** On localized Windows with WebSphere, you must perform additional steps described in the Troubleshooting LiveCycle ES2 guide.
After LiveCycle Configuration Manager configures the LiveCycle ES2 EAR files, you may rename the EAR files to a custom file name (for example, to specify in the file name a version identifier, or any other information required by standard practices in the local JDK environment).

LiveCycle Configuration Manager does not support deployment or undeployment of EAR files with custom file names. If your EAR files use a custom file name, you must manually deploy and undeploy them to the application server (for example, when you deploy the initial custom-named EAR files, and when applying any later changes such as service packs or patches).

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

**Tip:** You can override the font while selecting or browsing to a directory or file name on a LiveCycle Configuration Manager screen. Add the following JVM argument to `ConfigurationManager.bat` (Windows) or `ConfigurationManager.sh` (Linux, UNIX):

```
-Dlcm.font.override=<FONT_FAMILY _NAME>
```

For example, `-Dlcm.font.override=SansSerif`.

➤ **Configure using LiveCycle Configuration Manager:**

**Tip:** You can press `F1` in LiveCycle Configuration Manager to view Help information for the screen you are viewing. This Help contains details that may not be included in this document and are specific to the context of each screen in LiveCycle Configuration Manager.

**Tip:** If you are running LiveCycle Configuration Manager again after an earlier run, parameters that are already configured are shown as non-editable. Click **Edit configurations** to make these fields editable and make changes.

**Note:** You cannot configure settings for IPv6-based clusters using LiveCycle Configuration Manager.

1. If you did not start LiveCycle Configuration Manager automatically from the installation program, navigate to the `[LiveCycleES2 root]/configurationManager/bin` directory and enter the appropriate command:
   - (Windows) `ConfigurationManager.bat`
   - (Non-Windows) `/ConfigurationManager.sh`

2. If prompted, select a language and click **OK**.

3. On the Welcome screen, click **Next**.

4. On the Upgrade task selection screen, ensure that no options are selected, then click **Next** to continue.

**Caution:** If you want to upgrade an existing LiveCycle ES installation, do not continue this procedure. For upgrade information and procedures, see the [Preparing to Upgrade to LiveCycle ES2 from 8.x](#) guide applicable to your current version of LiveCycle ES2 and the [Upgrading to LiveCycle ES2](#) guide applicable to your application server.

5. On the Module Selection screen, select the LiveCycle ES2 modules and then click **Next**.

6. On the Task Selection screen, select all the tasks you want to perform and click **Next**.

   If you do not plan to configure the application server and deploy LiveCycle ES2 automatically by using LiveCycle Configuration Manager, do not select the **Configure application server, Validate**...
application server configuration, and Deploy LiveCycle ES2 EARs tasks. However, you must manually configure the application server by completing the steps provided in “Manually Configuring a WebSphere Cluster” on page 48.

**Caution:** Do not select the Configure application server option if you previously configured your application server cluster manually. Selecting this option for a manually configured application server cluster can cause LiveCycle ES2 errors or failure.

7. On the Configure LiveCycle ES2 (1 of 5) screen, click **Configure**. Click **Next** when done.

8. On the Configure LiveCycle ES2 (2 of 5) screen, click **Next** to accept the default directory locations, or customize the directories that LiveCycle ES2 will use to access fonts, and then click **Next**.
   - (Optional) To change the default location of the Adobe server fonts directory, type the path or browse to the directory.
   - (Optional) Specify a directory for the Customer fonts directory. The directory contains any additional fonts that you have licensed and installed.

**Note:** It is recommended that you have local server fonts and customer fonts directories at the same path on each node in the cluster. Having shared fonts directories instead of local fonts directories may cause performance issues.

   - (Optional) To change the default location of the System fonts directory, type the path or browse to the directory.
   - (Optional) To enable FIPS, ensure that Enable FIPS is selected. Select this option only if you require the Federal Information Processing Standards (FIPS) to be enforced.

9. Click **Browse** on the Configure LiveCycle ES2 (3 of 5) screen to specify the **Location of the temporary directory**.

   **(UNIX only)** If a non-root user is running the application server, the user must have full permissions on the specified temporary directory.

   **Note:** If you do not create the temporary directory, the default system-configured location is used.

   For more information about creating a temporary directory in cluster environment, see **Preparing to Install LiveCycle ES2 (Server Cluster)**.

   **Caution:** Future upgrades might fail if you specify a shared network directory as the temporary directory.

10. On the Configure LiveCycle ES2 (4 of 5) screen, add the location of the GDS directory path by typing the specific location of the GDS directory or clicking **Browse** to navigate to the location of the GDS directory.

    For clusters, specify a shared GDS directory path accessible to all nodes in the cluster. You can map a shared network location to a Windows drive. You can then use the mapped drive as a root directory for GDS.

    If you leave the GDS directory field empty, LiveCycle ES2 will create the directory in a default location in the application server directory tree. The location will be viewable after configuration by clicking LiveCycle Administration Console > Core settings.

    **Note:** You must specify the location of the global document storage directory you established previously (see the **Preparing to Install to LiveCycle ES2 (Server Cluster)** guide).
11. On the Configure Persistent Document Storage (5 of 5) screen, select the option for persistent document storage in addition to the GDS directory. Select one of the following:

- **Use GDS**: Use the file system-based GDS for all persistent document storage. This option provides the best performance, and a single location for GDS.

- **Use database**: Use the LiveCycle ES2 database for storing the persistent documents and long-lived artifacts. However, the file-system based GDS is also required for storing short-lived artifacts.

**Note**: When choosing the database option, no sensitive data is persisted to the file-system based GDS, therefore eliminating the need for back-up if LiveCycle is moved to another server. Using the database simplifies backup and restore procedures.

12. Click **Configure** to configure the LiveCycle ES2 EARs with this directory information and, after the configuration is complete, click **Next**.

13. **(Content Services ES2 only)** On the LiveCycle Content Services ES2 Configuration screen, set the following parameters that Content Services ES2 will use, and click **Next**.

- **Deploy Type**: Select **Single Server** or **Cluster**.

- **Index Root Directory**: Specify the indexes directory that is used by Content Services ES2. This directory is unique for each cluster node and must have the same name and location on all nodes.

- **Content storage root directory**: Specify the root directory that is used by Content Services ES2. The content storage root directory should be a location shared by all instances in the cluster.

- **WebSphere Shared Library Location (myfaces libs)**: Specify the folder in which LiveCycle Configuration Manager will add the myfaces jar files required for Content Services ES2. By default, a directory, `myfaces1_1` is created under `[LiveCycleES2 root]\lib` on the machine running LiveCycle Configuration Manager. The location of `myfaces libs` can either be shared among nodes or be local to each node. In the latter case, this location should be at the exact same path for all the nodes. Further, you need to manually replicate the contents of this directory from a node running LiveCycle Configuration Manager to corresponding locations on nodes where you don’t plan to run LiveCycle Configuration Manager.

**Note**: Run LiveCycle Configuration Manager with the UTF-8 locale if you want to specify a content storage root directory having international characters.

- **(Optional) Enable CIFS**: Select this option to allow Windows-based clients to access files from the server that runs LiveCycle ES2 using the Common Internet File System (CIFS) protocol. Click **Next** to specify the following details:

  - **CIFS Server Name**: Specify the name through which the Content Services ES2 Repository will be accessible. By default, LiveCycle Configuration Manager populates the server name of the LiveCycle ES2 server with ‘a’ attached to it. For example, if the LiveCycle ES2 server name is `lcserver`, the CIFS Server name will be populated as `lcservera`. You must ensure that the CIFS server name that you specify is unique within the network.

  - **Choose the CIFS Server Implementation**: Select the type of CIFS implementation supported on the server as one of the following:

    - **JAVA (Socket Based)**: Specify the alternate IP address assigned to the CIFS Server, and how the server name will be resolved in the local domain. For example, if the primary IP is 10.40.68.142,
assign 10.40.68.143 as the alternate IP. Ensure that this IP is not allocated to any other machine on the network.

**Windows Native (DLL Based):** Click **Browse** to select the path (usually, C:\Windows\system32) to where LiveCycle Configuration Manager will copy the DLL files. This step should be performed manually for the cluster nodes on which you do not plan to run LiveCycle Configuration Manager.

The path where DLL files will be copied must be specified in the system PATH environment variable. For example, for Windows Server 2003 and 2008, the system PATH must include C:\Windows\system32.

- **Use WINS Server or Broadcast to resolve Local Domain:** Select the method used to resolve the local domain:
  - **Broadcast:** Specify the broadcast address (subnet mask) of the network segment in the local domain. For example, 10.40.91.255. In Broadcast mode, the CIFS server and clients must be in the same subnet.
  - **WINS Server:** Specify the IP addresses of the primary and secondary WINS servers. For example, 10.40.4.248. If WINS server is selected, the clients can reside in any subnet in the local domain.

**Windows only**

CIFS is not supported on Windows when the application server is running in pure IPv6 mode.

You may have to update your DNS entries with CIFS server name and the virtual IP address assigned so that Windows clients can access the CIFS server by name.

**UNIX only**

For UNIX machines, only Java implementation is supported. For UNIX machines, you must create a virtual interface and assign a virtual IP address that can be used as the alternate IP address for CIFS implementation. This ensures that the UNIX machines can run Samba and CIFS on the same machine, but on two different IP addresses, because both these services use the same ports.

To enable CIFS on an IPv6 implementation of LiveCycle ES2, you must edit the contentservices.war file after the configuration of the EAR files is completed. Update the EAR file and then proceed to the next step in LiveCycle Configuration Manager. See “Enabling CIFS in IPv6 mode” on page 100.

In addition to these steps in LiveCycle Configuration Manager, you must complete other manual configuration steps for Windows Server 2003 and Windows Server 2008. See “Server configuration for enabling CIFS” in the Preparing to Install LiveCycle ES2 (Server Cluster) guide.

14. **(Content Services ES2 only)** On the LiveCycle Content Services ES2 Module Configuration screen, do the following tasks, and then click **Configure** to configure the LiveCycle ES2 EAR files with the Content Services ES2 settings. After the configuration is complete, click **Next**. See Alfresco documentation for more information.

- Select the Alfresco Module Packages (AMP) that you want to include in Content Services ES2. By default, all AMPs that are dependent on the selected LiveCycle ES2 modules are included.
- (Optional) To include your own AMPs, select the **Do you want to package your own AMPs** in Content Services box, and click **Browse** to select the directory where the custom AMPs are available. All AMPs in the selected directory are packaged.

**Note:** If you want to enable SharePoint clients to migrate to Alfresco CMS, you must add the SharePoint AMP: 

[LiveCycleES2 root]\LiveCycle_ES_SDK\misc\ContentServices\adobe-vti-module.amp

After you add this file, follow the steps detailed in “Configuring SharePoint client access” on page 99.
15. *(Windows only)* On the Configure Acrobat for LiveCycle PDF Generator screen, click **Configure** to run the script that will configure Adobe Acrobat and required environment settings. Click **Next** when complete.

This screen appears only when LiveCycle Configuration Manager is running locally on a server computer. You must have Adobe Acrobat already installed or this step will fail.

**Note:** To use OpenOffice.org on Linux or Solaris, set the `Openoffice_PATH` environment variable. Refer to “Setting environment variables” on page 74.

16. On the Configure LiveCycle ES2 Summary screen, click **Next**. Configured archives are placed in the `{LiveCycleES2 root}/configurationManager/export` directory. Ensure that the application server is configured and running.

17. On the Application Server Configuration Details screen, provide the information for the fields (all fields are mandatory) and then click **Verify Server Connection**. When the verification has completed successfully, click **Next**. Press **F1** for details about the required information.

**Note:** If you are using LiveCycle Configuration Manager to configure your application server and you enter the host name as an IP address, you must continue to use the IP address for any related access to the application server.

**Note:** When using WebSphere Network Deployment standalone application server, enter the port number of the deployment manager in the **Admin Port** field.

**Caution:** Ensure that you select **Cluster** in the Deploy Type box.

18. On the Application Server Configuration Selection screen, select the tasks for LiveCycle Configuration Manager to perform, and click **Next**. Press **F1** for details about the required information. You can select one or more of the following tasks. Both tasks are selected by default.

- **Configure Server Settings**
- **Configure Datasource**

If you prefer to configure the application server cluster manually, ensure that the tasks are deselected, then click **Next**.

You must perform the manual configuration tasks described in “Manually Configuring a WebSphere Cluster” on page 48.

19. *(If Configure Server Settings is selected)* On the Server Settings Configuration screen, provide the information for the fields, and then click **Next**. Press **F1** for details about the required information.

If you are configuring your server settings manually, without exiting LiveCycle Configuration Manager, perform the tasks that are described in the section “Configuring the WebSphere Application Server instances” on page 48.

**Note:** The paths for pop3.jar and the JDK must be same on all nodes in the cluster.

20. *(If Configure Datasource option is selected)* On the Datasource Configuration screen, provide the information for the fields and then click **Test Database Connection**. When the connection is tested successfully, click **Next**. Press **F1** for details about the required information.

If you are configuring your data source manually, without exiting LiveCycle Configuration Manager, perform the tasks described in the section “Configuring the LiveCycle ES2 database connectivity” on page 51.
21. On the Application Server Configuration screen, click **Configure**. When the process is completed, click **Next**.

22. On the Application Server Configuration Validation screen, select the tasks for validating and then click **Validate**. When the process is completed, click **Next**.

   **Note:** During this task, the adobe-lcm-lcvalidator.ear file is deployed to the WebSphere Application Server to capture version information.

   **Note:** On localized Windows with WebSphere, you must perform additional steps described in the [Troubleshooting LiveCycle ES2](#) guide.

23. On the LiveCycle ES2 IVS EARs Inclusion Confirmation screen, if applicable, select the option to include the Installation Verification Sample (IVS) EAR files in the deployment set.

24. On the Deploy LiveCycle ES2 EARs screen, select the EAR files to deploy and the virtual host, and then click **Deploy**. This operation may take several minutes to complete. Restart the server if you are prompted to do so. When the deployment has completed successfully, click **Next**.

   **Note:** When LiveCycle Configuration Manager has started the execution of the IBM Websphere® JACL deployment scripts, you cannot stop the deployment even if you exit or cancel LiveCycle Configuration Manager prior to deployment completion. No user action is required because the product EARs will be successfully deployed.

   By default, LiveCycle Configuration Manager deploys the EAR files to the WebSphere default virtual host, **default_host**. To deploy the EAR files to a different virtual host, select the target host from the Virtual Hosts list.

   To connect to the application server using a secure port while running LiveCycle Configuration Manager, do the following tasks:
   
   - Add the crypto.jar file provided by IBM to the LiveCycle Configuration Manager path.
   - Set the following JVM argument to disable hostname verification:
     
     ```
     ssl.disable.url.hostname.verification.CWPKI0027I=CWPKI0027I
     ```

   You can connect to the application server using this workaround only if you are using the default HTTPS port.

25. On the LiveCycle ES2 Database Initialization screen, verify that the host and port information and then click **Initialize**. The database initialization task creates tables in the database, adds default data to the tables, and creates basic roles in the database. When the initialization has completed successfully, click **Next**.

   **Note:** You need to initialize the database against only one server of the cluster. Subsequent steps need to be performed on only this server as well.

26. On the LiveCycle ES2 Server Information screen, in the **Password** box, type **password**. (This password is the default administrator password; it is recommended that you change the password later.)

27. Click **Verify Server Connection**, and when complete, click **Next**.

   **Note:** The server information that appears on this screen represents default values for the deployment.

   Verifying the server connection helps narrow troubleshooting in case failures occur in the deployment or validation. If the connection test passes but deployment or validation fails in the next few steps, connectivity issues can be eliminated from the troubleshooting process.
28. On the Central Migration Bridge Service Deployment Configuration screen, if applicable, select the **Include Central Migration Bridge Service in deployment** option and then click **Next**.

29. On the LiveCycle Component Deployment screen, click **Deploy**. The components that are deployed at this time are Java archive files that plug into the LiveCycle ES2 service container for purposes of deploying, orchestrating, and executing services. Click **View Progress Log** to view the deployment progress and, when the deployment has completed successfully, click **Next**.

30. On the LiveCycle Component Deployment Validation screen, click **Validate**. LiveCycle Configuration Manager validates that the LiveCycle components (Java archive files) are deployed to and running on the LiveCycle ES2 server. Click **View Progress Log** to view the validation progress and, when the validation has completed successfully, click **Next**.

31. On the Configure LiveCycle Components screen, select the tasks to run with LiveCycle Configuration Manager, and click **Next**. Press **F1** for more information.

32. **(If EMC Documentum, IBM FileNet or IBM Content Manager is selected for configuration)** On the LiveCycle Server JNDI Information screen, enter the host name and port number for the JNDI server. Press **F1** for more information.

33. **(Optional - EMC Documentum only)** On the Specify Client for EMC Documentum screen, select **Configure Connector for EMC Documentum Content Server**, and specify the following settings. Enter the details, click **Verify**, and when complete, click **Next** to continue.
   - **Choose EMC Documentum Client Version**: Select the client version to use with the EMC Documentum Content Server.
   - **EMC Documentum Client Installation Directory Path**: Click **Browse** to select the directory path.

34. **(Optional - EMC Documentum only)** On the Specify EMC Documentum Content Server Settings screen, enter the EMC Documentum Server details, and then click **Next**. Press **F1** for more information about the details you need to enter.

35. **(Optional - EMC Documentum only)** On the Configure Adobe LiveCycle ES2 Connector for EMC Documentum screen, click **Configure Documentum Connector**. When completed, click **Next**.

36. **(Optional - IBM Content Manager only)** On the Specify Client for IBM Content Manager screen, select **Configure Client for IBM Content Manager**, and enter a value for the **IBM Content Manager Client Installation Directory Path**. Click **Verify** and when complete, click **Next** to continue.

37. **(Optional - IBM Content Manager only)** On the Specify IBM Content Manager Server Settings screen, enter the details of the IBM Content Manager Server, and click **Next**. Press **F1** for more information.

38. **(Optional - IBM Content Manager only)** On the Configure Adobe LiveCycle ES2 Connector for IBM Content Manager screen, click **Configure IBM Content Manager Connector**. When complete, click **Next**.

39. **(Optional - IBM FileNet only)** On the Specify Client for IBM FileNet screen, select **Configure Client for IBM FileNet Content Manager**, and specify the following settings. Enter the details, click **Verify**, and when complete, click **Next** to continue.
   - **Choose IBM FileNet Client Version**: Select the client version that you want to use with the EMC Documentum Content Server.
   - **IBM FileNet Client Installation Directory Path**: Click **Browse** to select the directory path.
40. **(Optional - IBM FileNet only)** On the Specify IBM FileNet Content Server Settings screen, enter the required details, and click **Next**. Press F1 for more information.

41. **(Optional - IBM FileNet only)** On the Specify Client for IBM FileNet Process Engine screen, enter the required details, and click **Verify**. When complete, click **Next**. Press F1 for more information.

42. **(Optional - IBM FileNet only)** On the Specify IBM FileNet Process Engine Server Settings screen, enter the required details and click **Next**. Press F1 for more information.

43. **(Optional - IBM FileNet only)** On the Configure Adobe LiveCycle ES2 Connector for IBM FileNet screen, click **Configure FileNet Connector**. When complete, click **Next**. Press F1 for more information.

44. **(Optional - LiveCycle ES2 Connector for Microsoft SharePoint only)** On the Adobe LiveCycle ES2 Connector for Microsoft SharePoint screen, enter the following details and click **Configure**. When complete, click **Next**.

**Note:** You can skip this step if you want to configure the SharePoint Connector later using LiveCycle Administration Console.

- **User Name and Password:** Enter the user account details that will be used to connect to the SharePoint server.
- **Host Name:** Enter the host name of the SharePoint server in the format `<hostname>:<port>`. The port number must be of the web application on the SharePoint server.
- **Domain Name:** Enter the domain in which the SharePoint server is present.

45. **(PDF Generator ES2 only)** On the **Administrator user credentials for LiveCycle server machine** screen, enter the user name and password of a user with administrative privileges on the server computer, and then click **Add**.

**Note:** You must add at least one administrative user for Windows 2008 Server. On Windows 2008 Server, User Account Control (UAC) must be disabled for the users you add. To disable UAC, click **Control Panel > User Accounts > Turn User Account Control on or off** and deselect **Use User Account Control (UAC) to help protect your computer**, then click **OK**. Restart the computer to apply these changes.

For Windows Server 2003, Linux, and Solaris, adding a user is not mandatory. Multithreaded conversions are not supported on the AIX platform. Users added on Linux and Solaris platforms must have **sudo** privileges.

For more information, press **F1** on this screen to access the LiveCycle Configuration Manager Help.

46. **(Only for PDF Generator ES2 when LiveCycle Configuration Manager is running locally on a server machine)** On the **LiveCycle PDFGenerator System Readiness Test** screen, click **Start** to validate if the system has been appropriately configured for PDF Generator ES2.

47. **(PDF Generator ES2 only)** Review the System Readiness Tool Report and click **Next**.

48. **(Reader Extensions ES2 only)** On the LiveCycle Reader Extensions ES2 Credential Configuration screen, specify the details that are associated with the Reader Extensions ES2 credential that activates the module services:

- **Credential file:** The path and file name of the Reader Extensions ES2 credential (.pfx or .p12 file type).
- **Credential Password:** The password that is associated with the credential. This password was provided with the credential file.
49. (Optional) On the LiveCycle ES2 Samples Import screen, click Import. When the import has completed successfully, click Next or click Skip LiveCycle Samples Import and then click Next to import the samples at a later time.

**Caution:** Do not import the LiveCycle ES2 Samples in a production employment. These samples create users with default passwords, which may be a security concern for your production environment.

50. On the Summary page, review the tasks performed, and click Next.

51. The Next steps screen displays the URL and login information. Click Finish to exit LiveCycle Configuration Manager.

**Note:** After you configure LiveCycle ES2, complete the post-configuration activities that apply to your solution implementation.

52. Restart each application server instance in your cluster

### 4.6 Uninstalling EAR files

Perform the following procedure if you need to undeploy LiveCycle ES2 modules.

1. Start the application server.


3. In the navigation tree, do the following:
   - (WebSphere 6.1) Click Applications > Enterprise Applications.
   - (WebSphere 7) Click Applications > Application Types > WebSphere enterprise applications.

4. Select the `adobe-livecycle-native-websphere-[OS].ear`, `adobe-livecycle-websphere.ear`, `adobe-contentservices.ear`, and `adobe-workspace-client.ear` applications, and any other installed LiveCycle ES2 applications, and then click Stop.

**Note:** The `adobe-workspace-client.ear` is deployed only with Process Management ES2 and `adobe-contentservices.ear` only with Content Services ES2.
5. Select the adobe-livecycle-native-websphere-[OS].ear, adobe-livecycle-websphere.ear, adobe-contentservices.ear, and adobe-workspace-client.ear applications, and any other installed LiveCycle ES2 applications, and then click **Uninstall**.

6. Click **Save** directly to Master Configuration and then restart WebSphere.

### 4.7 Configuring WebSphere Application Server if global security is enabled

If your installation uses global security, you must run WebSphere Application Server as a user with the appropriate roles. You can employ one of the following options to configure WebSphere Application Server to run if WebSphere global security is enabled:

- Create a new user with the necessary roles, and run WebSphere Application Server as that user (see “To create a new WebSphere Application Server user (WebSphere 6.1):” on page 45 or “To create a new WebSphere Application Server user (WebSphere 7.0):” on page 45). If a user already exists to run WebSphere Application Server, assign the necessary roles to that user. (see “To configure an existing WebSphere Application Server user:” on page 46).

  **Caution:** Ensure that you start WebSphere Application Server as this user. Some WebSphere processes may fail if you start WebSphere Application Server as a different user while global security is enabled.

  In a secure environment, it is recommended that you employ this option.

- Configure the EVERYONE group with the necessary roles. (See “To configure the EVERYONE group (WebSphere 6.1 only)” on page 46).

**➤** To create a new WebSphere Application Server user (WebSphere 6.1):

1. In the WebSphere Administrative Console navigation tree, click **Environment** > **Naming** > **CORBA Naming Service Users**, and then in the right pane, click **Add**.

2. In **User**, type the name of the user that will run WebSphere Application Server, and in **Roles**, select the required roles.

3. Click **OK** or **Apply**.

4. Click **Save** directly to master configuration.

**➤** To create a new WebSphere Application Server user (WebSphere 7.0):

1. In the WebSphere Administrative Console navigation tree, click **Environment** > **Naming** > **CORBA Naming Service Users**, and then in the right pane, click **Add**.

2. In **Roles**, select all the roles.

3. Under Search and Select Users, select the User Realm.

4. In the search box, type the search string and click **Search**.

  **Note:** To retrieve all users, type an asterisk (*).

5. From the Available text box, select the required users and click the right arrow to add them to the Mapped to role box.
6. Click **OK** or **Apply**.

7. Click **Save** directly to master configuration.

➤ **To configure an existing WebSphere Application Server user:**

1. In the WebSphere Administrative Console navigation tree, click **Environment > Naming > CORBA Naming Service Users**, and then in the right pane, select the user.

2. In **Roles**, select the required roles.

3. Click **OK** or **Apply**.

4. Click **Save** directly to master configuration.

➤ **To configure the EVERYONE group (WebSphere 6.1 only)**

1. In the WebSphere Administrative Console navigation tree, click **Environment > Naming > CORBA Naming Service Groups**.

2. Enable **Select from special subjects**, and then from the Special subjects list, select the **EVERYONE** group.

3. In **Roles**, select the required roles.

4. Click **OK** or **Apply**.

5. Click **Save** directly to master configuration.

➤ **To configure the EVERYONE group (WebSphere 7.0 only)**

1. In the WebSphere Administrative Console navigation tree, click **Environment > Naming > CORBA Naming Service Groups**.

2. In **Roles**, select the required roles.

3. Enable **Select from special subjects**, and then from the Special subjects list, select the **EVERYONE** group.

   **Note:** If the EVERYONE group is already configured, the group will not be shown in the Special subjects list. You only need to assign the required roles to this group if not already done so.

4. Click **OK** or **Apply**.

5. Click **Save** directly to master configuration.

### 4.8 Next steps

Now that you have configured and deployed LiveCycle ES2, you can do the following tasks:

- Verify the deployment. (See “Verifying the deployment” on page 70.)

- Access LiveCycle Administration Console. (See “Accessing LiveCycle Administration Console” on page 70.)

- Configure PDF Generator ES2 or PDF Generator 3D ES2. (See “Configuring LiveCycle PDF Generator ES2 or 3D ES2” on page 74.)
● Perform the final setup for Rights Management ES2. (See “Setting watched folder performance parameters” on page 85.)

● Configure LiveCycle ES2 modules to access LDAP. (See “Configuring LiveCycle ES2 to access LDAP” on page 86.)

● Perform watched folder performance-tuning for PDF Generator ES2. (See “Setting watched folder performance parameters” on page 85.)

● Enable FIPS mode. (See “Enabling FIPS mode” on page 88.)

● Enable HTML digital signatures. (See “Configuring HTML digital signature” on page 88.)

● Configuring Connector for EMC Documentum, Connector for IBM Content Manager, or Connector for IBM FileNet. (See “Configuring the Connector for EMC Documentum service” on page 89, “Configuring the Connector for IBM FileNet service” on page 94, or “Configuring the Connector for IBM Content Manager” on page 101.)

● Set environment variables for PDF Generator ES2. (See “Setting environment variables” on page 74.)

● Install and deploy LiveCycle Business Activity Monitoring ES2. See the Installing and Deploying LiveCycle ES2 guide for your application server.

● Uninstall LiveCycle ES2. (See “Uninstalling LiveCycle ES2” on page 105.)
This chapter describes how to manually configure a WebSphere Application Server cluster to prepare for the manual deployment of LiveCycle ES2 in the clustered environment. This chapter applies only if you chose not to configure your WebSphere Application Server cluster automatically. For information about how to automatically configure your application server, see “Configuring LiveCycle ES2 for Deployment” on page 33.

At this point in the installation process, you have already installed LiveCycle ES2 files and run LiveCycle Configuration Manager to configure the LiveCycle ES2 deployable archives. Now, you must perform the following tasks manually:

- Configure the WebSphere Application Servers. (See “Configuring the WebSphere Application Server instances” on page 48.)
- Configure JDBC connectivity. (See “Configuring the LiveCycle ES2 database connectivity” on page 51.)

5.1 Configuring the WebSphere Application Server instances

You must configure the WebSphere Application Server instances that you installed in the cluster by performing the following tasks:

- Modify the WebSphere time-out settings. (See “Modifying the WebSphere time-out settings” on page 48.)
- Modify the JVM properties. (See “Modifying the JVM properties” on page 49.)
- Create a J2C authentication alias for the database. (See “Creating a J2C authentication alias for the database” on page 51.)

5.2.1 Modifying the WebSphere time-out settings

You must modify the WebSphere time-out settings on each WebSphere Application Server in the cluster.

To modify WebSphere time-out settings:

1. In the WebSphere Administrative Console navigation tree, click Servers > Application servers and, in the right pane, click the server name.
2. Under Container Settings, click Container services > Transaction Service.
3. In the Total transaction lifetime timeout box, type 300 and then click OK.
4. Under Container Settings, click Container Services > ORB Service.
5. In the Request timeout box, type 360 and, in the Locate Request Timeout box, type 300, and then click OK.
7. On the next screen, click JMX Connectors and, in the table, click SOAPConnector.
8. On the next screen, click **Custom properties** and, in the table, click **requestTimeout**.

9. In the Value box, type **1800**.

10. Click **OK** and then click **Save directly to the master configuration**.

### 5.3.2 Modifying the JVM properties

You must modify the Java Virtual Machine (JVM) properties of each WebSphere Application Server instance in the LiveCycle ES2 cluster to add LiveCycle ES2 options.

**Note:** You must restart each node of the application server after you modify the JVM parameters.

Before starting this procedure, you must know if your cluster uses a 32-bit or 64-bit JVM. See *Preparing to Install LiveCycle ES2 (Server Cluster)* to determine the JVM required for your cluster configuration.

Before starting this procedure, you must determine how your LiveCycle ES2 cluster implements cluster caching so that you can correctly configure a JVM argument for cluster caching. You may implement cluster caching by using UDP or TCP but not both. The following factors may affect your choice:

- Use UDP only if your cluster is based on IPv4.
- Use TCP if your cluster is either IPv4-based or IPv6-based. On an IPv6-based cluster, you must use TCP to be IPv6-compliant.

If you implement cluster caching by using TCP, you must also ensure that you configure the TCP locators correctly (see "Configuring the caching locators (caching using TCP only)" on page 29).

**Tip:** It is recommended to use TCP instead of UDP multicasting for production systems because of the inherent reliability of the TCP protocol.

➤ **To modify JVM properties:**

1. Log in to the WebSphere Administrative Console and, in the navigation tree, click **Servers > Application servers** and then, in the right pane, click the server name.

2. Under Server Infrastructure, click **Java and Process Management > Process Definition**.

3. Under Additional Properties, click **Java Virtual Machine** and add or configure the following properties:
   - In the **Initial Heap Size** box, type **512**
   - In the **Maximum Heap Size** box, set one of the following values:
     - (32-bit JVM only) Type **1024**
     - (64-bit JVM only) Type **1792**
   - In the **Generic JVM arguments** box, type **-Dfile.encoding=utf8**
   - In the **Generic JVM arguments** box, set one of the following values:
     - (32-bit JVM only) Type **-XX:MaxPermSize=256m**
     - (64-bit JVM only) Type **-XX:MaxPermSize=512m**

4. On the same screen, in the **Generic JVM arguments** box, add the following caching arguments depending on the configured cluster cache mechanism (UDP or TCP):
   - (Caching using UDP discovery) Configure the multicast port argument in the following format:
     
     -Dadobe.cache.multicast-port=<port number>
Note: The value for `<port number>` can be any available port between 1025 and 65535. The multicast port must be unique to the LiveCycle ES2 cluster (that is, the port must not be used by any other cluster on the same network, any attempt to use the same port by any other cluster on the same network would result in bootstrap failure). It is recommended that you configure the same `<port number>` on all nodes in the LiveCycle ES2 cluster, as in this example:

-Dadobe.cache.multicast-port=33456

- (Caching using UDP discovery) Setting multicast address argument is optional. Default multicast addresses for IPv4 and IPv6 are as following:

IPv6 - FF38::1234
IPv4 - 239.192.81.1

If you have restriction (like firewall, restricted network access) on multicast addresses in your network, use following argument to set multicast addresses:

-Dadobe.cache.multicast-address=<ip address>

The value for `<ip address>` is the IP address used for multicast networking. The IP address is ignored if `adobe.cache.multicast-port` is zero.

Note: The multicast address must be unique to the Document Services cluster and must not be used by any other cluster on the same network. It is recommended that you configure the same `<ip address>` on all nodes in the Document Services cluster. For example

-Dadobe.cache.multicast-address=239.192.81.1

- (Caching using TCP discovery) For IPv4, configure the cluster locators argument in the following format:

-Dadobe.cache.cluster-locators=<IPaddress>[<port number>],<IPaddress>[<port number>]

For IPv6, configure the cluster locators argument in the following format:

-Dadobe.cache.cluster-locators=<hostname>@<IPv6 address>[<port number>],<hostname>@<IPv6 address>[<port number>]

Note: Configure, as a comma-separated list, the locators for all nodes of the cluster. The value for `<IPaddress>` is the IP address of the computer running the locator, and the value for `<port number>` is any unused port between 1025 and 65535. It is recommended that you configure the same `<port number>` for all locators, as in this example:

-Dadobe.cache.cluster-locators=10.20.30.5[22345],10.20.30.6[22345]

- For machines with multiple Network Interfaces

Some machines may be connected to multiple networks via multiple Network Interface Cards (NICs). For such machines, set the JVM property `-Dadobe.cache.bind-address` to the IP address of the network interface card that you are using for Document Server.

-Dadobe.cache.bind-address=<IP Address>

Note: It is recommended to set JVM property `-Dadobe.cache.bind-address` for machines with one Network Interface Card, also.

- To prevent application server from Denial of Service attacks configure the following JVM argument:

-DentityExpansionLimit=10000

5. Click **Apply** and click **Custom Properties**.

6. *(IPv4 only)* On the next screen, click **New**, add or configure the following properties, and then click **OK**:
● In the Name box, type `java.net.preferIPv4Stack`.
● In the Value box, type `true`.

7. **(IPv6 only)** On the next screen, click New, add or configure the following properties, and then click OK:
   ● In the Name box, type `java.net.preferIPv6Stack`.
   ● In the Value box, type `true`.
   ● In the Name box, type `java.net.preferIPv6Addresses`.
   ● In the Value box, type `true`.

8. Click OK and then click **Save directly to the master configuration**.

9. Restart the server.

10. Repeat steps 1 to 9 for each server in the cluster.

### 5.4.3 Creating a J2C authentication alias for the database

You must create a J2C authentication alias for the database.

➤ **To create a J2C authentication configuration for the data source:**

1. *(WebSphere 6.x)* In the WebSphere Administrative Console navigation tree, click **Security > Secure administration, applications, and infrastructure.**
   *(WebSphere 7.x)* In the WebSphere Administrative Console navigation tree, click **Security > Global security.**

2. In the right pane, under Authentication, click **Java Authentication and Authorization Service > J2C authentication data,** and then click **New.**

3. Set the following properties:
   ● In the **Alias** box, type an alias name appropriate to the database user, such as `IDP_DS/db2-db2user`.
   ● In the **User ID** box, type a name, such as `db2user`. This ID is the login credential used to access the database that will be used with the IDP_DS data source.
   ● In the **Password** box, type a password for this user.

   **Note:** In this guide, IDP_DS identifies the LiveCycle ES2 data source.

4. Click **OK** and then click **Save directly to master configuration.**

5. Repeat steps 3 and 4 for RM_DS. Use `EDC_DS/db2-db2user` as the alias name.

   **Note:** EDC_DS is JNDI name of the RM_DS datasource.

### 5.5 Configuring the LiveCycle ES2 database connectivity

To enable WebSphere and your LiveCycle ES2 deployment to connect to the LiveCycle ES2 database, you must create a database connection for LiveCycle ES2 by installing the database drivers and then setting up a data source.
You must install drivers for the type of database that you use for the LiveCycle ES2 database. The drivers should be placed in the installation directories of the application server.

You must configure the data source to connect to the database. For WebSphere, you can configure a DB2, an Oracle 10g, or a SQL Server 2005 data source.

You will need the following information from tasks you did in Preparing to Install LiveCycle ES2 (Server Cluster):

- Database name
- Server name
- Port number
- User name
- Password

Refer to the following section that applies to your database:

- “Configuring the DB2 data source” on page 52
- “Configuring the Oracle data source” on page 56
- “Configuring the SQL Server data source” on page 59

5.6.1 Configuring the DB2 data source

Configuring the DB2 data source requires you to install the DB2 database drivers, create a DB2 JDBC provider on WebSphere, create the data source on WebSphere, and then configure the corresponding connection pool.

➢ To install the DB2 database driver:

1. On a WebSphere Application Server instance, in the \[appserver root\] directory, create a directory named db2libs.

2. Copy the db2jcc.jar file from one of these locations to the \[appserver root\]/db2libs directory:
   - The java directory under your \[dbserver root\] directory, such as \[dbserver root\]/IBM/Sqllib/java (Windows) or \[dbserver root\]/java (Linux or UNIX)
   - (DB2 version 8.2) \[LiveCycle ES2 root\]/\lib\db\db2
   - (DB2 version 9.1) \[LiveCycle ES2 root\]/\lib\db\db2\9.1

3. Repeat steps 1 to 2 for each WebSphere Application Server in the cluster.

➢ To create a DB2 JDBC provider:

1. On a WebSphere Application Server instance, in the WebSphere Administrative Console navigation tree, click Environment > WebSphere Variables and, in right pane, click DB2UNIVERSAL_JDBC_DRIVER_PATH.

2. In the Value box on the next screen, type the path to the db2libs directory.

3. Repeat steps 1 to 2 for each node scope as well as for the Cell Manager scope, inserting the path to the db2libs directory on the relevant node.

4. Click OK or Apply and in the Messages box, click Save directly to master configuration.
5. In the navigation tree, click **Resources > JDBC > JDBC Providers**.

6. In the drop-down list above the table, select **Cluster=<cluster name>** as the scope, and then click **New**.

7. In the Step 1 pane, set the following configuration and then click **Next**:
   - In the **Database type** list, select **DB2**.
   - In the **Provider type** list, select **DB2 Universal JDBC Driver Provider**.
   - In the **Implementation type** list, select **Connection pool data source**. Take note that for each LiveCycle Configuration Manager configuration script, the field implementation class name is `com.ibm.db2.jcc.DB2ConnectionPoolDataSource`.
   - In the **Name** box, keep the name **DB2 Universal JDBC Driver Provider**.

8. In the Step 2 pane, enter the path to the db2libs directory (for example, `[/appserver root]/db2libs`), and then click **Next**.

9. In the Step 3 pane, click **Finish** and then click **Save directly to master configuration**.

➤ *(WebSphere 6.x)* To create the DB2 JDBC data source:

1. In the navigation tree, click **Resources > JDBC > JDBC Providers** and, in the right pane, click the provider you created in “To create a DB2 JDBC provider:” on page 52.

2. Under Additional Properties, click **Data sources** and then click **New**.

3. In the Step 1 pane, set the following configurations and then click **Next**:
   - In the **Data source name** box, type **Livecycle - DB2 - IDP_DS**.
   - In the **JNDI name** box, type **IDP_DS**.
   - In the list under **Component-managed authentication alias and XA recovery authentication alias**, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51, and then click **Next**.

4. In the Step 2 pane, type a database name and server name.
   - **Note**: If the port used by the database is not the default port (50000), also specify your alternative port in the **Port number** box.

5. Ensure that **Use this data source in container managed persistence (CMP)** is selected.

6. Click **Next** and, in the Step 3 pane, click **Finish**.

7. In the right pane, click the data source you just created to modify additional parameters and set the following configuration:
   - In the **Container-managed authentication alias** list, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51.
   - In the **Mapping-configuration alias** list, select **DefaultPrincipalMapping**.

8. Click **OK** or **Apply**, and then click **Save directly to master configuration**.
➤ *(WebSphere 7.x)* To create the DB2 JDBC data source:

1. In the navigation tree, click Resources > JDBC > JDBC Providers and, in the right pane, click the provider you created in “To create a DB2 JDBC provider:” on page 52.

2. Under Additional Properties, click Data sources and then click New.

3. In the Step 1 pane, set the following configuration and then click Next.
   - In the Data source name box, type Livecycle - DB2 - IDP_DS.
   - In the the JNDI name box, type IDP_DS.

4. In the Step 2 pane, type a database name and server name.
   
   Note: If the port used by the database is not the default port (50000), also specify your alternative port in the Port number box.

5. Ensure that Use this data source in container managed persistence (CMP) is selected.

6. Click Next and set the following configurations in the Step 3 pane:
   - In the list under Component-managed authentication alias, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51.
   - In the Mapping-configuration alias list, select DefaultPrincipalMapping.
   - In the Container-managed authentication alias list, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51.

7. Click Next and, in the Step 4 pane, click Finish.

8. Click Save directly to the master configuration.

➤ To configure Livecycle - DB2 - IDP_DS connection pools:

1. In the navigation tree, click Resources > JDBC > JDBC Providers and, in the right pane, click the DB2 Universal JDBC Driver Provider you created in “To create a DB2 JDBC provider:” on page 52.

2. Under Additional Properties, click Data sources and, in the right pane, click Livecycle - DB2 - IDP_DS.

3. On the next screen, under Additional Properties, click Connection Pool Properties and set the properties as follows:
   - In the Maximum connections box, type 30.
   - In the Minimum connections box, type 1.

4. Click OK or Apply, and then click Save directly to master configuration.

➤ *(WebSphere 7.0 only)* Configure the custom property for DB2:

1. In the navigation tree, click Resources > JDBC > Data sources and, in the right pane, click the data source that you created in “*(WebSphere 7.x)* To create the DB2 JDBC data source:” on page 54.

2. Under Additional Properties, click Custom properties and then click New.

3. In the Name box, type useRRASetEquals and in the Value box, type true.

4. Click OK or Apply and then click Save directly to master configuration.
To create the DB2 JDBC data source for LiveCycle Rights Management ES2:

**Note:** This procedure applies only if you have Rights Management ES2 installed.

1. In the navigation tree, click **Resources > JDBC > JDBC Providers** and click the provider you created in “To create a DB2 JDBC provider:” on page 52.

2. Under Additional Properties, click **Data sources** and then click **New**.

3. In the Step 1 pane, set the following configurations and then click **Next**:
   - In the **Data source name** box, type `Livecycle - DB2 - RM_DS`.
   - In the **JNDI name** box, type `EDC_DS`.
   - In the list under Component-Managed Authentication and XA Recovery Authentication Alias, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51.

4. In the Step 2 pane, type the database name and server name of the database you created.

   **Note:** If the port used by the database is not the default port (50000), also specify your alternative port in the **Port number** box.

5. Click **Next** and, in the Step 3 pane, click **Finish**.

6. Select the data source you just created to modify additional parameters and set the following configuration:
   - In the **Container-managed authentication alias** list, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51.
   - In the **Mapping-configuration alias** list, select `DefaultPrincipalMapping`.

7. Click **OK** or **Apply**, and then click **Save directly to master configuration**.

To configure Livecycle - DB2 - RM_DS connection pools for LiveCycle Rights Management ES2:

**Note:** This section applies only if you have Rights Management ES2 installed.

1. In the navigation tree, click **Resources > JDBC > JDBC Providers** and, in the right pane, click the **DB2 Universal JDBC Driver Provider** provider created in “To create a DB2 JDBC provider:” on page 52.

2. Under Additional Properties, click **Data sources** and, in the right pane, click **Livecycle - DB2 - RM_DS**.

3. On the next screen, under Additional Properties, click **Connection Pool Properties** and set the properties as follows:
   - In the **Maximum connections** box, enter 20.
   - In the **Minimum connections** box, enter 1.

4. Click **OK** or **Apply**, and then click **Save directly to master configuration**.

(WebSphere 7.0 only) Configure the custom property for DB2:

1. In the navigation tree, click **Resources > JDBC > Data sources** and, in the right pane, click the data source that you created in “To create the DB2 JDBC data source for LiveCycle Rights Management ES2:” on page 55.
2. Under Additional Properties, click **Custom properties** and then click **New**.

3. In the **Name** box, type `useRRASetEquals` and in the **Value** box, type `true`.

4. Click **OK** or **Apply** and then click **Save directly to master configuration**.

### 5.7.2 Configuring the Oracle data source

Configuring the Oracle data source requires you to install the Oracle database drivers, create an Oracle JDBC provider on WebSphere, create the data source on WebSphere, and then configure the corresponding connection pool.

➤ **To install the Oracle 10g/Oracle 11g database driver:**

1. For each WebSphere Application Server instance, in the `[appserver root]` directory, create a directory named `db_driver`.

2. Copy the ojdbc5.jar for JDK 1.5 or ojdbc6.jar for JDK 1.6 driver file from the `[DVD_root]/third_party/db/oracle` directory to the directory created in step 1.

➤ **To create the Oracle JDBC provider:**

1. On a WebSphere Application Server instance, in the WebSphere Administrative Console navigation tree, click **Environment > WebSphere Variables** and, in the right pane, click `ORACLE_JDBC_DRIVER_PATH`.

2. Under General Properties, in the **Value** box, type the path to the ojdbc5.jar/ojdbc6.jar file you created in "To install the Oracle 10g/Oracle 11g database driver:" on page 56 and then click **OK**.

3. Repeat steps 1 to 2 for each WebSphere Application Server instance, inserting the appropriate path to the `db_driver` directory for the node on which the WebSphere Application Server instance resides.

4. Click **Save directly to master configuration**.

5. In the navigation tree, click **Resources > JDBC > JDBC Providers**.

6. In the drop-down list above the table, select `Cluster=lc9_cluster` as the scope and then click **New**.

7. In the Step 1 pane, set the following configuration and then click **Next**:
   - In the **Database type** list, select `Oracle`.
   - In the **Provider type** list, select `Oracle JDBC Driver`.
   - In the **Implementation type** list, select `Connection pool data source`.

8. In the Step 2 pane, accept the default database class path and then click **Next**.

9. In the Step 3 pane, click **Finish** and then click **Save directly to master configuration**.

➤ **To create the Oracle JDBC data source:**

1. In the navigation tree, click **Resources > JDBC > JDBC Providers** and, in the right pane, click the provider you created in “To install the Oracle 10g/Oracle 11g database driver:" on page 56.
2. Under Additional Properties, click Data sources and then click New.

3. In the Step 1 pane, set the following configurations and then click Next:
   - In the Data source name box, type Livecycle - oracle - IDP_DS.
   - In the JNDI name box, type IDP_DS.
   - In the list, under Component-Managed Authentication and XA Recovery Authentication, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51

4. In the Step 2 pane, type the following line in the URL box and then click Next:
   
   jdbc:oracle:thin:@<server_host>:<port>:<SID>

   where <server_host> is the IP address of the database server, <port> is the port on which the database is listening (default 1521), and <SID> is the service ID of the database.

5. In the Step 3 pane, click Finish and then click Save directly to master configuration.

6. Select the data source you just created to modify additional parameters and set the following configuration options:
   - In the Container-managed authentication alias list, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51.
   - In the Mapping-configuration alias list, select DefaultPrincipalMapping.

7. Click OK or Apply, and then click Save directly to master configuration.

➤ To configure Livecycle - oracle - IDP_DS connection pools:

1. In the navigation tree, click Resources > JDBC > JDBC Providers and, in the right pane, click the Oracle JDBC driver data source created in “To create the Oracle JDBC provider” on page 56

2. Under Additional Properties, click Data sources and, in the right pane, click Livecycle - oracle - IDP_DS.


4. Click OK or Apply, and then click Save directly to master configuration.

➤ (WebSphere 7.0 only) Configure the custom property for Oracle:

1. In the navigation tree, click Resources > JDBC > Data sources and, in the right pane, click the data source that you created in “To create the Oracle JDBC data source” on page 56.

2. Under Additional Properties, click Custom properties and then click New.

3. In the Name box, type useRRASetEquals and in the Value box, type true.

4. Click OK or Apply and then click Save directly to master configuration.

➤ To create the Oracle JDBC data source for LiveCycle Rights Management ES2:

   Note: This section applies only if you have Rights Management ES2 installed.
1. In the navigation tree, click **Resources** > **JDBC** > **JDBC Providers** and, in the right pane, click the provider you created in “To create the Oracle JDBC provider:” on page 56.

2. Under Additional Properties, click **Data sources** and then click **New**.

3. In the Step 1 pane, set the following configurations and then click **Next**:
   - In the **Data source name** box, type `Livecycle - oracle - RM_DS`.
   - In the **JNDI name** box, type `EDC_DS`.
   - In the list under Component-Managed Authentication and XA Recovery Authentication Alias, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51.

4. In Step 2 pane, type the following line in the **URL** box and then click **Next**:
   ```
   jdbc:oracle:thin:@<server_host>:<port>:<SID>
   ```
   where `<server_host>` is the IP address of the database server, `<port>` is the port on which the database is listening (default 1521), and `<SID>` is the service ID of the database.

5. In the Step 3 pane, click **Finish** and then click **Save directly to master configuration**.

6. Select the data source you just created to modify additional parameters and set the following configuration options:
   - In the **Container-managed authentication alias** list, select the authentication alias created for this data source in “Creating a J2C authentication alias for the database” on page 51.
   - In the **Mapping-configuration alias** list, select `DefaultPrincipalMapping`.

7. Click **OK** and then click **Save directly to master configuration**.

➤ **To configure Livecycle - oracle - RM_DS connection pools for LiveCycle Rights Management ES2:**

**Note:** This section applies only if you have Rights Management ES2 installed.

1. In the navigation tree, click **Resources** > **JDBC** > **JDBC Providers** and, in the right pane, click the Oracle JDBC driver provider created in “To create the Oracle JDBC provider:” on page 56

2. Under Additional Properties, click **Data sources** and, in the right pane, click **Livecycle - oracle - RM_DS**.

3. On the next screen, under Additional Properties, click **Connection Pool Properties** and set the properties as follows:
   - In the **Maximum connections** box, enter 20.
   - In the **Minimum connections** box, enter 1.

4. Click **OK** or **Apply**, and then click **Save directly to master configuration**.

➤ **(WebSphere 7.0 only) Configure the custom property for Oracle:**

1. In the navigation tree, click **Resources** > **JDBC** > **Data sources** and, in the right pane, click the data source that you created in “To create the Oracle JDBC data source for LiveCycle Rights Management ES2:” on page 57.

2. Under Additional Properties, click **Custom properties** and then click **New**.
3. In the **Name** box, type `useRRASetEquals` and in the **Value** box, type `true`.

4. Click **OK** or **Apply** and then click **Save** directly to master configuration.

### 5.8.3 Configuring the SQL Server data source

Configuring the SQL Server data source requires you to install the SQL Server database drivers, create a SQL Server JDBC provider on WebSphere, create the data source on WebSphere, and then configure the corresponding connection pool.

**➤ To install the SQL Server database driver:**

- If you have not done so, download and install the SQL Server 2005 JDBC Driver 1.2 from the [Microsoft Download](https://www.microsoft.com/en-us/download) site by following the site instructions.

  **Note:** Use SQL Server JDBC Driver 1.2 for both Microsoft SQL Server 2005 SP2 and Microsoft SQL Server 2008.

  **Note:** Make note of the directory location where you install the driver on your system.

**➤ Create the SQL Server JDBC provider**

1. In the WebSphere Administrative Console navigation tree, click **Environment > WebSphere Variables** and, in the right pane, click one of the following:

   - (WebSphere 6.1) **MSSQLSERVER_JDBC_DRIVER_PATH**
   - (WebSphere 7.0) **MICROSOFT_JDBC_DRIVER_PATH**

2. Under **General Properties**, in the **Value** box, type the path to the `sqljdbc.jar` file that you created in "To install the SQL Server database driver:" on page 59 and then click **OK**.

3. In the **Messages** box, click **Save** directly to master configuration.

4. In the navigation tree, click **Resources > JDBC > JDBC Providers**.

5. In the **Scope** drop-down list in the right pane, select **Node=NodeName, Server=ServerName** as the level, and then click **New**.

6. (WebSphere 6.1) In the **Create new JDBC provider** pane, set the following configurations and then click **Next**:
   - In the **Database type** list, select **User-defined**.
   - In the **Implementation class name** box, enter the implementation class as follows:
     ```java
     com.microsoft.sqlserver.jdbc.SQLServerConnectionPoolDataSource
     ```
   - In the **Name** box, type **SQL Server Provider**, or accept the default value (User-defined JDBC Provider).

7. (WebSphere 7.0) In the **Create new JDBC provider** pane, set the following configurations and then click **Next**:
   - In the **Database type** list, select **SQL Server**.
   - In the **Provider Type** list, select **Microsoft SQL Server JDBC Driver**.
   - In the **Implementation type** list, select **Connection Pool Data Source**.
   - In the **Name** box, type **Microsoft SQL Server JDBC Driver**, or accept the default value.
8. In the **Enter database class path information** pane, replace the existing entry with one of the following, and then click **Next**:

   - (WebSphere 6.1) `${MSSQLSERVER_JDBC_DRIVER_PATH}/sqljdbc.jar`
   - (WebSphere 7.0) `${MICROSOFT_JDBC_DRIVER_PATH}/sqljdbc.jar`

   **Note:** For WebSphere 7.0, if you have set the WebSphere variable MICROSOFT_JDBC_DRIVER_PATH, the database class path information is populated automatically.

9. In the **Summary** pane, click **Finish** and then click **Save** directly to master configuration.

➤ **Create the SQL Server data source for LiveCycle ES2**

Follow the steps below to create the SQL Server data source for your application server version.

**WebSphere 6.1:**

1. In the navigation tree, click **Resources > JDBC > JDBC Providers** and, in the right pane, click the provider that you created in “Create the SQL Server JDBC provider” on page 59.

2. Under **Additional properties**, click **Data sources** and then click **New**.

3. In the **Enter basic data source information** pane, set the following configurations and then click **Next**:

   - In the **Data source name** box, type `Livecycle - SQLServer - IDP_DS`.
   - In the **JNDI name** box, type `IDP_DS`.
   - In the list under **Component-managed authentication alias and XA recovery authentication alias**, select the authentication alias that you created for this data source in “To create a J2C authentication configuration for the data source:” on page 51.

4. In the **Enter database specific properties for the data source** pane, replace the existing entry with the following in the **Data store helper class name** box, and click **Next**.

   com.ibm.websphere.rsadapter.GenericDataStoreHelper

5. In the **Summary** pane, click **Finish** and then click **Save** directly to master configuration.

6. Select the data source you just created to modify additional parameters.

7. Set the following configuration:

   - In the **Container-managed authentication alias** list, select the authentication alias that you created for this data source in “To create a J2C authentication configuration for the data source:” on page 51.
   - In the **Mapping-configuration alias** list, select `DefaultPrincipalMapping`.

8. Click **OK** and then click **Save** directly to master configuration.

9. Under **Enter database specific properties for the data source**, enter the database name, server name, and port.

10. Click **OK** or **Apply** and the click **Save** directly to the master configuration.

11. Change the statement cache size. Do the following tasks:

   - In WebSphere Administrative Console, click **JDBC > Data sources**.
● Click the data source you just created and under Additional Properties, click WebSphere Application Server data source properties.
● Change the value of the Statement cache size field to 80.

WebSphere 7.0:

1. In the navigation tree, click Resources > JDBC > JDBC Providers and, in the right pane, click the provider that you created in “Create the SQL Server JDBC provider” on page 59.
2. Under Additional Properties, click Data sources and then click New.
3. In the Enter basic data source information pane, set the following configurations and then click Next:
   ● In the Data source name box, type Livecycle - SQLServer - IDP_DS.
   ● In the JNDI name box, type IDP_DS.
4. In the Enter database specific properties for the data source pane, enter the database name, server name, and port.
5. In the Setup security aliases pane, set the following, and click Next.
   ● In the Component managed authentication alias list, select the authentication alias that you created for this data source in “To create a J2C authentication configuration for the data source:” on page 51.
   ● In the Mapping-configuration alias list, select DefaultPrincipalMapping.
   ● In the Container managed authentication alias list, select the authentication alias that you created for this data source in “To create a J2C authentication configuration for the data source:” on page 51.
6. In the Summary pane, click Finish, and then click Save directly to the master configuration.
7. Set the data store helper class for the data source. Do the following tasks:
   ● In the navigation tree, click Resources > JDBC > Data sources and, in the right pane, click the data source that you created.
   ● In the next screen, under Data store helper class name, select Specify a user-defined data store helper, and replace the existing entry with the following text:
     com.ibm.websphere.rsadapter.GenericDataStoreHelper
8. Change the statement cache size. Do the following tasks:
   ● In WebSphere Administrative Console, click JDBC > Data sources.
   ● Click the data source you just created and under Additional Properties, click WebSphere Application Server data source properties.
   ● Change the value of the Statement cache size field to 80.
   ● Click OK or Apply and the click Save directly to the master configuration.

➤ Configure Livecycle - SQLServer - IDP_DS connection pools

1. In the navigation tree, click Resources > JDBC > JDBC Providers and, in the right pane, click the provider that you created earlier for WebSphere 6.1 or 7.0
   ● (WebSphere 6.1) SQL Server Provider
● (WebSphere 7.0) Microsoft SQL Server JDBC Driver.

2. Under Additional Properties, click Data sources and then select Livecycle - SQLServer - IDP_DS.


4. Click OK or Apply and then click Save directly to master configuration.

➤ (WebSphere 7.0 only) Configure the custom property for SQL Server

1. In the navigation tree, click Resources > JDBC > Data sources and, in the right pane, click the data source that you created in “Create the SQL Server data source for LiveCycle ES2” on page 60.

2. Under Additional Properties, click Custom properties and then click New.

3. In the Name box, type useRRASetEquals and in the Value box, type true.

4. Click OK or Apply and then click Save directly to master configuration.

➤ Create SQL Server data source for Rights Management ES2 version.

WebSphere 6.1:

1. In the navigation tree, click Resources > JDBC > JDBC Providers and, in the right pane, click the provider that you created in “Create the SQL Server JDBC provider” on page 59.

2. Under Additional properties, click Data sources and then click New.

3. In the Enter basic data source information pane, set the following configurations and then click Next:
   ● In the Data source name box, type Livecycle - SQLServer - RM_DS.
   ● In the JNDI name box, type EDC_DS.
   ● In the list under Component-managed authentication alias and XA recovery authentication alias, select the authentication alias that you created for this data source in “To create a J2C authentication configuration for the data source:” on page 51.

4. In the Enter database specific properties for the data source pane, replace the existing entry with the following in the Data store helper class name box, and click Next.
   com.ibm.websphere.rsadapter.GenericDataStoreHelper

5. In the Summary pane, click Finish and then click Save directly to master configuration.

6. Select the data source you just created to modify additional parameters.

7. Set the following configuration:
   ● In the Container-managed authentication alias list, select the authentication alias that you created for this data source in “To create a J2C authentication configuration for the data source:” on page 51.
   ● In the Mapping-configuration alias list, select DefaultPrincipalMapping.

8. Click OK and then click Save directly to master configuration.
9. Under **Enter database specific properties for the data source**, enter the database name, server name, and port.

10. Click **OK** or **Apply** and the click **Save** directly to the master configuration.

11. Change the statement cache size. Do the following tasks:
   - In WebSphere Administrative Console, click **JDBC > Data sources**.
   - Click the data source you just created and under **Additional Properties**, click **WebSphere Application Server data source properties**.
   - Change the value of the **Statement cache size** field to 80.

**WebSphere 7.0:**

1. In the navigation tree, click **Resources > JDBC > JDBC Providers** and, in the right pane, click the provider that you created in “Create the SQL Server JDBC provider” on page 59.

2. Under **Additional Properties**, click **Data sources** and then click **New**.

3. In the **Enter basic data source information pane**, set the following configurations and then click **Next**:
   - In the **Data source name** box, type **Livecycle - SQLServer - RM_DS**.
   - In the **JNDI name** box, type **EDC_DS**.

4. In the **Enter database specific properties for the data source** pane, in the **Data store helper class name** box, replace the existing entry with the following:
   
   ```
   com.ibm.websphere.rsadapter.GenericDataStoreHelper
   ```

5. In the **Setup security aliases** pane, set the following, and click **Next**.
   - In the **Component managed authentication alias** list, select the authentication alias that you created for this data source in “To create a J2C authentication configuration for the data source:” on page 51.
   - In the **Mapping-configuration alias** list, select **DefaultPrincipalMapping**.
   - In the **Container managed authentication alias** list, select the authentication alias that you created for this data source in “To create a J2C authentication configuration for the data source:” on page 51.

6. In the **Summary** pane, click **Finish**, and then click **Save** directly to the master configuration.

7. Change the statement cache size. Do the following tasks:
   - In WebSphere Administrative Console, click **JDBC > Data sources**.
   - Click the data source you just created and under **Additional Properties**, click **WebSphere Application Server data source properties**.
   - Change the value of the **Statement cache size** field to **80**.
   - Click **OK** or **Apply** and the click **Save** directly to the master configuration.

➤ **Configure Livecycle - SQLServer - RM_DS connection pools**

1. In the navigation tree, click **Resources > JDBC > JDBC Providers** and, in the right pane, click the provider that you created earlier for WebSphere 6.1 or 7.0
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Configuring the SQL Server data source

- (WebSphere 6.1) User-defined JDBC Provider
- (WebSphere 7.0) SQL Server Provider.

2. Under Additional Properties, click Data sources and then select Livecycle - SQLServer - RM_DS.


4. Click OK or Apply and then click Save directly to master configuration.

➤ (WebSphere 7.0 only) Configure the custom property for SQL Server

1. In the navigation tree, click Resources > JDBC > Data sources and, in the right pane, click the data source that you created in “Create the SQL Server data source for LiveCycle ES2” on page 60.

2. Under Additional Properties, click Custom properties and then click New.

3. In the Name box, type useRRASetEquals and in the Value box, type true.

4. Click OK or Apply and then click Save directly to master configuration.

➤ To configure integrated security on Windows:

1. In the navigation tree, click Resources > JDBC > Data Sources and, in the right pane, click IDP_DS.

2. In the right pane, under Additional Properties, click Custom Properties, and on the next screen, click integratedSecurity.

3. On the next screen, under General Properties, type true in the Value box.

4. In the navigation tree, click Resources > JDBC > Data Sources and, in the right pane, click Livecycle - SQLServer - RM_DS.

5. In the right pane, under Additional Properties, click Custom Properties, and on the next screen, click integratedSecurity.

6. On the next screen, under General Properties, type true in the Value box.

7. Click Apply and then click Save directly to master configuration.

8. On the computer where WebSphere is installed, add the sqljdbc_auth.dll file to the Windows systems path (C:\Windows). The sqljdbc_auth.dll file is in the same location as the Microsoft SQL JDBC 1.2 driver installation (default is [InstallDir]/sqljdbc_1.2/enu/auth/x86).

9. Modify the Log On As property of the Windows service that starts the WebSphere Application Server (IBM WebSphere Application Server V6.1 - [node name]) by doing the following tasks:
   - Click Start > Settings > Control Panel > Administrative Tools > Services.
   - Right click IBM WebSphere Application Server V6.1 - [node name] and select Properties.
   - On the Log On tab, select This account and select a valid user account other than Local System, then click OK.

10. Change SQL Server’s Security from Mixed mode to Windows Authentication only.
5.9 Next steps

After you configure your WebSphere Application Server cluster, do the following tasks:

- Configure the LiveCycle ES2 EAR files by using LiveCycle Configuration Manager. (See “Configuring LiveCycle ES2 for Deployment” on page 33.)

- Choose one of these ways to deploy the LiveCycle ES2 EAR files to your WebSphere Application Server cluster:
  
  - **Automatically:** Use LiveCycle Configuration Manager. (See “Configuring LiveCycle ES2 for Deployment” on page 33.)
  
  - **Manually:** See “Appendix - Manually Deploying to WebSphere” on page 66.
6 Appendix - Manually Deploying to WebSphere

This chapter describes how to manually deploy your LiveCycle ES2 modules to a WebSphere cluster. This chapter applies only if you chose not to deploy LiveCycle ES2 to your WebSphere Application Server cluster automatically. For information about how to automatically deploy LiveCycle ES2 to your application server cluster, see “Configuring and deploying LiveCycle ES2” on page 35.

At this point in the installation process, you have already installed LiveCycle ES2 files, run LiveCycle Configuration Manager to configure the LiveCycle ES2 deployable archives, and manually configured your WebSphere Application Server cluster. Now you manually deploy the LiveCycle ES2 deployable archives.

This chapter includes the following topics:
- “About deploying LiveCycle ES2 modules” on page 66
- “Deploying to WebSphere” on page 67
- “Starting the application” on page 68

6.1 About deploying LiveCycle ES2 modules

Before you deploy LiveCycle ES2, ensure that you completed these tasks:
- Installed the required software and files, and know the location of the directories you will be working with. If you did not complete this task, see Preparing to Install LiveCycle ES2 (Server Cluster).
- Run LiveCycle Configuration Manager to configure and assemble LiveCycle ES2 modules according to your system and application server requirements. To add a module to your deployment, you can run LiveCycle Configuration Manager to make the changes and then redeploy the updated EAR file.

If you are deploying LiveCycle ES2 for the first time, initialize the database by using LiveCycle Configuration Manager after you deploy the product.

If you are using an external web server, see your web server documentation for information about the configuration that is required to allow access to the application server.

6.1.1 WebSphere directory name

This chapter refers to the WebSphere Application Server home directory as [appserver root]. The home directory is the same as the one specified for the WAS_INSTALL_ROOT environment variable. Similarly, [LiveCycleES2 root] refers to the location where LiveCycle ES2 components are installed. (See “Conventions used in this document” on page 7.)

6.1.2 Summary of deployable components

During the deployment process, you need to deploy the following components for LiveCycle ES2:
- adobe-livecycle-native-websphere-[OS].ear
- adobe-livecycle-websphere.ear
- adobe-workspace-client.ear
● adobe-contentservices.ear (LiveCycle Content Services ES2 only)

After LiveCycle ES2 is configured using LiveCycle Configuration Manager (required), these files are located in the \[LiveCycleES2 root\]/configurationManager/export/ directory.

### 6.2 Prerequisites for deploying Content Services ES2

If your LiveCycle ES2 installation uses Content Services ES2 and you haven’t configured your application server through LiveCycle Configuration Manager, you must perform additional manual configuration of the application server before deployment. See “Setup for Content Services ES2” on page 85.

### 6.3 Deploying to WebSphere

Deploy LiveCycle ES2 modules to WebSphere by deploying the component EAR files to the application server using the WebSphere Administrative Console.

Before deploying to WebSphere, start the application server on your computer. After you deploy the required components, stop and restart the application server before you start any services.

➤ To deploy the EAR files:

1. *(WebSphere 6.x)* In the WebSphere Administrative Console navigation tree, click **Applications > Install New Application**.
   *(WebSphere 7.x)* In the WebSphere Administrative Console navigation tree, click **Applications > New Application**.

2. *(WebSphere 6.x)* In the right pane, select **Remote file system** or **Local File System**.
   *(WebSphere 7.x)* In the right pane, click **New Enterprise Application** and then select **Remote file system** or **Local File System**.

3. Click **Browse**, navigate to one of the EAR files in “Summary of deployable components” on page 66, and select the EAR file.

4. Select **Show me all installation options and parameters** and click **Next**.

5. Select **Generate Default Bindings** and click **Next**.

6. In the left column of the Map Modules to Servers pane on the right, select the second step and then, from the list of available clusters and servers, select **lc8_cluster**.

   **Note:** If you already configured a web server for load balancing in your cluster, you must also select the web server. Use the CTRL key to select the additional server.

7. Click **Select all** and then click **Apply**.

8. In the left column of the Summary pane on the right, select the last step and click **Finish**.

9. When the EAR file is installed successfully, in the **Messages** box, click **Save** directly to Master Configuration.

10. Repeat these steps for each of the EAR files in “Summary of deployable components” on page 66.
6.4 Starting the application

After deploying the module, you need to start the applications. When the red “X” beside the name of the application changes to a green arrow, the application has been deployed and started successfully. WebSphere displays an error message if it cannot start the application.

For information about WebSphere error messages, see your WebSphere Application Server documentation.

➤ To start an application in WebSphere:

1. (WebSphere 6.x) In the WebSphere Administrative Console navigation tree, click Applications > Enterprise Applications.
   (WebSphere 7.x) In the WebSphere Administrative Console navigation tree, click Applications > Application Types > WebSphere Enterprise applications.

2. Select any or all of the LiveCycle ES2 applications that you want to start and click Start. The red “X” beside the status of each application changes to a green arrow, indicating that the application is running.
7 Post-Deployment Activities

This chapter describes how to verify the deployment by accessing the LiveCycle Administration Console and checking the application server log files. It also describes how to get started using LiveCycle ES2 modules and services after they are installed, configured, and deployed to your application server:

- “Restart the application server” on page 69
- “Set the date, time, and time zone” on page 69
- “Verifying the deployment” on page 70
- “Installing LiveCycle ES2.5 Solution Accelerators” on page 71 (optional)
- “Accessing module web applications” on page 72
- “Accessing User Management” on page 74
- “Configuring LiveCycle PDF Generator ES2 or 3D ES2” on page 74
- “Setup for Content Services ES2” on page 85
- “Configuring LiveCycle ES2 to access LDAP” on page 86
- “Enabling FIPS mode” on page 88
- “Configuring HTML digital signature” on page 88
- “Overriding session management for Content Services ES2” on page 88
- “Configuring the Document Management service” on page 89
- “Configuring the Connector for EMC Documentum service” on page 89
- “Configuring the Connector for IBM FileNet service” on page 94
- “Configuring the Connector for IBM Content Manager” on page 101
- “Perform a system image backup” on page 104
- “Isloating JBoss Clusters” on page 105
- “Uninstalling LiveCycle ES2” on page 105

After you configure the settings in this chapter, for additional information about configuring your LiveCycle ES2 environment for development and production, see LiveCycle ES2 Administration Help.

7.1 Restart the application server

When you first deploy LiveCycle ES2, the server is in a deployment mode in which most modules are in memory. As a result, the memory consumption is high and the server is not in a typical production state. You must restart the application server to get the server back into a clean state.

7.2 Set the date, time, and time zone

Setting the date, time, and time zone on all servers connected to your LiveCycle ES2 environment will ensure that time-dependent modules, such as LiveCycle Digital Signatures ES2 and LiveCycle Reader Extensions ES2, function correctly. For example, if a signature appears to have been created in the future, it will not validate.
Servers that require synchronization are database servers, LDAP servers, HTTP servers and J2EE servers.

7.3 Verifying the deployment

You can verify the deployment by logging in to LiveCycle Administration Console. If you log in successfully, then LiveCycle ES2 is running on the application server and the default user is created in the database.

You can review the application server log files to ensure that components were deployed correctly or to determine the cause of any deployment issues you may encounter.

7.3.1 Accessing LiveCycle Administration Console

LiveCycle Administration Console is the web-based portal for accessing a variety of configuration pages where you can set run-time properties that control the way LiveCycle ES2 operates. When you log in to LiveCycle Administration Console, you can access User Management, Watched Folder, and Email client configuration, and administrative configuration options for other services. LiveCycle Administration Console also provides access to Applications and Services, which administrators use for managing archives and deploying services to a production environment.

The default user name and password for logging in is administrator and password. After you log in the first time, access User Management and change the password. If you have upgraded, the user name and password remain the same as when they were set by the administrator when LiveCycle ES (8.x) was configured.

Before you access LiveCycle Administration Console, LiveCycle ES2 must be deployed and running on your application server.

For information about using LiveCycle Administration Console, see LiveCycle ES2 Administration Help.

➢ To access LiveCycle Administration Console:

1. Type the following URL in a web browser:

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

   The default port number for WebSphere is 9080.

2. In the User Name box, type administrator and, in the Password box, type password.

3. After you log in, click Services to access the service administration pages or click Settings to access the pages on which you can administer settings for different modules.

7.3.2 Change default password

LiveCycle ES2 creates one or more default users during the installation. The password for these users is in the product documentation and is publicly available. You must change this default password, depending on your security requirements.

The LiveCycle ES2 administrator user password is set to “password” by default. You must change it in LiveCycle Administration Console > Settings > User Management.
7.3.3 Viewing the log files

You can view the log files to verify that the LiveCycle ES2 cluster functions properly. Events, such as run-time or startup errors, are recorded to the application server log files. If you have problems deploying to the application server, you can use the log files to help you find the problem. You can open the log files by using any text editor.

The following log files are located in the `[/appserver root]/profiles/[profilename]/logs/[server name]` directory:

- SystemErr.log
- SystemOut.log
- startServer.log

**Note:** *(WebSphere 7.0 only)* Each time LiveCycle ES2 starts, the following error appears in the log:

```
FacesConfigur E org.apache.myfaces.config.FacesConfigurator
configureRenderKits failed to configure class
com.adobe.framework.jsf.renderkit.SecureInputRenderer
java.lang.ClassCastException
```

This error occurs due to a different version of the IBM JSF engine expected by WebSphere 7.0. This is a known issue and this error can be safely ignored.

➤ To verify the LiveCycle ES2 cluster:

1. Ensure that all application server instances of the cluster are started.

2. View the Gemfire.log file, located in the directory `/LiveCycle ES2 temp /adobews_[Cell Name]_[Node Name]_[Server Name]/Caching`. Messages such as the following confirm that the cache is connected to all servers of the cluster:

```
[info 2008/01/22 14:24:31.109 EST GemfireCacheAdapter <UDP mcast receiver> nid=0x5b611c24] Membership: received new view [server-0:2916[1] [server-0:2916/2913, server-1:3168/3165]
[info 2008/01/22 14:24:31.125 EST GemfireCacheAdapter <View Message Processor> nid=0x7574d1dc] DMMembership: admitting member <server-1:3168/3165>; now there are 2 non-admin member(s)
```

**Note:** Ensure that the number of non-admin members (two in the example log entry above) matches the number of members in your cluster. A discrepancy indicates that some members of the cluster are not connected to the cache.

7.4 Installing LiveCycle ES2.5 Solution Accelerators

*New for 9.5*

If you are planning to install LiveCycle ES2.5 Solution Accelerators, you are required to first apply LiveCycle ES2 service pack 2 or later and install LiveCycle ES2.5 Solution Accelerators. However, note that you need to rerun LiveCycle Configuration Manager after installing LiveCycle ES2.5 Solution Accelerators.

For more information about installing Solution Accelerators, see *Installing and Deploying LiveCycle ES2.5 Solution Accelerators*. 
7.5 Accessing module web applications

After LiveCycle ES2 is deployed, you can access the web applications that are associated with the following modules:

- LiveCycle Reader Extensions ES2
- LiveCycle Workspace ES2
- LiveCycle Content Services ES2
- LiveCycle Rights Management ES2
- LiveCycle Business Activity Monitoring ES2

After accessing the web applications by using the default administrator permissions to ensure that they are accessible, you can create additional users and roles so that others can log in and use the applications. (See LiveCycle ES2 Administration Help.)

➤ To access the Reader Extensions ES2 web application:

Note: You must apply a Reader Extensions ES2 credential and apply the user roles for a new user. (See “Configuring credentials for use with Reader Extensions ES2” in LiveCycle ES2 Administration Help.)

1. Open a web browser and enter this URL if you are using a local deployment:
   http://localhost:[port]/ReaderExtensions
   For WebSphere, the port is 9080.

2. Log in using the default user name and password:
   User name: administrator
   Password: password

Note: You must have administrator or superuser privileges to log in using the default user name and password. To allow other users to access the Reader Extensions ES2 web application, you must create the users in User Management and grant them the Reader Extensions Web Application role.

➤ To access Workspace ES2:

1. Open a web browser and enter this URL if you are using a local deployment:
   http://localhost:[port]/workspace
   For WebSphere, the port is 9080.

2. Log in using the default user name and password:
   User name: administrator
   Password: password

➤ To access the Content Services ES2 web application:

Note: You must apply the LiveCycle Contentspace Administrator or LiveCycle Contentspace User roles for a new user to login to this web application. To do this, you must create the users in User Management and grant them the appropriate role.
1. Open a web browser and enter this URL if you are using a local deployment:
   \[\text{http://localhost:}[\text{port}]/\text{contentspace}\]
   For WebSphere, the port is 9080.

2. Log in using the default user name and password:
   - **User name:** administrator
   - **Password:** password

### 7.6 Accessing Rights Management ES2

You must create a user with the LiveCycle Rights Management End User role in User Management and log in to the Rights Management ES2 administrator or end-user applications by using the login information that is associated with that user.

**Note:** The default administrator user cannot access the Rights Management ES2 end-user web application but you can add the appropriate role to its profile. You can create a new user or modify an existing user through LiveCycle Administration Console.

➤ **To access the Rights Management ES2 end-user web application:**

1. Open a web browser and enter this URL:
   \[\text{http://}[\text{server}]:[\text{port}]/\text{edc/Login.do}\]

➤ **To access the Rights Management ES2 administration web application:**

1. Open a web browser and enter this URL:
   \[\text{http://}[\text{server}]:[\text{port}]/\text{adminui}\]

2. Click **Services** > **LiveCycle Rights Management ES2**. For information about setting up users and roles for Rights Management ES2, see *LiveCycle ES2 Administration Help*.

➤ **To assign the LiveCycle Rights Management End User role:**

1. Log in to LiveCycle Administration Console. (See “Accessing LiveCycle Administration Console” on page 70.)

2. Click **Settings** > **User Management** > **Users and Groups**.

3. In the **Find** box, type **all** and, in the **In** list, select **Groups**.

4. Click **Find** and, for the required domains, click **All Principals** in the list that appears.

5. Click the **Role Assignments** tab and click **Find Roles**.

6. In the list of roles, select the check box next to **LiveCycle Rights Management End User**.

7. Click **OK** and then click **Save**.
7.7 Accessing User Management

By using User Management, administrators can maintain a database of all users and groups, synchronized with one or more third-party user directories. User Management provides authentication, authorization, and user management for LiveCycle ES2 modules, including Reader Extensions ES2, Workspace ES2, Rights Management ES2, Process Management ES2, Forms ES2, PDF Generator ES2, PDF Generator 3D ES2, and Content Services ES2.

➤ To access User Management:
1. Log in to LiveCycle Administration Console.
2. On the home page, click Settings > 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.

7.8 Configuring LiveCycle PDF Generator ES2 or 3D ES2

If you installed LiveCycle PDF Generator ES2 or LiveCycle PDF Generator 3D ES2 as part of your LiveCycle ES2 solution, complete the following tasks:

- “Setting environment variables” on page 74
- “Configuring the EJB pool size” on page 75
- “Setting the Adobe PDF Printer as the default printer” on page 77
- “Configuring Acrobat Professional” on page 77
- “Configuring user accounts for multi-threaded file conversions” on page 79
- “Installing East Asian characters in Windows Server 2003” on page 80
- “Adding fonts to PDF Generator ES2 or PDF Generator 3D ES2” on page 80
- “Installing the Network Printer Client” on page 83
- “Setting watched folder performance parameters” on page 85

7.8.1 Setting environment variables

If you installed the PDF Generator ES2 or PDF Generator 3D ES2 module and configured it to convert files to PDF, for some file formats, you must manually set an environment variable that contains the absolute path of the executable that is used to start the corresponding application. The table below lists the native applications that PDF Generator ES2 or PDF Generator 3D ES2 requires you to set up environment variables for. For a cluster configuration, ensure that the required applications are installed on all nodes in the cluster.
## Configuring LiveCycle ES2 Application Server Clusters Using WebSphere

### Setting environment variables

Note: These environment variables must be set for all nodes in the cluster.

Note: The environment variable `Acrobat_PATH` is case-sensitive.

Note: You can leave the `Notepad_PATH` variable blank.

You do not need to set up the paths for Microsoft Office applications such as Word, PowerPoint, Excel, Visio, and Project, or for AutoCAD. The Generate PDF service starts these applications automatically if they are installed on the server.

➤ To create a new Windows environment variable:

1. Select Start > Control Panel > System.
2. Click the Advanced tab and click Environment Variables.
3. In the System variables section, click New.
4. Enter the environment variable name you need to set (for example, enter `Photoshop_PATH`). This folder is the one that contains the executable file. For example, type the following code:

   ```
   D:\Program Files\Adobe\Adobe Photoshop CS4\Photoshop.exe
   ```

➤ To set the PATH variables on Linux or UNIX (OpenOffice only):

   - Type the following command:

     ```
     export OpenOffice_PATH=/opt/openoffice.org3
     ```

### 7.8.1.1 Configuring the EJB pool size

Four different stateless session beans exist for enforcing independent pool sizes for these types of input files:

- PostScript and Encapsulated PostScript files
Image files (such as BMP, TIFF, PNG, JPEG etc.)
OpenOffice files
All other file types (except HTML files) such Microsoft Office files, Adobe Photoshop, PageMaker, and FrameMaker files

The pool size for HTML-to-PDF conversions is not managed through the use of stateless session beans.

The default pool size for PostScript and Encapsulated PostScript files, and for Image files, is set to 3, and the default pool size for OpenOffice and other file types (except HTML) is set to 1.

You can configure the PS/EPS and Image pool-size to a different value based on your server hardware configuration, such as the number of CPUs, the number of cores within each CPU, and so on. However, it is mandatory for the OpenOffice and the pool size for other file types to be left unchanged for proper functioning of PDF Generator ES2.

This section describes how the pool size for PS2PDF and Image2PDF can be configured for each of the supported application-servers.

The text below assumes that the following two LiveCycle ES2 application EAR files have been deployed on the application server:

- adobe-livecycle-websphere.ear
- adobe-livecycle-native-websphere-[platform].ear

In the above line, [platform] should be replaced with one of these four strings, depending on whether you are running your application server on a Windows, Linux, SunOS, or an AIX operating system:

- “x86_win32”
- “x86_linux”
- “sparc_sunos”
- “powerpc_aix”

To configure the pool size for PS2PDF and Image2PDF:

1. Ensure that IBM WebSphere Application Server is running.

2. Log in to the WebSphere Administrative Console at http://<hostname>:9060/ibm/console. The URL might be different if you chose WebSphere to run on a non-standard port or if HTTPS is enforced. Depending on whether security is enabled, WebSphere may prompt you to authenticate yourself with administrator privileges.

3. (WebSphere 6.x) In the WebSphere Administrative Console navigation tree, click Servers > Application Servers and in the right pane, click the server name.
   (WebSphere 7.x) In the WebSphere Administrative Console navigation tree, click Server > Server Types > WebSphere application servers and in the right pane, click the server name.


5. Under Additional Properties, click Java Virtual Machine and then click Custom Properties.
6. Click the property `com.ibm.websphere.ejbcontainer.poolSize`. If this property is not in the list, click New and type the property name in the Name box.

If the property existed previously, its value should appear as follows:

```
LiveCycle8#adobe-pdf-g-bmc-invoker-ejb.jar#NativeToPDFInvoker=1,1:LiveCycle8#adobe-pdf-g-bmc-invoker-ejb.jar#OpenOfficeToPDFInvoker=1,1:LiveCycle8#adobe-pdf-g-bmc-invoker-ejb.jar#ImageToPDFInvoker=3,3:LiveCycle8#adobe-pdf-g-bmc-invoker-ejb.jar#PSToPDFInvoker=3,3
```

Here, `ImageToPDFInvoker=3,3` and `PSToPDFInvoker=3,3` specify that the values of the minimum/maximum EJB pool size for Image2PDF and PS2PDF conversions are set to 3 each.

7. Modify these values appropriately. For example, to configure a pool size of 5 for Image2PDF and a pool size of 8 for PS2PDF, the modified property value should read as follows:

```
LiveCycle8#adobe-pdf-g-bmc-invoker-ejb.jar#NativeToPDFInvoker=1,1:LiveCycle8#adobe-pdf-g-bmc-invoker-ejb.jar#OpenOfficeToPDFInvoker=1,1:LiveCycle8#adobe-pdf-g-bmc-invoker-ejb.jar#ImageToPDFInvoker=5,5:LiveCycle8#adobe-pdf-g-bmc-invoker-ejb.jar#PSToPDFInvoker=8,8.
```

**Note:** In the string above, replace `LiveCycle8` with the actual name of the LiveCycle ES2 application deployed on WebSphere Application Server.

8. Save your changes and restart WebSphere Application Server. If you are running an application server cluster, you need to make identical changes on each of the application server cluster nodes. Therefore, to save time, it is a good idea to make the changes before you create a cluster. This ensures that these values will be automatically set on each cluster node that is created after these changes are made on the primary node.

**7.8.2 Setting the Adobe PDF Printer as the default printer**

You must set the Adobe PDF Printer to be the default printer on the server. If the Adobe PDF Printer is not set as the default, PDF Generator ES2 cannot convert files successfully.

For clusters, you must set Adobe PDF Printer as the default printer on all nodes.

➤ **To set the default printer:**

1. Select Start > Printers and Faxes.

2. In the Printers and Faxes window, right-click Adobe PDF and select Set as Default Printer.

**7.8.3 Configuring Acrobat Professional**

This procedure is required only if you upgraded to or installed Acrobat after you completed the LiveCycle ES2 installation. Upgrading Acrobat can be completed after you run LiveCycle Configuration Manager and deploy LiveCycle ES2 to the application server. Acrobat Professional root directory is designated as `[Acrobat root]`. Typically, the root directory is `C:\Program Files\Adobe\Acrobat 9.0\Acrobat`.

➤ **To configure Acrobat for use with PDF Generator:**

1. If an earlier version of Acrobat is installed, uninstall it by using Add or Remove Programs in the Windows Control Panel.

2. Do one of the following:
● If you are using the media, insert the Acrobat CD.
● If you are using the ESD downloads, download Acrobat from your ESD location.

3. Install Acrobat by running the AutoPlay.exe file.

4. Navigate to the additional\scripts folder on the LiveCycle ES2 installation media.

5. Run the following batch file on the cluster node where LiveCycle ES2 is installed:
   Acrobat_for_PDFG_Configuration.bat [LiveCycleES2 root]/pdfg_config

6. On all cluster nodes on which you do not plan to run LiveCycle Configuration Manager, do the following:
   ● Add a new registry DWORD entry named SplWOW64TimeOut at HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print. Set its value to 60000.
   ● Copy PDFGen.api from the [LiveCycle ES2 root]/plugins/x86_win32 directory on the node where LiveCycle ES2 is installed to the [Acrobat root]/plug_ins directory on the node being currently configured.
   ● Copy PDFG_PDFA-1(sRGB).kfp, PDFG_PDFA-1a(sRGB).kfp, and PDFG_PDFA-1b(sRGB).kfp files from the [LiveCycle ES2 root]/plugins/x86_win32 directory on the node where LiveCycle ES2 is installed to the [Acrobat root]/plug-ins/Preflight directory on the node being currently configured.

7. If you are also installing PDF Generator 3D ES2, follow these additional steps on nodes where you do not plan to run LiveCycle Configuration Manager:
   ● Set the value of the environment variable A3DREVIEWER_MULTI to 1.
   ● Copy PDFG3dAddin.dll from [LiveCycle ES2 root]/plugins/x86_win32 on the node where LiveCycle ES2 is installed to any directory on the node being currently configured.
   ● Change to the directory to which you just copied PDFG3dAddin.dll.
   ● Register PDFG3dAddin.dll using the following command:
     regsvr32 PDFG3dAddin.dll

**Note:** You do not need to follow steps 6 and 7 on a node where LiveCycle ES2 is installed. Simply run the batch file specified in step 5.

8. Open Acrobat and select Help > Check for updates > Preferences.


➤ **To validate the Acrobat installation:**

1. Navigate to a PDF file on your system and double-click it to open it in Acrobat. If the PDF file opens successfully, Acrobat is installed correctly.

2. If the PDF file does not open correctly, uninstall Acrobat and reinstall it.

**Note:** Ensure that you dismiss all the Acrobat dialog boxes that are displayed after the Acrobat installation is completed and disable the automatic updates for Acrobat.

Set the Acrobat_PATH environment variable to point to Acrobat.exe (For example, C:\Program Files\Adobe\Acrobat 9.0\Acrobat\Acrobat.exe).
To configure native application support:

1. Install and validate Acrobat as described in the previous procedure.
2. Set Adobe PDF printer as the default printer.
3. **PDF Generator 3D ES2** Register the DLL file located at `[LiveCycleES2 root]\plugins\x86_win32\PDFG3dAddin.dll`.

7.8.4 Configuring user accounts for multi-threaded file conversions

By default, PDF Generator ES2 can convert only one OpenOffice, Microsoft Word, or PowerPoint document at a time. If you enable multi-threaded conversions, PDF Generator ES2 can convert more than one of the documents concurrently by launching multiple instances of OpenOffice or PDFMaker (which is used to perform the Word and PowerPoint conversions).

**Note:** Only Microsoft Word 2007 and Microsoft PowerPoint 2007 are supported with multi-threaded file conversions. Microsoft Excel 2003 or 2007 versions are not supported.

If you need to enable multi-threaded file conversion, you must first perform the tasks outlined in the “Enabling multi-threaded file conversions” section of the *Preparing to Install LiveCycle ES2 (Single Server)* guide.

For Linux and Solaris users, you must create your users and make these additional configurations to remove the password prompts.

**➤ Add a user account:**

1. In LiveCycle Administration Console, click **Services > LiveCycle PDF Generator ES2 > User Accounts**.
2. Click **Add** and enter the user name and password of a user who has administrative privileges on the LiveCycle ES2 server. If you are configuring users for OpenOffice, dismiss the initial OpenOffice activation dialogs.

   **Note:** If you are configuring users for OpenOffice, the number of instances of OpenOffice cannot be greater than number of user accounts specified in this step.
3. Restart the LiveCycle ES2 server.

**➤ Additional configuration required for OpenOffice on Linux or Solaris**

1. Add user accounts as described above.
2. Add entries for additional users (other than the administrator who runs the LiveCycle ES2 server in the `/etc/sudoers` file. For example, if you are running LiveCycle ES2 as a user named `lcadm` and a server named `myhost`, and you want to impersonate `user1` and `user2`, add the following entries to `/etc/sudoers`:

   ```
   lcadm myhost=(user1) NOPASSWD: ALL
   lcadm myhost=(user2) NOPASSWD: ALL
   ```

   This configuration enables lcadm to run any command on host ‘myhost’ as ‘user1’ or ‘user2’ without prompting for password.
3. Allow all the users that you added via Add a user account to make connections to the LiveCycle ES2 server. For example, to allow a local user named user1 the permission of making the connection to the LiveCycle ES2 server, use the following command:

    xhost +local:user1@

    For more details, refer to xhost command documentation.

4. Restart the server.

7.8.5 Installing East Asian characters in Windows Server 2003

When HTML files are converted to PDF by using PDF Generator ES2 or PDF Generator 3D ES2, some East Asian languages, such as Japanese, Korean, and Chinese, and also right-to-left languages, such as Arabic, Armenian, Georgian, Hebrew, Indic, Thai, and Vietnamese, may not be displayed in the PDF file.

To ensure that these languages are displayed in Windows Server 2003, appropriate fonts must be present on the client and server.

➤ To install East Asian characters in Windows Server 2003:

1. Select Start > Control Panel and open Regional and Language Options.

2. Click the Languages tab and select Install Files for East Asian Languages.

3. Click the Advanced tab and select all the options under Code Page Conversion Tables.

If converted PDF files are still missing fonts, verify that the Arial Unicode MS (TrueType) font (ArialUni.TTF) is present in the C:\WINDOWS\Fonts directory.

7.8.6 Adding fonts to PDF Generator ES2 or PDF Generator 3D ES2

LiveCycle ES2 provides a central repository of fonts named Adobe LiveCycle ES2 Fonts Management, which is accessible to all LiveCycle ES2 modules. Make the extra fonts available to non-LiveCycle ES2 applications on the server so that PDF Generator can use these fonts to create PDF documents that are created with these applications.

7.8.6.1 Non-LiveCycle applications

The following list contains non-LiveCycle ES2 applications that PDF Generator ES2 or PDF Generator 3D ES2 can use for PDF generation on the server side:

Windows-only Applications
- Microsoft Office Word
- Microsoft Office Excel
- Microsoft Office PowerPoint
- Microsoft Office Project
- Microsoft Office Visio
- Microsoft Office Publisher
- AutoDesk AutoCAD
- Corel WordPerfect
- Adobe Photoshop CS
- Adobe FrameMaker
- Adobe PageMaker
- Adobe Acrobat Professional Extended

Multiplatform applications
- OpenOffice Writer
- OpenOffice Calc
- OpenOffice Draw
- OpenOffice Impress

Note: In addition to these applications, your list may include additional applications that you added.

Of the above applications, the OpenOffice Suite (which includes Writer, Calc, Draw, and Impress) is available on Windows, Solaris, and Linux platforms, whereas other applications are available on Windows only.

7.8.6.2 Adding new fonts to Windows applications only

All the Windows-only applications that are mentioned above can access all the fonts that are available in the C:\Windows\Fonts (or equivalent) folder. In addition to C:\Windows\Fonts, each of these applications may have its own private fonts folders.

Therefore, if you plan to add any custom fonts to the LiveCycle ES2 fonts repository, ensure that the same fonts are available to the Windows-only applications also by copying these fonts to either C:\Windows\Fonts or to an equivalent folder.

Your custom fonts must be licensed under an agreement that allows you to use them with the applications that have access to these fonts.

7.8.6.3 Adding new fonts to OpenOffice Suite

Adding custom fonts to OpenOffice Suite is explained on the OpenOffice Fonts-FAQ page at http://wiki.services.openoffice.org.

In addition, OpenOffice Suite has these resources about the fonts-related behavior:
- OpenOffice Fonts Troubleshooting Guide at http://www.openoffice.org/FAQs/fontguide.html. Some of the text in this guide is applicable only to OpenOffice 1.x and therefore may be obsolete for OpenOffice 3.x and above.
- Importing Fonts into OpenOffice 2.1 at http://openoffice.blogs.com/openoffice/2007/02/font_import_wiz.html. Even though this blog mentions OpenOffice 2.1, the instructions that are mentioned should be applicable to OpenOffice 2.2 and later.

7.8.6.4 Adding new fonts to other applications

If you added support for PDF creation in other applications, see the Help for these applications to add new fonts. In Windows, copying your custom fonts to the C:\Windows\Fonts (or equivalent) folder should be sufficient.
7.8.7 Configuring HTML to PDF conversions

The HTML-to-PDF conversion process is designed to use the settings from Acrobat 9 that override the settings from LiveCycle PDF Generator ES2.

**Note:** This configuration is required to enable the HTML-to-PDF conversion process, otherwise this conversion type will fail.

➢ To configure the HTML-to-PDF conversion:

1. Install and validate Acrobat as described in “Configuring Acrobat Professional” on page 77.

2. Locate the pdfgen.api file in the \[LiveCycleES2 root\]\plugins\x86_win32 directory and copy it to \[Acrobat root\]\Acrobat\plug_ins directory.

7.8.7.1 Enabling support for Unicode fonts in HTML to PDF conversions

**Caution:** The HTML-to-PDF conversion fails if a zipped input file contains HTML files with double-byte characters in filenames. To avoid this problem, do not use double-byte characters when naming HTML files.

1. Copy the Unicode font to any of the following directories as appropriate for your system:
   - **Windows**
     - \[Windows root\]\windows\fonts
     - \[Windows root\]\winnt\fonts
   - **UNIX**
     - /usr/X/lib/X11/fonts/TrueType
     - /usr/openwin/lib/X11/fonts/TrueType
     - /usr/share/fonts/default/TrueType
     - /usr/X11R6/lib/X11/fonts/ttf
     - /usr/X11R6/lib/X11/fonts/truetype
     - /usr/X11R6/lib/X11/fonts/TrueType
     - /usr/X11R6/lib/X11/fonts/TTF
     - /Users/cfqauser/Library/Fonts
     - /System/Library/Fonts
     - /Library/Fonts
     - /Users/ + System.getProperty(<user name>, root) + Library/Fonts
     - System.getProperty(JAVA_HOME) + /lib/fonts
     - /usr/share/fonts (Solaris)

**Note:** Ensure that the directory /usr/lib/X11/fonts exists. If it does not, create a symbolic link from /usr/share/X11/fonts to /usr/lib/X11/fonts using the ln command.

2. Modify the font-name mapping in the cffont.properties file located in the \[LiveCycleES2 root\]\adobe-generatedpdf-dsc.jar file:
   - Extract this archive, and locate the cffont.properties file and open it in an editor.
● In the comma-separated list of Java font names, add a map to your Unicode system font for each font type. In the example below, kochi mincho is the name of your Unicode system font.

    dialog=Arial, Helvetica, kochi mincho
dialog.bold=Arial Bold, Helvetica-Bold, kochi mincho ...

● Save and close the properties file, and then repackaged and redeploy the adobe-generatepdf-dsc.jar file.

**Note:** On a Japanese operating system, specify the font mapping in the cffont.properties.ja file as well, which takes precedence over the standard cffont.properties file.

**Tip:** Fonts in the list are searched from left to right, using the first font found. HTML-to-PDF conversion logs return a list of all the font names that are found in the system. To determine the font name you need to map, add the font to one of the directories above, restart the server, and run a conversion. You can determine from the log files the font name to use for mapping.

To embed the font in the generated PDF files, set the embedFonts property in the cffont.properties file to true (the default is false).

### 7.8.8 Modifying Microsoft Visio 2007 default macro settings

When a Microsoft Visio 2007 file containing macros is submitted for conversion, the resultant Microsoft Office Visio Security Notice dialog causes the conversion to time out. To successfully convert files that contain macros, the default macro settings in Visio must be changed.

➤ **Change the default Visio 2007 macro settings:**

● In Visio 2007, click **Tools > Trust Center > Macro Settings** and select either of the following options and then click **OK**:

   ● Disable all macros without notification
   
   ● Enable all macros

### 7.8.9 Installing the Network Printer Client

PDF Generator ES2 includes an executable file to install the PDF Generator ES2 network printer on a client computer. After the installation is complete, a PDF Generator ES2 printer is added to the list of existing printers on the client computer. This printer can then be used to send documents for conversion to PDF.

**Note:** The PDF Generator ES2 Network Printer Client (wizard) is supported on 32-bit Windows platforms only.

If the PDFG Network Printer fails to install on Windows or if you want to install the printer on UNIX or Linux platforms, use the operating system's native Add Printer utility and configure it as described in “To configure PDFG Network Printer on Windows using the native Add Printer wizard:” on page 84.

➤ **To install the PDF Generator ES2 Network Printer Client:**

1. Ensure that you successfully installed PDF Generator ES2 on your server.

2. From a Windows client computer, enter the following URL in your web browser, where **[server]** is the name of the server where you installed PDF Generator ES2 and **[port]** is the application server port used:
3. On the Configure Internet Port screen, select **Use the specified user account** and provide the credentials of a LiveCycle user who has the PDFG Administrator/User role. This user must also have an email address that can be used to receive the converted files. To have this security setting apply to all users on the client computer, select **Use the same security options for all users**, and then click **OK**.

   Upon successful installation, a dialog box appears, indicating that “The Printer Adobe LiveCycle PDF Generator ES2 has been successfully installed.”

4. Click **OK**. You will now have a printer named *Adobe LiveCycle PDF Generator ES2* in your list of available printers.

➤ **To configure PDFG Network Printer on Windows using the native Add Printer wizard:**

1. Click **Start > Printers and Faxes** and double-click **Add Printer**.

2. Click **Next**, select **A network printer, or a printer attached to another computer**, and then click **Next**.

3. Select **Connect to a printer on the internet or on a home or office network** and type the following URL for the PDFG printer, where `{server}` is the server name and `{port}` is the port number where the server is running:

   \[http://{server}:{port}/pdfg-ipp/printer\]

4. On the Configure Internet Port screen, select **Use the specified user account** and provide valid User credentials.

5. In the **Printer Driver Select** box, choose any standard PostScript-based printer driver (for example, HP Color LaserJet PS).

6. Complete the installation by choosing appropriate options (for example, setting this printer as default).

   **Note:** The user credentials used while adding the printer must have a valid email ID configured in User Management to receive the response.

7. Configure the email service’s sendmail service. Provide a valid SMTP server and authentication information in the service’s configuration options.

➤ **To install and configure the PDF Generator ES2 Network Printer Client using Proxy server port forwarding**

1. Configure port forwarding on the CC Proxy server on a particular port to the LiveCycle ES2 server, and disable the authentication at proxy server level (since LiveCycle ES2 uses its own authentication). If a client connects to this Proxy server on the forwarded port, then all the requests will be forwarded to the LiveCycle ES2 server.

2. Install PDFG Network Printer using the following URL:

   \[http://[proxy server]:[forwarded port]/pdfg-ipp/install\]

3. Provide the necessary credentials for authentication of the PDFG Network Printer.

4. The PDFG Network Printer will be installed on the client machine which you can use for PDF conversion using the firewall protected LiveCycle ES2 server.
7.8.10 Setting watched folder performance parameters

To avoid java.io.IOException error messages indicating that not enough disk space is available to perform PDF conversions by using a watched folder, you can modify the settings for PDF Generator in LiveCycle Administration Console.

You must also ensure that the maximum transaction time-out and ORB service values have the proper values ("Modifying the WebSphere time-out settings" on page 48).

➤ To set performance parameters for PDF Generator:

1. Log in to LiveCycle Administration Console and click Services > Applications and Services > Service Management.

2. In the list of services, navigate to and click PDFGConfigService, and then set the following values:
   - PDFG Cleanup Scan Seconds: 1800
   - Job Expiration Seconds: 6000
   - Server Conversion Timeout: Change the default of 270 to a higher value, such as 450.

3. Click Save and restart the server.

7.9 Final setup for LiveCycle Rights Management ES2

Rights Management ES2 requires the application server to be configured to use SSL. (See LiveCycle ES2 Administration Help.)

7.10 Setup for Content Services ES2

If your LiveCycle ES2 installation uses Content Services ES2 and you haven’t configured your application server through LiveCycle Configuration Manager, you must perform additional manual configuration of the application server before deployment. Complete the following procedure on your application server.

Note: You must configure and deploy LiveCycle ES2 before you perform this procedure (see “Configuring and deploying LiveCycle ES2” on page 35). This procedure configures directories that are created only when you deploy LiveCycle ES2.

➤ To configure setup for Content Services ES2:

1. In the WebSphere Administrative Console navigation tree, click Servers > Application Servers and, in the right pane, click the server name.


3. Under Additional Properties, click Java Virtual Machine and add or configure the following properties:
   - In the Generic JVM arguments box, type
     -Dalfresco.tcp.initial_hosts=<host name>[<port value>],<host name>[<port value>]
     -Dfile.encoding=utf8
**Note:** Replace `<host name>` with the names of the computers in the cluster. Replace `<port value>` with the port number (any value between 7800 and 8000) for that computer.

**Note:** For IPv6-based clusters, the `<host name>` should be mapped to an IPv6 address.

**Caution:** You must include all servers in the cluster, except for the server being configured. Use commas to separate the names of the servers in the argument list.

4. Under Additional Properties, click **Custom Properties**.

5. Click **New**, add or configure the following properties, and then click **OK**:
   - In the **Name** box, type `alfresco.cluster.name`
   - In the **Value** box, type `lc9_cluster`

6. Click **New**, add or configure the following properties, and then click **OK**:
   - In the **Name** box, type `alfresco.tcp.port_range`
   - In the **Value** box, type `3`

7. Click **New**, add or configure the following properties, and then click **OK**:
   - In the **Name** box, type `alfresco.tcp.start_port`
   - In the **Value** box, type `<port value>`

   **Note:** Replace `<port value>` with the port number that you configured in step 3 for the computer.

8. Click **Save directly to the master configuration**.

9. Repeat steps 1 to 8 for each WebSphere Application Server of the cluster.

**Note:** Vertical clustering is not supported for Content Services ES2.

### 7.11 Configuring LiveCycle ES2 to access LDAP

If you configured LDAP for LiveCycle 7.x products, those settings are migrated during the upgrade process, and you do not need to perform the steps in this section. If you did not previously configure LDAP, you can use the following procedure as a guideline when configuring User Management to support authentication using LDAP.

**To configure User Management with LDAP (Enterprise Domain):**

1. Open a web browser, navigate to `http://[host]:[port]/adminui` and log in. (See “Accessing LiveCycle Administration Console” on page 70.)

2. Click **Settings > User Management > Domain Management**, and then click **New Enterprise Domain**.

3. In the **ID** box, type a unique identifier for the domain and, in the **Name** box, type a descriptive name for the domain.

   **Note:** When using DB2 for your LiveCycle ES2 database, the maximum permitted length of the ID is 100 single-byte (ASCII) characters or 50 double-byte characters or 25 four-byte characters. (See “Adding enterprise domains” in *LiveCycle ES2 Administration Help*.)
4. Click **Add Authentication** and, in the **Authentication Provider** list, select LDAP.

5. Click **OK**.

6. Click **Add Directory** and, in the **Profile Name** box, type a name for your LDAP profile.

7. Click **Next**.

8. Specify values in the **Server**, **Port**, **SSL**, and **Binding** boxes, and in the **Populate Page with** box, select a directory settings option such as **Default Sun ONE values**. Also, specify values in the **Name** and **Password** box that would be used to connect to the LDAP database when anonymous access is not enabled. (See “Directory settings” in **LiveCycle ES2 Administration Help**.)

9. (Optional) Test your configuration:
   - Click **Test**. The screen displays a message indicating either a successful server test or any configuration errors that exist.

10. Click **Next** and configure the **User Settings** as required. (See “Directory settings” in **LiveCycle ES2 Administration Help**.)

11. (Optional) Test your configuration:
   - Click **Test**.
   - In the Search Filter box, verify the search filter or specify a new search filter, and then click **Submit**. The screen displays a list of entries that match the search criteria.
   - Click **Close** to return to the User Settings screen.

12. Click **Next** configure the **Group Settings** as required. (See “Directory settings” in **LiveCycle ES2 Administration Help**.)

13. (Optional) Test your configuration:
   - Click **Test**.
   - In the Search Filter box, verify the search filter or specify a new search filter, and then click **Submit**. The screen displays a list of entries that match the search criteria.
   - Click **Close** to return to the Group Settings screen.

14. Click **Finish** to exit the New Directory page and then click **OK** to exit.

➤ **To configure User Management (Local Domain):**

1. Open a web browser, navigate to http://[host]:[port]/adminui, and log in. (See “**Accessing LiveCycle Administration Console**” on page 70.)

2. Click **Settings > User Management > Domain Management**, and then click **New Local Domain**.

3. In the appropriate boxes, enter the domain ID and name. (See “Adding local domains” in **LiveCycle ES2 Administration Help**.)

4. (Optional) Disable account locking by deselecting the **Enable Account Locking** option.

5. Click **OK**.
7.12 Enabling FIPS mode

LiveCycle ES2 provides a FIPS mode to restrict data protection to Federal Information Processing Standard (FIPS) 140-2 approved algorithms using the RSA BSAFE Crypto-C 2.1 encryption module.

If you did not enable this option by using LiveCycle Configuration Manager during LiveCycle ES2 configuration or if you enable it but want to turn it off, you can change this setting through LiveCycle Administration Console.

Modifying FIPS mode requires you to restart the server.

FIPS mode does not support Acrobat versions earlier than 7.0. If FIPS mode is enabled and the Encrypt With Password and Remove Password processes include the Acrobat 5 setting, the process fails.

In general, when FIPS is enabled, the Assembler service does not apply password encryption to any document. If this is attempted, a **FIPSModeException** is thrown, indicating that “Password encryption is not permitted in FIPS mode.” Additionally, the **PDFsFromBookmarks** element is not supported in FIPS mode when the base document is password-encrypted.

➤ **To turn FIPS mode on or off:**

1. Log in to LiveCycle Administration Console.
2. Click **Settings > Core System Settings > Configurations**.
3. Select **Enable FIPS** to enable FIPS mode or deselect it to disable FIPS mode.
4. Click **OK** and restart the application server.

**Note:** LiveCycle ES2 software does not validate code to ensure FIPS compatibility. It provides a FIPS operation mode so that FIPS-approved algorithms are used for cryptographic services from the FIPS-approved libraries (RSA).

7.13 Configuring HTML digital signature

To use the HTML digital signature feature of Forms ES2, complete the following procedure.

➤ **To enable HTML digital signature:**

1. Manually deploy the `[LivecycleES2 root]/deploy/adobe-forms-ds.ear` file to your application server.
2. Log in to LiveCycle Administration Console and click **Services > LiveCycle Forms ES2**.
3. Select **HTML Digital Signature Enabled** and then click **Save**.

7.14 Overriding session management for Content Services ES2

You must override session management settings for Content Services ES2 in WebSphere Application Server and then ensure that session replication is set to none.

➤ **To override session management and disable session replication:**

1. Do one of the following:
● (WebSphere 6.1) In the WebSphere Administrative Console navigation tree, click **Applications > Enterprise applications**, then in the right pane click **LiveCycle Content Services**.

● (WebSphere 7.0) In the WebSphere Administrative Console navigation tree, click **Applications > Application types > WebSphere Enterprise applications**, then in the right pane click **LiveCycle Content Services**.

2. Under **Web Module Properties**, click **Session management**.

3. Under **General Properties**, select **Override session management**.

4. Under **Additional Properties**, click **Distributed environment settings**.

5. Under **General Properties**, locate **Distributed sessions** and select **None**.

6. Click **Apply** or **OK**.

7. Click **Save to master configuration**.

### 7.15 Configuring the Document Management service

If you installed Content Services ES2 and your application server is running on a non-default port, modify the port that the Document Management service uses.

➤ **To modify the port:**

1. Log in to LiveCycle Administration Console and click **Services > Applications and Services > Service Management**.

2. In the list, select **DocumentManagementService**.

3. On the **Configuration** tab, in the **HTTP Port** box, specify the port numbers you are using on each member of the cluster (as a comma-separated list, and then click **Save**. For example, specify the following:
   - WebSphere Cluster: 9080, 9081, 9082

### 7.16 Configuring the Connector for EMC Documentum service

**Note:** LiveCycle ES2 supports EMC Documentum, versions 6.0, 6.5 and 6.7 SP1 only. Make sure your ECM is upgraded accordingly.

If you installed the Connector for EMC Documentum service as part of your LiveCycle ES2 solution, configure the service to connect to the Documentum repository.

➤ **To configure Connector for EMC Documentum:**

1. Locate the adobe-component-ext.properties file in the `[appserverdomain]` folder (if the file does not exist, create it).

2. Add a new system property that provides the following Documentum Foundation Classes JAR files:
   - dfc.jar
   - aspectjrt.jar
- log4j.jar
- jaxb-api.jar
- (For Connector for EMC Documentum 6.5 only)
  - configservice-impl.jar,
  - configservice-api.jar

The new system property should take on this form:

  [component id].ext=[JAR files and/or folders]

For example, using default Content Server and Documentum Foundation Classes installations, add to the file one of the following system properties on a new line, with no line breaks, and end the line with a carriage return:

**Note:** If you copy and paste this text, you must remove the formatting characters.

- Connector for EMC Documentum 6.0 only:
  
  ```
  com.adobe.livecycle.ConnectorforEMCDocumentum.ext=
  C:/Program Files/Documentum/Shared/dfc.jar,
  C:/Program Files/Documentum/Shared/aspectjrt.jar,
  C:/Program Files/Documentum/Shared/log4j.jar
  ```

- Connector for EMC Documentum 6.5 only:
  
  ```
  com.adobe.livecycle.ConnectorforEMCDocumentum.ext=
  C:/Program Files/Documentum/Shared/dfc.jar,
  C:/Program Files/Documentum/Shared/aspectjrt.jar,
  C:/Program Files/Documentum/Shared/log4j.jar,
  C:/Program Files/Documentum/Shared/jaxb-api.jar
  ```

- Connector for EMC Documentum 6.7 SP1 only:
  
  ```
  com.adobe.livecycle.ConnectorforEMCDocumentum.ext=
  C:/Program Files/Documentum/Shared/dfc.jar,
  C:/Program Files/Documentum/Shared/aspectjrt.jar,
  C:/Program Files/Documentum/Shared/log4j.jar,
  C:/Program Files/Documentum/Shared/jaxb-api.jar,
  C:/Program Files/Documentum/Shared/configservice-impl.jar,
  C:/Program Files/Documentum/Shared/configservice-api.jar
  ```

3. (Connector for EMC Documentum 6.0 only) Delete the dfc.keystore file located in the C:\Documentum\config directory.

  **Note:** This step is required due to incompatible JDK requirements for WebSphere and Documentum Foundation Classes of EMC Documentum 6.0.

4. Repeat steps 1 and 2 on each WebSphere Application Server instance of the cluster.

5. Open a web browser and enter this URL:

  http://localhost:9080/adminui (local deployment using the default port)
6. Log in using the default user name and password:
   - **User name**: administrator
   - **Password**: password

7. Navigate to Services > LiveCycle ES2 Connector for EMC Documentum > Configuration Settings and perform these tasks:
   - Type the required Documentum repository information.
   - To use Documentum as your repository provider, under Repository Service Provider Information, select **EMC Documentum Repository Provider**, and then click **Save**.

8. (Optional) Navigate to Services > LiveCycle ES2 Connector for EMC Documentum > Repository Credentials Settings, click **Add**, specify the Docbase information, and then click **Save**.

9. If WebSphere Application Server is not currently running, start the server. Otherwise, stop and then restart the server.

10. Open a web browser and enter this URL:
    - http://localhost:9080/adminui (local deployment using the default port)

11. Log in using the default user name and password:
    - **User name**: administrator
    - **Password**: password

12. Navigate to Services > Applications and Services > Service Management and select the following services:
    - EMCDocumentumAuthProviderService
    - EMCDocumentumContentRepositoryConnector
    - EMCDocumentumRepositoryProvider

13. Click **Start**. If any of the services do not start correctly, check the settings entered in step 7.

14. Do one of the following tasks:
    - To use the Documentum Authentication service (EMCDocumentumAuthProviderService) to display content from a Documentum repository in the Resources view of Workbench ES2, continue with this procedure. Using the Documentum Authentication service overrides the default LiveCycle ES2 authentication and must be configured to log in to Workbench ES2 using Documentum credentials.
    - To use the LiveCycle ES2 repository, log in to Workbench ES2 by using the LiveCycle ES2 super administrator credentials (by default, **Administrator** and **password**).

You have now completed the required steps for this procedure. Use the credentials provided in step 7 for accessing the default repository in this case and use the default LiveCycle ES2 authentication service.

15. Restart the application server.

16. Log in to LiveCycle Administration Console and click Settings > User Management > Domain Management.

17. Click **New Enterprise Domain**, and type a domain ID and name. The domain ID is the unique identifier for the domain. The name is a descriptive name for the domain.
18. Add a custom authentication provider:
   - Click **Add Authentication**.
   - In the **Authentication Provider** list, select **Custom**.
   - Select **EMCDocumentumAuthProvider** and then click **OK**.

19. Add an LDAP authentication provider:
   - Click **Add Authentication**.
   - In the **Authentication Provider** list, select **LDAP**, and then click **OK**.

20. Add an LDAP directory:
   - Click **Add Directory**.
   - In the **Profile Name** box, type a unique name, and then click **Next**.
   - Specify values for the **Server**, **Port**, **SSL**, **Binding**, and **Populate page with** options. If you select **User** for the **Binding** option, you must also specify values for the **Name** and **Password** fields.
   - (Optional) Select **Retrieve Base DN** to retrieve base domain names, as required.
   - Click **Next**, configure the user settings, click **Next**, configure group settings, as required, and then click **Next**.
     For details about the settings, click **User Management Help** in the upper-right corner of the page.

21. Click **OK** to exit the Add Directory page and then click **OK** again.

22. Select the new enterprise domain and click **Sync Now**. Depending on the number of users and groups in your LDAP network and the speed on your connection, the synchronization process may take several minutes.
   - (Optional) To verify the status of the synchronization, click **Refresh** and view the status in the **Current Sync State** column.

23. Navigate to **Settings > User Management > Users and Groups**.

24. Search for users that were synchronized from LDAP and perform these tasks:
   - Select one or more users and click **Assign Role**.
   - Select one or more LiveCycle ES2 roles and click **OK**.
   - Click **OK** a second time to confirm the role assignment.
   Repeat this step for all users that you assign roles to. For more information, click **User Management Help** in the upper-right corner of the page.

25. Start Workbench ES2 and log in by using the credentials for the Documentum repository:
   
   **Username**: [username]@[repository_name]
   **Password**: [password]

   After you log in, the Documentum repository appears in the Resources view within Workbench ES2. If you do not log in using the **username@repository_name**, Workbench ES2 attempts to log in to the default repository specified in step 7.
26. (Optional) To install the LiveCycle ES2 Samples for Connector for EMC Documentum, create a Documentum repository named **Samples**, and then install the samples in that repository.

After you configure the Connector for EMC Documentum service, see [LiveCycle ES2 Administration Help](#) for information about configuring Workbench ES2 with your Documentum repository.

### 7.17 Creating the XDP MIME format in a Documentum repository

Before users can store and retrieve XDP files from a Documentum repository, you must do one of these tasks:
- Create a corresponding XDP format in each repository where users will access XDP files.
- Configure the Connector for EMC Documentum service to use a Documentum Administrator account when accessing the Documentum repository. In this case, the Connector for EMC Documentum service uses the XDP format whenever it is required.

➤ **To create the XDP format on Documentum Content Server using Documentum Administrator:**

1. Log in to Documentum Administrator.
2. Click **Formats** and then select **File > New > Format**.
3. Type the following information in the corresponding fields:
   - **Name**: xdp
   - **Default File Extension**: xdp
   - **Mime Type**: application/xdp
4. Repeat steps 1 to 3 for all other Documentum repositories where users will store XDP files.

➤ **To configure the Connector for EMC Documentum service to use a Documentum Administrator:**

1. Open a web browser and enter this URL:
   
   `http://localhost:[port]/adminui` (local deployment using the default port)

2. Log in using the default user name and password:
   - **User name**: administrator
   - **Password**: password
3. Click **Services > LiveCycle ES2 Connector for EMC Documentum > Configuration Settings**.
4. Under Documentum Principal Credentials Information, update the following information and then click **Save**:
   - **User Name**: [Documentum Administrator user name]
   - **Password**: [Documentum Administrator password]
5. Click **Repository Credentials Settings**, select a repository from the list or, if none exist, click **Add**.
6. Provide the appropriate information in the corresponding fields and then click **Save**:

   - **Repository Name**: [Repository Name]
   - **Repository Credentials User Name**: [Documentum Administrator user name]
   - **Repository Credentials Password**: [Documentum Administrator password]

7. Repeat steps 5 to 6 for all repositories where users will store XDP files.

### 7.18 Configuring the Connector for IBM FileNet service

LiveCycle ES2 supports IBM FileNet, versions 4.0, 4.5 and 5.0 only. Make sure your ECM is upgraded accordingly.

If you installed the Connector for IBM FileNet service as part of your LiveCycle ES2 solution, you must configure the service to connect to the FileNet object store.

Complete the following procedure to configure the Connector for IBM FileNet service.

➤ **To configure the connector using FileNet 4.x or FileNet 5.0 and CEWS transport**:

1. In the Administration console of WebSphere, do the following:
   - *(WebSphere 6.1)* Log in to WebSphere Administrative Console, click **Servers > Application servers**, and then click the name of the server instance to configure (for example, server1).
   - *(WebSphere 7)* Log in to WebSphere Administrative Console, click **Servers > Server Types > WebSphere application servers**, and then click the name of the server instance to configure (for example, server1).


4. Under Generic JVM arguments, add the location of the FileNet Configuration files as a Java option to the application server start command.

   ```
   -Dwasp.location= <configuration files location>
   ```

   For example, using a default FileNet Application Engine installation on a Windows operating system, add this Java option:

   ```
   -Dwasp.location=C:\Program Files\FileNet\AE\CE_API\wsi
   ```

5. Click **Apply** and then click **Save to Master Configuration**.

6. Locate the adobe-component-ext.properties file in the `{appserver root}/profiles/{profile name}` folder (if the file does not exist, create it).

7. Add a new system property that provides the location of these FileNet Application Engine JAR files:
   - javaapi.jar
   - log4j-1.2.13.jar
   - soap.jar
   - wasp.jar
   - builtin_serialization.jar (FileNet 4.0 only)
• wsd1_api.jar
• jaxm.jar
• jaxrpc.jar
• saaj.jar
• jetty.jar
• runner.jar
• p8cjares.jar
• Jace.jar
• (optional) pe.jar

Note: Add the pe.jar file only if your deployment uses the IBMFileNetProcessEngineConnector service. The new system property should reflect this structure:
  [component id].ext=[JAR files and/or folders]

For example, using a default FileNet Application Engine installation on a Windows operating system, add the following system property on a new line with no line breaks and end the line with a carriage return:

Note: The following text contains formatting characters for line breaks. If you copy this text to a location outside this document, remove the formatting characters when you paste it to the new location.

Note: For FileNet 4.x, add following .jar files

    com.adobe.livecycle.ConnectorforIBMFileNet.ext=
    C:/Program Files/FileNet/AE/CE_API/lib2/javaapi.jar,
    C:/Program Files/FileNet/AE/CE_API/lib2/log4j-1.2.13.jar,
    C:/Program Files/FileNet/AE/Workplace/WEB-INF/lib/soap.jar,
    C:/Program Files/FileNet/AE/CE_API/wsi/lib/wasp.jar,
    C:/Program Files/FileNet/AE/CE_API/wsi/lib/builtin_serialization.jar,
    C:/Program Files/FileNet/AE/CE_API/wsi/lib/wsd1_api.jar,
    C:/Program Files/FileNet/AE/CE_API/wsi/lib/jaxm.jar,
    C:/Program Files/FileNet/AE/CE_API/wsi/lib/jaxrpc.jar,
    C:/Program Files/FileNet/AE/CE_API/wsi/lib/saaj.jar,
    C:/Program Files/FileNet/AE/CE_API/wsi/lib/jetty.jar,
    C:/Program Files/FileNet/AE/CE_API/wsi/lib/runner.jar,
    C:/Program Files/FileNet/AE/CE_API/lib2/p8cjares.jar,
    C:/Program Files/FileNet/AE/CE_API/lib/Jace.jar,
    C:/Program Files/FileNet/AE/Workplace/WEB-INF/lib/pe.jar

Note: Add C:/Program Files/FileNet/AB/Workplace/WEB-INF/lib/pe.jar only if your deployment uses the IBMFileNetProcessEngineConnector service.

Note: For FileNet 4.5, remove the line C:/Program Files/FileNet/AB_API/wsi/lib/builtin_serialization.jar,

Note: For FileNet 5.0, add following .jar files

    C:/Program Files/FileNet/AB_API/lib/Jace.jar,
    C:/Program Files/FileNet/AB_API/lib2/javaapi.jar,
    C:/Program Files/FileNet/AB_API/lib2/log4j.jar,
    C:/Program Files/FileNet/AB/Router/lib/mailapi.jar,
    C:/Program Files/FileNet/AB/Workplace/WEB-INF/lib/pe.jar
8. (FileNet Process Engine Connector only) Configure the connection properties for the process engine as follows:

- Using a text editor, create a file with the following content as a single line and end the line with a carriage return:

  RemoteServerUrl = cemp:http://[contentserver_IP]:[contentengine_port]/wsi/FNCEWS40DIME/

- Save the file as WcmApiConfig.properties in a separate folder, and add the location of the folder that contains the WcmApiConfig.properties file to the adobe-component-ext.properties file.

  For example, if you save the file as c:/pe_config/WcmApiConfig.properties, add the path c:/pe_config to the adobe-component-ext.properties file.

  **Note:** The filename is case-sensitive.

9. Locate the file wsjaas.conf and add the following lines:

```java
FileNetP8 {com.filenet.api.util.WSILoginModule required;};
FileNetP8WSI {com.filenet.api.util.WSILoginModule required;};
FileNetP8Engine
{com.ibm.ws.security.common.auth.module.proxy.WSLoginModuleProxy
  required delegate=com.ibm.ws.security.common.auth.module.
  WSLoginModuleImpl;};
FileNetP8Server
{com.ibm.ws.security.common.auth.module.proxy.WSLoginModuleProxy
  required delegate=com.ibm.ws.security.common.auth.module.
  WSLoginModuleImpl;};
FileNetP8KerberosService
{com.ibm.ws.security.common.auth.module.proxy.WSLoginModuleProxy
  required delegate=com.filenet.engine.authentication.kerberos.login.
  KrbServiceLoginModule;
  com.ibm.ws.security.common.auth.module.proxy.WSLoginModuleProxy required
delegate=com.ibm.ws.security.server.lm.ltpaLoginModule;
  com.ibm.ws.security.common.auth.module.proxy.WSLoginModuleProxy required
delegate=com.ibm.ws.security.server.lm.
  wsMapDefaultInboundLoginModule;};
```

  **Note:** By default, the wsjaas.conf file is located in the folder `[/appserver_root]/profiles[/profile_name]/properties/`.

10. If the application server is not currently running, start the server. Otherwise, stop and then restart the server.

11. (Applicable only if IBM FileNet and LiveCycle are installed on the same WebSphere application server) Verify that these settings have been implemented correctly in the WebSphere Administrative Console by doing the following:
12. Repeat steps 10 to 10 on each WebSphere Application Server instance of the cluster.

13. Open a web browser and enter this URL:
   http://[host]:[port]/adminui

14. Log in using the default user name and password:
   User name: administrator
   Password: password

15. Click Services > LiveCycle ES2 Connector for IBM FileNet.

16. Provide all of the required FileNet repository information and, under Repository Service Provider Information, select IBM FileNet Repository Provider.

   If your deployment uses the optional process engine service, under Process Engine Settings, select Use Process Engine Connector Service and specify the process engine settings. For more information, click the Help link in the upper-right corner of the page.

   Note: The credentials that you provide in this step are validated later when you start the IBM FileNet repository services. If the credentials are not valid, an error is thrown and the services will not start.

17. Click Save and navigate to Services > Applications and Services > Service Management.

18. Select the check box next to each of these services and then click Start:
   - IBMFileNetAuthProviderService
   - IBMFileNetContentRepositoryConnector
   - IBMFileNetRepositoryProvider
   - IBMFileNetProcessEngineConnector (if configured)

   If any of the services do not start correctly, verify the settings entered in step 16.

19. Do one of the following tasks:
   - To use the FileNet Authorization service (IBMFileNetAuthProviderService) to display content from a FileNet object store in the Resources view of Workbench ES2, continue with this procedure. Using
the FileNet Authorization service overrides the default LiveCycle ES2 authorization and must be configured to log in to Workbench ES2 by using FileNet credentials.

- To use the LiveCycle ES2 repository, log in to Workbench ES2 by using the LiveCycle ES2 super administrator credentials (by default, Administrator and password). The credentials provided in step 16 use the default LiveCycle ES2 authorization service for accessing the default repository in this case.

20. Restart your application server.

21. Log in to LiveCycle Administration Console and click **Settings > User Management > Domain Management**.

22. Click **New Enterprise Domain** and then type a domain ID and name. The domain ID is the unique identifier for the domain. The name is a descriptive name for the domain.

   **Note:** When using DB2 for your LiveCycle ES2 database, the maximum permitted length of the ID is 100 single-byte (ASCII) characters or 50 double-byte characters or 25 four-byte characters. (See “Adding enterprise domains” in *LiveCycle ES2 Administration Help*.)

23. Add a custom authentication provider:
   - Click **Add Authentication**.
   - In the **Authentication Provider** list, select **Custom**.
   - Select **IBMFileNetAuthProviderService** and then click **OK**.

24. Add an LDAP authentication provider:
   - Click **Add Authentication**.
   - In the **Authentication Provider** list, select **LDAP** and then click **OK**.

25. Add an LDAP directory:
   - Click **Add Directory** and, in the **Profile Name** box, type a unique name, and then click **Next**.
   - Specify values for the **Server**, **Port**, **SSL**, **Binding**, and **Populate page with** options. If you select **User** for the **Binding** option, you must also specify values for the **Name** and **Password** fields.
   - (Optional) Select **Retrieve Base DN** to retrieve base domain names, as required. When finished, click **Next**.
   - Configure the user settings, click **Next**, configure group settings as required, and then click **Next**.
     For details about the settings, click **Help** link in the upper-right corner of the page.

26. Click **OK** to exit the Add Directory page, and then click **OK** again.

27. Select the new enterprise domain and click **Sync Now**. Depending on the number of users and groups in your LDAP network and the speed on your connection, the synchronization process may take several minutes.

   (Optional) To verify the status of the synchronization, click **Refresh** and view the status in the **Current Sync State** column.

28. Navigate to **Settings > User Management > Users and Groups**.

29. Search for users that were synchronized from LDAP and perform these tasks:
   - Select one or more users and click **Assign Role**.
● Select one or more LiveCycle ES2 roles and click **OK**.
● Click **OK** a second time to confirm the role assignment.

Repeat this step for all users you want to assign roles to. For more information, click the **Help** link in the upper-right corner of the page.

30. Start Workbench ES2 and log in using the following credentials for the IBM FileNet repository:

   **User name:** [username]@[repository_name]
   **Password:** [password]

   The FileNet object store should now be visible in the Resources view within Workbench ES2. If you do not log in using the **username@repository_name**, Workbench ES2 attempts to log in to the default repository specified in step 16.

31. (Optional) If you intend to install the LiveCycle ES2 Samples for Connector for IBM FileNet, create a FileNet object store named **Samples** and install the samples in that object store.

   After you configure your Connector for IBM FileNet service, it is recommended that you see **LiveCycle ES2 Administration Help** for information about configuring Workbench ES2 functions properly with your FileNet repository.

### 7.19 Configuring SharePoint client access

You can configure Microsoft SharePoint clients to access content services from LiveCycle ES2. For this, you should add the SharePoint Alfresco Module Package using LiveCycle Configuration Manager. The SharePoint AMP file (adobe-vti-module.amp) is available in **[LiveCycleES2 root]\LiveCycle_ES_SDK\misc\ContentServices** folder.

After you add the SharePoint AMP, perform the following steps:

#### 7.19.1 Obtain and edit the share.war file

Alfresco CMS uses the file share.war to connect with Content Services ES2. You should modify the share.war file to enable SharePoint clients to access Content Services ES2.

1. Obtain the share.war from the Alfresco installation. See your Alfresco documentation for more details.
2. Copy the file share.war to a directory in your file system.
3. Use a file archive utility such as WinRar to open the share.war file.
4. From the file archive utility window, extract the file
   **WEB-INF/classes/alfresco/webscript-framework-config.xml** and open it using a text editor.
5. Locate the line `<endpoint-url>http://localhost:9080/alfresco/s</endpoint-url>` and change it to
   `<endpoint-url>http://localhost:9080/contentspace/s</endpoint-url>`
6. Save and close the file.
7.19.2 Deploy the share.war file

1. Open the archive file adobe-contentservices.ear using an archive utility such as WinRar from the location appropriate to your application server.
   - (WebSphere):\(\text{appserver root}\)\profiles\profile name\installedApps\cell name\)

2. Add the updated share.war file to the adobe-contentservices.ear archive that is opened in the archive utility window.

3. From the file archive utility window, extract the file application.xml to a folder in the local file system, and open it using a text editor. This file is in the adobe-contentservices.ear\META-INF directory.

4. Add the following lines under the <application> tag:
   
   \[
   \begin{verbatim}
   <module id="Share">
   <web>
   <web-uri>share.war</web-uri>
   <context-root>/share</context-root>
   </web>
   </module>
   \end{verbatim}
   
5. Copy the updated application.xml file back to the adobe-contentservices.ear archive.

6. Save and close the archive.

7. Deploy the updated EAR file.

   **Note:** You must deploy the updated EAR file manually using the administration console of your application server.

7.20 Enabling CIFS in IPv6 mode

If you want to enable CIFS for Content Services ES2 on an IPv6 implementation, you must explicitly add an additional IPv6 address to the machine that hosts LiveCycle ES2. This IPv6 address should be a static IP address that resides in the same subnet as the clients. You need to do the following tasks after you configure LiveCycle ES2 using LiveCycle Configuration Manager. Typically, you should pause the LiveCycle Configuration Manager after the EAR file configuration and then edit the EAR file. After you have edited the EAR file, you can go back to the LiveCycle Configuration Manager to deploy the updated EAR file along with other selected EAR files.

7.20.1 Edit the contentservices.war file

1. Navigate to \(\text{LiveCycleES2 root}\)\configurationManager\export directory.

2. Use a file archive utility such as WinRar to open the contentservices.war file.

3. From the file archive utility window, extract the file contentservices.war\WEB-INF\classes\alfresco\file-services-custom.xml and open it using a text editor.
4. Locate the following line and change it by adding `ipv6="enabled"`:
   
   ```xml
   <tcpipSMB platforms="linux,solaris,macosx,windows,AIX"/>
   ``
   
   to
   
   ```xml
   <tcpipSMB platforms="linux,solaris,macosx,windows,AIX" ipv6="enabled"/>
   ```

5. Save and close the file.

6. From the file archive utility window, extract the file `contentservices.war\WEB-INF\classes\alfresco\extension\file-servers-proper-`ties` into a folder in the local file system, and open it using a text editor.

7. Locate the line `cifs.ipv6=disabled` and replace it with `cifs.ipv6=enabled`.

8. Save and close the file.

9. Copy the updated `file-servers-custom.xml` file into the archive under `contentservices.war\WEB-INF\classes\alfresco\extension\`.

10. Save the `contentservices.war` file.

   **Note:** After you update the EAR files, you should use the LiveCycle Configuration Manager to deploy the updated EAR file.

### 7.21 Configuring the Connector for IBM Content Manager

**Note:** LiveCycle ES2 supports IBM Content Manager, version 8.4 only. Make sure your ECM is upgraded accordingly.

If you installed the Connector for IBM Content Manager service as part of your LiveCycle ES2 solution, complete the following procedure to configure the service to connect to the IBM Content Manager data store.

➤ **To configure Connector for IBM Content Manager:**

1. Locate the `adobe-component-ext.properties` file in the `(appserver root)/profiles/{profile name}` folder. If the file does not exist, create it.

2. Add a new system property that provides the location of the following IBM II4C JAR files, Config folder that contains the IBM II4C property files, and a ZIP file from DB2 Universal Database Client installation:

   - cmb81.jar
   - cmbcm81.jar
   - cmbicm81.jar
   - cmblog4j81.jar
   - cmbsdk81.jar
   - cmbutil81.jar
   - cmbutilicm81.jar
   - cmbview81.jar
   - cmbwas81.jar
   - cmbwcm81.jar
Note: cmgmt is not a JAR file. On Windows, by default, this folder is at C:/Program Files/IBM/db2cmv8/.

- common.jar
- db2jcc.jar
- db2jcc_license_cisuz.jar
- db2jcc_license_cu.jar
- ecore.jar
- ibmjgssprovider.jar
- ibmjsseprovider2.jar
- ibmpkcs.jar
- icmrm81.jar
- jcache.jar
- xerces.jar
- xml.jar
- xsd.jar

The new system property looks like this structure:

```
[component id].ext=[JAR files and/or folders]
```

For example, using a default DB2 Universal Database Client and II4C installation, in the file, add the following system property on a new line, with no line breaks, and end the line with a carriage return:

```
C:/Program Files/IBM/db2cmv8/cmgmt,
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmjgssprovider2.jar,
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmjgssprovider.jar,
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmpkcs.jar,
C:/Program Files/IBM/db2cmv8/java/jre/lib/xml.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbview81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmb81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbcm81.jar,
C:/Program Files/IBM/db2cmv8/lib/xsd.jar,
C:/Program Files/IBM/db2cmv8/lib/common.jar,
C:/Program Files/IBM/db2cmv8/lib/ecore.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbicm81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbwc81.jar,
C:/Program Files/IBM/db2cmv8/lib/jcache.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbutil81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbutilicm81.jar,
C:/Program Files/IBM/db2cmv8/lib/icmrm81.jar,
C:/Program Files/IBM/db2cmv8/lib/db2jcc.jar,
C:/Program Files/IBM/db2cmv8/lib/db2jcc_license_cu.jar,
C:/Program Files/IBM/db2cmv8/lib/db2jcc_license_cisuz.jar,
C:/Program Files/IBM/db2cmv8/lib/xerces.jar,
C:/Program Files/IBM/db2cmv8/lib/cmblog4j81.jar,
C:/Program Files/IBM/db2cmv8/lib/log4j-1.2.8.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbsdk81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbwas81.jar
```
3. If the application server is not currently running, start the server; otherwise, stop and then restart the server.

You can now connect to the IBM Content Manager data store from the IBMCMConnectorService Property Sheets by using the Use User Credentials as the login mode.

You have now completed the required steps for this procedure.

(Optional) If you want to connect to IBM Content Manager data store from IBMCMConnectorService Property Sheets by using the Use Credentials From Process Context as the login mode, complete the following procedure.

➤ To connect using Use Credentials from process context login mode:

1. Open a web browser and enter this URL:
   http://[host]:[port]/adminui

2. Log in using the default user name and password:
   User name: administrator
   Password: password

3. Click Services > LiveCycle ES2 Connector for IBM Content Manager > Configuration Settings.

4. Type all of the required repository information and click Save. For more information about the IBM Content Manager repository information, click the Help link in the upper-right corner of the page.

5. Do one of these tasks:
   ○ To use the IBM Content Manager Authorization service (IBMCMProviderService) to use content from an IBM Content Manager data store, in the Processes view of Workbench ES2, continue with this procedure. Using the IBM Content Manager Authorization service overrides the default LiveCycle ES2 authorization and must be configured to log in to Workbench ES2 by using IBM Content Manager credentials.
   ○ To use the System Credentials provided in step 4 to use content from an IBM Content Manager data store, in the Processes view of Workbench ES2, log in to Workbench ES2 by using the LiveCycle ES2 super administrator credentials (by default, Administrator and password). You have now completed the required steps for this procedure. The System Credentials that are provided in step 4 use the default LiveCycle ES2 authorization service for accessing the default repository in this case.

6. Log in to the LiveCycle Administration Console, and click Settings > User Management > Domain Management.

7. Click New Enterprise Domain and type a domain ID and name. The domain ID is the unique identifier for the domain. The name is a descriptive name for the domain.

   **Note:** When using DB2 for your LiveCycle ES2 database, the maximum permitted length of the ID is 100 single-byte (ASCII) characters or 50 double-byte characters or 25 four-byte characters. (See “Adding enterprise domains” in LiveCycle ES2 Administration Help.)

8. Add a custom authentication provider:
   ○ Click Add Authentication.
   ○ In the Authentication Provider list, select Custom, and then select IBMCMAuthProviderService and click OK.
9. Add an LDAP authentication provider:
   - Click **Add Authentication**.
   - In the **Authentication Provider** list, select **LDAP** and then click **OK**.

10. Add an LDAP directory:
    - Click **Add Directory**.
    - In the **Profile Name** box, type a unique name, and then click **Next**.
    - Specify values for the **Server**, **Port**, **SSL**, **Binding**, and **Populate page with** options. If you select **User** for the **Binding** option, you must also specify values for the **Name** and **Password** fields. (Optional) Select **Retrieve Base DN** to retrieve base domain names, as required. When finished, click **Next**.
    - Configure the user settings, click **Next**, configure group settings as required, and then click **Next**.
    - For details about the above settings, click the **Help** link in the upper-right corner of the page.

11. Click **OK** to exit the Add Directory page and click **OK** again.

12. Select the new enterprise domain and click **Sync Now**. Depending on the number of users and groups in your LDAP network and the speed on your connection, the synchronization process may take several minutes.

13. To verify the status of the synchronization, click **Refresh** and view the status in the **Current Sync State** column.

14. Navigate to **Settings > User Management > Users and Groups**.

15. Search for users that were synchronized from LDAP and do these tasks:
    - Select one or more users and click **Assign Role**.
    - Select one or more LiveCycle ES2 roles and click **OK**.
    - Click **OK** a second time to confirm the role assignment.
    - Repeat this step for all users that you want to assign roles to. For more information, click the **Help** link in the upper-right corner of the page.

16. Start Workbench ES2 and log in using the following credentials for IBM Content Manager data store:

   **Username:** [username]@[repository_name]

   **Password:** [password]

   The IBM Content Manager data store can now be used in the Processes view within Workbench ES2 when the login mode for IBMCMConnectorService orchestrable components is selected as **Use Credentials from process context**.

   After you configure your Connector for IBM Content Manager service, it is recommended that you see **LiveCycle ES2 Administration Help**.

## 7.22 Perform a system image backup

After LiveCycle ES2 is installed and deployed into production areas and before the system is live, it is recommended that you perform a system image backup on servers to which LiveCycle ES2 is implemented. The LiveCycle ES2 database, GDS directory, and application servers must be part of this backup. This is a complete system backup that you can use to restore the contents of your computer if
your hard drive or entire computer stops working. See the “LiveCycle ES2 Backup and Recovery” topic in LiveCycle ES2 Administration Help.

7.23 Isolating JBoss Clusters

There are a lot of JBoss services that create multiple JGroup channels services. These channels should only communicate with specific channels.

To isolate JGroups clusters from other clusters on the network, ensure that

- The channels in the various clusters use different group names. Use `./run.sh -g QAPartition -b <ipaddress> -c all` to create unique groups.
- The channels in the various clusters use different multicast addresses. Use `./run.sh -u <UDP group Ip address> -g QAPartition -b <ipaddress> -c all` to control the multicast address.
- The channels in each cluster use different multicast ports. Use `./run.sh -u <UDP group Ip address> -g QAPartition -b <ipaddress> -c all` to control the multicast sockets.

See, Isolating JGroups Channels in jbossclustering guide at http://docs.jboss.org/ for detailed information to isolate JBoss Clusters

7.24 Uninstalling LiveCycle ES2

The uninstaller located in the [LiveCycleES2 root] directory removes the files and applications that were created by the LiveCycle ES2 installer. However, the uninstaller does not remove any custom, non-LiveCycle application folders or files deployed on the application server. If some folders are not removed during uninstallation, restart the system and delete those folders manually.

**Note:** If you installed LiveCycle ES2 using the command line interface (CLI), you must uninstall LiveCycle ES2 using the CLI itself. See “Appendix - Install Command Line Interface” on page 114.

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

➢ To remove the files from your computer:

1. Invoke the uninstall program:
   - (Windows) Do one of the following:
     - Use **Add or Remove Programs** in the Windows Control Panel and remove Adobe LiveCycle ES2.
     - Manually uninstall:
       - Set the JAVA_HOME and PATH so that they use the IBM JDK from WebSphere.
       - Navigate to the directory that contains the uninstaller: [LiveCycleES2 root]\Uninstall_Adobe LiveCycle ES2
       - Double-click the Uninstall Adobe LiveCycle ES2.exe file.
1. (UNIX) Do the following:
   - From a terminal, navigate to the directory that contains the uninstall script:
   - Type `./Uninstall Adobe LiveCycle ES2` (you may need to make this binary an executable file by typing a command, such as `chmod 777`).

   **Note:** (UNIX) Navigate to the directory (Uninstall_Adobe LiveCycle ES2) which contains the uninstall script to run it. Because the directory name contains spaces, you should include the entire directory path as part of the command to uninstall the product.

   - (AIX) Perform these tasks:
     - Set `JAVA_HOME` and `PATH` so that they use the IBM JDK from WebSphere.
     - Change directory: `cd /opt/adobe/livecycleES2/Uninstall_Adobe_LiveCycle_ES2`
     - From a terminal, type `java -jar uninstall.jar`.

2. Follow the on-screen instructions in the uninstall program, and then click **Finish**.

3. If you are planning to reinstall LiveCycle ES2, remove all residual directories and files existing under the `[LiveCycleES2 root]` directory.
Configuring Load Balancing

You can configure your WebSphere cluster to provide load-balancing functionality. Use the IBM HTTP server that ships with the WebSphere Application Server to perform the following tasks:

- Preparatory tasks. (See “Preparing for installation” on page 107.)
- Install IBM HTTP Server. (See “Installing the web server” on page 107.)
- Install the web server plug-in. (See “Installing the web server plug-in” on page 108.)

Note: LiveCycle ES2 in a cluster environment supports only sticky sessions for load balancing. IBM HTTP server supports sticky sessions by default.

8.1 Preparing for installation

Before you install the web server, perform the following configuration tasks:

Server domain: If you are using a domain architecture, ensure that the server is not a member of any domain other than the same domain as the LDAP server.

Create local user: In Microsoft Windows, if you plan to run IBM HTTP Server as a service, you can create a local account and make this account a part of the local administrators group.

8.2 Installing the web server

The following steps describe how to install IBM HTTP Server on a separate node from the WebSphere ND or WebSphere basic application servers. For information about installing and configuring other IBM supported web servers, such as Apache, Microsoft IIS, and Sun Java System Web Server, see the IBM web page Editing Web Server Configuration Files.

You must first insert the installation media or copy the files to a local directory.

Note: This procedure can be used to upgrade the current version of IBM HTTP Server by replacing the existing installation.

➤ To install the web server:

1. To start the installation, go to the directory that contains the web server installer and type the appropriate command:
   - (Linux/UNIX) ./launchpad.sh
   - (Windows) launchpad.bat

2. From the Launchpad, select Launch the installation for IBM HTTP Server.

3. On the Welcome screen, click Next.

4. Select I accept the terms in the license agreement and click Next.

5. Specify the location of the installation directory and click Next.
6. Select **Custom** and click **Next**.

7. Under Product Information, select **HTTPServer Base** and **Security** and then click **Next**.

8. Specify the HTTP port and HTTP Administration port and click **Next**.

9. (Windows) Select **Run IBM HTTP Server as a Windows Service**, **Run IBM HTTP Administration as a Windows Service**, and **Log on as local system account**.

   **Note:** A user name and password is not required for this selection. To run this service using a specific user account and password combination, select **Log on as a specified user account** and specify your user ID and password information.

10. Under Startup Type, select **Automatic** and then click **Next**.

11. Review the confirmation panel to verify your selections, click **Back** to change any of your specifications, and click **Next** to begin installing IBM HTTP Server.

   After displaying the installation status, the wizard displays the Completion status panel that indicates a successful installation.

12. Deselect **Launch the WebSphere Application Server - Plugin install** and click **Finish**.

### 8.3 Installing the web server plug-in

After the application server is installed and the applications are deployed, install the web server plug-in on the HTTP server. This procedure assumes that the HTTP server is on a node that is not in the cluster.

**To install the web server plug-in:**

1. On the web server computer (the remote system that has HTTP server installed), copy the WebSphere 6 installer and, from a console, go to the WebSphere 6 installer directory and run Launchpad by typing the appropriate command:
   - (Linux/UNIX) ./launchpad.sh
   - (Windows) launchpad.bat

2. From Launchpad, select **Launch the installation wizard for Web server plug-ins**.

3. Deselect **Installation roadmap** and **Plug-ins section of the Getting Started guide**, and then click **Next**.

4. Select **I accept the terms in the license agreement** and click **Next**. The installer will now check your system.

5. If your system passes the prerequisites check, click **Next**.

   **Note:** If your system does not pass the prerequisites check, stop the installation, correct any problems, and restart the installation.

6. Select **IBM HTTP Server V6** and click **Next**.

7. Select **Web server machine (remote)** and click **Next**.

8. Specify the **[plugins_root]** directory and the location where the web server plug-ins should be installed, and click **Next**.
9. In **Select the existing IBM HTTP Server httpd.conf file**, click **Browse** and select the httpd.conf file from the `[webserver root]/conf` directory, where `[webserver root]` specifies the directory where IBM HTTP Server is installed.

10. In the **Specify the Web server port** box, keep the default port value of 80 and click **Next**.

11. In the **Specify a unique Web server definition name** box, enter a unique identifier for this definition and then click **Next**.

12. In the **Web server plugin-cfg.xml file** box, accept the default settings and then click **Next**.

13. In the **Host name or IP address for the Application Server** box, type the host name or IP address of the ND node and then click **Next**.

14. In the confirmation pane, click **Next** and, in the summary information pane, click **Next**.

15. After the files are copied, click **Next** and then click **Finish**.

16. Copy the appropriate file to the WebSphere ND `[appserver root]/bin` folder:
   - (Windows) `configure<webserver definition name>.bat`
   - (Linux/UNIX) `configure<webserver definition name>.sh`

17. Ensure that Deployment Manager is running and then run the `configurewebserver` command (`configure<webserver definition name>.bat` for Windows or `configure<webserver definition name>.sh` for Linux or UNIX) on the WebSphere ND computer to create an unmanaged node on the WebSphere ND computer and add the web server to it.

18. Open a web browser and access the administrative console for the web server computer (`http://[web server name]:80/adminui`) to verify whether the plug-in generated and propagated successfully. The following response indicates that you must generate and propagate the plug-in as described in steps 19 to 22:
   
   ```
   / [application name] not defined
   ```

   **Note:** The plug-in generates and propagates automatically only if your system previously enabled automatic synchronization, which is disabled by default.

19. Log in to the WebSphere Administrative Console and, in the navigation tree, click **Servers > Web servers** and then, in the right pane, select the **Select** check box beside the HTTP server name.

20. Click **Generate Plug-in**. A message confirms successful generation of the Plugin-cfg.xml file.

21. Click **Propagate Plug-in**. A message confirms successful propagation of the Plugin-cfg.xml file.

22. Restart the web server.
This section describes advanced tuning for LiveCycle Output ES2, LiveCycle Forms ES2, and LiveCycle PDF Generator ES2. This section should be completed only on a production system by an advanced application server administrator.

9.1 Configuring pool size for Output ES2 and Forms ES2

The current default value for PoolMax is 4. The actual value to set depends on the hardware configuration and the expected usage in your environment.

For optimal use, we recommend that the lower limit of PoolMax not be less than the number of CPUs that are available. The upper limit must be determined by the load pattern on your server. Generally, the upper limit should be set to twice the number of CPUs cores on your server.

➤ To modify the existing PoolMax value:

1. Log in to the WebSphere Administrative Console.


3. Add the following properties for ConvertPdf:
   - com.adobe.convertpdf.bmc.POOL_MAX=[new value]
   - com.adobe.convertpdf.bmc.MAXIMUM_REUSE_COUNT=5000
   - com.adobe.convertpdf.bmc.REPORT_TIMING_INFORMATION=true
   - com.adobe.convertpdf.bmc.CT_ALLOW_SYSTEM_FONTS=true

4. Add the following properties for XMLFM:
   - com.adobe.xmlform.bmc.POOL_MAX=[new value]
   - com.adobe.xmlform.bmc.MAXIMUM_REUSE_COUNT=5000
   - com.adobe.xmlform.bmc.REPORT_TIMING_INFORMATION=true
   - com.adobe.xmlform.bmc.CT.Allow_System_FONTS=true

5. Repeat steps 2 to 4 for each server in the cluster.

9.2 LiveCycle PDF Generator ES2

LiveCycle PDF Generator ES2 is capable of doing multiple PDF conversions simultaneously for some types of input files. This is enforced through the use of stateless session beans.

9.2.1 Configuring EJB Pool Size

Four different stateless session beans exist for enforcing independent pool sizes for the following types of input files:
Adobe PostScript® and Encapsulated PostScript (EPS) files
● Image files, such as BMP, TIFF, PNG, and JPEG files
● OpenOffice files
● All other file types (except HTML files), such as Microsoft Office, Photoshop®, PageMaker®, and FrameMaker® files

The pool size for HTML-to-PDF conversions is not managed through the use of stateless session beans.

The default pool size for PostScript and EPS files and for image files is set to 3, and the default pool size for OpenOffice and other file types (except HTML) is set to 1.

You can configure the PS/EPS and image pool size to a different value based on your server hardware configuration, such as the number of CPUs, the number of cores within each CPU, and so on. However, it is mandatory that the pool size for the OpenOffice and other file types be left unchanged at 1 for proper functioning of PDF Generator ES2.

This section describes how the pool size for PS2PDF and Image2PDF can be configured for each of the supported application servers.

The text that follows assumes that the following two LiveCycle ES2 application EARs are deployed on the application server:
● adobe-livecycle-websphere.ear
● adobe-livecycle-native-websphere-[platform].ear

where [platform] should be replaced with one of the following strings, depending on your operating system:
● (Windows) x86_win32
● (Linux) x86_linux
● (SunOS™) sparc_sunos
● (AIX) powerpc_aix

➤ To configure the pool size for PS2PDF and Image2PDF:

Refer to Distiller service settings and Generate PDF service settings under “Managing services” in the LiveCycle ES2 Administration Help.

9.3 Enabling CIFS on Windows

You will need to manually configure the Windows Server 2003 and 2008 machines that host LiveCycle ES2. When you enable CIFS support in Alfresco, users can access the Content Services ES2 repository as a network folder and perform various file operations as on their local file system. In LiveCycle Content Services ES2, CIFS is supported for enterprise domain users with ActiveDirectory as their directory provider.

Note: Ensure that the server has a static IP address.

On Windows machines, you need to do the following:
● “Enable NetBIOS over TCP/IP” on page 112
● “Add additional IP addresses” on page 112
9.3.1 Enable NetBIOS over TCP/IP

You need to enable NetBIOS over TCP/IP so that clients connecting to the LiveCycle ES2 server can have their requests resolved for the server host name.

1. In the Local Area Connection Properties dialog box, on the General tab, select Internet Protocol, and then click Properties.

2. In the General tab of the Internet Protocol (TCP/IP) Properties dialog box, ensure that the server has a static IP address. Click Advanced.

3. In the Advanced TCP/IP Settings dialog box, select the WINS tab and select Enable NetBIOS over TCP/IP.

9.3.2 Add additional IP addresses

1. In the Local Area Connection Properties dialog box, on the General tab, select Internet Protocol, and then click Properties.

2. In the General tab of the Internet Protocol (TCP/IP) Properties dialog box, ensure that the server has a static IP address. Click Advanced.

3. In the Advanced TCP/IP Settings dialog box, select the IP Settings tab and click Add.

4. Specify a static IP address and click Add.

9.3.3 Disable SMB over NetBIOS registry (Windows 2003 only)

You must disable SMB over NetBIOS by editing the Windows registry.

1. In the Windows Registry Editor, navigate to HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Services > NetBT > Parameters.

2. Set the DWORD SMBDeviceEnabled to 0. If it is not present, add a new DWORD value with name SMBDeviceEnabled and set it to 0.

9.3.4 Disable File and Printer Sharing (Windows 2008 only)

- Go to Network Settings, deselect File and Printer Sharing for Microsoft Clients, and click Apply.
For information about troubleshooting your LiveCycle ES2 installation and configuration, see the Troubleshooting LiveCycle ES2 guide.
Appendix - Install Command Line Interface

LiveCycle ES2 provides a command line interface (CLI) for the installation program. The CLI is intended to be used by advanced users of LiveCycle ES2 or in server environments which do not support the use of the Graphical User Interface (GUI) of the installation program. The CLI runs in console mode with one interactive session for all install operations.

Before you install the modules using the CLI install option, ensure the following:

- Your environment includes the software and hardware required to run LiveCycle ES2.
- You have prepared the environment as required. (See Preparing to Install LiveCycle ES2 (Server Cluster).)
- You have reviewed the first page of "Installing the product files" on page 26 and the "Installing the LiveCycle ES2 Modules" on page 25 section.

**Note:** MySQL is not supported for server clusters. Do not choose a MySQL option when you respond to prompts displayed by the LiveCycle ES2 CLI installation program.

This appendix covers the following topics:

- "Installing LiveCycle ES2" on page 114
- "Error logs" on page 116
- "Uninstalling LiveCycle ES2 in console mode" on page 116
- "Next steps" on page 117

A.1 Installing LiveCycle ES2

This section covers the initial installation of LiveCycle ES2. For information about configuration and deployment, see “Configuring LiveCycle ES2 for Deployment” on page 33 or “Appendix - LCM Command Line Interface” on page 118.

**Note:** To avoid permission issues during the deployment, ensure that you are logged in as the user who will run the application server process when you run the LiveCycle ES2 install CLI and LiveCycle Configuration Manager.

After you start the installation process, follow the on-screen instructions to choose your installation options. Respond to each prompt to proceed to the next step in the installation. If you want to change a choice that you made on a previous step, type back. You can cancel the installation at any time by typing quit.

➤ To install LiveCycle ES2:

1. Open a command prompt and navigate to the folder in the installation media or your hard disk that contains the installer executable:
   - (Windows) `livecycle_server\9.0\Disk1\InstData\Windows\VM`
   - (Windows 64-bit) `livecycle_server\9.0\Disk1\InstData\Windows_64bit\VM`
   - (Linux) `livecycle_server/9.0/Disk1/InstData/Linux/NoVM`
   - (Solaris) `livecycle_server/9.0/Disk1/InstData/Solaris/NoVM`
● (AIX) livecycle_server/9.0/Disk1/InstData/AIX/NoVM

**Note:** Adobe LiveCycle ES2 installations for WebSphere are not supported on 32-bit operating systems. It is recommended that you do not proceed with the installation.

2. Open a command prompt and run the following command:
   - (Windows) `install.exe -i console`
   - (AIX, Linux, Solaris) `./install.bin -i console`

**Note:** Entering the command without the `-i console` option launches the GUI-based installer.

3. Respond to the prompts as described in the following table:

<table>
<thead>
<tr>
<th>Prompt</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose Locale</td>
<td>Select the locale for the installation to use by entering a value between 1 and 3. You can select the default value by pressing <em>Enter</em>. The options are Deutsch, English, and Français. English is the default language.</td>
</tr>
<tr>
<td>Choose Install Folder</td>
<td>On the Destination screen, press <em>Enter</em> to accept the default directory or type the new installation directory location. Default install folders are: (Windows): C:\Adobe\Adobe LiveCycle ES2 (AIX, Linux, Solaris): /opt/adobe/adobe_livecycle_es2 <strong>Note:</strong> Do not use accented characters in the directory name. Otherwise, the CLI will ignore the accents and create a directory after modifying the accented characters.</td>
</tr>
<tr>
<td>LiveCycle ES2 Server License Agreement</td>
<td>Press <em>Enter</em> to read through the pages of the license agreement. If you agree to the agreement, type <em>Y</em> and press <em>Enter</em>.</td>
</tr>
<tr>
<td>Pre-Installation Summary</td>
<td>Review the installation choices you have made and press <em>Enter</em> to continue installation with the choices you have made. Type <em>back</em> to go back to previous steps and change any of the settings.</td>
</tr>
<tr>
<td>Ready To Install</td>
<td>Installer displays the installation directory. Press <em>Enter</em> to start the installation process. During the installation process, the progress bar advances to indicate the progress of installation. Type <em>back</em> if you want to change the settings, or <em>quit</em> to close the installation.</td>
</tr>
<tr>
<td>Installing</td>
<td>The progress of the installation process is indicated.</td>
</tr>
</tbody>
</table>
A.2 Error logs

If an error occurs, you can review the Adobe_LiveCycle_ES2_InstallLog.log in the log directory of your installation:

- (Windows) C:\Adobe\Adobe LiveCycle ES2\log
- (AIX, Linux, Solaris) /opt/adobe/adobe_livecycle_es2/log

For information about errors that may occur during the installation, see the appropriate troubleshooting guide.

A.3 Uninstalling LiveCycle ES2 in console mode

If you had installed LiveCycle using the command line option, you can uninstall Adobe LiveCycle ES2 only by running the uninstaller from the command line. If you want a silent uninstallation, omit the “-i console” flag.

Do the following:

1. Open a command prompt, and navigate to the directory which contains the uninstall script:

   **Note:** On UNIX systems, you should manually navigate to the directory that contains the uninstall script because the directory name contains spaces.

   - (Windows) cd C:\Adobe\Adobe LiveCycle ES2\Uninstall_Adobe LiveCycle ES2
   - (AIX, Linux, Solaris)
     
2. Type the following command at the prompt and press Enter:

   - (Windows) Uninstall Adobe LiveCycle ES2.exe -i console
   - (AIX, Linux, Solaris) ./Uninstall_Adobe LiveCycle ES2 -i console
Note: If you typed the uninstall command without the -i console option, uninstallation is completed silently.

3. Follow the on-screen instructions.

<table>
<thead>
<tr>
<th>Prompt</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninstall Adobe LiveCycle ES2</td>
<td>Press Enter to continue uninstallation. Enter quit to close the uninstall program. After you start the uninstall program, type back to go back to the previous step and make any changes.</td>
</tr>
<tr>
<td>Uninstalling...</td>
<td></td>
</tr>
<tr>
<td>Uninstall Complete</td>
<td>After the uninstallation starts, the rest of the uninstallation process is completed and the cursor returns to the prompt. Note that some items may not be removed. Also, any folder created after installing LiveCycle ES2 are not removed. You must remove these files and folders manually.</td>
</tr>
</tbody>
</table>

A.4 Next steps

You must now configure LiveCycle ES2 for deployment. (See “Configuring LiveCycle ES2 for Deployment” on page 33 or “Appendix - LCM Command Line Interface” on page 118.)
Appendix - LCM Command Line Interface

LiveCycle ES2 provides a Command Line Interface (CLI) for the LiveCycle Configuration Manager. The CLI is intended to be used by advanced users of LiveCycle ES2, for example in server environments which do not support the use of the Graphical User Interface (GUI) of the LiveCycle Configuration Manager. This chapter describes how to use the CLI to configure LiveCycle ES2.

- “Order of operations” on page 118
- “Command Line Interface property file” on page 119
- “Examples Usage” on page 131
- “Error Logs” on page 131

B.1 Order of operations

The LiveCycle Configuration Manager CLI must follow the same order of operations as the GUI version of the LiveCycle Configuration Manager. Ensure that you use the CLI operations in this order:

2. Validate application server topology.
3. Validate the database connectivity.
4. Configure the application server (WebSphere and WebLogic only).
5. Validate the application server configurations.
10. Deploy the LiveCycle ES2 modules.
11. Deploy the 7.x compatibility layer with the LiveCycle ES2 modules.
12. Validate the LiveCycle ES2 module deployment.
13. Check system readiness for PDF Generator ES2.
15. Configure LiveCycle ES2 Connector for IBM Content Manager.
17. Configure LiveCycle ES2 Connector for EMC Documentum.
18. Test all LiveCycle ES2 Connectors for ECM configurations.

19. Configure Content Services ES2.

**Caution:** You must restart each WebSphere Application Server of your cluster after you complete your LiveCycle Configuration Manager CLI operations.

### B.2 Command Line Interface property file

The LiveCycle Configuration Manager CLI requires a property file containing the defined properties for your LiveCycle environment. The template for the properties file, `cli_propertyFile_template.txt`, is located in the `[LiveCycleES2 root]/configurationManager/bin` folder. You must create and edit the values. You can customize this file based on the LiveCycle Configuration Manager operations you intend to use. The following section describes the properties and values required.

You should create the property file according to your installation. Use one of the following methods.

- Create a property file and populate the values according to your installation and configuration scenarios.
- Copy the property file `cli_propertyFile_template.txt` and edit the values based on the LiveCycle Configuration Manager operations you intend to use.
- Use the GUI of the LiveCycle Configuration Manager and then use the property file created by the GUI version as the CLI version property file. When you run the `[LiveCycleES2 root]/configurationManager/bin/configurationManager.bat` file, the `userValuesForCLI.properties` file is created in the `[LiveCycleES2 root]/configurationManager/config` directory. You can use this file as input for the LiveCycle Configuration Manager CLI.

**Note:** In the CLI properties file, you must use the escape character (`\`) for Windows paths directory separator (`\`). For example, if the Fonts folder to be mentioned is `C:\Windows\Fonts`, in the LiveCycle Configuration Manager CLI script, you should enter it as `C:\Windows\Fonts`.

#### B.2.1 Common properties

The common properties are as follows:

- **WebLogic and WebSphere specific properties:** Are required for the Configure the Application Server, Deploy LiveCycle, Validate Application Server Topology and Validate Application Server Configurations operations.

- **LiveCycle Server specific properties:** Required for the Initialize LiveCycle and Deploy LiveCycle Components operations.

These properties are required for the following operations:

- Initialize LiveCycle ES2
- Deploy LiveCycle ES2 components.

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WebSphere specific properties</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property</td>
<td>Values</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>targetServer.topologyType</td>
<td>server or cluster</td>
<td>The type of application server topology for which you are deploying LiveCycle ES2.</td>
</tr>
<tr>
<td>targetServer.name</td>
<td>String</td>
<td>The name assigned to the application server node or cluster.</td>
</tr>
<tr>
<td>targetServer.adminHost</td>
<td>String</td>
<td>The hostname of the server where the WebSphere application server is installed.</td>
</tr>
<tr>
<td></td>
<td>Default is localhost</td>
<td></td>
</tr>
<tr>
<td>targetServer.adminPort</td>
<td>Integer</td>
<td>The port number the WebSphereadmin server uses to listen for SOAP requests.</td>
</tr>
<tr>
<td>targetServer.adminUserID</td>
<td>String</td>
<td>The administrative user ID to use when accessing the WebSphere application server.</td>
</tr>
<tr>
<td>localServer.appServerRootDir</td>
<td>Default:</td>
<td>The root directory of the application server instance that you are configuring locally (on which you plan to deploy LiveCycle ES2 or that you will use to communicate with a remote server on which you plan to deploy LiveCycle ES2).</td>
</tr>
<tr>
<td></td>
<td>(Windows) C:\Program Files\IBM\WebSphere\AppServer (Linux, Solaris) /opt/IBM/WebSphere/AppServer (AIX) /usr/IBM/WebSphere/AppServer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LiveCycle Server specific properties</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCHost</td>
<td>String</td>
<td>The hostname of the server where LiveCycle ES2 will be deployed.</td>
</tr>
<tr>
<td>LCPort</td>
<td>Integer</td>
<td>The web port number where LiveCycle ES2 will be deployed.</td>
</tr>
</tbody>
</table>
B.2.2 Configure LiveCycle properties

These properties only apply to the configure LiveCycle operation.

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdobeFontsDir</td>
<td>String</td>
<td>Location of the Adobe server fonts directory. This path must be accessible from the server being deployed to.</td>
</tr>
<tr>
<td>customerFontsDir</td>
<td>String</td>
<td>Location of the customer fonts directory. This path must be accessible from the server being deployed to.</td>
</tr>
<tr>
<td>systemFontsDir</td>
<td>String</td>
<td>Location of the system fonts directory. Multiple System fonts locations can be entered using a semicolon as separator. These paths must be accessible from the server being deployed to.</td>
</tr>
<tr>
<td>Property</td>
<td>Values</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LCTempDir</td>
<td>String</td>
<td>Location of the temporary directory. This path must be accessible from the server being deployed to.</td>
</tr>
<tr>
<td>LCGlobalDocStorageDir</td>
<td>String</td>
<td>The global document storage root directory. Specify a path to an NFS shared directory used to store long-lived documents and to share them among all cluster nodes. Specify this property only when deploying LiveCycle ES2 components in a clustered environment. This path must be accessible from the server being deployed to.</td>
</tr>
<tr>
<td>EnableDocumentDBStorage</td>
<td>true or false</td>
<td>Enables or disables document storage in database for persistent documents. Even if you enable document storage in database, you will need the file system directory for GDS.</td>
</tr>
<tr>
<td>enableFIPS</td>
<td>true or false</td>
<td>Enabling the Federal Information Processing Standards (FIPS) option restricts data protection to FIPS 140-2 approved algorithms using the RSA BSAFE Crypto-J 3.5.2 encryption module with FIPS 140-2 validation certificate #590. Set this value to true only if you require FIPS to be enforced.</td>
</tr>
<tr>
<td>contentServices.rootDir</td>
<td>String</td>
<td>[Adobe LiveCycle Content Services ES2 only] Specify the root directory used by Content Services ES2. If the Livecycle is in clustered environment, this directory must be a location shared by all nodes in a cluster with the same path across all nodes.</td>
</tr>
<tr>
<td>Property</td>
<td>Values</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>contentServices.indexesDir</td>
<td>String</td>
<td>[Adobe LiveCycle Content Services ES2 only] Specify the indexes directory used by Content Services ES2. This directory is unique for each cluster node and must have the same name and location on all nodes. For example, <code>contentServices.indexesDir=C:\:\Adobe\LiveCycle 9\lccs_indexes</code></td>
</tr>
<tr>
<td>contentServices.myfacesDir</td>
<td>String</td>
<td>[Adobe LiveCycle Content Services ES2 only] [WebSphere only] Directory where myfaces jar will be copied and used as shared libs.</td>
</tr>
<tr>
<td>contentServices.topology</td>
<td>String</td>
<td>[Adobe LiveCycle Content Services ES2 only] SERVER for single node, CLUSTER for a cluster configuration.</td>
</tr>
<tr>
<td>contentServices.cifs.enable</td>
<td>true or false</td>
<td>Default: false [Adobe LiveCycle Content Services ES2 only] Enables or disables CIFS.</td>
</tr>
<tr>
<td>contentServices.cifsservername</td>
<td>String</td>
<td>[Adobe LiveCycle Content Services ES2 only] Server name of the CIFS server.</td>
</tr>
<tr>
<td>contentServices.cifs.implementation</td>
<td>String</td>
<td>[Adobe LiveCycle Content Services ES2 only] Specifies how Content Services ES2 connects to the CIFS server.</td>
</tr>
<tr>
<td>contentServices.cifs.dllpath</td>
<td>String</td>
<td>Specify the path from where the NetBIOS DLL will be copied. [Adobe LiveCycle Content Services ES2 only] Path where NetBios DLL will be copied. Required if &quot;contentServices.cifs.implementation=NetBIOS&quot;. This path must be present in the environment.</td>
</tr>
<tr>
<td>contentServices.cifs.alternateIP</td>
<td>Numeric</td>
<td>[Adobe LiveCycle Content Services ES2 only] Alternate IP Address of the CIFS Server. It should be static IP and it is required field if &quot;contentServices.cifs.implementation=PureJava&quot;.</td>
</tr>
</tbody>
</table>
### B.2.3 Configure or Validate Application Server properties

The LiveCycle Configuration Manager can configure or validate your WebSphere application server as required by LiveCycle ES2.

These properties apply to the following operations:
- Configure Application Server
- Validate Application Server Topology

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
</table>
| contentServices.cifs.WinsOrBrdcast | String. Specify one of the following:  
  ● winsServer  
  ● broadcast | [Adobe LiveCycle Content Services ES2 only] DNS discovery method. It can be "winsServer" or "broadCast" and it is required field if "contentServices.cifs.implementation=PureJava". |
| contentServices.cifs.winsPrmIP | Numeric | [Adobe LiveCycle Content Services ES2 only] Primary WINS Server IP address. It can obtained from ipconfig /all command. It is required field if "contentServices.cifs.implementation=PureJava" and "contentServices.cifs.WinsOrBrdcast=winsServer". |
| contentServices.cifs.winsSecIP | Numeric | [Adobe LiveCycle Content Services ES2 only] Secondary WINS Server IP address. It can obtained from ipconfig /all command. It is required field if "contentServices.cifs.implementation=PureJava" and "contentServices.cifs.WinsOrBrdcast=winsServer". |
| contentServices.cifs.brdCastIP | Numeric | [Adobe LiveCycle Content Services ES2 only] Broadcast IP address. It is required field if "contentServices.cifs.implementation=PureJava" and "contentServices.cifs.WinsOrBrdcast=broadCast". |
| contentServices.dbType | String | [Adobe LiveCycle Content Services ES2 only] Content Services database type. |
- Validate Application Server Configurations
- Validate Database Connectivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>You must configure the WebSphere specific properties section. For more information see &quot;Common properties&quot; on page 119.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>jvm.initialHeapSize</td>
<td>Default: 512</td>
<td>The initial heap size, in MB, for the JVM.</td>
</tr>
<tr>
<td>jvm.maxHeapSize</td>
<td>Default: 1792</td>
<td>The maximum heap size, in MB, for the JVM.</td>
</tr>
<tr>
<td>WebLogic and WebSphere Cluster only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cache.useUDP</td>
<td>true or false</td>
<td>Set the value to true if LiveCycle ES2 uses UDP to implement caching.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set to false if LiveCycle ES2 uses TCP to implement caching.</td>
</tr>
<tr>
<td>cache.udp.port</td>
<td>Default: 33456</td>
<td>The port number that the primary WebSphere Application Server computer uses for UDP-based caching communication. Configure only if cache.useUDP=true.</td>
</tr>
<tr>
<td>cache.tcpip.primaryhost</td>
<td>String</td>
<td>The host name of the computer where the primary WebSphere Application Server is installed. Configure only if cache.useUDP=true.</td>
</tr>
<tr>
<td>cache.tcpip.primaryport</td>
<td>Default: 22345</td>
<td>The port number that the primary WebSphere Application Server computer uses for TCP-based caching communication. Configure only if cache.useUDP!=true.</td>
</tr>
<tr>
<td>cache.tcpip.secondaryhost</td>
<td>String</td>
<td>The host name of the computer where the secondary WebSphere Application Server is installed. Configure only if cache.useUDP!=true.</td>
</tr>
</tbody>
</table>
The port number that the secondary WebSphere Application Server computer uses for TCP-based caching communication. Configure only if cache.useUDP!=true.

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cache.tcpip.secondaryport</td>
<td>Default: 22345</td>
<td></td>
</tr>
<tr>
<td>contentServices.cluster.cachelistenerArgs</td>
<td>Comma-separated string myhostA:7800,myhostB:7800</td>
<td>(Cluster only) [Adobe LiveCycle Content Services ES2 only] The hostname or IP address of the Content Services ES2 cache listener in the cluster with port.</td>
</tr>
<tr>
<td>contentServices.cluster.startPort</td>
<td>Integer</td>
<td>(Cluster only) [Adobe LiveCycle Content Services ES2 only] The port the Content Services ES2 cache listener at this node uses to listen to requests.</td>
</tr>
<tr>
<td>contentServices.cluster.portRange</td>
<td>Integer. Default is 3.</td>
<td>(Cluster only) [Adobe LiveCycle Content Services ES2 only] Content Services ES2 cache range.</td>
</tr>
</tbody>
</table>

**Datasource configuration**

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>datasource.dbType</td>
<td>Choose:</td>
<td>The type of database configured to use with LiveCycle ES2.</td>
</tr>
<tr>
<td></td>
<td>oracle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>db2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sql</td>
<td>server</td>
</tr>
<tr>
<td>datasource.dbName</td>
<td>String</td>
<td>The name of the database.</td>
</tr>
<tr>
<td>datasource.dbHost</td>
<td>String</td>
<td>The host name or IP address of the server where the database is located.</td>
</tr>
<tr>
<td>datasource.dbPort</td>
<td>Integer</td>
<td>The database port LiveCycle ES2 will use when communicating with the database.</td>
</tr>
<tr>
<td>datasource.dbUser</td>
<td>String</td>
<td>The user ID LiveCycle ES2 will use when accessing the database.</td>
</tr>
<tr>
<td>datasource.dbPassword</td>
<td>String</td>
<td>The password associated with the database user ID.</td>
</tr>
<tr>
<td>datasource.target.driverPath</td>
<td>String</td>
<td>JDBC driver in the application server lib directory. This path must be valid and accessible from the server being configured.</td>
</tr>
</tbody>
</table>
### B.2.4 Deploy LiveCycle properties

These properties only apply to the deploy LiveCycle ES2 operation.

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>datasource.local.driverPath</td>
<td>String</td>
<td>Local JDBC driver. This value is used for testing direct database connection.</td>
</tr>
</tbody>
</table>

**Note:** Business Activity Monitoring ES2 is an optional component with LiveCycle ES2.

### B.2.5 Initialize LiveCycle properties

These properties only apply to the initialize LiveCycle ES2 operation.

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>deployment.includeIVS</td>
<td>true or false</td>
<td>Specifies whether IVS EAR files are included in the deployment.</td>
</tr>
</tbody>
</table>

**Caution:** It is recommended not to include IVS EAR files in a production environment.

### B.2.6 Initialize BAM properties

These properties only apply to the initialize BAM operation.

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAMHost</td>
<td>String</td>
<td>The hostname of the server where BAM is deployed and running.</td>
</tr>
<tr>
<td>BAMPo rt</td>
<td>Integer</td>
<td>The port number the BAM server is using to listen for requests.</td>
</tr>
<tr>
<td>BAMAdminUserID</td>
<td>String</td>
<td>The BAM administrator user ID to use when connecting to the BAM server.</td>
</tr>
</tbody>
</table>
**B.2.7 Deploy LiveCycle Components properties**

These properties apply to the following operations:

- Deploy LiveCycle Components
- Validate LiveCycle Component Deployment
- Validate LiveCycle Server.

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAMAdminPassword</td>
<td>String</td>
<td>The BAM administrator password to use when connecting to the BAM server.</td>
</tr>
<tr>
<td>databaseType</td>
<td>Choose:</td>
<td>The type of database LiveCycle is using to capture BAM data.</td>
</tr>
<tr>
<td></td>
<td>• oracle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• mysql</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• db2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• sqlserver</td>
<td></td>
</tr>
</tbody>
</table>

You must configure the LiveCycle Server Information section. For more information, see “Common properties” on page 119.

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCAdminUserID</td>
<td>String</td>
<td>The user ID to assign to the LiveCycle Administrator user. This User ID is used to login to the LiveCycle Administrator Console.</td>
</tr>
<tr>
<td>LCAdminPassword</td>
<td>String</td>
<td>The password to assign to the LiveCycle Administrator user. This password is used to login to the LiveCycle Administrator Console.</td>
</tr>
</tbody>
</table>

**B.2.8 Command Line Interface Usage**

Once you have configured your property file, you must navigate to the [LiveCycleES2 root]/configurationManager/bin folder.

To view a complete description of the LiveCycle Configuration Manager CLI commands, type: `ConfigurationManagerCLI help <command name>`.

**B.2.8.1 Configure LiveCycle CLI Usage**

The Configure LiveCycle operation requires the following syntax:

`configureLiveCycle -f <propertyFile>`
Where:

- `-f <propertyFile>`: A property file containing the required arguments. For more information on creating a property file, see “Command Line Interface property file” on page 119.

B.2.8.2 Configure the Application Server CLI Usage

The Configure Application Server operation for WebSphere requires the following syntax:

```
configureApplicationServer \ -targetServer_AdminPassword <password> \ -f <propertyFile> \ [-skip <configurationsToSkipList>]
```

Where:

- `-targetServer_AdminPassword <password>`: Allows you to set the Administrator password on the command line. If this argument is present, it will override the targetServer_AdminPassword property in the property file.
- `-f <propertyFile>`: A property file containing the required arguments. For instructions on creating a property file, see “Command Line Interface property file” on page 119.
- `-skip <configurationsToSkipList>`: This is an optional parameter which allows you to list the application server components you do not want to configure. Specify the excluded components in a comma separated list. Valid options are Datasource or Core.

B.2.8.3 Deploy LiveCycle CLI Usage

The Deploy LiveCycle operation requires the following syntax:

```
deployLiveCycle \ -f <propertyFile>
```

Where:

- `-f <propertyFile>`: A property file containing the required arguments. For more information on creating a property file, see “Command Line Interface property file” on page 119.

B.2.8.4 Initialize LiveCycle CLI Usage

The initialize LiveCycle operation requires the following syntax:

```
initializeLiveCycle \ -f <propertyFile>
```

Where:

- `-f <propertyFile>`: A property file containing the required arguments. For instructions on creating a property file, see “Command Line Interface property file” on page 119.

B.2.8.5 Initialize Business Activity Monitoring CLI Usage

The initialize Business Activity Monitoring operation requires the following syntax:

```
initializeBAM \ -f <propertyFile>
```

Where:

- `-f <propertyFile>`: A property file containing the required arguments. For instructions on creating a property file, see “Command Line Interface property file” on page 119.
B.2.8.6 Deploy LiveCycle Components CLI Usage

The Deploy LiveCycle Components operation requires the following syntax:

```
deployLiveCycleComponents -f <propertyFile> -targetServer_AdminPassword <password>
```

Where:

- `-f <propertyFile>`: A property file containing the required arguments. For instructions on creating a property file, see "Command Line Interface property file" on page 119.
- `-targetServer_AdminPassword <password>`: Allows you to set the Admin password on the command line. If this argument is present, it will override the targetServer.adminPassword property in the property file.

B.2.8.7 Validate Application Server Topology CLI Usage

The Validate Application Server Topology operation is optional and requires the following syntax:

```
validateApplicationServerTopology -f <propertyFile> -targetServer_AdminPassword <password>
```

Where:

- `-f <propertyFile>`: A property file containing the required arguments. For instructions on creating a property file, see "Command Line Interface property file" on page 119.
- `-targetServer_AdminPassword <password>`: Allows you to set the Admin password on the command line. If this argument is present, it will override the targetServer.adminPassword property in the property file.

B.2.8.8 Validate database connectivity CLI Usage

The validate Database Connectivity operation is optional and requires the following syntax:

```
validateDBConnectivity -f <propertyFile> -datasource_dbPassword <password>
```

Where:

- `-f <propertyFile>`: A property file containing the required arguments. For instructions on creating a property file, see "Command Line Interface property file" on page 119.
- `-datasource_dbPassword <password>`: Allows you to set the database user password on the command line. If this argument is present, it will override the datasource.dbPassword property in the property file.

B.2.8.9 Validate Application Server Configurations CLI Usage

The Validate Application Server Configurations operation is optional and requires the following syntax:

```
validateApplicationServerConfigurations -f <propertyFile> -targetServer_AdminPassword <password>
```

Where:

- `-f <propertyFile>`: A property file containing the required arguments. For instructions on creating a property file, see "Command Line Interface property file" on page 119.
-targetServer_AdminPassword <password>: Allows you to set the Admin password on the command line. If this argument is present, it will override the targetServer.adminPassword property in the property file.

B.2.8.10 Validate LiveCycle Server CLI Usage

The Validate LiveCycle Server operation is optional and requires the following syntax:

validateLiveCycleServer -f <propertyFile> -targetServer_AdminPassword <password>

Where:

- -f <propertyFile>: A property file containing the required arguments. For instructions on creating a property file, see “Command Line Interface property file” on page 119.
- -targetServer_AdminPassword <password>: Allows you to set the Admin password on the command line. If this argument is present, it will override the targetServer.adminPassword property in the property file.

B.2.8.11 Validate LiveCycle Component Deployment CLI Usage

The Validate LiveCycle Component Deployment operation is optional and requires the following syntax:

validateLiveCycleComponentDeployment -f <propertyFile> -targetServer_AdminPassword <password>

Where:

- -f <propertyFile>: A property file containing the required arguments. For instructions on creating a property file, see “Command Line Interface property file” on page 119.
- -targetServer_AdminPassword <password>: Allows you to set the Admin password on the command line. If this argument is present, it will override the targetServer.adminPassword property in the property file.

B.3 Examples Usage

From the C:\Adobe\Adobe LiveCycle ES2\configurationManager\bin, type:

ConfigurationManagerCLI configureLiveCycle -f cli_propertyFile.txt

Where cli_propertyFile.txt is the name of the property file you created.

B.4 Error Logs

If an error occurs, you can review the CLI Error logs located here in the [LiveCycleES2 root]\configurationManager\log folder. The log file generated will have a naming convention such as lcmCLI.0.log where the number in the filename (0) will increment when the log files are rolled over.

B.5 Next steps

If you used LiveCycle Configuration Manager CLI to configure and deploy LiveCycle ES2, you can now do the following tasks:
• Verify the deployment. (See “Setting watched folder performance parameters” on page 85.)
• Access LiveCycle Administration Console. (See “Accessing LiveCycle Administration Console” on page 70.)
• Configure LiveCycle modules to access LDAP. (See “Configuring LiveCycle ES2 to access LDAP” on page 86.)
• Uninstall LiveCycle ES2. (See “Uninstalling LiveCycle ES2” on page 105.)

If you did not configure your application server for deployment, you must now configure your application server.