



Configuring LiveCycle® ES Application Server Clusters Using JBoss®

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Adobe® LiveCycle® ES

Update 1 (8.2)

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Adobe® LiveCycle® ES Update 1 (8.2) Configuring LiveCycle ES Application Server Clusters Using JBoss® for Microsoft® Windows®, UNIX®, and Linux
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About This Document

This document is one of several resources available to help you learn about Adobe® LiveCycle® ES (Enterprise Suite) Update 1. LiveCycle ES 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 solution components in a clustered environment on Microsoft® Windows® and Linux® and how to deploy the solution components to JBoss® Application Server:

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

Who should read this document?

This document provides information for administrators or developers who are responsible for installing, configuring, administering, or deploying LiveCycle ES components in a clustered environment. The information provided assumes that readers are familiar with Java™ 2 Platform, Enterprise Edition (J2EE) application servers; Linux and Windows 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.

Name	Default value	Description
<i>[LiveCycleES root]</i>	Windows: C:\Adobe\LiveCycle8.2\ Linux: /opt/adobe/livecycle8.2/	The installation directory that is used for all LiveCycle ES solution components. The installation directory contains subdirectories for LiveCycle Configuration Manager and the LiveCycle ES SDK.
<i>[appserver root]</i>	JBoss Application Server on Windows: C:\jboss JBoss Application Server on Linux: /opt/jboss	The home directory of the application server that runs the LiveCycle ES services.
<i>[dbserver root]</i>	The location where the LiveCycle ES database server is installed.	Depends on the database type and your specification during installation.

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

Additional information

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

For information about	See
Preparing to install LiveCycle ES on a server cluster	Preparing to Install LiveCycle ES (Server Cluster)
Upgrading from LiveCycle 7.x to LiveCycle ES	Preparing to Upgrade to LiveCycle ES
Performing administrative tasks for LiveCycle ES	Administering LiveCycle ES
Installing LiveCycle Workbench ES	Installing Your Development Environment
Other services and products that integrate with LiveCycle ES	www.adobe.com
Patch updates, technical notes, and additional information on this product version	LiveCycle Technical Support

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

- [“Preparing your server cluster to install LiveCycle ES” on page 9](#)
- [“About the LiveCycle ES installation, configuration, and deployment process” on page 9](#)
- [“Installation and deployment list” on page 10](#)

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

Preparing your server cluster to install LiveCycle ES

You must create and configure your server cluster before you install, configure, and deploy LiveCycle ES. (See [“Configuring JBoss in a Cluster” on page 11.](#))

About the LiveCycle ES installation, configuration, and deployment process

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

Installing: Install LiveCycle ES by running the installation program. Installing LiveCycle ES places all of the required files onto your computer, within one installation directory structure. The default installation directory is C:\Adobe\LiveCycle8.2 (Windows) or /opt/adobe/LiveCycle8.2 (Linux); however, you can install the files to a different directory. In this document, the default installation directory is referred to as *[LiveCycleES root]*. (See [“Installing the Solution Component Files” on page 37.](#))

Configuring and assembling: Configuring LiveCycle ES modifies various settings that determine how LiveCycle ES 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 ES for Deployment” on page 44.](#)) You can configure and assemble multiple LiveCycle ES solution components at the same time.

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

Initializing the LiveCycle ES database: Initializing the database to be used with LiveCycle ES creates tables for use with User Management and other components. Deploying any solution component that connects to the LiveCycle ES database requires you to initialize the LiveCycle ES database after the deployment process.

Selecting tasks for configuring and deploying LiveCycle ES

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

- Configure LiveCycle ES solution components in an EAR file for deploying to the application server cluster
- Initialize the LiveCycle ES database
- Deploy LiveCycle ES component deployment
- Validate the LiveCycle ES component deployment
- Configure the LiveCycle Reader Extensions ES Rights credential (optional)
- Import the LiveCycle ES Samples (optional)

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

Upgrading to LiveCycle ES

Before you install LiveCycle ES for upgrading from LiveCycle 7.x and later, ensure that you completed the tasks that are described in [Preparing to Upgrade to LiveCycle ES](#).

Installation and deployment list

The following list includes the steps that are required for installing LiveCycle ES 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 ES \(Server Cluster\)](#).)
- Ensure that you created and configured the application server cluster in the target environment. (See ["Configuring JBoss in a Cluster" on page 11](#).)
- Run the installation program. (See ["Installing the Solution Component Files" on page 37](#).)
- Run LiveCycle Configuration Manager and select the Configure LiveCycle ES EARs task. This task configures and assembles LiveCycle ES. (See ["Configuring LiveCycle ES for Deployment" on page 44](#).)
- Deploy the EAR files to the application server. You must do this manually. (See ["Configuring LiveCycle ES for Deployment" on page 44](#).)
- Run LiveCycle Configuration Manager to deploy LiveCycle ES component files, initialize the LiveCycle ES database, and (optionally) deploy product samples. (See ["Configuring LiveCycle ES for Deployment" on page 44](#).)
- Access LiveCycle Administration Console and User Management. (See ["Accessing LiveCycle Administration Console" on page 51](#).)
- (Optional) Configure LDAP access. (See ["Configuring LiveCycle ES to access LDAP" on page 65](#).)

2

Configuring JBoss in a Cluster

The JBoss Application Server configuration is defined by a number of configuration files in several of the directories. To configure JBoss for use in a cluster, you must modify a number of the configuration files. You can use any text editor to modify them.

Perform the following tasks to configure your JBoss cluster environment:

- Ensure that you properly prepared all computers in the cluster. (See [“Preparing to install” on page 11.](#))
- Install JBoss Application Server software. (See [“Installing JBoss Application Server software” on page 12.](#))
- Modify the JBoss configuration files. (See [“Modifying JBoss configuration files” on page 12.](#))
- Configure the JMS resources. (See [“Configuring JMS resources for LiveCycle ES” on page 15.](#))
- (Vertical cluster) Configure collocated instances of JBoss Application Server. (See [“Configuring vertically clustered JBoss Application Servers” on page 16.](#))
- (JBoss Application Server 4.0.3 only) Install JGroups 2.3. (See [“Installing JGroups \(JBoss Application Server 4.0.3 SP1 only\)” on page 19.](#))
- Modify the JBoss run file. (See [“Modifying the JBoss run file” on page 19.](#))
- Configure LiveCycle ES database connectivity. (See [“Configuring LiveCycle ES database connectivity” on page 20.](#))
- Test your JBoss cluster configuration. (See [“Testing the JBoss Application Server cluster” on page 36.](#))

Preparing to install

Before you install JBoss 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 JBoss Application Server software.

Horizontal clustering: If your configuration is horizontally clustered (that is, instances of JBoss 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 ES \(Server Cluster\)](#).)

Account privileges: (Windows) You must install and run JBoss 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 ES \(Server Cluster\)](#).)

J2SE SDK version: You must have J2SE SDK version 1.5.0_11 (or a later update) on each node of the cluster. (See [Preparing to Install LiveCycle ES \(Server Cluster\)](#).)

Installing JBoss Application Server software

Install and configure JBoss Application Server on each computer of the cluster. You can install multiple instances on any computer where you plan to implement vertical clustering. The [Preparing to Install LiveCycle ES \(Server Cluster\)](#) document describes the versions of JBoss Application Server that are supported for LiveCycle ES.

Install the Adobe-preconfigured JBoss Application Server that is provided on the LiveCycle ES installation medium under the `third_party\jbossCluster` directory.

Caution: Install only the Adobe-preconfigured JBoss Application Server described above, and then see the following sections of this document to configure the nodes for your cluster. Do not follow the JBoss configuration instructions that are described in *Preparing to Install LiveCycle ES (Single server)*; they apply to a stand-alone configuration and are not appropriate for a clustered configuration.

Installing JBoss Application Server for a horizontal cluster

Install the Adobe-preconfigured JBoss Application Server by copying the `jbossCluster` directory and its contents to the location where you intend to install JBoss Application Server on each computer of the cluster. This installation is fully configured for a horizontal cluster.

Installing JBoss Application Server for a vertical cluster

If you intend to vertically cluster two or more JBoss Application Servers on a single computer, copy the directory and contents to a separate location for each JBoss Application Server instance that you intend to cluster on each computer. After you complete this installation, you must complete additional configuration steps for a vertical cluster.

Modifying JBoss configuration files

Modify the following JBoss configuration files to enable clustering:

- `cluster-service.xml`
- `hajndi-jms-ds.xml`
- (JBoss Application Server 4.0.3SP1) `tc5-cluster-service.xml`
- (JBoss Application Server 4.2.0) `jboss-service.xml`

Note: You must modify the JBoss configuration files for each member of the cluster.

► **To modify the cluster-service.xml file:**

1. On a member of the cluster, open the cluster-service.xml file located in `[appserver root]/server/all/deploy`, in a text editor.
2. In the Cluster Partition section of the file, change the following UDP attributes of the `config` element, using one of the formats below as appropriate for your configuration:

- (JBoss Application Server 4.2.0 only)

```
mcast_port="{jboss.hapartition.mcast_port:<port number>}"  
ip_ttl="{jgroups.udp.ip_ttl:2}"
```

- (JBoss Application Server 4.0.3 SP1 only)

```
mcast_port="<port number>"  
ip_ttl="5"  
ip_mcast="true"
```

Note: The `<port number>` value for the `mcast_port` attribute must uniquely distinguish this cluster from any other JBoss clusters on the same subnet. You can use any value from 1 to 65535 that meets this criterion for this cluster. The `ip_ttl` attribute can be any other appropriate value for the number of hops between nodes.

3. In the HA JNDI section of the file, set the `DiscoveryDisabled` attribute as follows:

```
<attribute name="DiscoveryDisabled">false</attribute>
```

4. Save the edited file, and then copy the edited cluster-service.xml file to the `[appserver root]/server/all/deploy` directory on each other node of the cluster.
5. (Vertically clustered) On a vertically clustered JBoss Application Server instance, open the cluster-service.xml file in a text editor and, in the HA JNDI section of the file, change the default values of the following attributes:

- (JBoss Application Server 4.2.0)

```
<attribute name="Port">1100</attribute>  
<attribute name="RmiPort">1101</attribute>  
<attribute name="RMIObjectPort">4447</attribute>  
<attribute name="ServerBindPort">4448</attribute>
```

- (JBoss Application Server 4.0.3 SP1)

```
<attribute name="Port">1100</attribute>  
<attribute name="RmiPort">1101</attribute>  
<attribute name="RMIObjectPort">4447</attribute>  
<attribute name="ServerBindPort">4446</attribute>
```

Note: You can set the port numbers for these attributes to any unused port.

The attributes edited in this step may not be located adjacent to each other in the file. You may need to search within the HA JNDI section of the file to find each attribute you must edit.

6. (Vertically clustered) Save the edited file.
7. (Vertically clustered) Repeat steps 5 to 6 on all JBoss Application Server instances except one. The attributes edited in these steps must have a different set of values for each vertically clustered JBoss Application Server instance. One instance can use the initial set of values; however, you must edit the cluster-service.xml file of all other vertically clustered instances to use a different set of non-conflicting port numbers.

► **To modify the hajndi-jms-ds.xml file:**

1. On a member of the cluster, open the hajndi-jms-ds.xml file located in `[appserver root]/server/all/deploy/jms`, in a text editor.
2. In the JMS Provider loader section of the file, change the `Properties` attribute as follows:

```
java.naming.provider.url=${jboss.bind.address:localhost}:1100  
jnp.disableDiscovery=false
```

Caution: The new port value that is configured in this step must be the same value that you configured for the `<attribute name="Port">` attribute in step 5 of the procedure ["To modify the cluster-service.xml file:" on page 13](#).

3. Open the `[appserver root]/server/all/deploy/jms/hajndi-jms-ds.xml` file in an editor and add the following connection factories to enable Watched Folder invocations:

```
<tx-connection-factory>  
  <track-connection-by-tx>true</track-connection-by-tx>  
  <jndi-name>adobe_JmsQueueXA</jndi-name>  
  <xa-transaction/>  
  <rar-name>jms-ra.rar</rar-name>  
  <connection-definition>org.jboss.resource.  
  adapter.jms.JmsConnectionFactory</connection-definition>  
  <adapter-display-name>JMS Adapter</adapter-display-name>  
  <config-property type="java.lang.String" name="SessionDefaultType">  
  javax.jms.Topic</config-property>  
  <security-domain-and-application>JmsXARealm  
  </security-domain-and-application>  
  <config-property type="java.lang.String"  
  name="JmsProviderAdapterJNDI">  
  java:/DefaultJMSProvider</config-property>  
</tx-connection-factory>
```

```
<tx-connection-factory>  
  <track-connection-by-tx>true</track-connection-by-tx>  
  <jndi-name>adobe_JmsTopicXA</jndi-name>  
  <xa-transaction/>  
  <rar-name>jms-ra.rar</rar-name>  
  <connection-definition>org.jboss.resource.adapter.jms.  
  JmsConnectionFactory</connection-definition>  
  <adapter-display-name>JMS Adapter</adapter-display-name>  
  <config-property type="java.lang.String"  
  name="SessionDefaultType">javax.jms.Topic</config-property>  
  <security-domain-and-application>JmsXARealm<  
  /security-domain-and-application>  
  <config-property type="java.lang.String"  
  name="JmsProviderAdapterJNDI">java:/DefaultJMSProvider</  
  config-property>  
</tx-connection-factory>
```

4. Save the edited file.
5. Repeat steps 1 to 4 on every JBoss Application Server instance of the cluster.

► **To modify the `jboss-service.xml` file (JBoss Application Server 4.2.0):**

1. On a member of the cluster, open the `jboss-service.xml` file located in `[appserver root]/server/all/deploy/jboss-web-cluster.sar/META-INF`, in a text editor.
2. In the TreeCache configuration section of the file, change the following UDP attributes of the `config` element:

```
ip_ttl="{jgroups.udp.ip_ttl:2}"
ip_mcast="true"
mcast_port="{jboss.webpartition.mcast_port:<port number>}"
```

Note: The `<port number>` value for the `mcast_port` attribute must uniquely distinguish this cluster from any other JBoss Application Server (stand-alone or clustered) on the same subnet. You can use any value from 1 to 65535 that meets this criterion for this cluster. You must use the same `<port number>` value for each JBoss Application Server in this cluster. The `ip_ttl` attribute can be any other appropriate value for the number of hops between nodes.

3. Save the edited file, and then copy the edited `jboss-service.xml` file to the `[appserver root]/server/all/deploy/jboss-web-cluster.sar/META-INF` directory on each other node of the cluster.

► **To modify the `tc5-cluster-service.xml` file (JBoss Application Server 4.0.3SP1):**

1. On a member of the cluster, open the `tc5-cluster-service.xml` file located in `[appserver root]/server/all/deploy` in a text editor.
2. In the TreeCache configuration section of the file, change the following UDP attributes of the `config` element:

```
ip_ttl="5"
ip_mcast="true"
mcast_port="<port number>"
```

Note: The `<port number>` value for the `mcast_port` attribute must uniquely distinguish this cluster from any other JBoss Application Server (stand-alone or clustered) on the same subnet. You can use any value from 1 to 65535 that meets this criterion for this cluster. You must use the same `<port number>` value for each JBoss Application Server in this cluster. The `ip_ttl` attribute can be any other appropriate value for the number of hops between nodes.

3. In the TreeCache configuration section of the file, add the following attribute:

```
<attribute name="CacheMode">REPL_ASYNC</attribute>
```

Note: You may want to also enable replication queue attributes and configure their values to tune replication queue performance for your installation (see the [JBoss Application Server clustering documentation](#)). You can configure the `CacheMode` attribute with the value `REPL_SYNC`, but notice that synchronous replication is much slower.

4. Save the edited file, and then copy the edited `tc5-cluster-service.xml` file to the `[appserver root]/server/all/deploy` directory on each other node of the cluster.

Configuring JMS resources for LiveCycle ES

The `adobe-service.xml` file defines the JMS topics and queues that are used by LiveCycle ES. The Adobe-preconfigured JBoss Application Server that you installed on the servers of your cluster provides

the adobe-service.xml file in the correct directory for a single server environment. For your clustered environment, you must move the adobe-service.xml file into the correct directory.

► **To configure JMS resources for LiveCycle ES:**

1. Move the adobe-service.xml file from the `[appserver root]/server/all/deploy/jms` directory to the `[appserver root]/server/all/deploy-hasingleton/jms` directory.
2. Repeat step 1 for each JBoss instance of the cluster.

Configuring vertically clustered JBoss Application Servers

If you are configuring a vertical cluster (that is, you have multiple JBoss Application Server instances collocated on a single computer), you can employ either of two alternative configurations to resolve address conflicts between the collocated instances:

- Assign different ports to each collocated instance. (See [“Configuring collocated JBoss Application Server ports” on page 16.](#))
- Assign different IP addresses (multihoming) to each collocated instance. (See [“Configuring collocated JBoss Application Servers by multihoming” on page 18.](#))

Configuring collocated JBoss Application Server ports

If you choose to resolve address conflicts by using different ports, you must reconfigure certain ports on each instance.

Note: Standard utilities such as TCPView for Windows or Netstat can assist you in investigating the availability of alternative ports on a computer.

► **To configure collocated JBoss Application Server ports:**

1. On one of the JBoss instances, open the server.xml file in a text editor. The file is in one of these locations:
 - (JBoss Application Server 4.0.3SP1) `[appserver root]\server\all\deploy\jbossweb-tomcat50.sar`
 - (JBoss Application Server 4.2.0) `[appserver root]\server\all\deploy\jboss-web.deployer`

2. Change the following ports:

HTTP/1.1 Connector: From 8080 to, for example, 8888

AJP 1.3 Connector port: From 8009 to, for example, 8099

SSL/TLS Connector: From 8443 to, for example, 8493

(JBoss Application Server 4.2.0 only)

AJP 1.3 Connector redirectPort: From 8443 to, for example, 8493

Note: On JBoss Application Server 4.2.0, you must set the AJP 1.3 Connector redirectPort and the SSL/TLS Connector to the same value.

3. Repeat steps 1 to 2 for each additional JBoss instance, except the one on a single computer, changing each port to a different available port. The ports that are changed in these steps must have a different set of values for each vertically clustered JBoss Application Server instance. One instance can use the

initial set of values; however, you must edit the `server.xml` file of all other vertically clustered instances on a single computer to use a different set of non-conflicting port numbers.

4. On one of the JBoss instances, open the `jboss-service.xml` file located in `[appserver root]\server\all\conf` in a text editor and change the following ports:

WebService: From 8083 to, for example, 8899

NamingService: From 1099 to, for example, 9999

RMIport: From 1098 to, for example, 9998

RMIObjectPort: From 4444 to, for example, 9444

PooledInvoker ServerBindPort: From 4445 to, for example, 9445

(JBoss Application Server 4.2.0 only)

ServerBindPort: From 4446 to match the `ServerBindPort` value configured in step 5 of the procedure ["To modify the cluster-service.xml file:" on page 13.](#)

Repeat this step for each additional JBoss instance, except one on a single computer, changing each port to a different available port. The ports that are changed in this step must have a different set of values for each vertically clustered JBoss Application Server instance. One instance can use the initial set of values; however, you must edit the `jboss-service.xml` file of all other vertically clustered instances on a single computer to use a different set of non-conflicting port numbers.

5. On one of the JBoss instances, open the `jacorb.properties` file located in `[appserver root]\server\all\conf` in a text editor and change the following ports:

OAPort: From 3528 to, for example, 9528

OASLPort: From 3529 to, for example, 9529

Repeat this step for each additional JBoss instance, except one on a single computer, changing each port to a different available port. The ports that are changed in this step must have a different set of values for each vertically clustered JBoss Application Server instance. One instance can use the initial set of values; however, you must edit the `jacorb.properties` file of all other vertically clustered instances on a single computer to use a different set of non-conflicting port numbers.

6. On one of the JBoss instances, open the `uil2-service.xml` file located in `[appserver root]\server\all\deploy-hasingleton\jms` in a text editor and change the **ServerBindPort** port from 8093 to, for example, 8993.

Repeat this step for each additional JBoss instance, except one on a single computer, changing each port to a different available port. The port changed in this step must have a different value for each vertically clustered JBoss Application Server instance. One instance can use the initial value; however, you must edit the `uil2-service.xml` file of all other vertically clustered instances on a single computer to use a different non-conflicting port number.

7. On one of the JBoss instances, open the `jboss-service.xml` file located in `[appserver root]\server\all\deploy\snmp-adaptor.sar\META-INF` in a text editor and change the following ports:

org.jboss.jmx.adaptor.snmp.trapd.TrapdService: From 1162 to, for example, 1182

org.jboss.jmx.adaptor.snmp.agent.SnmpAgentService: From 1161 to, for example, 1181

Repeat this step for each additional JBoss instance, except one on a single computer, changing each port to a different available port. The ports that are changed in this step must have a different set of values for each vertically clustered JBoss Application Server instance. One instance can use the initial set of values; however, you must edit the `jboss-service.xml` file of all other vertically clustered instances on a single computer to use a different set of non-conflicting port numbers.

8. On one of the JBoss instances, open the `managers.xml` file located in `[appserver root]\server\all\deploy\snmp-adaptor.sar`, in a text editor and change the port from 1162 to match the `org.jboss.jmx.adaptor.snmp.trapd.TrapdService` value configured in step 7.

Repeat this step for each additional JBoss instance, except one on a single computer, changing each port to a different available port. The port changed in this step must have a different value for each vertically clustered JBoss Application Server instance. One instance can use the initial value; however, you must edit the `managers.xml` file of all other vertically clustered instances on a single computer to use a different non-conflicting port number.

9. (JBoss Application Server 4.2.0 only) On one of the JBoss instances, open the `jboss-service.xml` file located in `[appserver root]\server\all\deploy\ejb3.deployer\META-INF` in a text editor and change **DefaultEjb3Connector serverBindPort** from 3873 to (for example, 3879). Change the port value to the same new value in the two places in the file where the `serverBindPort` appears.

Repeat this step for each additional JBoss instance, except one on a single computer, changing both occurrences of the port to a different available port. The ports that are changed in this step must have a different value for each vertically clustered JBoss Application Server instance. One instance can use the initial value; however, you must edit the `jboss-service.xml` file of all other vertically clustered instances on a single computer to use a different non-conflicting port number.

Configuring collocated JBoss Application Servers by multihoming

If you choose to resolve JBoss port conflicts by assigning multiple IP addresses to one computer, known as *multihoming*, specify a different IP address for each JBoss instance on the computer.

► To configure collocated JBoss Application Server IP addresses:

1. On a member of the cluster, open the `[appserver root]/server/all/deploy/cluster-service.xml` file in a text editor.
2. In the Cluster Partition section, add the `UDP bind_addr` attribute to the `UDP` element with the IP address for that member, as in this example:

```
bind_addr="10.20.30.5"
```

3. Save the edited file.
4. Repeat steps 1 to 3 for each other instance on the same computer, but configure the `UDP bind_addr` attribute of the `config` element with a unique IP address on the same computer, as in this example:

```
bind_addr="10.20.30.6"
```

5. On the installation medium, navigate to the `third_party/jboss/patches` directory.
6. Copy the `snmp-support.jar` file from the installation medium and replace the existing version on the node at `[jboss root]/server/all/lib`, overwriting the existing file.
7. Repeat steps 5 to 6 for each instance in the vertical cluster.

Note: When you start JBoss Application Server instances that are vertically clustered and employ multihoming, use the `-b` option in your `start` command. (See [“Testing the JBoss Application Server cluster” on page 36.](#))

Installing JGroups (JBoss Application Server 4.0.3 SP1 only)

Your JBoss Application Server 4.0.3 SP1 cluster requires JGroups.

Note: JBoss Application Server 4.2.0 includes JGroups 2.4.1 SP3 and needs no further installation.

► **To install JGroups 2.3 (JBoss Application Server 4.0.3 SP1):**

1. On the installation medium, navigate to the `third_party/jboss/patches` directory.
2. Copy the `jgroups-all.jar` file located in the installation medium and replace the existing version on the node at `[jboss root]/server/all/lib`.
3. Repeat steps 1 to 2 for all nodes in the cluster.

Modifying the JBoss run file

Modify the JBoss run file of each JBoss Application Server instance in the LiveCycle ES cluster to add LiveCycle ES options.

Before you start this procedure, you must know whether your cluster uses a 32-bit or 64-bit JVM:

- If your cluster uses a 64-bit JVM, change the heap size settings in the Adobe-preconfigured JBoss Application Server. (See [“To modify the JBoss run file:” on page 19.](#))
- If your cluster uses a 32-bit JVM, the Adobe-preconfigured JBoss Application Server has set the appropriate values.

See [Preparing to Install LiveCycle ES \(Server Cluster\)](#) to determine the JVM that is required for your cluster configuration.

Before you start this procedure, determine how your LiveCycle ES cluster implements cluster caching so that you can correctly configure an argument for cluster caching. You can implement cluster caching by using either UDP or TCP, 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, also ensure that you configure the TCP locators correctly. (See [“Configuring the caching locators \(caching using TCP only\)” on page 41.](#))

► **To modify the JBoss run file:**

1. Open the following file in a text editor:
 - (Windows) `[appserver root]/bin/run.bat`
 - (UNIX) `[appserver root]/bin/run.sh`
2. In the `JAVA_OPTS` line, add or change the following argument:

```
-Djboss.partition.name=<clustername>
```

Note: The value for `<clustername>` can be any value that is unique to your LiveCycle ES cluster. Configure the same `<clustername>` value on every node of the LiveCycle ES cluster, as in this example:

```
-Djboss.partition.name=lc8_cluster
```

3. In the JAVA_OPTS line, add or change the following argument:

```
-Dadobeidp.serverName=<server name>
```

Note: The value for <server name> can be any value; however, you must configure a unique <server name> value for each node of the LiveCycle ES cluster, as in this example:

- On one node of the cluster, configure the `-Dadobeidp.serverName=server1` argument
- On another node of the cluster, configure the `-Dadobeidp.serverName=server2` argument.

You can configure additional nodes for the LiveCycle ES cluster in a similar manner but with unique <server name> values.

4. Configure a JVM argument for cluster caching; in the JAVA_OPTS line, add or change one of the following arguments:

- (Caching using UDP only) 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 1 and 65535. The multicast port must be unique to the LiveCycle ES cluster (that is, the port must not be used by any other cluster on the same network). It is recommended that you configure the same <port number> on all nodes in the LiveCycle ES cluster, as in this example:

```
-Dadobe.cache.multicast-port=33456
```

- (Caching using TCP only) Configure the cluster locators argument in the following format:

```
-Dadobe.cache.cluster-locators=<IPaddress> [<port number>], <IPaddress> [<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 that is running the locator. The value for <port number> is any unused port between 1 and 65535. It is recommended that you configure the same <port number> on all nodes in the LiveCycle ES cluster, as in this example:

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

5. In the JAVA_OPTS line, add or change the following arguments:

- (64-bit JVM only) `-XX:MaxPermSize=512m -Xms256m -Xmx1792m`
- (32-bit JVM only) `-XX:MaxPermSize=256m -Xms1024m -Xmx1024m`

6. Save the edited file.

7. Repeat steps 1 to 6 for each node in the cluster.

Configuring LiveCycle ES database connectivity

You must enable database connectivity from each JBoss Application Server in the cluster to the LiveCycle ES database by performing the following tasks:

- Ensure that the correct JDBC driver exists on each instance of JBoss Application Server in the cluster.
- Create a data source file and deploy it to each instance of JBoss Application Server in the cluster. The `adobe-ds.xml` file configures the data source that is used by LiveCycle ES, including parameters such as

the host name of the computer where the database resides, the database name, port number, and the user name and password for the database.

- Configure the `adobe-service.xml` file on each instance of JBoss Application Server in the cluster to use the LiveCycle ES database for JMS. The `adobe-service.xml` file defines the JMS topics and queues that are used by LiveCycle ES.

You can simplify this task by following these steps:

1. Copy the necessary files from your LiveCycle ES installation medium to any computer.
2. Edit the files as described in the following subsections.
3. Save the edited files to each node of the cluster.

See one of the following sections for instructions that are relevant to your database:

- ["Configuring Oracle for Adobe-preconfigured JBoss" on page 21](#)
- ["Configuring Oracle for manually installed JBoss" on page 24](#)
- ["Configuring SQL Server" on page 26](#)
- ["Configuring DB2 for Adobe preconfigured JBoss" on page 30](#)
- ["Configuring DB2 for manually installed JBoss" on page 33](#)

Configuring Oracle for Adobe-preconfigured JBoss

To enable JBoss to connect to the Oracle database that stores LiveCycle ES data, complete the following tasks if you are manually deploying LiveCycle ES:

- Obtain and copy the Oracle JDBC driver to the instance of JBoss where you will deploy LiveCycle ES.
- Create a data source file and deploy it to the instance of JBoss where you will deploy LiveCycle ES.
- Configure JBoss to use Oracle for JMS.

Configuring the Oracle data source

Before you configure the Oracle data source, you must have already created the database on Oracle. (See [Preparing to Install LiveCycle ES \(Server Cluster\)](#).)

► To install the Oracle 10g database driver:

1. Access the Oracle 10g driver file from the `[LiveCycleES root]/lib/db/oracle` directory, or download the Oracle 10g Release 2 (10.2.0.2 Thin) driver from the [Oracle Technology Network](#).
2. Copy the `ojdbc14.jar` driver file to the `[appserver root]/server/all/lib` directory.

► To create the Oracle data source file:

1. Copy the `adobe-ds-jboss-oracle.xml` file from the `[DVD_root]/third_party/datasources` directory on the installation DVD to the `[appserver root]/server/all/deploy` directory.

2. Open the `adobe-ds-jboss-oracle.xml` file in a text editor and locate this line:

```
<connection-url>jdbc:oracle:thin:@//localhost:1521/adobe</connection-url>
```

3. Replace the following text with values that are specific to your database:

- **localhost**: The name, IP address, or fully qualified path of the computer that hosts the database. The default is `localhost`.
 - **1521**: The port that is used to access the database. The default port is `1521`.
 - **adobe**: The name of the database that stores the LiveCycle ES data. You will need to update the default value `adobe` with your database name.
 - **database_username** and **password**: The user name and password that the application server uses to access the database. You will need to update the default values `adobe` and `adobe` with the credentials for your database.
4. Repeat step 3 for the `IDP_DS`, `EDC_DS` and `com.celequest.metadata.metaDataSource` elements.
- Note:** The `com.celequest.metadata.metaDataSource` element is required only if you are using LiveCycle ES Business Activity Monitoring
5. Save the file as `adobe-ds.xml` in the `[appserver root]/server/all/deploy` directory.
6. Restart JBoss.

Setting Oracle as the JMS data source

If you are running LiveCycle ES with a Oracle database, set Oracle to be the default data source for JBoss. (JBoss is configured by default to use Hypersonic for the data source.)

This procedure assumes that the Oracle JDBC driver is installed in the `[appserver root]/server/all/lib` directory.

► To set Oracle to be the JMS data source:

1. Navigate to the `[appserver root]/server/all/deploy` directory and delete the `mysql-ds.xml` file.
2. Navigate to the `[appserver root]/docs/examples/jca` directory and copy the `oracle-ds.xml` to the `[appserver root]/server/all/deploy` directory.
3. Open the `[appserver root]/server/all/deploy/oracle-ds.xml` file in a text editor and modify the `<local-tx-datasource>` element with your Oracle connection settings:

```
<jndi-name>OracleDS</jndi-name>
<connection-url>jdbc:oracle:thin:@youroraclehost:1521:yoursid
</connection-url>
<driver-class>oracle.jdbc.driver.OracleDriver</driver-class>
<user-name>x</user-name>
<password>y</password>
```

4. Replace the bold text with values that are specific to your database:
 - **OracleDS**: Replace with `DefaultDS`.
 - **youroraclehost**: Replace with the host name of your Oracle server.
 - **1521**: If Oracle is not using the default port, replace this value with the appropriate port number.
 - **yoursid**: Replace with your Oracle System Identifier.
 - Replace **x** with the user name to access the Oracle database and **y** with the password that is associated with the user. The application server uses these credentials to access the database.

5. Save and close the file.
6. (JBoss 4.0.3 SP1 only) Open the `[appserver root]/server/all/conf/standardjaws.xml` file and change the `<type-mapping>` element to Oracle:

```
<type-mapping>oracle8</type-mapping>
```

7. (JBoss 4.0.3 SP1 only) Save and close the file.
8. Open the `[appserver root]/server/all/conf/standardjbosscomp-jdbc.xml` file and change the following elements (not necessarily contiguous):

```
<datasource>java:/DefaultDS</datasource>
<datasource-mapping>oracle8</datasource-mapping>
<fk-constraint>true</fk-constraint>
```

9. Save and close the file.
10. Open the `[appserver root]/server/all/conf/login-config.xml` file in a text editor and add the following text within the `<policy>` element:

```
<application-policy name = "OracleDbRealm" >
  <authentication>
    <login-module code =
      "org.jboss.resource.security.ConfiguredIdentityLoginModule" flag =
      "required" >
      <module-option name = "principal" >database_name </module-option>
      <module-option name = "userName" >database_username</module-option>
      <module-option name = "password" >password</module-option>
      <module-option name = "managedConnectionFactoryName" >
        jboss.jca:service=LocalTxCM,name=DefaultDS</module-option>
    </login-module>
  </authentication>
</application-policy>
```

11. Replace the bold text with values that are specific to your database:
 - **database_name**, **database_username**, and **password**: The database values that the application server uses to access the database.
12. Save and close the file.
13. Delete the `mysql-jdbc2-service.xml` file from the `[appserver root]/server/all/deploy-hasingleton/jms` directory.
14. Copy the `oracle-jdbc2-service.xml` file from the `[appserver root]/docs/examples/jms` directory to the `[appserver root]/server/all/deploy-hasingleton/jms` directory.
15. In the `oracle-jdbc2-service.xml` file in the `[appserver root]/server/all/deploy-hasingleton/jms` directory, change `OracleDS` to `DefaultDS`:

Note: The following text contains formatting characters for line breaks. If you copy and paste this text to another location, you must remove the formatting characters.

```
<mbean code="org.jboss.mq.pm.jdbc2.PersistenceManager"
name="jboss.mq:service=PersistenceManager" >
  <depends optional-attribute-name="ConnectionFactory" >
    jboss.jca:service=DataSourceBinding,name=DefaultDS
  </depends>
```

```
<attribute name="SqlProperties">  
...
```

16. Save and close the file.
17. Rename the `[appserver root]/server/all/deploy-hasingleton/jms/mysqlDb-jdbc-state-service.xml` file to `oracle-jdbc-state-service.xml`.
18. Restart JBoss.

Configuring Oracle for manually installed JBoss

To enable JBoss to connect to the Oracle database that stores LiveCycle ES data, complete the following tasks if you are manually deploying LiveCycle ES:

- Obtain and copy the Oracle JDBC driver to the instance of JBoss where you will deploy LiveCycle ES.
- Create a data source file and deploy it to the instance of JBoss where you will deploy LiveCycle ES.
- Configure JBoss to use Oracle for JMS.

Configuring the Oracle data source

Before you configure the Oracle data source, you must have already created the database on Oracle. (See [Preparing to Install LiveCycle ES \(Server Cluster\)](#).)

► To install the Oracle 10g database driver:

1. Copy the `ojdbc14.jar` driver file from the `[LiveCycleES root]/lib/db/oracle` directory to the `[appserver root]/server/all/lib` directory. Also, you can download the Oracle 10g Release 2 (10.2.0.2 Thin) driver from the [Oracle Technology Network](#).

► To create the Oracle data source file:

1. Copy the `adobe-ds-jboss-oracle.xml` file from the `[DVD_root]/third_party/datasources` directory to the `[appserver root]/server/all/deploy` directory.

2. Open the `adobe-ds-jboss-oracle.xml` file in a text editor and locate this line:

```
<connection-url>jdbc:oracle:thin:@//localhost:1521/adobe</connection-url>
```

3. Replace the following text with values that are specific to your database:

- **localhost**: The name, IP address, or fully qualified path of the computer that hosts the database. The default is `localhost`.
- **1521**: The port that is used to access the database. The default port is `1521`.
- **adobe**: The name of the database that stores the LiveCycle ES data. You will need to update the default value `adobe` with your database name.
- **database_username** and **password**: The user name and password that the application server uses to access the database. You will need to update the default values `adobe` and `adobe` with the credentials for your database.

4. Complete step 3 for the `IDP_DS`, `EDC_DS` and `com.celequest.metadata.metaDataSource` elements.

Note: The `com.celequest.metadata.metaDataSource` element is required only if you are using LiveCycle ES Business Activity Monitoring

5. Save the file as `adobe-ds.xml` in the `[appserver root]/server/all/deploy` directory.
6. Restart JBoss.

Setting Oracle as the JMS data source

If you are running LiveCycle ES with an Oracle database, set Oracle to be the default data source for JBoss. (JBoss is configured by default to use Hypersonic for the data source.)

This procedure assumes that the Oracle JDBC driver is installed in the `[appserver root]/server/all/lib` directory.

► To set Oracle to be the JMS data source:

1. Navigate to the `[appserver root]/server/all/deploy` directory and delete the `hsqldb-ds.xml` file.
2. Copy the `oracle-ds.xml` file from the `[appserver root]/docs/examples/jca` directory to the `[appserver root]/server/all/deploy` directory.
3. Open the `[appserver root]/server/all/deploy/oracle-ds.xml` file in a text editor and modify the `<local-tx-datasource>` element with your Oracle connection settings:

```
<jndi-name>OracleDS</jndi-name>
<connection-url>jdbc:oracle:thin:@youroraclehost:1521:yoursid
</connection-url>
<driver-class>oracle.jdbc.driver.OracleDriver</driver-class>
<user-name>x</user-name>
<password>y</password>
```
4. Replace the bold text with values that are specific to your database:
 - **OracleDS**: Replace with `DefaultDS`.
 - **youroraclehost**: Replace with the host name of your Oracle server.
 - **1521**: If Oracle is not using the default port, replace this value with the appropriate port number.
 - **yoursid**: Replace with your Oracle System Identifier.
 - Replace **x** with the user name to access the Oracle database and **y** with the password that is associated with the user. The application server uses these credentials to access the database.
5. Save and close the file.
6. (JBoss 4.0.3 SP1 only) Open the `[appserver root]/server/all/conf/standardjaws.xml` file and change the `<type-mapping>` element to Oracle:

```
<type-mapping>oracle8</type-mapping>
```
7. (JBoss 4.0.3 SP1 only) Save and close the file.
8. Open the `[appserver root]/server/all/conf/standardjbosscmp-jdbc.xml` file and change the following elements (not necessarily contiguous):

```
<datasource>java:/DefaultDS</datasource>
<datasource-mapping>oracle8</datasource-mapping>
<fk-constraint>>true</fk-constraint>
```

9. Remove the text `<!--optional since 4.0 and ..` from the `<datasource-mapping>` tag to uncomment it.
10. Save and close the file.
11. Open the `[appserver root]/server/all/conf/login-config.xml` file in a text editor and add the following text within the `<policy>` element:

```
<application-policy name = "OracleDbRealm">
  <authentication>
    <login-module code =
      "org.jboss.resource.security.ConfiguredIdentityLoginModule" flag =
      "required">
      <module-option name = "principal">database_name </module-option>
      <module-option name = "userName">database_username</module-option>
      <module-option name = "password">password</module-option>
      <module-option name = "managedConnectionFactoryName">
        jboss.jca:service=LocalTxCM,name=DefaultDS</module-option>
    </login-module>
  </authentication>
</application-policy>
```
12. Replace the bold text with values that are specific to your database:
 - **database_name, database_username, and password:** The database values that the application server uses to access the database.
13. Save and close the file.
14. Delete the `hsqldb-jdbc2-service.xml` file from the `[appserver root]/server/all/deploy-hasingleton/jms` directory.
15. Copy the `oracle-jdbc2-service.xml` file from the `[appserver root]/docs/examples/jms` directory to the `[appserver root]/server/all/deploy-hasingleton/jms` directory.
16. Open the `[appserver root]/server/all/deploy-hasingleton/jms/oracle-jdbc2-service.xml` file and change OracleDS to DefaultDS:

```
<mbean code="org.jboss.mq.pm.jdbc2.PersistenceManager"
name="jboss.mq:service=PersistenceManager">
<depends optional-attribute-name="ConnectionManager">
jboss.jca:service=DataSourceBinding,name=DefaultDS
</depends>
<attribute name="SqlProperties">
...

```
17. Save and close the file.
18. Rename the `hsqldb-jdbc-state-service.xml` file, located in the `[appserver root]/server/all/deploy-hasingleton/jms` directory, to `oracle-jdbc-state-service.xml`.
19. Restart JBoss.

Configuring SQL Server

To enable JBoss to connect to the SQL Server database that stores LiveCycle ES data, complete the following tasks:

- Obtain and copy the SQL Server JDBC driver files to the instance of JBoss where you will deploy LiveCycle ES.
- Create a SQL Server data source file and deploy it to the instance of JBoss where you will deploy LiveCycle ES (for example, `[appserver_root]/server/all/deploy`).
- Configure JBoss to use SQL Server for JMS.

Configuring the SQL Server data source

Before you configure the SQL Server data source, you must have already created the LiveCycle ES database on SQL Server. (See [Preparing to Install LiveCycle ES \(Server Cluster\)](#).)

► To install the SQL database driver:

1. Obtain the SQL Server 2005 JDBC 1.1 database driver from the Microsoft website.
2. (Windows) Download the *.exe file and run it, and then extract the files to a temporary directory (referred to as the `[SQL_root]` directory in the remainder of this section).
3. (Linux) Extract the *.tar.gz files to a temporary directory (referred to as the `[SQL_root]` directory in the remainder of this section).
4. Copy the `sqljdbc.jar` file from the `[SQL_root]/sqljdbc_1.1/enu` directory to the `[appserver root]/server/all/lib` directory.

► To create the SQL Server data source file:

1. Copy the `adobe-ds-jboss-mssql.xml` file from the `[DVD_root]/third_party/datasources` directory to the `[appserver root]/server/all/deploy` directory.

2. Open the `adobe-ds-jboss-mssql.xml` file in a text editor and locate this line:

```
<connection-url>jdbc:sqlserver://localhost:1433;DatabaseName=adobe</connection-url>
```

3. Change the `<driver-class>` as follows:

```
<driver-class>com.microsoft.sqlserver.jdbc.SQLServerDriver</driver-class>
```

4. Replace the following text with values that are specific to your database:

- **localhost**: The name, IP address, or fully qualified path of the computer that hosts the database. The default is `localhost`.
- **1433**: The port that is used to access the database. The default port is `1433`.
- **adobe**: The name of the database that stores the LiveCycle ES data. You will need to update the default value `adobe` with your database name.
- **database_username** and **password**: The user name and password that the application server uses to access the database. You will need to update the default values `adobe` and `adobe` with the credentials for your database.

5. Complete step 4 for the `IDP_DS`, `EDC_DS` and `com.cequest.metadata.metaDataSource` elements.

Note: The `com.cequest.metadata.metaDataSource` element is required only if you are using LiveCycle ES Business Activity Monitoring

6. Save the file as adobe-ds.xml in the `[appserver root]/server/all/deploy` directory.
7. Restart JBoss.

This next procedure provides instructions on how to use integrated security to make a trusted connection with SQL Server.

► **To configure Integrated Security on Windows:**

1. Modify the adobe-ds.xml file, located in `[appserver root]\server\all\deploy`, to add `integratedSecurity=true` to the connection URL, as in this example:

```
jdbc:sqlserver://<serverhost>:<port>;databaseName=<dbname>;integratedSecurity=true.
```

2. Add the `sqljdbc_auth.dll` file to the Windows systems path (C:\Windows) on the computer that is running JBoss. The `sqljdbc_auth.dll` file is located with the Microsoft SQL JDBC 1.1 driver installation (default is `<InstallDir>/sqljdbc_1.1/enu/auth/x86`).
3. Open the properties for the JBoss for Adobe LiveCycle service and click the **Log On** tab.
4. Select **This Account** and type the value of a valid user account. This change is not required if you are running JBoss from the command line.
5. Change SQL Server's Security from Mixed mode to Windows Authentication only.

Configuring JMS with Microsoft SQL Server

This section applies to both Adobe-preconfigured JBoss and manually installed JBoss.

Setting SQL Server as the JMS data source

If you are running LiveCycle ES with a SQL Server database, set SQL Server to be the default data source for JBoss. (It is configured by default to use Hypersonic for the data source.)

This procedure assumes that the SQL Server JDBC driver is installed in the `[appserver root]/server/all/lib` directory.

► **To set SQL Server to be the JMS data source:**

1. Navigate to the `[appserver root]/server/all/deploy` directory and delete the `hsqldb-ds.xml` file. If you are using the Adobe-preconfigured JBoss from the DVD, delete the `mysql-ds.xml` file.
2. (JBoss 4.0.3 SP1 only) Install the JBossMQ patch file `jbossmq.jar`. You must replace the existing `jbossmq.jar` file in the `[appserver root]/server/all/lib` directory. The updated `jbossmq.jar` file is available at the `thirdparty\jboss\patches` directory in the installation media.
3. Navigate to the `[appserver root]/docs/examples/jca` directory and copy the `mssql-ds.xml` file to the `[appserver root]/server/all/deploy` directory.
4. Open the `mssql-ds.xml` file in a text editor and modify `<jndi-name>` to `DefaultDS` and the `<local-tx-datasource>` element with your SQL Server connection settings:

```
<jndi-name>DefaultDS</jndi-name>  
<connection-url>jdbc:sqlserver:// your-hostname :  
  your-port ; DatabaseName=yourdatabase-name</connection-url>
```

```
<driver-class>com.microsoft.sqlserver.jdbc.SQLServerDriver
  </driver-class>
<user-name>yourUserName</user-name>
<password>yourPassword</password>
```

5. Save and close the file.
6. (JBoss 4.0.3 SP1 only) Open the `[appserver root]/server/all/conf/standardjaws.xml` file and change the `<type-mapping>` element to SQL Server:

```
<type-mapping>MS SQLSERVER2005</type-mapping>
```
7. Open the `[appserver root]/server/all/conf/standardjbosscomp-jdbc.xml` file and change the following elements (not necessarily contiguous):

```
<datasource>java:/DefaultDS</datasource>
<datasource-mapping>MS SQLSERVER2005</datasource-mapping>
<fk-constraint>true</fk-constraint>
```
8. (Manually installed JBoss only) Remove the comment tags from the `<datasource-mapping>` tag to uncomment it. For example, remove "`<!--optional since 4.0 ...-->`" and the corresponding `-->` tag.
9. Save and close the file.
10. Open the `[appserver root]/server/all/conf/login-config.xml` file in a text editor and add the following lines within the `<policy>` element:

```
<application-policy name = "MSSQLDbRealm">
  <authentication>
    <login-module code =
      "org.jboss.resource.security.ConfiguredIdentityLoginModule"
      flag = "required">
      <module-option name = "principal">database_name</module-option>
      <module-option name = "userName">database_username</module-option>
      <module-option name = "password">password</module-option>
      <module-option name =
        "managedConnectionFactoryName">jboss.jca:service=LocalTxCM,name=
          DefaultDS
      </module-option>
    </login-module>
  </authentication>
</application-policy>
```
11. Replace the bold text with values that are specific to your database:
 - **database_name**, **database_username**, and **password**: The database values that the application server uses to access the database.
12. Save and close the file.
13. Delete the `[appserver root]/server/all/deploy-hasingleton/jms/hssql-jdbc2-service.xml` file. Or, if you are using the Adobe-preconfigured JBoss from the DVD, delete the `mysql-jdbc2-service.xml`. Copy the `[appserver root]/docs/examples/jms/mssql-jdbc2-service.xml` file to `[appserver root]/server/all/deploy-hasingleton/jms`.
14. Open the `[appserver root]/server/all/deployhasingleton/jms/mssql-jdbc2-service.xml` file and change the mbean code to reference `MSSQLJDBCStateManager` and `DefaultDS`:

```
<mbean code="org.jboss.mq.pm.jdbc2.MSSQLPersistenceManager"
```

```
name="jboss.mq:service=PersistenceManager">
<depends optional-attribute-name="
ConnectionManager">jboss.jca:service=DataSourceBinding,name=DefaultDS
</depends>
<attribute name="SqlProperties">
...

```

15. Rename the `[appserver root]/server/all/deploy-hasingleton/jms/hsqldb-jdbc-state-service.xml` file to `mssql-jdbc-state-service.xml`. Or, if you are using the Adobe-preconfigured JBoss from the DVD, rename the `[appserver root]/server/all/deploy-hasingleton/jms/mysql-jdbc-state-service.xml` file to `mssql-jdbc-state-service.xml`.
16. Open the `[appserver root]/server/all/deploy-hasingleton/jms/mssql-jdbc-stateservice.xml` file and change the mbean code to reference `MSSQLJDBCStateManager`:

```
<mbean code="org.jboss.mq.sm.jdbc.MSSQLJDBCStateManager"
name="jboss.mq:service=StateManager">
```
17. Restart JBoss.

Configuring DB2 for Adobe preconfigured JBoss

To enable JBoss to connect to the DB2 database that stores LiveCycle ES data, you must complete the following tasks if you are manually deploying LiveCycle ES:

- Obtain and copy the DB2 JDBC driver to the instance of JBoss where you will deploy LiveCycle ES.
- Create a data source file and deploy it to the instance of JBoss where you will deploy LiveCycle ES.
- Configure JBoss to use DB2 for JMS.

Configuring the DB2 data source

Before you configure the DB2 data source, you must have already created the database on DB2. (See [Preparing to Install LiveCycle ES \(Server Cluster\)](#).)

► To install the DB2 database driver:

- Copy the `db2jcc.jar` and `db2jcc_license_cu.jar` files from the `adobe/livecycle/lib/db/db2` directory to the `[appserver root]/server/all/lib` directory.

► To obtain the latest `db2-jdbc-service.xml` file:

1. Go to [JBoss Downloads](#).
2. Click the **Download** link in the **4.2.0** row. The Browse Files page opens.
3. Click **jboss-4.2.0.GA.zip** to begin downloading the file.
4. After the file is downloaded, open `jboss-4.2.0.GA.zip` and extract the `jboss-4.2.0.GA\docs\examples\jms\db2-jdbc2-service.xml` file to the `[appserver root]/docs/examples/jms` directory.

► To create the DB2 data source file:

1. Copy the `adobe-ds-jboss-db2.xml` file from the `[DVD_root]/third_party/datasources` directory to the `[appserver root]/server/all/deploy` directory.

2. Open the `adobe-ds-jboss-db2.xml` file in a text editor and locate this line:

```
<connection-url>jdbc:db2://localhost:50000/adobe</connection-url>
```

3. Replace the following text with values that are specific to your database:

- **localhost**: The name, IP address, or fully qualified path of the computer that hosts the database. The default is `localhost`.
- **50000**: The port that is used to access the database. The default is `50000`.
- **adobe**: The name of the database that stores the LiveCycle ES data. You will need to update the default value `adobe` with your database name.
- **database_username** and **password**: The user name and password that the application server uses to access the database. You will need to update the default values `adobe` and `adobe` with the credentials for your database.

4. Complete step 3 for the `IDP_DS`, `EDC_DS` and `com.celequest.metadata.metaDataSource` elements.

Note: The `com.celequest.metadata.metaDataSource` element is required only if you are using LiveCycle ES Business Activity Monitoring

5. Save the file as `adobe-ds.xml` in the `[appserver root]/server/all/deploy` directory.
6. Restart JBoss.

Setting DB2 as the JMS data source

If you are running LiveCycle ES with a DB2 database, set DB2 to be the default JMS data source for JBoss. (JBoss is configured by default to use Hypersonic for the data source.)

This procedure assumes that the DB2 JDBC driver is installed in the `[appserver root]/server/all/lib` directory.

► To set DB2 to be the JMS data source:

1. Navigate to the `[appserver root]/server/all/deploy` directory and delete the `mysql-db-ds.xml` file.
2. Copy the `db2-ds.xml` file from the `[appserver root]/docs/examples/jca` directory to the `[appserver root]/server/all/deploy` directory.
3. Open the `[appserver root]/server/all/deploy/db2-ds.xml` file in a text editor and modify the `<local-tx-datasource>` element with your DB2 connection settings:

```
<jndi-name>DB2DS</jndi-name>  
<connection-url>jdbc:db2:your_database</connection-url>  
<driver-class>COM.ibm.db2.jdbc.app.DB2Driver</driver-class>  
<user-name>x</user-name>  
<password>y</password>
```

4. Replace the bold text with values that are specific to your database:

- **DB2DS**: Replace with `DefaultDS`.
- **your_database**: The name of the DB2 database that stores the LiveCycle ES data.
- **COM.ibm.db2.jdbc.app.DB2Driver**: Replace with `com.ibm.db2.jcc.DB2Driver`.
- **x** and **y**: The user name and password that the application server uses to access the database.

5. Save and close the file.
6. Open the `[appserver root]/server/all/conf/standardjaws.xml` file and change the `<type-mapping>` element to DB2:

```
<type-mapping>DB2</type-mapping>
```

7. Save and close the file.
8. Open the `[appserver root]/server/all/conf/standardjbosscmp-jdbc.xml` file and change the following elements (not necessarily contiguous):

```
<datasource>java:/DefaultDS</datasource>
<datasource-mapping>DB2</datasource-mapping>
<fk-constraint>true</fk-constraint>
```

9. Open the `[appserver root]/server/all/conf/login-config.xml` file in a text editor and add the following text within the `<policy>` element:

```
<application-policy name = "DB2DbRealm">
  <authentication>
    <login-module code =
      "org.jboss.resource.security.ConfiguredIdentityLoginModule" flag =
      "required">
      <module-option name = "principal">database_name </module-option>
      <module-option name = "userName">database_username</module-option>
      <module-option name = "password">password</module-option>
      <module-option name = "managedConnectionFactoryName">
        jboss.jca:service=LocalTxCM,name=DefaultDS
      </module-option>
    </login-module>
  </authentication>
</application-policy>
```

10. Replace the bold text with values that are specific to your database:
 - **database_name**, **database_username**, and **password**: The user name and password that the application server uses to access the database.
11. Save and close the file.
12. Delete the `mysql-jdbc.service.xml` file from `[appserver root]/server/all/deploy-hasingleton/jms`.
13. Copy `[appserver root]/docs/examples/jms/db2-jdbc2-service.xml` file to the `[appserver root]/server/all/deploy-hasingleton/jms` directory.
14. Open the `[appserver root]/server/all/deploy-hasingleton/jms/db2-jdbc2-service.xml` file and change DB2DS to DefaultDS:

```
<mbean code="org.jboss.mq.pm.jdbc2.PersistenceManager"
name="jboss.mq:service=PersistenceManager">
  <depends optional-attribute-name="ConnectionFactory">
    jboss.jca:service=DataSourceBinding,name=DefaultDS
  </depends>
  <attribute name="SqlProperties">
    ...
```

15. Save and close the file.

16. Rename the `mysql-jdbc-state-service.xml` file, located in the `[appserver root]/server/all/deploy-hasingleton/jms` directory, to `db2-jdbc-state-service.xml`.
17. Restart JBoss.

Configuring DB2 for manually installed JBoss

To enable JBoss to connect to the DB2 database that stores LiveCycle ES data, complete the following tasks if you are manually deploying LiveCycle ES:

- Obtain and copy the DB2 JDBC driver to the instance of JBoss where you will deploy LiveCycle ES.
- Create a data source file and deploy it to the instance of JBoss where you will deploy LiveCycle ES.
- Configure JBoss to use DB2 for JMS.

Configuring the DB2 data source

Before you configure the DB2 data source, you must have already created the database on DB2. (See [Preparing to Install LiveCycle ES \(Server Cluster\)](#).)

► To install the DB2 database driver:

1. Obtain the `db2jcc.jar` and `db2jcc_license_cu.jar` files from the DB2 installation directories on your DB2 server.
2. Copy the files from the `adobe/livecycle/lib/db/db2` directory to the `[appserver root]/server/all/lib` directory.

► To obtain the latest `db2-jdbc-service.xml` file:

1. Go to [JBoss Downloads](#).
2. Click the **Download** link in the **4.2.0** row. The Browse Files page opens.
3. Click **jboss-4.2.0.GA.zip** to begin downloading the file.
4. After the file is downloaded, open `jboss-4.2.0.GA.zip` and extract the `db2-jdbc2-service.xml` file to the `[appserver root]/docs/examples/jms` directory.

► To create the DB2 data source file:

1. Copy the `adobe-ds-jboss-db2.xml` file from the `[DVD_root]/third_party/datasources` directory to the `[appserver root]/server/all/deploy` directory.
2. Open the `adobe-ds-jboss-db2.xml` file in a text editor and locate this line:

```
<connection-url>jdbc:db2://localhost:50000/adobe</connection-url>
```
3. Replace the following text with values that are specific to your database:
 - **localhost**: The name, IP address, or fully-qualified path of the computer that hosts the database. The default is `localhost`.
 - **50000**: The port that is used to access the database. The default is `50000`.
 - **adobe**: The name of the database that stores the LiveCycle ES data. You will need to update the default value `adobe` with your database name.

- **database_username** and **password**: The user name and password that the application server uses to access the database. You will need to update the default values `adobe` and `adobe` with the credentials for your database.
4. Complete step 3 for the `IDP_DS`, `EDC_DS` and `com.celequest.metadata.metaDataSource` elements.
Note: The `com.celequest.metadata.metaDataSource` element is required only if you are using Business Activity Monitoring
 5. Save the file as `adobe-ds.xml` in the `[appserver root]/server/all/deploy` directory.
 6. Restart JBoss.

Setting DB2 as the JMS data source

If you are running LiveCycle ES with a DB2 database, set DB2 to be the default JMS data source for JBoss. (JBoss is configured by default to use Hypersonic for the data source.)

This procedure assumes that the DB2 JDBC driver is installed in the `[appserver root]/server/all/lib` directory.

► To set DB2 as the JMS data source:

1. Navigate to the `[appserver root]/server/all/deploy` directory and delete the `hsqldb-ds.xml` file.
2. Copy the `db2-ds.xml` file from the `[appserver root]/docs/examples/jca` directory to the `[appserver root]/server/all/deploy` directory.
3. Open the `[appserver root]/server/all/deploy/the db2-ds.xml` file in a text editor and modify the `<local-tx-datasource>` element with your DB2 connection settings:

```
<jndi-name>DB2DS</jndi-name>
<connection-url>jdbc:db2:database_hostname:50000/your_database
</connection-url>
<driver-class>COM.ibm.db2.jdbc.app.DB2Driver</driver-class>
<user-name>x</user-name>
<password>y</password>
```
4. Replace the bold text with values that are specific to your database:
 - **DB2DS**: Replace with `DefaultDS`.
 - **database_hostname**: The host name of the server hosting the database.
 - **your_database**: The name of the DB2 database that stores the LiveCycle ES data.
 - **COM.ibm.db2.jdbc.app.DB2Driver**: Replace with `com.ibm.db2.jcc.DB2Driver`.
 - **x** and **y**: The user name and password that the application server uses to access the database.
5. Save and close the file.
6. Open the `[appserver root]/server/all/conf/standardjaws.xml` file and change the `<type-mapping>` element to `DB2`:

```
<type-mapping>DB2</type-mapping>
```
7. Save and close the file.

8. Open the `[appserver root]/server/all/conf/standardjbosscomp-jdbc.xml` file and change the following elements (not necessarily contiguous):

```
<datasource>java:/DefaultDS</datasource>
<datasource-mapping>DB2</datasource-mapping>
<fk-constraint>true</fk-constraint>
```

9. Remove the text `<!--optional since 4.0 and . .` from the `<datasource-mapping>` tag to uncomment it.
10. Open the `[appserver root]/server/all/conf/login-config.xml` file in a text editor and add the following text within the `<policy>` element:

```
<application-policy name = "DB2DbRealm">
  <authentication>
    <login-module code =
      "org.jboss.resource.security.ConfiguredIdentityLoginModule" flag =
      "required">
      <module-option name = "principal">database_name </module-option>
      <module-option name = "userName">database_username</module-option>
      <module-option name = "password">password</module-option>
      <module-option name = "managedConnectionFactoryName">
        jboss.jca:service=LocalTxCM,name=DefaultDS
      </module-option>
    </login-module>
  </authentication>
</application-policy>
```

11. Replace the bold text with values that are specific to your database:
 - **database_name**, **database_username**, and **password**: The database values that the application server uses to access the database.
12. Save and close the file.
13. Delete the `hssql-jdbc2-service.xml` file from the `[appserver root]/server/all/deploy-hasingleton/jms` directory.
14. Copy the `db2-jdbc2-service.xml` file from the `[appserver root]/docs/examples/jms` directory to the `[appserver root]/server/all/deploy-hasingleton/jms` directory.
15. Open the `[appserver root]/server/all/deploy-hasingleton/jms/db2-jdbc2-service.xml` file and change DB2DS to DefaultDS:

```
<mbean code="org.jboss.mq.pm.jdbc2.PersistenceManager"
name="jboss.mq:service=PersistenceManager">
<depends optional-attribute-name="ConnectionFactory">
jboss.jca:service=DataSourceBinding,name=DefaultDS
</depends>
<attribute name="SqlProperties">
...

```

16. Save and close the file.
17. Rename the `hsqldb-jdbc-state-service.xml` file, located in the `[appserver root]/server/all/deploy-hasingleton/jms` directory, to `db2-jdbc-state-service.xml`.
18. Restart JBoss.

Testing the JBoss Application Server cluster

You can test the JBoss Application Server cluster to ensure that all members are active and that the cluster operates according to your design. You should ensure that the JBoss Application Server cluster functions correctly before you proceed with installing and configuring LiveCycle ES.

► To test the JBoss Application Server cluster:

1. Start all JBoss Application Server instances of the cluster by entering the appropriate command:

- (JBoss Application Server 4.2.0 on Windows) `run.bat -c all -b <IPAddressORhostname>`
- (JBoss Application Server 4.2.0 on UNIX) `run.sh -c all -b <IPAddressORhostname>`

Note: When you start JBoss Application Server 4.2.0 instances, to bind to all addresses on the computer (including the local host), you can specify `-b 0.0.0.0` instead of the IP address or host name.

- (JBoss Application Server 4.0.3 SP1 on Windows) `run.bat -c all`
- (JBoss Application Server 4.0.3 SP1 on UNIX) `run.sh -c all`

Note: (Vertical cluster) When you start JBoss Application Server 4.0.3 SP1 instances that are vertically clustered and employ multihoming, you must use the `-b` option in your `start` command, as in these examples:

- (Windows) `run.bat -c all -b <IPAddressORhostname>`
- (UNIX) `run.sh -c all -b <IPAddressORhostname>`

2. View the `server.log` file located in `[appserver root]/server/all/log`. Messages such as this one confirm the active members of the cluster:

```
INFO [org.jboss.ha.framework.interfaces.HAPartition.DefaultPartition]
Number of cluster members: 2
INFO [org.jboss.ha.framework.server.DistributedReplicantManagerImpl.
DefaultPartition] All Members : 2
([<IPAddress1>:<Port1>], [<IPAddress2>:<Port2>])
```

3

Installing the Solution Component Files

This section describes the first phase of setting up a LiveCycle ES system that is running the LiveCycle ES installation program on a Windows or Linux operating system. A subsequent phase will include running LiveCycle Configuration Manager to configure and deploy LiveCycle ES.

Before you install the solution components, ensure that your environment includes the software and hardware that is required to run LiveCycle ES. You should also understand the installation options and have the environment prepared as required. (See [Preparing to Install LiveCycle ES \(Server Cluster\)](#).)

LiveCycle ES also provides a command line interface (CLI) for the installation program. The CLI is intended to be used by advanced users of LiveCycle ES or in server environments that do not support the use of the graphical user interface of LiveCycle Configuration Manager (See ["Appendix - LCM Command Line Interface" on page 102](#).)

This chapter covers the following topics:

- ["Installing the product files" on page 37](#)
- ["Viewing the error log" on page 40](#)
- ["Configuring the caching locators \(caching using TCP only\)" on page 41](#)
- ["Configuring the font directories" on page 43](#)

Installing the product files

When you run an installation program, you need the serial number for the solution components that you are installing. If you are upgrading from LiveCycle ES 8.0, the existing serial numbers for LiveCycle ES 8.0 are used. In this case, you must add additional serial numbers only if you are installing solution components in addition to those you are upgrading.

- The type of installation and configuration you are performing.

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\LiveCycle8.2\
- (UNIX) /opt/adobe/livecycle8.2/

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 ES \(Server Cluster\)](#). The temporary directory is one of the following locations:

- (Windows) TMP or TEMP path as set in the environment variables
- (UNIX) Logged-in user's home directory

Note: When you are installing the solution components on a Linux operating system, you must be logged in as the root user to successfully install the solution components to the default location, which is `/opt/adobe/LiveCycle8.2/`. 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]/livecycle8.2`.

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 choose to remove these files manually.

Installing on a Windows staging platform for deployment on Linux or UNIX

LiveCycle ES 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 ES. The installation program installs binaries for Linux 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.

Note: The host and target operating system must be Windows to support installing Acrobat for LiveCycle PDF Generator ES from the installer.

Configuring the LiveCycle Reader Extensions ES Rights credential

Ensure that you have a new valid credential and password before you run the installation. If you do not have the information at this time, you can install the credential after you install and deploy LiveCycle ES on the Trust Store configuration pages in LiveCycle Administration Console.

Including the Java 5 SDK in the JAVA_HOME environment variable

The `JAVA_HOME` environment variable must point to the Java 5 SDK. The required Java SDK is Sun JDK 1.5.0_11 or higher.

The Java 5 SDK requirements are also listed in [Preparing to Install LiveCycle ES \(Server Cluster\)](#).

Installing LiveCycle ES

This section covers the initial installation of LiveCycle ES. For information about configuration and deployment, see [“Configuring LiveCycle ES for Deployment” on page 44](#).

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

► To install LiveCycle ES:

1. Ensure that the `JAVA_HOME` environment variable is set to point to the directory that contains a compatible JDK.

2. Navigate to the `./livecycle_server/8.2` directory of the installation media.
3. If you are installing on Linux and you are not installing directly from a release DVD, set executable permissions on the installation file by typing the following command at the command prompt:

```
chmod 007 linux_livecycle8_setup.bin
```

4. Start the installation program:

- (Windows) Double-click the `win_livecycle8_setup.exe` file.
- (UNIX) From a command prompt, type the file name that is appropriate for your operating system:

```
./linux_livecycle8_setup.bin  
./solaris_livecycle8_setup.bin
```

If you are installing on a Windows staging platform for deployment to UNIX, start the Windows executable.

Specify the following additional arguments to redirect the LiveCycle ES installer temporary directory to an alternate, non-default location:

```
-cp:p stage.jar -is:tempdir [alternate temporary directory]
```

(Solaris Only) To use a higher heap size (such as 512M) in the installer argument, you must specify the heap size settings in a separate file and then run the install script.

To do this, create a file named `solaris_livecycle8_setup.ja` in the directory where `solaris_livecycle8_setup.bin` exists, and add the following lines in it:

```
-XMS256M  
-XXM512M
```

After this, run the install script to direct the installer to use the JDK you installed:

```
# ./solaris_livecycle8_setup.bin -cp:p stage.jar -is:tempdir [temporary  
directory] -is:javahome [java_home]
```

5. When prompted, select the language for the installation to use and click **OK**.
6. On the Welcome screen, click **Next**. If you have a previous version of LiveCycle ES 8.0.x the Update Installation screen appears.
7. Select one of the following options and then click **Next**:
 - **Upgrade Existing Installation to LiveCycle ES v8.2:** Choose this option if you intend to upgrade from LiveCycle ES 8.0.x to LiveCycle ES 8.2. Ensure that the directory shown on the screen corresponds with the existing version of LiveCycle ES; otherwise, browse to the correct directory.

Choosing this option ensures that information from the existing installation, such as the product serial number, is used. LiveCycle Configuration Manager performs the actual upgrade tasks when the installation process is complete. It is important that you back up your existing environment before you upgrade. (See "LiveCycle ES Database" and "GDS Backup and Recovery" in [Administering LiveCycle ES](#).)
 - **Install LiveCycle ES v8.2:** Choose this option to install a new, separate instance of LiveCycle ES 8.2. If you choose this option, your previous installation of LiveCycle ES will not be upgraded or removed.
8. On the Installation Location screen, accept the default directory as listed or click **Browse** and navigate to the directory where you intend to install the solution component, and then click **Next**.

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

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

9. Type a serial number in the text box and click **Add**. If you have licensed multiple solution components, repeat this step for each serial number you have. After you add all the serial numbers to the list, click **Next**.

Tip: You can reset the serial number by clicking **Clear**.

10. Read the Adobe LiveCycle ES Server License Agreement and select **I accept to the terms of the license agreement**. If you do not accept the license agreement, you cannot continue.
11. Click **Next** and then select the JAVA SE SDK location. You can browse the correct SDK location or you can continue with the default and click **Next**.
12. **(Windows only)** On the OS Selection screen, select the operating system that you plan to configure LiveCycle ES for and click **Next**.

Note: At this point, you can specify to use Windows as a staging platform for your deployment. 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 deployment on Linux or UNIX" on page 38.](#))

13. **(PDF Generator ES or PDF Generator 3D ES for Windows only)** Select **No, do not enable native application support for LiveCycle PDF Generator ES**. Native application support is supported in a cluster; however, you must select **No** in this dialog box and then configure each node in the cluster manually. (See ["Setting environment variables" on page 57.](#))

Note: PDF Generator 3D ES requires native application support to convert 3D files to PDF.

14. On the Pre-installation Summary Details screen, review the details and click **Install**. The installation program displays the progress of the installation.
15. Review the release notes that are displayed and click **Next**.
16. Review the details of the Post-installation summary screen. Select **Start LiveCycle Configuration Manager** and then click **Finish**.

Note: Selecting the **Start LiveCycle Configuration Manager** option starts LiveCycle Configuration Manager, which allows you to complete your configuration and deployment immediately. If you are not ready to run LiveCycle Configuration Manager, ensure that **Start LiveCycle Configuration Manager** is not selected when you click **Finish**. You can start LiveCycle Configuration Manager later, when you are ready. (See ["Configuring LiveCycle ES for Deployment" on page 44.](#))

Note: **(PDF Generator ES or PDF Generator 3D ES for Windows only)** If you did not choose to install Acrobat 9.0 using the LiveCycle ES installer, you need to complete the steps in ["Configuring Acrobat 9.0" on page 58.](#)

Viewing the error log

If errors occur during the installation, the installation program creates the `adobe_lc8.2_server_install.log` file, which contains the error messages. This log file is in the system temporary directory (TEMP or TMP). (See ["Troubleshooting" on page 92.](#))

Configuring the caching locators (caching using TCP only)

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

Note: This section does not apply if you implement caching for your LiveCycle ES cluster by using UDP. (See [“Modifying the JBoss run file” on page 19](#) to configure caching for your LiveCycle ES cluster using UDP.)

You must perform the following tasks to enable LiveCycle ES cluster caching using TCP:

- Ensure that the TCP locators are installed and configured as you prefer for your implementation. The TCP locators are installed in the `[LiveCycle ES root]/lib/caching` directory, with a default configuration, when you install LiveCycle ES. You can change the default configuration. (See [“Modifying the TCP locators” on page 41](#).)
- Configure each node in the LiveCycle ES cluster to use the locators. (See [“Modifying the JBoss run file” on page 19](#).)
- Ensure that the TCP locators are running. (See [“Starting the TCP locators” on page 42](#).)

Modifying the TCP locators

The LiveCycle ES 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 ES cluster. You can also create additional failover locators to support high availability in your cluster. (See [“To install the TCP locators:” on page 41](#).)

You can also modify the TCP locators to use a port other than the default port (22345). (See [“To modify the default locator port \(Windows\):” on page 41](#) or [“To modify the default locator port \(UNIX\):” on page 42](#).)

► To install the TCP locators:

1. Log on to the computer where you installed LiveCycle ES and navigate to the `[LiveCycle ES 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 ES, in the `[LiveCycle ES root]/lib/caching` directory.
2. Change the default port number (22345) to your preferred port number in the following properties:

```
-port=22345  
-Dlocators=localhost [22345]
```

Note: 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 ES cluster. (See [“Modifying the JBoss run file” on page 19](#).)

3. (Computers with multiple network cards only) If the computer hosting the locator has multiple network cards, add the following argument at the the end of the `java -cp` line:

```
-address=<bind IP address>
```

Note: The value of `<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 ES cluster. (See [“Modifying the JBoss run file” on page 19.](#))

4. Save the edited file.
5. Repeat steps 1 to 4 on any additional locators for your LiveCycle ES 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 ES, in the `[LiveCycle ES root]/lib/caching` directory.
2. Change the default port number (22345) to your preferred port number in the following properties:

```
GF_PORT=22345  
-Dlocators=localhost [22345]
```

Note: 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 ES cluster. (See [“Modifying the JBoss run file” on page 19.](#))

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> "
```

Note: The value of `<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 ES cluster. (See [“Modifying the JBoss run file” on page 19.](#))

4. Save the edited file.
5. Repeat steps 1 to 4 on any additional locators for your LiveCycle ES cluster.

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 ES 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 ES, in the `[LiveCycle ES root]/lib/caching` directory.
2. Run the appropriate file:

- (Windows) `startlocator.bat`
- (UNIX) `startlocator.sh`

3. Repeat steps 1 to 2 on any additional locators for your LiveCycle ES 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 ES, in the `[LiveCycle ES root]/lib/caching` directory.
2. Run the appropriate file:
 - (Windows) `stoplocator.bat`
 - (UNIX) `stoplocator.sh`
3. Repeat steps 1 to 2 on any additional locators for your LiveCycle ES cluster.

Configuring the font directories

You must configure the font directories for each computer in the cluster, including the LiveCycle ES fonts that are installed in the `[LiveCycleES root]\fonts` directory.

The fonts must exist in the same path, and the directory must have identical contents on all computers in the cluster. This can be accomplished by using a shared directory that all computers in the cluster can access or by making the contents of the `[LiveCycle ES root]\fonts` directory available on each computer in the cluster in an identical path.

Record the location where you create these shared directories for later use when you configure LiveCycle ES 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.

Next steps

You must now configure LiveCycle ES for deployment. (See [“Configuring LiveCycle ES for Deployment” on page 44.](#))

4

Configuring LiveCycle ES for Deployment

This chapter describes how to perform any of the following tasks using LiveCycle Configuration Manager and manual steps:

- Configure LiveCycle ES solution components in an EAR file for deploying to the application server
- Initialize the LiveCycle ES database
- Deploy LiveCycle ES component
- (Optional) Configure the LiveCycle Reader Extensions ES Rights credential (if Reader Extensions ES is installed)
- Initialize BAM metadata for LiveCycle ES Business Activity Monitoring (if Business Activity Monitoring is installed)
- (Optional) Import the LiveCycle ES Samples into LiveCycle ES

This chapter assumes that you prepared your environment for hosting LiveCycle ES and installed the solution component files. If you have not done this task, see *Preparing to Install LiveCycle ES Clustering* [“Configuring JBoss in a Cluster” on page 11](#) and [“Installing the Solution Component Files” on page 37](#).

About LiveCycle Configuration Manager

LiveCycle Configuration Manager is a wizard-like tool used to configure, deploy, and validate LiveCycle ES components for deployment to the application server. LiveCycle Configuration Manager is installed with the solution component files when you run the LiveCycle ES installation program. When you run LiveCycle Configuration Manager, you specify the LiveCycle ES solution components you are configuring, and the tasks that you want LiveCycle Configuration Manager to perform.

You can start LiveCycle Configuration Manager from the installation program to configure solution components during the installation process, or you can start LiveCycle Configuration Manager any time after the installation.

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 102](#). The following table illustrates the functionality offered by both versions of LiveCycle Configuration Manager and configuration tasks you can perform manually.

LiveCycle ES configuration task	LCM GUI	LCM CLI	Manual (Non-LCM)
Configure LiveCycle ES	Yes	Yes	No
Configure application server	No	No	Yes
Validate application server configuration	No	No	Yes
Deploy LiveCycle ES EARs	No	No	Yes
Initialize LiveCycle ES database	Yes	Yes	No
Initialize Business Activity Monitoring	Yes	Yes	Yes
Deploy LiveCycle ES components	Yes	Yes	No
Validate LiveCycle ES component deployment	Yes	Yes	Yes
Validate server connection	Yes	Yes	No
Validate LiveCycle ES server connection	Yes	Yes	No
Validate database connection	Yes	Yes	No
Configure Reader Extensions ES	Yes	No	Yes
Import Samples	Yes	No	Yes

Configuring and deploying LiveCycle ES

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

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.

If you are deploying to a cluster, you must configure JMS for your cluster before you deploy LiveCycle ES. (See [“Configuring JMS resources for LiveCycle ES” on page 15.](#))

After LiveCycle Configuration Manager configures the LiveCycle ES EAR files, it places the files `adobe-livecycle-native-jboss-[OS].ear`, `adobe-livecycle-jboss.ear`, `adobe-workspace-client.ear` (if you installed LiveCycle Process Management ES) and `adobe-contentservices.ear` (if you installed LiveCycle Content Services ES) in the following directory:

- (Windows) `[LiveCycleES root]\configurationManager\export`
- (Linux) `[LiveCycleES root]/configurationManager/export`

When you manually deploy the LiveCycle ES EAR files, you can access the files in this directory and deploy them to the application server.

After LiveCycle Configuration Manager configures the LiveCycle ES 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 J2EE 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).

Note: If you previously deployed LiveCycle ES files, you must first undeploy the product EAR files from the application server. (See [“Uninstalling LiveCycle ES” on page 84.](#))

► **To configure LiveCycle ES:**

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.

1. If you did not start LiveCycle Configuration Manager automatically from the installation program, navigate to the `[LiveCycleES root]/configurationManager/bin` directory and enter the appropriate command:

- (Windows) `ConfigurationManager.bat`
- (Linux) `./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 **Upgrade from LiveCycle ES** is not 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 for Upgrading to LiveCycle ES* guide applicable to your current version of LiveCycle ES and the *Upgrading to LiveCycle ES* guide applicable to your application server.

5. On the Solution Component Selection screen, select the LiveCycle ES solution components that you installed and plan to deploy, and then click **Next**.

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

Note: The **Configure Application Server**, **Validate Application Server Configuration**, and **Deploy LiveCycle ES EARs** tasks are not available for JBoss. You must configure your JBoss Application Server cluster and deploy the LiveCycle ES EARs manually (see [“Configuring JBoss in a Cluster” on page 11](#) and the [Preparing to Install LiveCycle ES \(Server Cluster\)](#) guide.

7. On the Configure LiveCycle ES (1 of 3) screen, click **Configure**. When the EAR files are configured, click **Next**.

8. On the Configure LiveCycle ES (2 of 3) screen, set the directories that LiveCycle ES will use to access fonts and store temporary data that is associated with processing jobs:

- (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** box. The directory contains any additional fonts that you have licensed and installed.
- (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. You must accept the default value in the **Location of the temporary directory** box. Future upgrades may fail if you specify a new directory. After you specify the directories, click **Next**.
 10. On the Configure LiveCycle ES (3 of 3) screen, add the location of the GDS directory path by doing one of these tasks:
 - Type the location of the GDS directory.
 - Click **Browse** and navigate to the location of the GDS directory.

Note: You must specify the location of the global document storage directory you established previously (see the *Preparing to Install to LiveCycle ES (Server Cluster)* guide).
 11. Click **Next**, click **Configure** to configure the LiveCycle ES EARs with this directory information and, after the configuration is complete, click **Next**.
 12. (**Content Services ES only**) On the LiveCycle Content Services ES Configuration screen, set the parameters that Content Services ES will use:
 - **Deploy Type:** Select **Cluster**.
 - **Index Root Directory:** Specify the indexes directory that is used by Content Services ES.
 - **Content storage root directory:** Specify the root directory that is used by Content Services ES. The content storage root directory should be a location shared by all JBoss Application Server instances in the cluster.
 13. On the Configure LiveCycle ES Summary screen, click **Next**.
 14. On the Deploy LiveCycle ES EARs screen, click **Deploy**.
 15. (**LiveCycle ES Connector for EMC Documentum, LiveCycle ES Connector for IBM FileNet, or LiveCycle ES Connector for IBM Content Manager only**) On the Configure LiveCycle ES Connectors screen, press **F1**, follow the instructions in the Help dialog box, and then click **Next**.
 16. Without exiting LiveCycle Configuration Manager, stop each JBoss Application Server instance of the cluster.
 17. Without exiting LiveCycle Configuration Manager, manually deploy the LiveCycle ES EAR files to JBoss by copying the following files from the *[LiveCycleES root]/configurationManager/export* directory to the *[appserver root]/server/all/deploy* directory on each JBoss Application Server instance of the cluster:
 - adobe-livecycle-native-jboss-[OS].ear
 - adobe-livecycle-jboss.ear
 - adobe-workspace-client.ear (Process Management ES only)
 18. Start JBoss to ensure the LiveCycle ES applications start successfully.
 19. Return to LiveCycle Configuration Manager and click **Next**.
- Caution:** If you configured a non-default GDS directory in step 10, you must restart the JBoss Application Server before you deploy the LiveCycle ES EAR files.

20. On the LiveCycle ES Database Initialization screen, verify that the host (using the IP address) and port information matches the host and port information for a LiveCycle ES server in the cluster, 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. Restart the servers if you are prompted to do so. When the initialization has completed successfully, click **Next**.

Note: You need to initialize the database against only one server of the cluster.

21. (**Business Activity Monitoring only**) On the Initialize Business Activity Monitoring screen, provide the information for the following fields:

Database type: The database on which BAM metadata is running.

BAM Host: The name or IP address of the computer that hosts the application server on which BAM server is running.

BAM HTTP Port: The HTTP service port that the database uses (for example, 8080).

BAM Administrator User ID: The administrator ID that is required to log in to BAM Workbench. The default user ID is *system*.

BAM Administrator Password: The password to log in to the BAM Workbench. The default password is *manager*.

22. (**Business Activity Monitoring only**) Click **Initialize** to begin the initialization process and, when initialization is complete, click **Next** to continue.
23. On the LiveCycle ES 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.)
24. Click **Verify Server Connection** to ensure that the information for the application servers is correct and, when the verification has completed successfully, 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.

25. 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 ES 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**.
26. 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 ES server. Click **View Progress Log** to view the validation progress and, when the validation has completed successfully, click **Next**.

27. **(Reader Extensions ES only)** On the LiveCycle Reader Extensions ES Credential Configuration screen, specify the details that are associated with the Rights credential that activates the solution component services:

LiveCycle Reader Extensions ES Rights credential: The path and file name of the Rights credential (.pfx or .p12 file type).

LiveCycle Reader Extensions ES Rights credential password: The password that is associated with the credential. This password was provided with the credential file.

Name for the configured Rights Credential: The name (or alias) that LiveCycle Configuration Manager gives the credential when it is configured.

This name appears in the Reader Extensions ES web interface, and the alias that is used to reference the credential through SDK calls. You can create any unique name for the Rights credential.

Tip: You can skip this step at this time by selecting **Configure later using LiveCycle Administration Console**. You can configure the Rights credential by using LiveCycle Administration Console after you complete the deployment. (After logging in to LiveCycle Administration Console, click **Home > Settings > Trust Store Management > Local Credentials**.)

Click **Configure** and then click **Next**.

28. (Optional) On the LiveCycle ES Samples Import screen, click **Import**. When the import has completed successfully, click **Next** or click **Skip LiveCycle Samples Import** to import the samples at a later time.
29. On the Summary page, review the tasks performed and click **Next**. The Next steps screen displays URL and login information.
30. Click **Exit**.
31. Restart each JBoss Application Server instance in your cluster.

Next steps

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

- Verify the deployment. (See [“Verifying the deployment and accessing LiveCycle Administration Console” on page 51](#).)
- Access LiveCycle Administration Console. (See [“Accessing LiveCycle Administration Console” on page 51](#).)
- Configure PDF Generator ES or PDF Generator 3D ES. (See [“Configuring LiveCycle PDF Generator ES or 3D ES” on page 56](#).)
- Perform the final setup for Rights Management ES. (See [“Final setup for LiveCycle Rights Management ES” on page 64](#).)
- Configure LiveCycle ES solution components to access LDAP. (See [“Configuring LiveCycle ES to access LDAP” on page 65](#).)
- Perform watched folder performance-tuning for PDF Generator ES. (See [“Setting PDF Generator ES or 3D ES watched folder performance parameters” on page 66](#).)
- Enable FIPS mode. (See [“Enabling FIPS mode” on page 66](#).)
- Enable HTML digital signatures. (See [“Configuring HTML digital signature” on page 67](#).)
- 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 68](#), [“Configuring the Connector for IBM FileNet service” on page 71](#), or [“Configuring the LiveCycle ES Connector for IBM Content Manager” on page 79](#).)

- Set environment variables for PDF Generator ES. (See [“Setting environment variables” on page 57](#).)
- Uninstall LiveCycle ES. (See [“Uninstalling LiveCycle ES” on page 84](#).)

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 ES solution components and services after they are installed, configured, and deployed to your application server:

- [“Verifying the deployment and accessing LiveCycle Administration Console” on page 51](#)
- [“Accessing solution component web applications” on page 53](#)
- [“Accessing the Content Services ES repository” on page 55](#)
- [“Accessing User Management” on page 54](#)
- [“Configuring LiveCycle Workspace ES for session replication” on page 55](#)
- [“Configuring LiveCycle PDF Generator ES or 3D ES” on page 56](#)
- [“Final setup for LiveCycle Rights Management ES” on page 64](#)
- [“Final setup for Content Services ES” on page 64](#)
- [“Configuring LiveCycle ES to access LDAP” on page 65](#)
- [“Setting PDF Generator ES or 3D ES watched folder performance parameters” on page 66](#)
- [“Enabling FIPS mode” on page 66](#)
- [“Configuring HTML digital signature” on page 67](#)
- [“Configuring the Document Management service for LiveCycle Content Services ES” on page 67](#)
- [“Configuring the Connector for EMC Documentum service” on page 68](#)
- [“Configuring the Connector for IBM FileNet service” on page 71](#)
- [“Configuring the LiveCycle ES Connector for IBM Content Manager” on page 79](#)
- [“Uninstalling LiveCycle ES” on page 84](#)

After you configure the settings in this chapter, for additional information about configuring your LiveCycle ES environment for development and production, see [Administering LiveCycle ES](#).

Verifying the deployment and accessing LiveCycle Administration Console

You can verify the deployment by logging in to LiveCycle Administration Console. If you log in successfully, then LiveCycle ES 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.

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 ES 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 was configured.

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

For information about using LiveCycle Administration Console, see [Applications and Services 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 JBoss is 8080.

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 solution components.

Viewing the log files

You can view the log files to verify that the LiveCycle ES 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.

► **To verify the LiveCycle ES cluster:**

1. Ensure that all JBoss Application Server instances of the cluster are started.
2. View the Gemfire.log file, located in the directory `[LiveCycle ES temp]/[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.

Accessing solution component web applications

After LiveCycle ES is deployed, you can access the web applications that are associated with the following solution components:

- LiveCycle Reader Extensions ES
- LiveCycle Workspace ES
- LiveCycle Rights Management ES
- LiveCycle Content Services ES

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 [User Management Help](#).)

► To access the Reader Extensions ES web application:

Note: You must apply a Reader Extensions ES credential and apply the user roles for a new user. (See “Configuring SSL” in [Administering LiveCycle ES](#).)

1. Open a web browser and enter this URL:
http://localhost:8080/ReaderExtensions (local deployment using the default port)

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 ES web application, you must create the users in User Management and grant them the Reader Extensions Web Application role .

► To access Workspace ES:

1. Open a web browser and enter this URL:
http://localhost:8080/workspace (local deployment using the default port)

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

User name: administrator

Password: password

► To access the Content Services ES web application:

Note: You must apply the LiveCycle Contentspace Administrator or LiveCycle Contentspace 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:
 - http://localhost:8080/contentspace (local deployment using the default port)

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

User name: administrator

Password: password

Accessing Rights Management ES

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

► **To access the Rights Management ES end-user web application:**

1. Open a web browser and enter this URL:

`http://[server]:[port]/edc/Login.do`

Note: The administrator user cannot access the Rights Management ES end-user web application. You can create new users by using LiveCycle Administration Console.

► **To access the Rights Management ES administration web application:**

1. Open a web browser and enter this URL:

`http://[server]:[port]/adminui`

2. Click **Services > LiveCycle Rights Management ES**. For information about setting up users and roles for Rights Management ES, see [Administering LiveCycle ES](#).

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

1. Log in to LiveCycle Administration Console. (See [“Accessing LiveCycle Administration Console” on page 51.](#))
2. Click **Settings > User Management > Users and Groups**.
3. In the **Find** box, type `a11` 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**.

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 ES solution components, including Reader Extensions ES, Workspace ES, Rights Management ES, Process Management ES, and Forms ES.

► **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.

Accessing the Content Services ES repository

You can access the Content Services ES repository using:

- File Transfer Protocol (FTP)
- Web-based Distributed Authoring and Versioning (WebDAV)
- Common Internet File Services (CIFS)

► To access the Content Services ES repository using FTP:

1. Open a web browser and enter this URL:

`ftp://[server name]:[port]`

Note: The default port for the Content Services ES repository is port 8021.

2. Log in using your user name and password.

Note: You can not log in to the Content Services ES repository by FTP using the Mozilla FireFox browser. Use another browser (for example, Internet Explorer) to access the Content Services ES repository by FTP.

► To access the Content Services ES repository using WebDAV:

1. Open Windows Explorer and navigate to **My Network Places**.
2. Right click and select **Add a network place**.
3. Enter the following network address:

`http://[server name]:[port]/content space/webdav`

4. Log in using your user name and password.

► To access the Content Services ES repository using CIFS:

Note: Your Content Services ES repository must be previously configured to support CIFS access.

1. On a computer running the Windows operating system, click **Start > Run**.
2. Enter the following:

`\\[server name]`

Note: You will not be asked for a user name or password.

Configuring LiveCycle Workspace ES for session replication

You must perform the following changes to fully enable session replication on your JBoss Application Server cluster.

► **To configure Workspace ES for session replication:**

1. From the deploy/adobe-livecycle-jboss.ear file on any JBoss Application Server of the cluster, extract the adobe-workspace-runtime.war file.
2. Open the file web-inf/web.xml in a text editor and add the code `<distributed/>`. For example:

```
<?xml version="1.0"?>
<web-app xmlns="http://java.sun.com/xml/ns/j2ee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/j2ee
    http://java.sun.com/xml/ns/j2ee/web-app_2_4.xsd"
  version="2.4">
  <distributed/>
  <!-- ... -->
</web-app>
```

3. Save the edited file.
4. Open the file web-inf/jboss-web.xml in a text editor and add the code `<replication-config>`. For example:

```
<jboss-web>
  <replication-config>
    <replication-trigger>SET</replication-trigger>
    <replication-granularity>SESSION</replication-granularity>
  </replication-config>
</jboss-web>
```

5. Save the edited file.
6. Repackage the adobe-workspace-runtime.war file.
7. Repackage the adobe-livecycle-jboss.ear file
8. Copy the new adobe-livecycle-jboss.ear file to the deploy directory of each JBoss Application Server in the cluster.
9. Restart each JBoss Application Server in the cluster.

Configuring LiveCycle PDF Generator ES or 3D ES

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

- ["Setting environment variables" on page 57](#)
- ["Setting the Adobe PDF Printer as the default printer" on page 58](#)
- ["Configuring Acrobat 9.0" on page 58](#)
- ["Installing East Asian characters in Windows" on page 59](#)
- ["Adding fonts to PDF Generator ES or PDF Generator 3D ES" on page 59](#)
- ["Installing the IPP client" on page 62](#)

Setting environment variables

If you installed the PDF Generator ES or PDF Generator 3D ES solution component 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 ES or PDF Generator 3D ES requires you to set up environment variables for.

Application	Environment variable	Example
Acrobat	Acrobat_PATH	C:\Program Files\Adobe\Acrobat 9.0\Acrobat\Acrobat.exe Note: The Acrobat_PATH environment variable is case-sensitive.
Adobe FrameMaker®	FrameMaker_PATH	C:\Program Files\Adobe\FrameMaker7.1\FrameMaker.exe
Notepad	Notepad_PATH	C:\WINDOWS\Notepad.exe
OpenOffice	OpenOffice_PATH	C:\Program Files\OpenOffice.org 2.0
Adobe PageMaker®	PageMaker_PATH	C:\Program Files\Adobe\PageMaker 7.0\PageMaker.exe
WordPerfect	WordPerfect_PATH	C:\Program Files\WordPerfect Office 12\Programs\wpwin12.exe

Note: The environment variable `OpenOffice_PATH` is set to the installation folder instead of the path to the executable.

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 CS2\Photoshop.exe
```

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

- Type the following command:

```
export OpenOffice_PATH /opt/openoffice.org2
```

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 ES cannot convert files successfully.

► **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**.

Configuring Acrobat 9.0

This procedure is required only if you upgraded to or installed Acrobat 9.0 after you completed the LiveCycle ES installation. Upgrading Acrobat can be completed after you run LiveCycle Configuration Manager and deploy LiveCycle ES to the application server.

► **To configure Acrobat 9.0 Professional Extended for use with PDF Generator ES or PDF Generator 3D ES:**

1. If an earlier version (8.1 or earlier) of Acrobat is installed, uninstall it by using Add or Remove Programs in the Windows Control Panel.
2. Acrobat 9.0 Professional Extended is provided with the LiveCycle ES media or as an option for ESD downloads.
 - If you are using the media, insert the Acrobat 9.0 Professional Extended CD.
 - If you are using the ESD downloads, download Acrobat 9.0 Professional Extended from your ESD location.
3. Install Acrobat 9.0 Professional Extended by running the AutoPlay.exe file.
4. Navigate to the additional\scripts folder on the LiveCycle ES installation media.
5. Run the following batch file:

```
Acrobat_for_PDFG_Configuration.bat [LiveCycleES root]
```
6. Open Acrobat and select **Help > Check for updates > Preferences**.
7. Deselect **Automatically check for Adobe updates**.

► **To validate the Acrobat 9.0 Professional Extended 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 9.0 Professional Extended 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 (such as `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 ES)** Register the DLL file located at `[LiveCycle8.2 root]\plugins\x86win32\PDFG3dAddin.dll`.

Installing East Asian characters in Windows

When HTML files are converted to PDF by using PDF Generator ES or PDF Generator 3D ES, 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, appropriate fonts must be present on the client and server.

► **To install East Asian characters in Windows:**

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.

Adding fonts to PDF Generator ES or PDF Generator 3D ES

LiveCycle ES provides a central repository of fonts named *Adobe LiveCycle ES Fonts Management*, which is accessible to all LiveCycle ES solution components. The Fonts Management module is a central font repository for all fonts that are accessible to and shared by various LiveCycle ES solution components.

However, PDF Generator ES or PDF Generator 3D ES frequently needs to start external (non-LiveCycle ES) applications on the server that cannot be configured to use the LiveCycle ES fonts repository. This section describes how to make the extra fonts available to these applications so that PDF documents that are created by using PDF Generator ES or PDF Generator 3D ES can use these extra fonts.

Non-Adobe applications

The following list contains non-LiveCycle ES applications that PDF Generator ES or PDF Generator 3D ES 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.

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 ES fonts repository, you must 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.

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 2.x
- *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.

Adding new fonts to other applications

If you extended PDF Generator ES by adding support for PDF creation by using other applications, see the user guide that is applicable to the corresponding application to determine the best procedure to use to add new fonts to that application. In Windows, copying your custom fonts to the C:\Windows\Fonts (or equivalent) folder should be sufficient.

Configuring HTML to PDF conversions

The HTML-to-PDF conversion process is designed to use the settings from Acrobat 9.0, thereby overriding the settings from LiveCycle PDF Generator ES.

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 9.0” on page 58](#).
2. Locate the pdfgen.api file in the `[LiveCycle8.2 root]\plugins\x86win32` directory and copy it to `[Acrobat9.0 root]\Acrobat\plug_ins` directory.

Enabling support for Unicode fonts in HTML to PDF conversions

To enable PDF Generator ES or PDF Generator 3D ES to generate PDF files from HTML source files that contain Unicode fonts, complete the following steps.

Caution: The HTML-to-PDF conversion will fail if a zipped input file contains HTML files with double-byte characters in the 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

2. Modify the font-name mapping in the `cffont.properties` file located in the `[LiveCycle8.2 root]/adobe-generatepdf-dsc.jar` file:

- Unpackage 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, as shown in these examples where `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 repackage 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`).

Installing the IPP client

PDF Generator ES includes an Internet Printing Protocol (IPP) client installer for installation of the PDF Generator ES Internet printer on a client computer. After the installation is complete, a PDF Generator ES 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 ES IPP Client (wizard) is supported on 32-bit Windows platforms only.

If the IPP Client fails to install on Windows or if you want to install the IPP printer on UNIX or Linux platforms, use the operating system's native Add Printer utility and configure it as described in ["To configure IPP Printer on Windows using the native Add Printer wizard:"](#) on page 63.

► **To install the PDF Generator ES IPP Client:**

1. Ensure that you successfully installed PDF Generator ES 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 ES and *[port]* is the application server port used:

```
http:// [server] : [port] /pdfg-ipp/install
```

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 ES has been successfully installed."

4. Click **OK**. You will now have a printer named *Adobe LiveCycle PDF Generator ES* in your list of available printers.

► **To configure IPP 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 IPP 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 Management 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 ES IPP Client using Proxy server port forwarding**

1. Configure port forwarding on the CC Proxy server on a particular port to the LiveCycle ES server, and disable the authentication at proxy server level (since LiveCycle ES 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 ES server.

2. Install PDFG-IPP printer using the following URL:
`http://[proxy server]:[forwarded port]/pdfg-ipp/install.`
3. Provide the necessary credentials for authentication of the IPP printer.
4. The IPP printer will be installed on the client machine which you can use for PDF conversion using the firewall protected LiveCycle ES server.

Final setup for LiveCycle Rights Management ES

Rights Management ES requires the application server to be configured to use SSL. (See [Administering LiveCycle ES.](#))

Final setup for Content Services ES

If your LiveCycle ES installation uses Content Services ES, you must perform additional manual configuration of the application server after deployment. Complete the following procedure on your application server.

Note: You must configure and deploy LiveCycle ES before you perform this procedure (see [“Configuring and deploying LiveCycle ES” on page 45](#)). This procedure configures directories that are created only when you deploy LiveCycle ES.

► To configure final setup for Content Services ES:

1. Open the application server run file in a text editor. The run file is located here:
 - (Windows) `[appserver root]/bin/run.bat`
 - (Unix) `[appserver root]/bin/run.sh`

2. In the JAVA_OPTS section, add the following code:

```
-Dalfresco.tcp.initial_hosts=<host name>[<port value>], <host name>
[<port value>]
-Dalfresco.cluster.name=lc8_cluster
-Dalfresco.tcp.start_port=<port value>
-Dalfresco.tcp.port_range=3
-Dindex.recovery.mode=AUTO
```

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.

Caution: You must include all JBoss Application Servers of the cluster by naming them, separated by commas, after the `tcp.initial_hosts=` code.

3. Save the edited file.
4. Repeat steps 1 to 3 for each JBoss Application Server of the cluster.

Configuring LiveCycle ES 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://\[host name\]:\[port\]/adminui](http://[host name]:[port]/adminui) and log in. (See [“Accessing LiveCycle Administration Console” on page 51.](#))
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 ES 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 [User Management 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**. (See “Directory settings” in [User Management 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 [User Management 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 [User Management 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 with LDAP (Local Domain):**
1. Open a web browser, navigate to `http://[host name]:[port]/adminui`, and log in. (See [“Accessing LiveCycle Administration Console” on page 51.](#))
 2. Click **Settings > User Management > Domain Management**, and then click **New Local Domain**.

Setting PDF Generator ES or 3D ES 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 ES PDF Generator 3D ES in LiveCycle Administration Console.

- **To set performance parameters for PDF Generator ES or PDF Generator 3D ES:**
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.
 4. Click **Next** and, on the next screen, click **Advanced Targeting**.
 5. In the **Subdeployments** list on the next screen, select **IDP_JMS_SubDeployment**.
 6. Click **Next** and, on the next screen, click **Advanced Targeting**.
 7. In the **Subdeployments** list on the next screen, select **IDP_JMS_SubDeployment**.
 8. Click **Next** and, on the next screen, click **Advanced Targeting**.
 9. In the **Subdeployments** list on the next screen, select **IDP_JMS_SubDeployment**.

Enabling FIPS mode

LiveCycle ES 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 ES 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 > Core Configurations > 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 ES 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).

Configuring HTML digital signature

To use the HTML digital signature feature of Forms ES, complete the following procedure.

► **To enable HTML digital signature:**

1. Manually deploy the `[LivecycleES root]/deploy/adobe-forms-ds.ear` file to your application server.
2. Log in to LiveCycle Administration Console and click **Service > LiveCycle Forms ES**.
3. Select **HTML Digital Signature Enabled** and then click **Save**.

Configuring the Document Management service for LiveCycle Content Services ES

If you installed Content Services ES and your application server is running on a non-default port (that is, a port other than 8080 in JBoss), 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 - for example, specify 8080, 8081, 8082), and then click **Save**.

Configuring the Connector for EMC Documentum service

If you installed the Connector for EMC Documentum service as part of your LiveCycle ES solution, complete the following procedure to 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 `[JBoss HOME]/bin` folder (if the file does not exist, create it).
2. Add a new system property that provides the following Documentum Foundation Classes JAR files (and for the Connector for EMC Documentum 5.3 only, the location of the Documentum Content Server config folder):
 - `dfc.jar`
 - (Connector for EMC Documentum 5.3) `dfcbase.jar`
 - (Connector for EMC Documentum 6.0) `aspectjrt.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:

- Connector for EMC Documentum 5.3 only:

```
com.adobe.livecycle.ConnectorforEMCDocumentum.ext=  
C:/Documentum/Config,  
C:/Program Files/Documentum/Shared/dfc.jar,  
C:/Program Files/Documentum/Shared/dfcbase.jar
```

- 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
```

Note: The above text contains formatting characters for line breaks. If you copy and paste this text, you must remove the formatting characters.

3. If JBoss Application Server is not currently running, start the server. Otherwise, stop and then restart the server.
4. Repeat step 1 to step 3 on each JBoss Application Server instance of the cluster.
5. Open a web browser and enter this URL:
`http://localhost:8080/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 ES Connector for EMC Documentum > Configuration Settings** and perform these tasks:
 - Type all 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**. (For more information, click the Help link in the upper-right corner of the page in the [EMC Documentum Help](#).)
8. (Optional) Navigate to **Services > LiveCycle ES Connector for EMC Documentum > Repository Credentials Settings**, click **Add**, specify the Docbase information, and then click **Save**. (For more information, click **Help** in the upper-right corner.)
9. Navigate to **Services > Applications and Services > Service Management** and select these services:
 - EMCDocumentumAuthProviderService
 - EMCDocumentumContentRepositoryConnector
 - EMCDocumentumRepositoryProvider
10. Click **Start**. If any of the services do not start correctly, check the settings entered in step 7.
11. Do one of the following tasks:
 - To use the Documentum Authorization service (EMCDocumentumAuthProviderService) to display content from a Documentum repository in the Resources view of Workbench ES, continue with this procedure. Using the Documentum Authorization service overrides the default LiveCycle ES authorization and must be configured to log in to Workbench ES using Documentum credentials.
 - To use the LiveCycle ES repository, log in to Workbench ES by using the LiveCycle ES 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 ES authorization service.
12. Restart JBoss Application Server.
13. Log in to LiveCycle Administration Console and click **Settings > User Management > Domain Management**.
14. 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 ES 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 [User Management Help](#).)
15. Add a custom authentication provider:
 - Click **Add Authentication**.
 - In the **Authentication Provider** list, select **Custom**.
 - Select **EMCDocumentumAuthProvider** and then click **OK**.
16. Add an LDAP authentication provider:

- Click **Add Authentication**.
- In the **Authentication Provider** list, select **LDAP**, and then click **OK**.

17. 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.

18. Click **OK** to exit the Add Directory page and then click **OK** again.

19. 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.

20. Navigate to **Settings > User Management > Users and Groups**.

21. 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 ES 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.

22. Start Workbench ES and log in by using the following credentials:

Username: *[username]@[repository_name]*

Password: *[password]*

The Documentum repository should now be visible in the Resources view within Workbench ES. If you do not log in using the *username@repository name*, Workbench ES attempts to log in to the default repository specified in step 7.

23. (Optional) If you intend to install the LiveCycle ES 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, it is recommended that you see [Administering LiveCycle ES](#) for information about configuring Workbench ES functions properly with your Documentum repository.

Creating the XDP MIME format in your 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 ES 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.

Configuring the Connector for IBM FileNet service

If you installed the Connector for IBM FileNet service as part of your LiveCycle ES solution, you must configure the service to connect to the FileNet object store. See one of the following sections appropriate to your version of IBM FileNet:

- ["Configuring the connector using FileNet 3.5" on page 72](#)
- ["Configuring the connector using FileNet 4.0.1" on page 75](#)

Configuring the connector using FileNet 3.5

Complete the following procedure to configure the Connector for IBM FileNet service using FileNet 3.5.

► To configure the connector using FileNet 3.5:

1. Locate the `adobe-component-ext.properties` file in the `[appserver root]/bin` folder (if the file does not exist, create it)
2. Add a new system property that provides the location of the following FileNet Application Engine JAR files:
 - `activation.jar`
 - `javaapi.jar`
 - `log4j-1.2.8.jar`
 - `mailapi.jar`
 - `p8cjares.jar`
 - `soap.jar`
 - `xercesimpl.jar`
 - `xml-apis.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 to the file 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.

```
com.adobe.livecycle.ConnectorforIBMFileNet.ext=  
C:/Program Files/FileNet/lib2/activation.jar,  
C:/Program Files/FileNet/lib2/javaapi.jar,  
C:/Program Files/FileNet/lib2/log4j-1.2.8.jar,  
C:/Program Files/FileNet/lib2/mailapi.jar,  
C:/Program Files/FileNet/lib2/p8cjares.jar,  
C:/Program Files/FileNet/lib2/soap.jar,  
C:/Program Files/FileNet/lib2/xercesImpl.jar,  
C:/Program Files/FileNet/lib2/xml-apis.jar,  
C:/Program Files/FileNet/lib2/pe.jar
```

Note: Add the text `C:/Program Files/FileNet/lib2/pe.jar` only if your deployment uses the `IBMFileNetProcessEngineConnector` service.

3. If JBoss Application Server is not currently running, start the server. Otherwise, stop and then restart the server.
4. Repeat steps 1 to 3 on each JBoss Application Server instance of the cluster.
5. Open a web browser and enter this URL:
`http://localhost:8080/adminui` (local deployment using the default port)
6. Log in using the default user name and password:
User name: administrator
Password: password
7. Click **Services > LiveCycle ES Connector for IBM FileNet**.
8. Provide all 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 on the upper-right corner of the page.
Note: The credentials 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.
9. Click **Save** and then navigate to **Services > Applications and Services > Service Management**.
10. Select the check box next to each of the following 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 8.
11. 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 ES, continue with this procedure. Using the FileNet Authorization service overrides the default LiveCycle ES authorization and must be configured to log in to Workbench ES by using FileNet credentials.
 - To use the LiveCycle ES repository, log in to Workbench ES by using the LiveCycle ES super administrator credentials (by default, *Administrator* and *password*). The credentials provided in step 8 use the default LiveCycle ES authorization service for accessing the default repository in this case.
12. Restart JBoss Application Server.
13. Log in to LiveCycle Administration Console and click **Settings > User Management > Domain Management**.

14. 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 ES 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 [User Management Help](#).)

15. Add a custom authentication provider:
 - Click **Add Authentication**.
 - In the **Authentication Provider** list, select **Custom**.
 - Select **IBMFileNetAuthProviderService** and then click **OK**.
16. Add an LDAP authentication provider:
 - Click **Add Authentication**.
 - In the **Authentication Provider** list, select **LDAP** and then click **OK**.
17. 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 settings, click the **Help** link in the upper-right corner of the page.
18. Click **OK** to exit the Add Directory page and then click **OK** again.
19. 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.
20. Navigate to **Settings > User Management > Users and Groups**.
21. 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 ES 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.

22. Start Workbench ES and log in using the following credentials:

Username: *[username]@[repository_name]*

Password: *[password]*

The FileNet object store should now be visible in the Resources view within Workbench ES. If you do not log in using *username@repository_name*, Workbench ES attempts to log in to the default repository specified in step 8.

23. (Optional) If you intend to install the LiveCycle ES samples for Connector for IBM FileNet, create a FileNet object store named *Samples* and then install the samples in that object store.

After you configure your Connector for IBM FileNet service, it is recommended that you see [Administering LiveCycle ES](#) for information about configuring Workbench ES functions properly with your FileNet repository.

Configuring the connector using FileNet 4.0.1

Complete the following procedure to configure the Connector for IBM FileNet service using FileNet 4.0.1.

► To configure the connector using FileNet 4.0.1 and CEWS transport:

1. Open the application server run file in a text editor. The run file is as follows:
 - (Windows) *[appserver root]/bin/run.bat*
 - (UNIX) *[appserver root]/bin/run.sh*
2. 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:/Progra~1/FileNet/AE/CE_API/wsi
```

Note: If JBoss is running as a service, add the Java option in the registry where other JVM arguments are defined.

3. Save the edited file.
4. If your deployment uses the Process Engine Connector service, copy this file:
[appserver root]\client\logkit.jar to the directory *[appserver root]\server\all\lib*.
5. Locate the *adobe-component-ext.properties* file in the *[appserver root]/bin* folder (if the file does not exist, create it).
6. 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*

- wsdl_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.

```
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/wsdl_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/AE/Workplace/WEB-INF/lib/pe.jar only if your deployment uses the IBMFileNetProcessEngineConnector service.

7. (FileNet Process Engine Connector only) 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/
```

8. 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.

9. Locate the login-config.xml file in the `[appserver root]/server/all/conf` folder and add the following application policy as a child of the `<policy>` node:

```
<application-policy name = "FileNetP8WSI">
  <authentication>
    <login-module code = "com.filenet.api.util.WSILoginModule" flag =
      "required" />
  </authentication>
</application-policy>
```

10. (FileNet Process Engine Connector only) If your deployment uses the process engine, add the following node to the login-config file:

```
<application-policy name = "FileNetP8">
  <authentication>
    <login-module code = "com.filenet.api.util.WSILoginModule" flag =
      "required" />
  </authentication>
</application-policy>
```

11. If JBoss Application Server is not currently running, start the server. Otherwise, stop and then restart the server.

12. Repeat steps 1 to 11 on each JBoss Application Server instance of the cluster.

13. Open a web browser and enter this URL:

`http://localhost:8080/adminui` (local deployment using the default port)

14. Log in using the default user name and password:

User name: administrator

Password: password

15. Click **Services > LiveCycle ES 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 ES, continue with this procedure. Using the FileNet Authorization service overrides the default LiveCycle ES authorization and must be configured to log in to Workbench ES by using FileNet credentials.
 - To use the LiveCycle ES repository, log in to Workbench ES by using the LiveCycle ES super administrator credentials (by default, *Administrator* and *password*). The credentials provided in step 16 use the default LiveCycle ES authorization service for accessing the default repository in this case.
20. Restart JBoss 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 ES 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 [User Management Help](#).)

Note: When using MySQL for your LiveCycle ES database, use only single-byte (ASCII) characters for the ID. (See “Adding enterprise domains” in [User Management 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 ES 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 ES and log in using the following credentials:

User name: *[username]@[repository_name]*

Password: *[password]*

The FileNet object store should now be visible in the Resources view within Workbench ES. If you do not log in using the *username@repository name*, Workbench ES attempts to log in to the default repository specified in step 16.

31. (Optional) If you intend to install the LiveCycle ES 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 [Administering LiveCycle ES](#) for information about configuring Workbench ES functions properly with your FileNet repository.

Configuring the LiveCycle ES Connector for IBM Content Manager

If you installed the Connector for IBM Content Manager service as part of your LiveCycle ES 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 `[JBoss HOME]/bin` folder. If the file does not exist, create it. 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:
 - `Clio4CM.jar`
 - `cmb81.jar`
 - `cmbcm81.jar`
 - `cmbdb281.jar`
 - `cmbdb2c81.jar`
 - `cmbfed81.jar`

- cmbfedc81.jar
- cmbicm81.jar
- cmbicmc81.jar
- cmbicmcup.jar
- cmbjdbc81.jar
- cmbjdbcc81.jar
- cmblog4j81.jar
- cmbsdk81.jar
- cmbservlets81.jar
- cmbtag81.jar
- cmbupes81.jar
- cmbutil81.jar
- cmbutilfed81.jar
- cmbutilicm81.jar
- cmbutiljdbc81.jar
- cmbview81.jar
- cmbwas81.jar
- cmbwcm81.jar
- cmbwebservices.jar
- cmbxmlmap.jar
- cmbxmlservice.jar
- common.jar
- common.resources.jar
- ecore.jar
- ecore.resources.jar
- ecore.xmi.jar
- icmadm81.jar
- icmrm81.jar
- icmsdk81.jar
- jcache.jar
- log4j-1.2.8.jar
- NLVLog.jar
- xalan.jar
- xerces.jar
- xsd.jar
- xsd.resources.jar
- cmgmt (copy this folder and its contents)

- db2java.zip

The new system property look like this structure:

```
[component id].ext=[JAR files and/or folders]
```

For example, using a default DB2 Universal Database Client and I4C 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:

```
com.adobe.livecycle.ConnectorforIBMCM.ext=  
C:/Program Files/IBM/db2cmv8/lib/Clio4CM.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmb81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbcm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbdb281.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbdb2c81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbfed81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbfedc81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbicm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbicmc81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbicmcup.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbjdbcc81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbjdbcc81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmblog4j81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbstdk81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbServlets81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbtag81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbupes81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbutil81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbutilfed81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbutilicm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbutiljdbcc81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbview81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbwas81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbwcm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbwebservices.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbxmlmap.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbxmlservice.jar,  
C:/Program Files/IBM/db2cmv8/lib/common.jar,  
C:/Program Files/IBM/db2cmv8/lib/common.resources.jar,  
C:/Program Files/IBM/db2cmv8/lib/ecore.jar,  
C:/Program Files/IBM/db2cmv8/lib/ecore.resources.jar,  
C:/Program Files/IBM/db2cmv8/lib/ecore.xmi.jar,  
C:/Program Files/IBM/db2cmv8/lib/icmadm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/icmrm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/icmsdk81.jar,  
C:/Program Files/IBM/db2cmv8/lib/jcache.jar,  
C:/Program Files/IBM/db2cmv8/lib/log4j-1.2.8.jar,  
C:/Program Files/IBM/db2cmv8/lib/NLVLLog.jar,  
C:/Program Files/IBM/db2cmv8/lib/xalan.jar,  
C:/Program Files/IBM/db2cmv8/lib/xerces.jar,  
C:/Program Files/IBM/db2cmv8/lib/xsd.jar,  
C:/Program Files/IBM/db2cmv8/lib/xsd.resources.jar,  
C:/Program Files/IBM/db2cmv8/cmgmt,  
C:/Program Files/IBM/SQLLIB/java/db2java.zip
```

2. If JBoss Application Server is not currently running, start the server; otherwise, stop and then restart the server.
3. Repeat steps 1 and 2 on each JBoss Application Server instance in the cluster.

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://localhost:8080/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 ES 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 the 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 ES, continue with this procedure. Using the IBM Content Manager Authorization service overrides the default LiveCycle ES authorization and must be configured to log in to Workbench ES by using IBM Content Manager credentials.
 - To use the System Credentials provided in step 8 to use content from an IBM Content Manager data store, in the Processes view of Workbench ES, log in to Workbench ES by using the LiveCycle ES 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 8 use the default LiveCycle ES 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 ES 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 [User Management 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 ES 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 ES and log in using the following credentials:
 - Username:** *[username]@[repository_name]*
 - Password:** *[password]*

The IBM Content Manager data store can now be used in the Processes view within Workbench ES 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 [Administering LiveCycle ES](#).

Uninstalling LiveCycle ES

The uninstall program located in the *[LivecycleES root]* directory does not remove the files that you deployed to your application server.

Caution: By running the uninstall program, 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) Perform these tasks:
 - Use **Add or Remove Programs** in the Windows Control Panel:
 - Remove **Adobe LiveCycle ES**.
 - Remove **Adobe Acrobat 9.0 Professional** (if installed with PDF Generator ES).
 - Alternatively, you can complete these manual steps:
 - `cd [LivecycleES root]/_uninst/server`
 - Double-click the `livecycle8_uninstall.exe` file.
- (Linux) From a terminal, type `./livecycle8_uninstall.bin` (you may need to make this binary an executable file by typing a command, such as `chmod 777`).

2. Follow the on-screen instructions in the uninstall program, and then click **Finish**.

Uninstalling a LiveCycle ES solution component

If you want to remove a previously installed solution component, there are two main tasks associated with the process:

- Stop and undeploy the existing LiveCycle ES EAR files from your application server.
- Run LiveCycle Configuration Manager to reconfigure and redeploy the LiveCycle ES EAR files and solution components (omitting the eliminated component).

► To uninstall a solution component without removing LiveCycle ES:

1. Stop JBoss Application Server and undeploy the LiveCycle ES EAR files by navigating to *[appserver_root]/server/all/deploy* and deleting the EAR files.
2. Run LiveCycle Configuration Manager. See [“Configuring and deploying LiveCycle ES” on page 45](#).
3. On the Solution Component Selection screen, select only those components to redeploy or if the previously installed components are selected, deselect the component to remove.
4. On the Task Selection screen, select the following tasks and then click **Next**:
 - Configure LiveCycle ES
 - Deploy LiveCycle ES EARs
 - Deploy LiveCycle ES components
5. Perform the tasks on the remaining screens, review the Next Steps, and then click **Exit**.

If you are uninstalling Output ES, you will need to perform the following tasks to complete its removal from your LiveCycle ES environment:

- Log in to Workbench ES and uninstall the Output service via the Components view.
- Remove any related samples.

6

Configuring Load Balancing

You can configure your JBoss cluster to provide load-balancing functionality. You can use a load balancer to distribute the workload evenly across all nodes of your cluster. Use the Apache web server and the `mod_jk` plug-in to implement load balancing for the cluster.

In addition, you may want to change the default configuration for message-driven beans to further tune load balancing. (See [“Configuring message-driven beans” on page 88.](#))

► To configure load balancing:

1. Obtain the Apache web server software that is applicable to your operating system:
 - (Windows) Download the Apache web server from the [Apache TTP Server Project](#) site.
 - (Solaris 64 bit) Download the Apache web server (`apache-2.0.59-sol10-sparc-local.gz`) from the [Sunfreeware for Solaris](#) site.
 - (Linux) The Apache web server is preinstalled on a Linux system.
2. Go to the [Apache Tomcat Connector](#) site, select your operating system, and then download the `mod_jk 1.2.15` plug-in file indicated by the Apache website.
3. Rename the downloaded file to **mod_jk.so** and save it in the `APACHE_HOME/modules/` directory.
4. In a text editor, open the `httpd.conf` file located in `APACHE_HOME/conf` and add the following line at the end of the file:

```
Include conf/mod-jk.conf
```

5. Using a text editor, create a new file with this content and save it as `APACHE_HOME/conf/mod-jk.conf`:

```
# Load mod_jk module
# Specify the filename of the mod_jk lib
LoadModule jk_module modules/mod_jk.so
# Where to find workers.properties
JkWorkersFile conf/workers.properties
# Where to put jk logs
JkLogFile logs/mod_jk.log
# Set the jk log level [debug/error/info]
JkLogLevel info
# Select the log format
JkLogStampFormat "[%a %b %d %H:%M:%S %Y]"
# JkOptions indicates to send SSK KEY SIZE
JkOptions +ForwardKeySize +ForwardURICompat -ForwardDirectories
# JkRequestLogFormat
JkRequestLogFormat "%w %V %T"
# Mount your applications
JkMount /* loadbalancer
# You can use external file for mount points.
# It will be checked for updates each 60 seconds.
# The format of the file is: /url=worker
# /examples/*=loadbalancer
#JkMountFile conf/uriworkermap.properties
```

```
# Add shared memory.
# This directive is present with 1.2.10 and
# later versions of mod_jk, and is needed
# for load balancing to work properly
JkShmFile logs/jk.shm
# Add jkstatus for managing run-time data
<Location /jkstatus/>
JkMount status
Order deny,allow
Deny from all
Allow from 127.0.0.1
</Location>
```

6. Using a text editor, create a file with content similar to the following text and save the file to `conf/workers.properties`.

```
Define list of workers that will be used
# for mapping requests
worker.list=loadbalancer,status
# Define Node1
# modify the host as your host IP or DNS name.
worker.node1.port=8009
worker.node1.host=node1.mydomain.com
worker.node1.type=ajp13
worker.node1.lbfactor=1
worker.node1.cachesize=10
# Define Node2
# modify the host as your host IP or DNS name.
worker.node2.port=8009
worker.node2.host= node2.mydomain.com
worker.node2.type=ajp13
worker.node2.lbfactor=1
worker.node2.cachesize=10
# Load-balancing behavior
worker.loadbalancer.type=lb
worker.loadbalancer.balance_workers=node1,node2
worker.loadbalancer.sticky_session=1
#worker.list=loadbalancer
# Status worker for managing load balancer
worker.status.type=status
```

7. In the file, define these items:

- Each node of the cluster (in this example, two nodes named `node1` and `node2`)
- The `worker.loadbalancer.balance_workers` entry to include all nodes defined in the file.

8. For each node in the cluster, open the `server.xml` file in a text editor from one of these locations:

- (JBoss Application Server 4.0.3SP1) [*appserver root*]/`server/all/deploy/jbossweb-tomcat50.sar`
- (JBoss Application Server 4.2.0) [*appserver root*]/`server/all/deploy/jboss-web.deployer`

9. Search the `server.xml` file for the `Engine` name element and add a `jvmRoute` attribute. For example, on a node named `node1`, edit the element to read as follows:

```
<Engine name="jboss.web" defaultHost="localhost" jvmRoute="node1">
```

10. Save the edited `server.xml` file.

11. For each Tomcat instance in the JBoss cluster, open the `jboss-service.xml` file in a text editor in one of these locations:
 - (JBoss Application Server 4.0.3SP1) [*appserver root*]/server/all/deploy/jbossweb-tomcat50.sar/META-INF
 - (JBoss Application Server 4.2.0) [*appserver root*]/server/all/deploy/jboss-web.deployer/META-INF
12. Search the `jboss-service.xml` file for the element `UseJK` and change the element to read as follows:

```
<attribute name="UseJK">true</attribute>
```
13. Save the edited `jboss-service.xml` file.

Configuring message-driven beans

LiveCycle ES uses message-driven beans (MDBs) and a distributed JMS queue.

Each node maintains a pool of MDB instances that are available to process job requests in the queue and attempts to keep the MDB pool fully used. That is, a node will pull JMS requests for all of its idle MDB instances. Light load conditions can result in uneven load balancing across nodes of the cluster because a single node processes multiple requests to fully use all MDB instances that are available in its pool. Heavy load conditions balance the load more evenly across the cluster because more nodes of the cluster will fully use their MDB pool.

The default pool size is 15, as defined in the `conf/standardjboss.xml` file. Reducing the MDB pool size to a small number results in more even load distribution under light load conditions at the expense of reduced throughput under heavy loads. For more information about MDB parameters and instructions to change them, see [JBoss Org Wiki Home](#).

This section describes advanced tuning for LiveCycle Output ES, LiveCycle Forms ES, and LiveCycle PDF Generator ES. This section should be completed only on a production system by an advanced application server administrator.

Configuring pool size for LiveCycle Output ES and LiveCycle Forms ES

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 on your server.

► To modify the existing PoolMax value:

1. Using a text editor, edit the JBoss startup script.
2. 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`
3. 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`

LiveCycle PDF Generator ES

LiveCycle PDF Generator ES is capable of doing multiple PDF conversions simultaneously for some types of input files. This is enforced through the use of stateless session beans.

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 ES.

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 ES application EARs are deployed on the application server:

- adobe-livecycle-jboss.ear
- adobe-livecycle-native-jboss-*[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:**

1. Open the adobe-livecycle-jboss.ear file in WinRAR.
2. Go to the following path, opening nested JAR files one after another in WinRAR:
adobe-pdfg-bmc-invoker-ejb.jar > META-INF
3. Extract jboss.xml to any suitable location on the file system and open it in a plain text editor.
4. In the XML code, go to the node that has the following path (expressed in the standard XPath notation):
jboss / container-configurations / container-configuration
5. Choose the container-configuration node for which the container-name node is set to the value PDFG ImageToPDF Stateless SessionBean.
6. Go to container-pool-conf and set the MaximumSize node to the appropriate value, such as the new pool size for Image2PDF conversions.
7. If required, repeat steps 5 and 6 for the PS2PDF pool size. The container-name node for PS2PDF conversions is set to PDFG PSToPDF Stateless SessionBean.
8. Save your changes and repackage the entire EAR structure in the original form.

9. Redeploy the modified EAR file in JBoss Application Server. You will be prompted to restart JBoss.

This section discusses issues you may encounter when installing and deploying LiveCycle ES in a cluster configuration, and suggests steps for avoiding or working around them. For additional troubleshooting issues that are related to LiveCycle ES in general, see [Installing and Deploying LiveCycle ES for JBoss](#).

Getting help

This section describes the steps that you should take before you contact Adobe Support. If, after reviewing the LiveCycle ES documentation, you have not resolved your issues, contact Adobe Support. To help expedite your service, have the following information available:

- What were you doing when the problem occurred?
- Can you repeat the problem?
- Was an error message displayed when the problem occurred? Did you observe anything else?
- If you deselect the Show Friendly HTTP Error Messages option in Internet Explorer (Tools > Options > Advanced), do the errors persist?

PDF Generator ES on Windows fails when converting native files

LiveCycle PDF Generator ES running on a Windows operating system may fail when converting native files, such as from Microsoft Word to PDF, giving an exception in the log file similar to this:

```
INFO [PDF Generator] Application server started as user: SYSTEM
```

This problem occurs if you did not use the same user account for all of Microsoft Office, PDF Generator ES, Acrobat for PDF Generator ES, and your application server process.

To correct this problem, change the user for the JBoss for Adobe LiveCycle service to be the same as the user for Microsoft Office.

► **To set the user for the JBoss for Adobe LiveCycle service:**

1. Select **Start > Control Panel > Administrative Tools > Computer Management > Services and Applications > Services**.
2. Double click the **JBoss for Adobe LiveCycle** service and then click the **Log On** tab.
3. Select **This account**, type the user name and password that runs Microsoft Office, and click **OK**.

SOAP port test causes Quartz scheduler to create infinite loop of "Failed job" messages in log file

If you are using the SOAP port for any of your LiveCycle ES services, you might encounter an issue where the Quartz scheduler sends an infinite loop of "Failed job" messages to the application server log files on all nodes in the cluster. These errors will continue even after the node servicing the request has been shut

down and another node has completed the job. To avoid this issue, locate the log4j.xml file on each JBoss server in the cluster, and add the following two code snippets under `Limit Categories`:

```
1. <category name="org.quartz.impl.jdbcjobstore">
    <priority value="ERROR"/>
</category>

2. <category name ="com.adobe.idp.scheduler.jobstore.DSCJobStoreTX">
    <priority value="ERROR"/>
</category>
```

Log file error message: exception= java.io.StreamCorruptedException: invalid stream header

You may see exceptions in your log files similar to these:

```
2007-05-29 19:31:15,453 WARN [org.jgroups.protocols.UDP] packet from
/10.40.53.30:1973 has different version from ours
2007-05-29 19:31:27,671 ERROR [org.jgroups.protocols.UDP] exception=
java.io.StreamCorruptedException: invalid stream header
at java.io.ObjectInputStream.readStreamHeader
(ObjectInputStream.java:764)
at java.io.ObjectInputStream.<init>(ObjectInputStream.java:277)
at org.jgroups.protocols.UDP.handleIncomingUdpPacket (UDP.java:670)
at org.jgroups.protocols.UDP.run (UDP.java:249)
at java.lang.Thread.run (Thread.java:595)
```

The IP address that is mentioned in the exception trace is for a different cluster that is configured on the same subnet. Similar exceptions also occur in the log file of the other cluster.

This problem occurs if your LiveCycle ES cluster is on the same subnet as another cluster. The two clusters should use different multicast addresses and ports to separate their traffic. (See JBoss.org.)

Log file error message: javax.naming.NameNotFoundException: queue/DLQ

After you restart a JBoss Application Server instance of your cluster, you may see exceptions in your log files similar to these:

```
ERROR [org.jboss.ejb.plugins.jms.JMSContainerInvoker Reconnect failed:
JMS provider failure detected: javax.naming.NameNotFoundException:
queue/DLQ
```

Accompanying this error message, you may see that the log files and the database table for JMS messages grow quickly in size to 1 Gb or more.

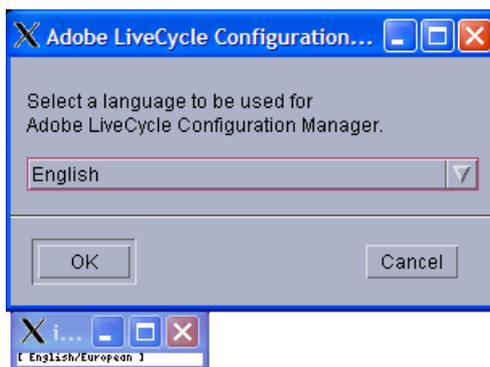
This problem occurs when processes continue to run on the computer hosting the stopped JBoss Application Server instance, consuming too much memory.

To correct this problem, kill all unnecessary Java and native processes that are running on the computer that hosts JBoss Application Server before you restart the server instance.

For more information about OutOfMemoryError and best practices to prevent these errors, see [Administering LiveCycle ES](#).

Pop-up window (English/European) appears with LiveCycle Configuration Manager

When you select a language for LiveCycle Configuration Manager, an additional small pop-up window may appear as shown below.



Ignore this window. Proceed to select your language on the main window.

Connector for EMC Documentum error

While using LiveCycle ES Connector for EMC Documentum with the Documentum DFC 5.3 client installed on LiveCycle ES server, you may see the following error in the server logs:

```
DM_CCONTENT_E_REMOVE_DIRECTORY
```

If this occurs, add the following entry to the [DMAPI_CONFIGURATION] section of the dmcl.ini file:

```
'local_clean_on_init=F'
```

On a Windows server, by default the dmcl.ini file is located in the *[Windows Installation Drive]\WINDOWS* folder.

Restart the LiveCycle ES server for this change to take affect.

A

Appendix - Install Command Line Interface

LiveCycle ES provides a command line interface (CLI) for the installation program. The CLI is intended to be used by advanced users of LiveCycle ES 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 solution components, you must ensure that your environment includes the software and hardware required to run LiveCycle ES. You should also understand the installation options and have prepared the environment as required. (See [Preparing to Install LiveCycle ES \(Server Cluster\)](#).) Then you should review the first page of ["Installing the product files" on page 37](#) and the ["Installing the Solution Component Files" on page 37](#) section.

Note: MySQL is not supported for server clusters. Do not choose a MySQL option when you respond to prompts displayed by the LiveCycle ES CLI installation program.

This appendix covers the following topics:

- ["Installing LiveCycle ES" on page 95](#)
- ["Error logs" on page 101](#)
- ["Next steps" on page 101](#)

Installing LiveCycle ES

This section covers the initial installation of LiveCycle ES. For information about configuration and deployment, see ["Configuring LiveCycle ES for Deployment" on page 44](#) or ["Appendix - LCM Command Line Interface" on page 102](#).

Note: To avoid permission issues during the deployment, ensure that you are logged in as the user who will run the JBoss process when you run the LiveCycle ES install CLI and LiveCycle Configuration Manager.

► To install LiveCycle ES:

1. Open a command prompt and navigate to the /livecycle_server/8.2 directory of the installation media.
2. Run the following command on a single line:
 - (Windows) `win_livecycle8_setup.exe -cp:p stage.jar -console; ..\..\third_party\jdbc\mysql-connector-java-3.1.12-bin.jar run -console`
 - (Linux) `./linux_livecycle8_setup.bin -cp:p stage.jar -console`
 - (UNIX) `./solaris_livecycle8_setup.bin -cp:p stage.jar -console`

Note: Specify the following additional arguments to redirect the LiveCycle ES installer temporary directory to an alternate, non-default location:

`-cp:p stage.jar -is:tempdir [alternate temporary directory]`

(Solaris Only) To use a higher heap size (such as 512M) in the installer argument, you must specify the heap size settings in a separate file and then run the install script.

To do this, create a file named `solaris_livecycle8_setup.ja` in the directory where `solaris_livecycle8_setup.bin` exists, and add the following lines in it:

`-XMS256M`
`-XXM512M`

After this, run the install script to direct the installer to use the JDK you installed:

```
# ./solaris_livecycle8_setup.bin -cp:p stage.jar -is:tempdir / [temporary
directory] -is:javahome [java_home]
```

3. Respond to the prompts as described in the following table:

Prompt	Description
Select a language to be used for this wizard. [X] 1 - English [] 2 - French [] 3 - German [] 4 - Japanese To select an item, enter its number, or [0] when you are finished: []	Select the language for the installation to use by entering a value between 1 and 4. The selection will then be displayed in brackets ([X]). Enter [0] when you finish selecting a language.
Adobe LiveCycle ES Welcome to Adobe LiveCycle ES The installation wizard will install Adobe LiveCycle ES (Enterprise Suite) server version 8.2. To continue, choose Next. Adobe LiveCycle ES Adobe Systems Incorporated http://www.adobe.com/products/livecycle/ Press 1 for Next, 3 to Cancel, or 5 to Redisplay [1]	On the Welcome screen, enter 1 to continue the installation.

Prompt	Description
Adobe LiveCycle ES Adobe LiveCycle ES Install Location Please specify a directory or press Enter to accept the default directory. Destination Directory For Windows is [C:\Adobe\LiveCycle8.2] Destination Directory for Unix/Linux is [/opt/adobe/livecycle8.2]	On the Destination screen, press Enter to accept the default directory or type the new installation directory location. Note: If you type the name of a directory that does not exist, it will be created for you. Caution: When you install the solution components, you can specify a different installation location. If you are installing on Linux, the directory you specify should not contain any spaces; if it does, the installation program does not install the solution component.
Press 1 for Next, 2 for Previous, 3 to Cancel, or 5 to Redisplay [1]	Enter 1 to continue the installation.
Adobe LiveCycle ES Serial Number []	Enter a serial number. The components that you are licensed for will be displayed.
[] 1 - Add [] 2 - Clear [X] 3 - Finish To select an item enter its number, or 0 when you are finished: [0]	If you have licensed multiple solution components, enter 1 to add another serial number. You will then be prompted for another serial number as in the previous step. Repeat this step for each serial number that you have. Enter 0 when you finish entering serial numbers. Note: To reset the serial number, enter 2.
Press 1 for Next, 2 for Previous, 3 to Cancel, or 5 to Redisplay [1]	Enter 1 to continue the installation.

Prompt	Description
<p>Adobe LiveCycle ES</p> <p>Note: This prompt is only provided for Windows.</p> <p>Type of Installation</p> <p>Please choose from the following options:</p> <p>[X] 1 - Turnkey</p> <p>The turnkey installation automatically performs all of the tasks required to install and configure LiveCycle ES components on a single (non-clustered) JBoss Application Server running on Windows with a preconfigured MySQL database.</p> <p>[] 2 - Manual</p> <p>The manual method lets you install the files and then run LiveCycle Configuration Manager to configure the EAR file and other components. However, you must manually install, configure, and start your application server as well as create and configure the database before running LiveCycle Configuration Manager and deploying to the application server.</p> <p>To select an item enter its number, or 0 when you are finished: []</p>	<p>Select an installation type. By default, Turnkey installation is selected.</p> <p>Enter 0 when you are have made your selection.</p>
<p>Note: This prompt is only provided for Windows.</p> <p>Press 1 for Next, 2 for Previous, 3 to Cancel or 5 to Redisplay []</p>	<p>Enter 1 to continue the installation.</p>
<p>Press ENTER to read the text [Type q to quit]</p>	<p>The Product License Agreement will display. Press enter to read the agreement.</p>
<p>Please choose from the following options:</p> <p>[] 1 - I accept the terms of the license agreement.</p> <p>[X] 2 - I do not accept the terms of the license agreement.</p> <p>To select an item enter its number, or 0 when you are finished: [0]</p>	<p>If you agree with the terms of the Product License Agreement, enter 1.</p> <p>Enter [0] when you are done with the Product License Agreement.</p>
<p>Press 1 for Next, 2 for Previous, 3 to Cancel or 5 to Redisplay [1]</p>	<p>Enter 1 to continue the installation.</p>
<p>Adobe LiveCycle ES</p> <p>Java SE SDK Location</p> <p>Select the location of your Java SDK. Version 1.5.0 or later is required.</p> <p>Browse... [] C:\Program Files\Java\jdk1.5.0_11</p>	<p>Type a new Java SE SDK directory location or press enter to accept the default directory.</p> <p>Note: This prompt is only provided for Windows.</p>
<p>Press 1 for Next, 2 for Previous, 3 to Cancel or 5 to Redisplay [1]</p>	<p>Press enter to continue the installation.</p>

Prompt	Description
<p>Adobe LiveCycle ES</p> <p>LiveCycle PDF Generator ES Native Application Support</p> <p>LiveCycle PDF Generator ES can convert Microsoft Office Word, Adobe Photoshop, AutoCAD, and other native application files to Adobe PDF.</p> <p>Please choose from the following options:</p> <p>For detailed information about native application support, please see the documentation.</p> <p>[] 1 - Yes, enable native application support for LiveCycle PDF Generator ES</p> <p>[X] 2 - No, do not enable native application support for LiveCycle PDF Generator ES (select this option for clustered deployments)</p> <p>To select an item enter its number, or 0 when you are finished: []</p>	<p>(PDF Generator ES for Windows Only)</p> <p>If you enter 1 to enable native application support for PDF Generator ES, the software will check the version of Adobe Acrobat® you have installed. If you do not have Acrobat installed, accept the prompt to install Acrobat 9.0 now.</p> <p>If you are installing in a clustered environment, enter 2 and do not enable native application support for PDF Generator ES.</p> <p>Enter [0] when you are done making your selection.</p>
<p>Press 1 for Next, 2 for Previous, 3 to Cancel or 5 to Redisplay [1]</p>	<p>Press Enter to continue the installation.</p>
<p>Press 1 for Next, 2 for Previous, 3 to Cancel or 5 to Redisplay [1]</p>	<p>Enter 1 to continue the installation.</p>

Prompt	Description
<p>Adobe LiveCycle ES</p> <p>Pre-installation Summary</p> <p>Please read the summary information below.</p> <p>Adobe LiveCycle ES will be installed in the following location:</p> <p>/opt/adobe/livecycle8.2</p> <p>With the following features:</p> <ul style="list-style-type: none"> ● Adobe LiveCycle Foundation ● Adobe LiveCycle Configuration Manager ● LiveCycle ES SDK ● Adobe LiveCycle Forms ES ● Adobe LiveCycle Reader Extensions ES ● Adobe LiveCycle Process Management ES ● Adobe LiveCycle ES Business Activity Monitoring ● Adobe LiveCycle Output ES ● Adobe LiveCycle Rights Management ES ● Adobe LiveCycle Digital Signatures ES ● Adobe LiveCycle PDF Generator ES ● Adobe LiveCycle PDF Generator 3D ES ● Adobe LiveCycle Barcoded Forms ES ● Adobe LiveCycle ES Connector for IBM FileNet ● Adobe LiveCycle ES Connector for EMC Documentum ● Adobe LiveCycle ES Connector for IBM Content Manager <p>Press ENTER to read the text. Press 1 for Next, 2 for Previous, 3 to Cancel or 5 to Redisplay [1]</p>	<p>Press 1 to install LiveCycle ES.</p> <p>Pre-installation summary -> Please read the summary information. LiveCycle ES will be installed in the following location with the following features. The installation progress will display.</p> <p>Note: The installation location and solution components specified will vary depending on your license key and your specified installation directory.</p>
<p>Press ENTER to read the text (Type q to quit).</p> <p>Press 1 for Next, 2 for Previous, 3 to Cancel or 5 to Redisplay [1]</p>	<p>After installation is done, the Release Notes Summary is displayed.</p>
<p>Please choose from the following options:</p> <p>[X] 1 - Start LiveCycle Configuration Manager.</p> <p>[] 2 - Not Start LiveCycle Configuration Manager.</p> <p>To select an item enter its number, or 0 when you are finished: [0]</p> <p>Press 3 to Finish or 5 to Redisplay [3]</p>	<p>Post Installation Details are displayed.</p> <p>Enter 1 to start LiveCycle Configuration Manager or 2 and then [0] to end the installation.</p>

Error logs

If an error occurs, you can review the `adobe_lc8.2_server_install.log` in the system temporary directory (TEMP or TMP).

For information about errors that may occur during the installation, see [“Troubleshooting” on page 92](#).

Uninstalling LiveCycle ES in console mode

If you need to uninstall your LiveCycle ES environment, open a command prompt, change to the `[LiveCycle8.2 root]/_uninst/server` directory and run the following command as appropriate for your operating system:

- (Windows) `./windows.*.bin - console`
- (Linux) `./linux.*.bin - console`
- (UNIX) `./solaris.*.bin - console`

Next steps

You must now configure LiveCycle ES for deployment. (See [“Configuring LiveCycle ES for Deployment” on page 44](#) or [“Appendix - LCM Command Line Interface” on page 102](#).)

B

Appendix - LCM Command Line Interface

LiveCycle ES provides a Command Line Interface (CLI) for LiveCycle Configuration Manager. The CLI is intended to be used by LiveCycle ES advanced users, for example, in server environments that do not support the use of the graphical user interface (GUI) of LiveCycle Configuration Manager.

Order of operations

The LiveCycle Configuration Manager CLI must follow the same order of operations as the GUI version of LiveCycle Configuration Manager. Ensure that you use the CLI operations in this order:

1. Configure LiveCycle ES.
2. Deploy LiveCycle ES.
3. Initialize LiveCycle ES.
4. Initialize LiveCycle ES Business Activity Monitoring.
5. Deploy LiveCycle ES Components.

Caution: You must restart each JBoss Application Server of your cluster after you complete your LiveCycle Configuration Manager CLI operations.

Command line interface property file

The LiveCycle Configuration Manager CLI requires containing the defined properties for your LiveCycle ES environment. The template for the properties file, `cli_propertyFile_template.txt`, located in the `[LiveCycleES root]/configurationManager/bin` folder. You must create and edit the values. You can customize based on the LiveCycle Configuration Manager operations you intend to use. The following section describes the properties and values required.

Note: If you use the GUI version of LiveCycle Configuration Manager, and then chose to use the CLI version, you can use the property file created by the GUI version as the CLI version property file. When you run the `[LiveCycleES root]/configurationManager/bin/ConfigurationManager.bat` file, the `userValues.properties` file is created in the `[LiveCycleES root]/configurationManager/config` directory. You can copy this file, rename it `userValuesForCLI.properties`, and use it as input for the LiveCycle Configuration Manager CLI.

Common properties

The common properties are as follows:

LiveCycle Server specific properties: Required for the Initialize LiveCycle and Deploy LiveCycle Components operations.

The properties in the table are required for following operations:

- Initialize LiveCycle

- Deploy LiveCycle Components

Configure LiveCycle ES properties

These properties only apply to the configureLiveCycle operation.

Property	Values	Description
AdobeFontsDir	String	Location of the Adobe server fonts directory. This path must be accessible from the server being deployed to.
customerFontsDir	String	Location of the customer fonts directory. This path must be accessible from the server being deployed to.
systemFontsDir	String	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.
LCTempDir	String	Location of the temporary directory. This path must be accessible from the server being deployed to.
LCGlobalDocStorageDir	String	The global document storage (GDS) 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 ES products in a clustered environment. This path must be accessible from the server being deployed to.

Property	Values	Description
enableFIPS	true or false Default: false	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.
contentServices.rootDir	String	Required if you are configuring LiveCycle Content Services ES only. Specify the root directory used by Content Services ES. The content storage root directory should be a location shared by all JBoss Application Server instances in the cluster.
contentServices.indexesDir	String	Required if you are configuring LiveCycle Content Services ES only. Specify the indexes directory used by Content Services ES.

Configure application server properties

If you are installing LiveCycle ES with a JBoss Application Server, you must either manually configure JBoss Application Server, use the Adobe preconfigured JBoss Application Server provided on the LiveCycle ES DVD, or use the JBoss turnkey option.

Deploy LiveCycle properties

These properties only apply to the `deployLiveCycle` operation.

Note: You must configure the LiveCycle Server Information section. (See [“Common properties” on page 102.](#))

Initialize LiveCycle properties

These properties only apply to the `initializeLiveCycle` operation.

Note: You must configure the LiveCycle Server Information section. (See [“Common properties” on page 102.](#))

Initialize BAM properties

These properties only apply to the initialize BAM operation.

Note: LiveCycle ES Business Activity Monitoring is an optional solution component with LiveCycle ES.

Property	Values	Description
BAMHost	String	The host name of the server where Business Activity Monitoring is deployed and running
BAMPort	Integer	The port number BAM Server uses to listen for requests
BAMAdminUserID	String	The Business Activity Monitoring administrator user ID to use when connecting to BAM Server
BAMAdminPassword	String	The Business Activity Monitoring administrator password to use when connecting to BAM Server
databaseType	Choose a database: oracle sqlserver db2	The type of database LiveCycle ES is using to capture Business Activity Monitoring data

Deploy LiveCycle Components properties

The properties in the table apply to these operations:

- Deploy LiveCycle Components
- Validate LiveCycle Component Deployment
- Validate LiveCycle Server

Note: You must configure the LiveCycle Server Information section. (See ["Common properties" on page 102.](#))

Property	Values	Description
LCAdminUserID	String	The user ID to assign to the LiveCycle administrator user. This User ID is used to log in to LiveCycle Administration Console.
LCAdminPassword	String	The password to assign to the LiveCycle administrator user. This password is used to log in to LiveCycle Administration Console.

Command line interface usage

After you configure your property file, navigate to the `[LiveCycleES root]/configurationManager/bin` folder.

To view a complete description of the LiveCycle Configuration Manager CLI commands, type `configurationManagerCLI help`.

Note: The LiveCycle Configuration Manager CLI requires that the Sun™ Java™ Software Development Kit (JDK) 1.5.0_11 or later is installed, the `JAVA_HOME` environment variable is configured, and the `PATH` points to the location where your JDK is installed. For more information, see the *Preparing to Install LiveCycle ES* guide for your single or cluster environment.

Configure LiveCycle CLI usage

The Configure LiveCycle operation requires the following syntax:

```
configureLiveCycle -f [propertyFile]
```

where:

- `-f [propertyFile]` is a property file containing the required arguments. For more information on creating a property file, see [“Command line interface property file” on page 102](#).

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 102](#).

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 102](#).

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 102](#).

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 102](#).
- `-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.

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 102](#).
- `-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.

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 102](#).
- `-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.

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 102](#).

- `-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.

Examples usage

From the `C:\Adobe\LiveCycle8.2\configurationManager\bin`, type:

```
./configurationManagerCLI ConfigureLiveCycle -f cli_propertyFile.txt
```

where `cli_propertyFile.txt` is the name of the property file you created.

Error logs

If an error occurs, you can review the CLI error logs located in the `[LiveCycleES root]\configurationManager\log` folder. The log file generated has a naming convention such as `lcmCLI.0.log` where the number in the file name (0) increments when the log files are rolled over.

Next steps

If you used LiveCycle Configuration Manager CLI to configure and deploy LiveCycle ES, you can now do the following tasks:

- Verify the deployment. (See [“Final setup for LiveCycle Rights Management ES” on page 64.](#))
- Access LiveCycle Administration Console. (See [“Accessing LiveCycle Administration Console” on page 51.](#))
- Configure LiveCycle ES solution components to access LDAP. (See [“Configuring LiveCycle ES to access LDAP” on page 65.](#))
- Uninstall LiveCycle ES. (See [“Uninstalling LiveCycle ES” on page 84.](#))