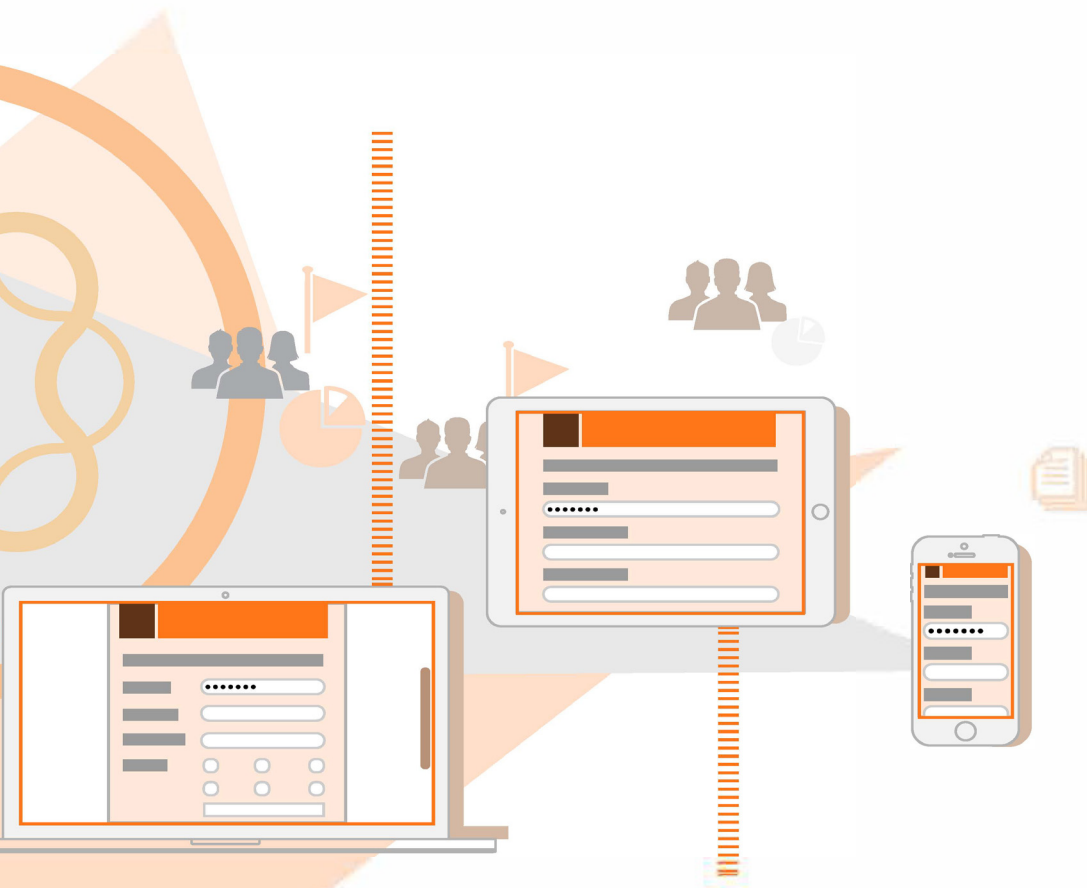

Installing and Deploying Adobe Experience Manager forms on JEE for JBoss



AEM 6.3 Forms

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1. About this document

AEM Forms on JEE is an enterprise server platform that helps you automate and streamline business processes. AEM Forms on JEE comprises the following components:

- J2EE-based Foundation provides server capabilities and runtime environment
- Tools to design, develop, and test AEM Forms on JEE Applications
- Modules and Services are deployed on AEM Forms on JEE Server, and provide functional services

For more information about the AEM Forms on JEE capabilities, see [Introduction to AEM Forms](#).

1.1. Who should read this document?

This guide provides information for administrators and developers responsible for installing, upgrading, configuring, administering, or deploying AEM forms on JEE. It is assumed that readers are familiar with J2EE application servers, operating systems, database servers, and web environments.

1.2. Conventions used in this document

The installation and configuration documentation for AEM Forms on JEE uses the following naming conventions for common file paths.

Name	Default value	Description
<i>[aem-forms root]</i>	Windows: C:\Adobe\Adobe_Experience_Manager_Forms Linux and Solaris: /opt/adobe/Adobe_Experience_Manager_Forms	The installation directory that is used for all AEM Forms on JEE modules. The installation directory contains subdirectories for Configuration Manager. This directory also includes directories related to the SDK and third-party products.
<i>[appserver root]</i>	JBoss Application Server on Windows: C:\Adobe\Adobe_Experience_Manager_Forms\jboss JBoss Application Server on Linux: /opt/jboss/	The application server directory that is used for all AEM Forms on JEE modules.
<i>[dbserver root]</i>	Depends on the database type and your specification during installation.	The location where the AEM Forms on JEE database server is installed.

Name	Default value	Description
[AEM_temp_dir]	On Windows: C:\Adobe\Adobe_Experience_Manager_Forms\tmp On Linux: /opt/adobe/Adobe_Experience_Manager_Forms/tmp	The temporary directory for AEM Forms on JEE server.
[CRX_home]	On Windows: C:\Adobe\Adobe_Experience_Manager_Forms\crx-repository On Linux: /opt/adobe/Adobe_Experience_Manager_Forms/crx-repository	The directory that is used for installing the CRX repository.

Most of the information about directory locations in this guide is cross-platform (all filenames and paths are case-sensitive on non-Windows operating systems). Any platform-specific information is indicated as required.

1.3. Additional information

The resources in this table can help you learn more about AEM Forms on JEE.

For information about	See
AEM Forms on JEE and the modules	Introduction to AEM Forms
Preparing to Install AEM Forms on JEE	Preparing to Install AEM forms on JEE (SingleServer)
Performing administrative tasks	Administrationhelp
All the documentation available for AEM Forms on JEE	AEM Forms on JEEdocumentation
Patch updates, technical notes, and additional information about this product version	Adobe EnterpriseSupport

2. Introduction to Installation, Configuration, and Deployment Process

2.1. Installation, configuration, and deployment overview

Installing, configuring, and deploying AEM Forms on JEE involves the following processes:

- **Installing:** Install AEM Forms on JEE by running the installation program. Installing AEM Forms on JEE places all of the required files onto your computer, within one installation directory structure. The default installation directory is C:\Adobe\Adobe_Experience_Manager_Forms (Windows) or /opt/adobe/Adobe_Experience_Manager_Forms (non-windows); however, you can install the files to a different directory.
- **Configuring:** Configuring AEM forms on JEE modifies various settings that determine how AEM Forms on JEE 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 Configuration Manager. You can configure and assemble multiple AEM Forms on JEE modules at the same time.
- **Deploying:** Deploying the product involves deploying the assembled EAR files and supporting files to your application server on which you plan to run your AEM Forms on JEE. If you have configured multiple modules, the deployable components are packaged within the deployable EAR files. Components and AEM Forms on JEE archive files are packaged as JAR files. *NOTE: AEM Forms on JEE archive file use .lca file extension.*
- **Initializing the database:** Initializing the database to be used with AEM Forms on JEE creates tables for use with User Management and other components. Deploying any module that connects to the database requires you to initialize the database after the deployment process.

Before you begin to install and configure AEM Forms on JEE, ensure that you have prepared your environment as described in the applicable Preparing guides.

2.2. Selecting tasks for configuring and deploying

After you have installed AEM Forms on JEE, you can run Configuration Manager to:

- Configure modules in an EAR file for deploying to the application server or cluster of application servers
- Initialize AEM forms on JEE database
- Deploy AEM Forms on JEE components
- Validate AEM Forms on JEE component deployment
- Configure AEM forms on JEE components

2.3. AEM Forms on JEE installation and deployment list

The following list includes the steps that are required for installing AEM Forms on JEE by using the manual method. Your application server or 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.
- Ensure that you created and configured the application server in the target environment. You can choose to manually configure JBoss or use the Adobe pre-configured one.
- Run the installation program.
- Run Configuration Manager and select the Configure AEM Forms on JEE EARs task. This task configures and assembles AEM Forms on JEE.
- Deploy the EAR files to the application server or cluster. You must do it manually.
- Run Configuration Manager to initialize the AEM Forms on JEE database and deploy AEM forms on JEE component files.
- Access administration console and User Management.
- (Optional) Configure LDAP access.

3. Installing AEM Forms modules

3.1. Before you begin

Checking the installer

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

Check the downloaded files

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

- **Linux:** Use the `md5sum` command
- **Solaris:** Use the `digest` command
- **Windows:** Use a tool such as WinMD5

Expand the downloaded archive files

If you downloaded the ESD from the Adobe website, extract the entire `aemforms_server_6_3_0_jboss_all_win.zip` (Windows) or `aemforms_server_6_3_0_jboss_all_unix.tar.gz` (Linux or Solaris) archive file to your computer. For Solaris, use the `gunzip` command to extract the `.gz` file.

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

3.2. Installation considerations

Installation paths

To successfully install, you need read, write, and execute permissions on the installation directory. The following also apply to the installation paths:

- When installing AEM Forms on JEE, do not use double-byte or extended Latin characters (such as àâçéèêëïîôùûÄÖÛ) in the installation path.
- On Windows, the AEM Forms on JEE installation directory path must not contain any non-ASCII characters (for example, international characters such as é or ñ).

- On UNIX-based systems, you must be logged in as the root user to successfully install the modules. If you are logged in as a non-root user, change the installation directory to one on which you have permissions (read-write-execute privileges).
- On Windows, you must have administrator privileges to install AEM Forms on JEE.

Temporary directories

Temporary files are generated in the temp directory. In certain instances, the generated temporary files may remain after the installer is closed. You can remove these files manually.

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

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

When you complete the installation, you must manually delete the temporary files from the following directories:

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

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

- (Linux) /var/tmp or /usr/tmp
- (Solaris) /var/tmp or /usr/tmp

Installing on a Windows staging platform for Linux or UNIX

AEM Forms on JEE 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. A locked-down environment does not have a graphical user interface installed. For the Linux or UNIX platform, the installation program installs binaries that are used by Configuration Manager to 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 on the Windows-based computer, and the Linux or UNIX target computer on which you want to install AEM forms on JEE must be the same.

General installation notes

- On Windows, improve the speed of installation by disabling any on-access virus scanning software during installation. For details, see [Using an antivirus on server running AEM Forms](#).
- If you are installing on UNIX-based systems and are not installing directly from a release DVD, set executable permissions on the installation file.
- To avoid permission issues during deployment, ensure that you run the AEM Forms on JEE installer and Configuration Manager as the same user who will run the application server.

- If you are installing on UNIX-based computers, the installation directory you specify should not contain any spaces.
- If errors occur during installation, the installation program creates the `install.log` file, which contains the error messages. This log file is created in the `[aem-forms root]/log` directory.

3.3. Installing AEM Forms on JEE

- 1) Start the installation program:
 - (Windows) Navigate to the `\server\Disk1\InstData\Windows_64\VM` directory on the installation media or folder on your hard disk where you copied the installer. Right-click the `install.exe` file and select Run as administrator.
 - (Non-Windows) Navigate to the appropriate directory, and from a command prompt, type `./install.bin`.
 - (Linux) `/server/Disk1/InstData/Linux/NoVM`
 - (Solaris) `/server/Disk1/InstData/Solaris/NoVM`
- 2) When prompted, select the language for the installation to use and click **OK**.
- 3) On the Introduction screen, click **Next**.
- 4) On the Choose Install Folder screen, accept the default directory or click **Choose** and navigate to the directory where you intend to install AEM Forms on JEE, and then click **Next**. If you type the name of a directory that does not exist, it is created for you.
Click Restore Default Folder to restore the default directory path.
- 5) On the Choose Installation Type screen, select **Custom > Manual**, and click **Next**.
For turnkey installation, see [Installing and Deploying AEM Forms on JEE using JBoss Turnkey](#).
- 6) **(Windows only)** On the Manual Installation Options screen, select the target deployment option and click **Next**:
 - **Windows (Local)**: Select this option if you are installing and deploying AEM Forms on JEE on the local server.
 - **Staged (Installed on Windows, targeting remote systems)**: Select this option if you plan to use Windows as a staging platform for your deployment and then select the target operating system on the remote server. You can select a UNIX operating system as the target for deployment even if you are installing on Windows. (See [Installing on a Windows staging platform for Linux or UNIX](#).)
- 7) Read the AEM Forms on JEE License Agreement, select **I accept** to accept the terms of the license agreement, and then click **Next**. If you do not accept the license agreement, you cannot continue.
- 8) On the Pre-Installation Summary screen, review the details and click **Install**. The installation program displays the progress of the installation.
- 9) Review the Release Notes information and click **Next**.
- 10) Review the details on the Install Complete screen.
- 11) The **Start Configuration Manager** checkbox is selected by default. Click **Done** to run the Configuration Manager.

3.4. Next steps

You must now configure AEM Forms on JEE for deployment. You can also choose to run Configuration Manager later by using the ConfigurationManager.bat or ConfigurationManager.sh file located in *[aem-forms root]\configurationManager\bin*.

4. Configuring AEM Forms on JEE for deployment

4.1. Considerations when configuring and deploying AEM Forms on JEE

General Considerations

- While configuring, you must provide the location of the JDBC drivers for your database. Oracle and SQL Server drivers are in the `[aem-forms root]/lib/db/[database]` directory. You can download IBM DB2 driver from IBM website. Also, copy the JDBC driver jar files to all nodes while maintaining identical directory structure for all nodes. For the complete list of supported driver versions and download locations, see [Supported Platform Combination](#).
If you have manually configured JBoss, download the database driver and copy in the `[appserver root]/modules/system/layers/base` directory.
- Global Document Storage (GDS) directory: Specify the GDS directory that meets the requirements outlined in the Preparing to Install (Single Server or Server Cluster). For latest documentation, see http://www.adobe.com/go/learn_aemforms_tutorials_63_en.
- On cluster environments, several steps need to be performed manually in addition to the automatic configuration that Configuration Manager performs.

Considerations while configuring AEM Forms on JEE Server Clusters

- It is recommended to have local server fonts and customer fonts directories at the same path on each node in the cluster. Shared fonts directories instead of local fonts directories may cause performance issues.

4.2. AEM Forms on JEE pre-configuration tasks

NOTE: Press **F1** in Configuration Manager to view Help information for the screen you are viewing. You can view the configuration progress at any time by clicking View Progress Log.

- 1) If you did not start Configuration Manager automatically from the installation program, navigate to the `[aem-forms root]/configurationManager/bin` directory and run the `ConfigurationManager.bat/ConfigurationManager.sh` script.
- 2) If prompted, select a language for Configuration Manager to use and click **OK**.

- 3) On the Welcome screen, click **Next**.
- 4) Do not select any option on the Upgrade Task Selection screen and click **Next**.
- 5) On the Modules screen, select AEM Forms on JEE modules you wish to configure and click **Next**.
NOTE: Some modules have technical dependencies on other modules for proper configuration and functioning. Configuration Manager displays a dialog and does not allow to proceed further if mutually dependent modules are not selected. For example, you must select Content Repository modules if you are configuring Forms Workflow
 - In AEM Forms, Adaptive Forms, Correspondence Management, HTML5 Forms , Forms Portal, HTML Workspace, Process Reporting, Forms centric workflows on OSGi, capabilities use crx-repository. If you plan to use AEM Forms for these capabilities, then crx-repository is required.
 - You do not require crx-repository for AEM Forms Document Security.
- 6) On the Task Selection screen, select all the tasks you want to perform and click **Next**.
NOTE: Tasks Configure Application Server, Validate Application Server, and Deploy EAR files are not available for JBoss application server.
NOTE: If you are using Oracle RAC, do not select the Package JDBC modules into Adobe Experience Manager Forms EAR files (secure datasources) option.

4.3. Configuring and deploying AEM Forms on JEE

Configuring AEM Forms on JEE

- 1) On the Configure Adobe Experience Manager Forms (1 of 5) screen, click **Configure** and click **Next** when done.
- 2) On the Configure Adobe Experience Manager Forms (2 of 5) screen, set the directories that AEM Forms on JEE will use to access fonts and then click **Next**.
TIP: Click **Edit configuration** to change any values on this screen. This button is not available when Configuration Manager is run for the first time, but is available on the second and subsequent runs.
 - (Optional) To change the default location of the **Adobe server fonts directory**, type the path or browse to the directory.
 - To change the default location of the **Customer fonts directory**, click **Browse** or specify a new location for customer fonts.
NOTE: Your right to use fonts provided by parties other than Adobe is governed by the license agreements provided to you by such parties with those fonts, and is not covered under your license to use Adobe software. Adobe recommends that you review and ensure that you are in compliance with all applicable non-Adobe license agreements before using non-Adobe fonts with Adobe software, particularly with respect to use of fonts in a server environment.

- (Optional) To change the default location of the **System fonts directory**, type the path or browse to the directory. To add more directories to the list, click **Add**.
 - (Optional) To enable FIPS, ensure that **Enable Federal Information Processing Standards (FIPS) 140-2 cryptography** is selected. Select this option only to enforce the Federal Information Processing Standards (FIPS).
- 3) Click **Browse** on the Configure Adobe Experience Manager forms (3 of 5) screen to specify the **Location of the temporary directory**.
- NOTE:** Ensure that the temporary directory is located on the local file system.
- NOTE:** If you do not specify the temporary directory, the default system-configured temp location is used.
- 4) On the Configure Adobe Experience Manager Forms (4 of 5) screen, click **Browse** to specify the path for the Global Document Storage (GDS) directory.
- NOTE:** If you leave the GDS directory field empty, AEM Forms on JEE will create the directory in a default location in the application server directory tree. After you finish the configuration steps, you can access the location from administration console > Settings > Core System Settings > Configurations.
- **Use GDS:** Use the file system-based GDS for all persistent document storage. This option provides the best performance, and a single location for GDS.
 - **Use database:** Use the AEM Forms on JEE database for storing persistent documents and long-lived artifacts. However, the file-system based GDS is also required. Using the database simplifies backup and restore procedures.

Click **Configure** to configure the EARs with this directory information. After the configuration is complete, click **Next**.

Configure CRX

- 1) The CRX Configuration screen allows you to configure the CRX repository and install it into the adobe-livecycle-cq-author.ear EAR file.
- 2) Specify the path to the repository. The default location is *[aem-forms root]/crx-repository*. **NOTE:** Ensure that the CRX repository path does not contain spaces and the content repository is available on all the nodes in the cluster. After the configuration is complete, copy the content repository from local node to all the nodes on the same location (as specified on the CRX configuration screen).
- 3) Select the repository type, as appropriate, and keep a note of the following points:
 - CRX3 TAR is not supported in clustered deployments.
 - If selecting CRX3 Mongo DB, specify the Mongo database name and URL to the database. The format of the URL is: `mongodb://<HOST>:<Port>`.
HOST: IP address of the machine running MongoDB.
Port: Port number used for the MongoDB. The default port number is 27017.
 - Selecting this option sets the CRX repository persistence to RDB MK (document MK).

- 4) Click **Configure** to create the required repository files at the specified location.

Click **Next** to continue.

(Remote host only) CRX Configuration Summary

- 1) For a remote deployment, copy the content from the `[aem-forms root]/configurationManager/export/crx-quickstart/` directory to the location on the remote host you specified on the CRX Configuration screen.

Configuring Acrobat for PDF Generator

- 1) **(Windows only)** On the Configure Acrobat For PDF Generator screen, click **Configure** to run the script that configures Adobe Acrobat and required environment settings. Click **Next** when complete.

NOTE: This screen performs the desired configuration only when Configuration Manager is running locally. You must have Adobe Acrobat DC Pro already installed or this step will fail.

Configuration Summary

- 1) On the Configure Adobe Experience Manager forms Summary screen, click **Next**. Configured archives are placed in the `[aem-forms root]/configurationManager/export` directory.

Deploying Adobe Experience Manager Forms EARs

- 1) Without exiting Configuration Manager, manually deploy the Adobe Experience Manager Forms EAR files to JBoss by copying the following files from the `[aem-forms root]/configurationManager/export` directory to the specified directories below:
 - `adobe-lifecycle-native-jboss-[OS].ear`
 - `adobe-lifecycle-jboss.ear`
 - `adobe-workspace-client.ear` (forms workflow only)
 - `adobe-lifecycle-cq-author.ear`
 - (optional) `adobe-assembler-ivs.ear`
 - (optional) `adobe-forms-ivs-jboss.ear`
 - (optional) `adobe-output-ivs-jboss.ear`

Manually-configured JBoss

`[appserver root]/standalone/deployments`

Adobe-preconfigured JBoss on single server

`[appserver root]/server/standalone/deployments`

Perform the following steps to manually deploy EAR files from application server management Console:

- a) Shut down all nodes except the master node.
- b) Copy the configured EAR files from [aem_root]\configurationManager\export to a local directory on the server.
- c) Open the management console, click Runtime, and then click Manage Deployments. The default URL is http://<Ip_Address>:9990/console/ and the default port is 9990. A Content Repository window opens. It has Add, Remove, Assign, and Replace options.
- d) To deploy EAR files:
 - i) Click Add, click Browse, and navigate to the local directory that contains EAR files. Select an EAR file to add, click Next, and then click Save. The added EAR file appears in the Content Repository window. Repeat the step for all EAR files.
 - ii) On the Content Repository page, select an EAR files one-by-one. On the select server groups, select the assign option, leave the Enable <ear file> option checked, and click Save. The value in the assignment column changes from 0 to 1. Repeat the step for all EAR files.
 - iii) After all the EAR files are deployed, return to the configuration management window, and continue from the Initializing Adobe Experience Manager Forms database section.

You can optionally deploy the Forms Standard, Output, Mobile Forms, and Assembler IVS EARs.

To create publish instance for Correspondence Management, deploy *adobe-livecycle-cq-publish.ear*. Ensure that the EAR file is deployed on a different server outside of this setup. Do not deploy *adobe-livecycle-cq-publish.ear* on forms server. For detailed information about configuring the publish instance, see *ConfigurethePublishinstance*

NOTE: Modify the data source definition files to point to the database server and database. For more information, see Appendix-ManuallyConfiguringDataSources.

IMPORTANT: Deploying IVS EAR files to a production environment is not recommended.

Initializing Adobe Experience Manager Forms database

- 1) On the Adobe Experience Manager forms Database Initialization screen, verify that the hostname and port number for your application server is correct and click **Initialize**. The database initialization task creates tables in the database, adds default data to the tables, and creates basic roles in the database. When the initialization is completed successfully, click **Next**.

NOTE: Initialize the database against only one server in the cluster. Subsequent steps are performed only on initialized server.

Restart the application server manually if prompted.

- 2) On the Adobe Experience Manager forms Information screen, specify **Adobe Experience Manager forms User ID** and **Password** whose default values are *administrator* and *password*, respectively. Click **Verify Server Connection**, and when complete, click **Next**.

If the connection test passes but deployment or validation fails in the next few steps, troubleshoot the connectivity issues.

Deploying Central Migration Bridge Service

- 1) On the Central Migration Bridge Service Deployment Configuration screen, if applicable, select **Include Central Migration Bridge Service in deployment** in the deployment option and click **Next**.

Deploying Adobe Experience Manager Forms components

- 1) On the Adobe Experience Manager Forms Component Deployment screen, click **Deploy**. The components that are deployed at this time are Java archive files that plug into the AEM Forms service container for the purposes of deploying, orchestrating, and executing services. When the deployment completes successfully, click **Next**.
- 2) On the Adobe Experience Manager forms Component Deployment Validation screen, click **Validate**. When the validation completes successfully, click **Next**.

Configuring Adobe Experience Manager Forms components

- 1) On the Configure Adobe Experience Manager forms Components screen, select the tasks to run using Configuration Manager and click **Next**.

Adobe Experience Manager Forms Server JNDI information

- 1) On the Adobe Experience Manager forms Server JNDI Information screen, enter the host name, port number, and JBoss client jar location for the JNDI server. Press F1 for more information. Click **Verify Server Connection** to ensure that Configuration Manager connects to the JNDI server. Click **Next** to continue.

Connector for EMC Documentum

NOTE: In case of remote Adobe Experience Manager Forms deployment, you cannot configure the Connector for EMC Documentum using Configuration Manager.

- 1) On the Specify Client for EMC Documentum screen, select **Configure Connector for EMC Documentum Content Server**, and specify the following settings, click **Verify**, and when complete, click **Next** to continue.
 - **Choose EMC Documentum Client Version:** Select the client version to use with the EMC Documentum Content Server.
 - **EMC Documentum Client Installation Directory Path:** Click **Browse** to select the directory path.
- 2) On the Specify EMC Documentum Content Server Settings screen, specify the EMC Documentum Server details, and click **Next**. Press F1 for information about the details.
- 3) On the Configure Connector for EMC Documentum screen, click **Configure Documentum Connector**. When completed, click **Next**.
- 4) On the Required Manual Configurations for Connector for EMC Documentum screen, review and perform the manual steps listed and click **Next**.

Connector for IBM Content Manager

NOTE: In case of remote Adobe Experience Manager Forms deployment, you cannot configure the Connector for IBM Content Manager using Configuration Manager.

- 1) On the Specify Client for IBM Content Manager screen, select **Configure Connector for IBM Content Manager**, and specify a value for IBM Content Manager Client Installation Directory Path. Click **Verify** and when complete, click **Next** to continue.
- 2) On the Specify IBM Content Manager Server Settings screen, specify the details of the IBM Content Manager Server, and click **Next**.
- 3) On the Configure Connector for IBM Content Manager screen, click **Configure IBM Content Manager Connector**. When complete, click **Next**.
- 4) On the Required Manual Configurations for Connector for IBM Content Manager screen, review and perform the manual steps listed and click **Next**.

Connector for IBM FileNet

NOTE: In case of a remote Adobe Experience Manager Forms deployment, you cannot configure the Connector for IBM FileNet using Configuration Manager.

- 1) On the Specify Client for IBM FileNet screen, select **Configure Connector for IBM FileNet Content Manager**, and specify the following.
 - **Choose IBM FileNet Client Version:** Select the client version you want to use with the IBM FileNet Content Server.
 - **IBM FileNet Client Installation Directory Path:** Click **Browse** to select the directory path.
NOTE: The validation of IBM FileNet may fail if there are special characters, such as hyphen (-), underscore (_), comma (,), or dot (.) in the directory name containing the IBM FileNet client.

*Click **Verify**, and when complete, click **Next** to continue.*

- 2) On the Specify IBM FileNet Content Server Settings screen, specify the required details, and click **Next**.
- 3) On the Specify Client for IBM FileNet Process Engine screen, specify the required details, and click **Verify**. When complete, click **Next**.
- 4) On the Specify IBM FileNet Process Engine Server Settings screen, specify the required details and click **Next**.
- 5) On the Configure Connector for IBM FileNet screen, click **Configure FileNet Connector**. When complete, click **Next**.
- 6) On the Required Manual Configurations for Connector for IBM FileNet screen, review and perform the manual steps listed and click **Next**.

Connector for Microsoft SharePoint

NOTE: In case of remote Adobe Experience Manager Forms deployment, you cannot configure the Connector for Microsoft SharePoint using Configuration Manager.

NOTE: You can skip this step if you want to configure the Connector for Microsoft SharePoint later using Administration Console.

On the Configure Adobe Experience Manager forms Connector for Microsoft SharePoint screen, do one of the following tasks:

- De-select the **Configure Adobe Experience Manager forms Connector for Microsoft SharePoint** option to manually configure Microsoft Sharepoint later and click **Next**.
- Leave the **Configure Adobe Experience Manager forms Connector for Microsoft SharePoint** option selected. Specify the required values and click Configure SharePoint Connector. When complete, click **Next**.

Configuring Adobe Experience Manager Forms Server for native file conversions

- 1) **(PDF Generator only)** On the **Admin user credentials for native PDF conversions** screen, specify the user name and password of a user with administrative privileges on the server computer and click **Add user**.

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

System readiness test for PDF Generator

- 1) On the **Document Services PDF Generator System Readiness Test** screen, click **Start** to validate if the system has been appropriately configured for PDF Generator. Review the System Readiness Tool Report and click **Next**. Note that the system readiness test fails if AEM Forms on JEE is deployed on a remote machine.

Configuring Acrobat Reader DC extensions

- 1) On the Acrobat Reader DC extensions Credential Configuration screen, specify the details associated with the Acrobat Reader DC extensions credential that activates the module services:

NOTE: You can skip this step at this time by selecting **Configure later using administration console**. You can configure the Acrobat Reader DC extensions credential by using Administration Console after you complete the deployment. In the administration console, click **Home > Settings > Trust Store Management > Local Credentials**.

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

Summary, and Next Steps

- 1) Review the Configuration Manager task summary list and choose appropriate options:
 - Select Launch Next Steps to view information about AEM Forms on JEE users and administrative interfaces.

5. Deploying AEM Forms on JEE to JBoss

This chapter describes how to deploy AEM Forms on JEE to JBoss Application Server.

5.1. About deploying AEM Forms on JEE modules

Before you deploy AEM Forms on JEE, ensure that you completed these tasks:

- Installed the required software and files, and know the location of the directories you will be working with. If you did not complete this task, see [Preparing to Install AEM Formson JEE \(Single-Server\)](#) or [Preparing to Install AEM Formson JEE \(ServerCluster\)](#), as applicable.
- Run Configuration Manager to configure and assemble AEM Forms on JEE modules according to your system and application server requirements. To add a module to your deployment, you can run Configuration Manager to make the changes and then redeploy the updated EAR file.

If you are deploying AEM Forms on JEE for the first time, initialize the database by using Configuration Manager after you deploy the product.

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

5.2. Summary of deployable components

During the deployment process, you need to deploy the following components:

- `adobe-livecycle-native-jboss-[OS].ear`
- `adobe-livecycle-jboss.ear`
- `adobe-workspace-client.ear` (forms workflow only)
- `adobe-livecycle-cq-author.ear`

After AEM Forms on JEE is configured with Configuration Manager (required), these files are located in the `[aem_forms root]/configurationManager/export/` directory.

5.3. Deploying to JBoss Application Server

Deploy AEM Forms on JEE modules to JBoss Application Server by copying the deployable components to the deploy directory. JBoss Application Server can be running or stopped when you copy the files to the directory. After you copy the files, start or restart the server to ensure that the services start correctly.

To deploy AEM Forms on JEE modules to JBoss Application Server:

- Copy the following files from the *[aem_forms root]/configurationManager/export* directory to the following directory: (Manually-configured JBoss) *[appserver root]/standalone/deployments/*:
 - *adobe-livecycle-native-jboss-[OS].ear*
 - *adobe-livecycle-jboss.ear*
 - *adobe-workspace-client.ear* (forms workflow only)
 - *adobe-livecycle-cq-author.ear*

You can optionally deploy the Forms Standard, Output, Mobile Forms, and Assembler IVS EARs as well.

*To create publish instance for Correspondence Management, deploy *adobe-livecycle-cq-publish.ear*. Ensure that *adobe-livecycle-cq-publish.ear* is deployed on a different server. Do not deploy *adobe-livecycle-cq-publish.ear* on AEM Forms on JEE server. For detailed information about configuring the publish instance, see *Configure the Publish instance**

NOTE: The data source definition files have to be modified to point to the database server and database.

IMPORTANT: Deploying the IVS EAR files to a production environment is not recommended.

6. Post-deployment tasks

6.1. General tasks

Configure the serialization agent

AEM Forms requires the `sun.util.calendar` package to be whitelisted. Perform the following steps to add the package to the whitelist:

- 1) Open the Web Console in a browser window. The default URL is `http://[server]:[port]/system/console/configMgr`.
- 2) Search and open Deserialization Firewall Configuration.
- 3) In the whitelist field, add the `sun.util.calendar` package and click Save.

Setting the correct date, time, and time zone

Setting the correct date, time, and time zone on all servers connected to your AEM Forms on JEE environment will ensure that time-dependent modules, such as Digital Signatures and Acrobat Reader DC extensions function correctly. For example, if a signature appears to have been created in the future, it will not validate.

Servers that require synchronization are database servers, LDAP servers, HTTP servers, and J2EE servers.

Configure URL and port number for client SDK

Perform the following section, only if you have installed CRX repository:

The default URL of AEM Forms client SDK (CSDK) is `http://localhost:8080`. Change the default URL to the current URL of your AEM Forms environment. The current URL is required to enable and configure authentication between AEM configuration manager and CRX-repository:

- 1) Open the configuration manager URL, `http://<server>:<port>/lc/system/console/configMgr`, in a browser window.
- 2) Search and open the Adobe LiveCycle Client SDK Configuration service for editing.
- 3) In the Server URL field, specify current URL of your AEM Forms environment, and click Save.

Boot delegate RSA and BouncyCastle libraries

Perform the following section, only if you have installed CRX repository:

AEM Forms requires RSA and BouncyCastle libraries to be installed with AEM Forms add-on package. Perform the following steps to boot delegate these libraries:

- 1) Stop the AEM instance.
- 2) Navigate to the [AEM installation directory]\crx-repository\launchpad\ folder and open the sling.properties file for editing.
- 3) Add the following properties to the sling.properties file:

```
sling.bootdelegation.class.com.rsa.jsafe.provider.JsafeJCE=com.rsa.*sling.bootdelegation.class.org.bouncycastle.jce.provider.BouncyCastleProvider=org.bouncycastle.*
```
- 4) Save and close the file. Restart the AEM instance.
NOTE: Before restarting the AEM Forms server, wait until the ServiceEvent REGISTERED and ServiceEvent UNREGISTERED messages stop appearing in the <crx-repository>/error.log file and the log is stable.

Restart the application server

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

NOTE: When you upgrade the AEM Forms on JEE Server, ensure that you delete the [Jboss_root]\stand-alone\tmp folder on single server installation or [Jboss_root]\domain\servers<server name>\tmp folders on cluster-based installations before restarting the application server.

Verify the deployment

You can verify the deployment by logging in to Administration Console. If you log in successfully, it means AEM Forms on JEE is running on the application server and the default user is created in the database. To verify the CRX repository deployment, access the CRX welcome page.

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 administration console

AEM Forms JEE administration console is a web-based portal for accessing configuration pages where you can set run-time properties that control how AEM Forms JEE operates. When you log in to the administration console, you can access User Management, Watched Folder, Email client configuration, and administrative configuration options for other services. The administration console also provides access to Applications and Services, which administrators use for managing archives and deploying services to production environment.

The default username and password for logging in are *administrator* and *password*. After you log in the first time, access User Management and change the password.

- 1) Type the following URL in a web browser:
`http://[hostname]:[port]/adminui`

For example: `http://localhost:8080/adminui`

- 2) If you have upgraded to AEM Forms on JEE, enter the same administrator username and password as that of your previous installation. In case of a fresh installation, enter the default username and password.
- 3) After you log in, click **Services** to access the service administration pages or click **Settings** to access the pages on which you can administer settings for different modules.

Accessing OSGi Management Console

OSGi console provides a way to manage OSGi bundles and services configurations. To, access the OSGi Management console:

- 1) Type the following URL in a web browser:

`http://[hostname]:[port]/lc/system/console`

- 2) Enter the CRX Administrator username and password. The default username and password for logging in is admin and admin (same as CRX Administrator).

NOTE: You cannot log into OSGi Management Console using the credentials of AEM Forms on JEE Administrator or AEM Super Administrator.

- 3) After you log in, you can access various components, services, bundles, and other configurations.

View the log files

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 find the problem. You can open the log files using any text editor.

Log files for manually-configured JBoss are located at:

- **(Standalone JBoss)** `[appserver root]/standalone/log` directory
- **(Cluster)** `[appserver root]\domain\servers\server-one\log` directory

Log files for Adobe-preconfigured JBoss are located at:

- **(Standalone)** `[appserver root]/standalone/log` directory
- **(Cluster)**`[appserver root]\domain\servers\server-one\log` directory

The log files are:

- `server.log`

Following CRX log files are located at `[CRX_home]/logs`

- `error.log`
- `audit.log`
- `access.log`
- `request.log`
- `update.log`

Configure Author and Publish instance

Perform the following tasks to configure Author and Publish instance only if you have installed and configured the CRX repository:

Configure the Author instance

Author instance is embedded within the AEM Forms on JEE server. It implies that you do not need to make any configuration updates to the Author instance. The instance inherits all configuration settings from the AEM Forms on JEE instance.

Configure the Publish instance

You must run separate author and publish instances. You can configure the instances on different machines.

NOTE: The cluster topology is not recommended for the publish instance. Use a single publish instance or configure a farm of publish instances.

NOTE: By default, the publish instance is configured to run the mode similar to corresponding author instance. The mode can be TarMK, MongoMK, or RDBMK. Run the publish instance on TarMK mode.

Configure the Publish Node

- 1) Create a new appserver profile for the publish instance on the same or on a different machine.
- 2) On the author instance, navigate to the `[aem-forms root]/configurationManager/export/` directory.
- 3) Copy the `adobe-lifecycle-cq-publish.ear` file and deploy it to the appserver profile created in step 1.
- 4) Copy the content of the `[aem-forms root]/configurationManager/export/crx-quickstart` directory to the file server for the publish instance.
- 5) **(If author instance is configured to run RDBMK)** Delete the following files from the install directory copied to the publish instance:
 - `org.apache.jackrabbit.oak.plugins.document.DocumentNodeStoreService.cfg`
 - `org.apache.sling.datasource.JNDIDataSourceFactory-oak.cfg`
- 6) Start the publish server with `-Dcom.adobe.livecycle.crx.home=<location for crx-repository>` parameter, where `<location for crx-repository>` is the location where you copied the `crx-repository` directory for the publish instance. For example, if the content of the `cq-quickstart` directory are copied to the `C:\CM-publish\crx-repository` directory, then the `<location for crx-repository>` parameter will be `Dcom.adobe.livecycle.crx.home=C:\CM-publish\crx-repository`.

NOTE: If author and publish instances are on the same machine, ensure that you start the publish instance using a different port.

IMPORTANT: Ensure that the CRX repository path does not contain spaces.

Communicating between the Author and Publish instances

Enable two-way communication between Author and Publish instances:

Define Publish instance URL

- 1) Go to `http://<authorHost>:<authorPort>/lc/etc/replication/agents.author/publish.html`.
- 2) Click **Edit**. The Agent Settings dialog opens.
- 3) Click the **Transport** tab and specify the URL to the publish server in the URI field.
`http://<publishHost>:<publishPort>/lc/bin/receive?slingsling:authRequestLogin=1`

NOTE: If there are multiple publish instances managed by a Load Balancer, specify the URL to the load balancer in the URI field.

- 4) Click **OK**.

NOTE: For author clusters, these steps need to be performed on one author instance (preferably a master instance).

Define publish instance URL for ActivationManagerImpl

- 1) Go to `http://<authorHost>:<authorPort>/lc/system/console/configMgr`. The default username and password for logging in are admin and admin (same as CRX Administrator).
- 2) Find and click the Edit icon next to the `com.adobe.livecycle.content.activate.impl.ActivationManagerImpl.name` setting.
- 3) In the ActivationManager Publish URL field, specify the URL for the corresponding publish instance.
- 4) Click **Save**.

Configure reverse replication queue

- 1) Go to `http://<authorHost>:<authorPort>/lc/etc/replication/agents.author/publish_reverse.html`.
- 2) Click **Edit**. The Agent Settings dialog opens.
- 3) Click the **Transport** tab and specify the URL to the corresponding publish server in the URI field.
NOTE: If there are multiple publish instances managed by a Load Balancer, specify the URL to the load balancer in the URI field.
- 4) Click **OK**.

Define author instance URL

- 1) Go to `http://<publishHost>:<publishPort>/lc/system/console/configMgr`. The default username and password for logging in are admin and admin (same as CRX Administrator).
- 2) Find and click the Edit icon next to the `com.adobe.livecycle.content.activate.impl.VersionRestoreManagerImpl.name` setting.
- 3) In the VersionRestoreManager Author URL field, specify the URL for the corresponding author instance.
NOTE: If there are multiple author instances managed by a Load Balancer, specify the URL to the load balancer in the VersionRestoreManager Author URL field.
- 4) Click **Save**.

Configure IPv6 implementation

NOTE: Perform these steps only if the machine/server is using an IPv6 address.

To map the IPv6 address to a hostname on the server and client machines:

- 1) Navigate to the C:\Windows\System32\drivers\etc directory.
- 2) Open the `hosts` file in a text editor.
- 3) Add a mapping for the IPv6 address to a host name. For example:
`2001:1890:110b:712b:d1d:9c99:37ef:7281 <ipv6_hostname>`
- 4) Save and close the file.

Ensure that you use the mapped host name instead of the IPv6 address to access the machine.

Install Japanese fonts for Adobe Reader

If your document fragments use Japanese fonts, you must install the Japanese Language Support Package for Adobe Reader. Otherwise, your letters and forms will not render and function properly. For installing language packs, visit the downloads page for Adobe Reader.

Upgrading to Workbench

Once you have completed your AEM Forms on JEE server upgrade and verified that it is working properly, install the new version of Workbench in order to continue creating and modifying your AEM Forms on JEE applications.

Configure CSiv2 inbound transport

On the default Global Security enabled installation of IBM WebSphere, CSiv2 inbound transport option is set to SSL-required. This configuration causes Output and Forms components to fail. Ensure that you change CSiv2 inbound transport option to SSL-Supported: To change the option:

- 1) Log in to IBM WebSphere administration console.
- 2) Expand **Security**, and then click **Global security**.
- 3) In the Authentication section, expand **RMI/IIOP security**, and then click **CSiv2 inbound communications**
- 4) In CSiv2 Transport Layer section, set value of **Transport** to **SSL-Supported**.
- 5) Click **Apply**.

Isolating JBoss Clusters

There are a lot of JBoss services that create multiple JGroup channels services. These channels should only communicate with specific channels. Isolate JGroups clusters from other clusters on the network to ensure that the communication happens only with specific channels. See application server documentation for steps to isolate JBoss clusters.

Enabling JMS for JBoss

JMS services are disabled, by default. Perform the following steps to enable JMS services:

- 1) Copy the following tags from `standalone_full.xml` to the `lc_turnkey.xml`.

```
<extension module="org.jboss.as.messaging">...</extension>
<subsystem xmlns="urn:jboss:domain:messaging:1.4"> </subsystem>
```
- 2) Run the `add-user.bat` script to create an application user. Add the application user to the Guest group.
NOTE: The JMS DSC component requires a connection username and password. Ensure that the newly added application user has permissions to use JMS Queue/Topic for Send/Receive operation.
NOTE: By default, the `lc_turnkey.xml` file the `security-setting match="#">.....</security-settings>` snippet has a guest role with ready JMS Send/Receive privileges. You must create an application user.
- 3) Change the JMS DSC configuration to include the newly created application user.
- 4) In the JMS Service configuration, change the `org.jnp.interfaces.NamingContextFactory` to `org.jboss.as.naming.InitialContextFactory`.

Migrate adaptive forms and Correspondence Management assets

The migration utility makes assets of earlier versions compatible with AEM 6.3 forms. You can download the utility from AEM package share. For detailed steps, see <https://helpx.adobe.com/aem-forms/6-3/migration-utility.html>.

Reconfigure analytics and reports

In AEM 6.3 Forms, traffic variable for source and success event for impression are not available. So, when you upgrade to AEM 6.3 Forms, AEM Forms stops sending data to Adobe Analytics server and analytics reports for adaptive forms and adaptive document are not available. Moreover, AEM 6.3 Forms introduces traffic variable for the version of form analytics and success event for the amount of time spent on a field. So, reconfigure analytics and reports for your AEM Forms environment. For detailed steps, see <https://helpx.adobe.com/content/help/en/aem-forms/6-3/configure-analytics-forms-documents.html>.

Methods to calculate average fill time for forms and average read time for adaptive documents have changed. So, when you upgrade to AEM 6.3 forms, the old data from previous AEM Forms release for these metrics is available only in Adobe Analytics. It is not visible in AEM Forms analytics reports. For these metrics, AEM Forms analytics reports display data which is captured after performing the upgrade.

Disable Draft and Submission workflows

If you are using AEM Forms with JBoss application server and database is MongoDB, disable the Draft and Submission workflows on a publish nodes of the cluster. Perform the following steps to disable the workflows:

- 1) Open the following URL: `http://[host]:[port]/lc/libs/cq/workflow/content/console.html`
- 2) Open the Launchers tab. A list of launchers is displayed

- 3) Double-click the launcher with description "Replicate all the drafts/submissions that are just modified".
- 4) In the Properties window, set the value of the Activate field to Disabled, and click OK.
- 5) Repeat step 3 and 4 for the launcher with description "Replicate all the drafts/submissions that are just created".

Now, the Draft and Submission workflows are disabled.

Configure the ContentRepositoryConnector service

By default, the ContentRepositoryConnector service is configured to use URL `http://localhost:8080/lc/crx/server/`. Perform the following steps to configure the service for your environment:

- 1) Log in to AEM Forms Admin UI using credentials administrator/password. The default URL of Admin UI is `http://[IP]:[Port]/adminui`.
- 2) Navigate to Services > Application and Services > Service Management.
- 3) Search and open the ContentRepositoryConnector service for editing.
- 4) Open the Configuration tab and replace the default URL in the Experience Management Server field with the URL of your environment.

IP

IP address of the machine on which application server is running.

Port

Port number which AEM Forms is using. The default port number for JBoss, WebLogic, and WebSphere 8080, 8001, and 9080, respectively.

6.2. Configure Author and Publish instance

Perform the following tasks to configure Author and Publish instance only if you have installed and configured the CRX repository:

Configure the Author instance

Author instance is embedded within the AEM Forms on JEE server. It implies that you do not need to make any configuration updates to the Author instance. The instance inherits all configuration settings from the AEM Forms on JEE instance.

Configure the Publish instance

You must run separate author and publish instances. You can configure the instances on different machines.

NOTE: The cluster topology is not recommended for the publish instance. Use a single publish instance or configure a farm of publish instances.

NOTE: By default, the publish instance is configured to run the mode similar to corresponding author instance. The mode can be TarMK, MongoMK, or RDBMK. Run the publish instance on TarMK mode.

Configure the Publish Node

- 1) Create a new appserver profile for the publish instance on the same or on a different machine.
- 2) On the author instance, navigate to the `[aem-forms root]/configurationManager/export/` directory.
- 3) Copy the `adobe-livecycle-cq-publish.ear` file and deploy it to the appserver profile created in step 1.
- 4) Copy the content of the `[aem-forms root]/configurationManager/export/crx-quickstart` directory to the file server for the publish instance.
- 5) **(If author instance is configured to run RDBMK)** Delete the following files from the install directory copied to the publish instance:
 - `org.apache.jackrabbit.oak.plugins.document.DocumentNodeStoreService.cfg`
 - `org.apache.sling.datasource.JNDIDataSourceFactory-oak.cfg`
- 6) Start the publish server with `-Dcom.adobe.livecycle.crx.home=<location for crx-repository>` parameter, where `<location for crx-repository>` is the location where you copied the `crx-repository` directory for the publish instance. For example, if the content of the `cq-quickstart` directory are copied to the `C:\CM-publish\crx-repository` directory, then the `<location for crx-repository>` parameter will be `Dcom.adobe.livecycle.crx.home=C:\CM-publish\crx-repository`.

NOTE: If author and publish instances are on the same machine, ensure that you start the publish instance using a different port.

IMPORTANT: Ensure that the CRX repository path does not contain spaces.

Communicating between the Author and Publish instances

Enable two-way communication between Author and Publish instances:

Define Publish instance URL

- 1) Go to `http://<authorHost>:<authorPort>/lc/etc/replication/agents.author/publish.html`.
- 2) Click **Edit**. The Agent Settings dialog opens.
- 3) Click the **Transport** tab and specify the URL to the publish server in the URI field.

`http://<publishHost>:<publishPort>/lc/bin/receive?sling:authRequestLogin=1`

NOTE: If there are multiple publish instances managed by a Load Balancer, specify the URL to the load balancer in the URI field.

- 4) Click **OK**.

NOTE: For author clusters, these steps need to be performed on one author instance (preferably a master instance).

Define publish instance URL for ActivationManagerImpl

- 1) Go to `http://<authorHost>:<authorPort>/lc/system/console/configMgr`. The default username and password for logging in are admin and admin (same as CRX Administrator).
- 2) Find and click the Edit icon next to the `com.adobe.livecycle.content.activate.impl.ActivationManagerImpl.name` setting.
- 3) In the ActivationManager Publish URL field, specify the URL for the corresponding publish instance.
- 4) Click **Save**.

Configure reverse replication queue

- 1) Go to `http://<authorHost>:<authorPort>/lc/etc/replication/agents.author/publish_reverse.html`.
- 2) Click **Edit**. The Agent Settings dialog opens.
- 3) Click the **Transport** tab and specify the URL to the corresponding publish server in the URI field.
NOTE: If there are multiple publish instances managed by a Load Balancer, specify the URL to the load balancer in the URI field.
- 4) Click **OK**.

Define author instance URL

- 1) Go to `http://<publishHost>:<publishPort>/lc/system/console/configMgr`. The default username and password for logging in are admin and admin (same as CRX Administrator).
- 2) Find and click the Edit icon next to the `com.adobe.livecycle.content.activate.impl.VersionRestoreManagerImpl.name` setting.
- 3) In the VersionRestoreManager Author URL field, specify the URL for the corresponding author instance.
NOTE: If there are multiple author instances managed by a Load Balancer, specify the URL to the load balancer in the VersionRestoreManager Author URL field.
- 4) Click **Save**.

Configure IPv6 implementation

NOTE: Perform these steps only if the machine/server is using an IPv6 address.

To map the IPv6 address to a hostname on the server and client machines:

- 1) Navigate to the `C:\Windows\System32\drivers\etc` directory.
- 2) Open the `hosts` file in a text editor.
- 3) Add a mapping for the IPv6 address to a host name. For example:
`2001:1890:110b:712b:d1d:9c99:37ef:7281 <ipv6_hostname>`
- 4) Save and close the file.

Ensure that you use the mapped host name instead of the IPv6 address to access the machine.

Install Japanese fonts for Adobe Reader

If your document fragments use Japanese fonts, you must install the Japanese Language Support Package for Adobe Reader. Otherwise, your letters and forms will not render and function properly. For installing language packs, visit the downloads page for Adobe Reader.

6.3. Configuring PDF Generator

If you installed PDF Generator, complete the following tasks:

Environment variables

If you configured PDF Generator to convert files to PDF, for some file formats, you must manually set environment variables that contain the absolute path of the executable that is used to start the corresponding application. The table below lists the environment variables for the native applications.

NOTE: Ensure that the required applications are installed on all nodes in the cluster.

NOTE: All environment variables and respective paths are case-sensitive.

Application	Environment variable	Example
Adobe Acrobat	Acrobat_PATH	C:\Program Files (x86)\Adobe\Acrobat 2015\Acrobat\Acrobat.exe
Notepad	Notepad_PATH	C:\WINDOWS\notepad.exe You can leave the Notepad_PATH variable blank.
OpenOffice	OpenOffice_PATH	C:\Program Files (x86)\OpenOffice 4

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

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

Configuring the application server to use HTTP proxy server

If the computer that AEM Forms on JEE is running on uses proxy settings to access external web sites, the application server should be started with the following values set as Java virtual machine (JVM) arguments:

```
-Dhttp.proxyHost=[server host]
-Dhttp.proxyPort=[server port]
```

Complete the following procedure to start your application server with HTTP proxy host setting.

- 1) From a command line, edit the run script in the `[appserver root]/bin/` directory:
 - (Windows)

- standalone.conf.bat
 - (Linux, UNIX)
 - standalone.conf
- 2) Add the following text to the script file:

```
Set JAVA_OPTS=%JAVA_OPTS%  
-Dhttp.proxyHost=[server host]  
-Dhttp.proxyPort=[server port]
```
 - 3) Save and close the file.

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 cannot convert files successfully.

For clusters, you must set Adobe PDF Printer as the default printer on all nodes.

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 Professional (Windows-based Computers Only)

NOTE: This procedure is required only if you upgraded to or installed Acrobat after you completed the AEM Forms on JEE installation. Upgrading Acrobat can be completed after you run Configuration Manager and deploy AEM Forms on JEE to the application server. Acrobat Professional root directory is designated as *[Acrobat root]*. Typically, the root directory is *C:\Program Files (x86)\Adobe\Acrobat 2015\Acrobat*.

Configure Acrobat for use with PDF Generator

- 1) If an earlier version of Acrobat is installed, uninstall it by using Add or Remove Programs in the Windows Control Panel.
- 2) Install Acrobat DC Pro by running the installer.
- 3) Navigate to the additional\scripts folder on the AEM Forms on JEE installation media.
- 4) Run the following batch file.

```
Acrobat_for_PDFG_Configuration.bat [aem_forms root]/pdfg_config
```
- 5) On other cluster nodes on which you do not run AEM Forms on JEE Configuration Manager, do the following:
 - Add a new registry DWORD entry named SplWOW64TimeOut at HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print. Set its value to 60000.

- Copy `PDFGen.api` from the `[aem-forms root]/plugins/x86_win32` directory on the node where AEM Forms on JEE is installed to the `[Acrobat root]/plug_ins` directory on the node being currently configured.
- 6) Open Acrobat and select **Help > Check for updates > Preferences**.
 - 7) De-select **Automatically check for Adobe updates**.

Validate the Acrobat installation

- 1) Navigate to a PDF file on your system and double-click it to open it in Acrobat. If the PDF file opens successfully, Acrobat is installed correctly.
- 2) If the PDF file does not open correctly, uninstall Acrobat and reinstall it.

NOTE: Ensure that you dismiss all Acrobat dialog boxes that are displayed after Acrobat installation is complete and disable the automatic updates for Acrobat. Set the `Acrobat_PATH` environment variable to point to `Acrobat.exe`. For example, `C:\Program Files (x86)\Adobe\Acrobat 2015\Acrobat\Acrobat.exe`.

Add temporary directories to trusted directories list in Acrobat

The `OptimizePDF` service uses Adobe Acrobat and mandates that AEM Forms on JEE temporary directory and PDF Generator temporary directory are listed in the trusted directories list of Acrobat.

If AEM Forms on JEE temporary directory and PDF Generator temporary directory are not listed in the trusted directories list, the `OptimizePDF` service fails to run. Perform the following steps to add directories to the temporary directory list:

- 1) Open Acrobat, Choose **Edit > Preferences**.
- 2) From the Categories on the left, select **Security (Enhanced)**, and then select the **Enable Enhanced Security** option.
- 3) To add AEM Forms on JEE temporary directory and PDF Generator temporary directory to the trusted directories list, click **Add Folder Path**, select directories, and click **OK**.

Adding fonts to PDF Generator

AEM Forms on JEE provides a central repository of fonts, which is accessible to all AEM Forms on JEE modules. Make any extra fonts available to non-AEM Forms on JEE applications on the server so that PDF Generator can use these fonts to create PDF documents created with these applications.

NOTE: *Restart the application server after adding new fonts to the specified fonts folder.*

Non-AEM Forms on JEE applications

The following list contains non-AEM Forms on JEE applications that PDF Generator 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 Publisher
- Adobe FrameMaker
- Adobe PageMaker
- Adobe Acrobat Professional

Multi-platform 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 Windows-only applications that are mentioned above can access all the fonts 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 AEM Forms on JEE fonts repository, ensure that the same fonts are available to the Windows-only applications also by copying these fonts to either C:\Windows\Fonts or to an equivalent folder.

Your custom fonts must be licensed under an agreement that allows you to use them with the applications that have access to these fonts.

Adding new fonts to other applications

If you added support for PDF creation in other applications, see the Help for these applications to add new fonts. In Windows, copying your custom fonts to the C:\Windows\Fonts (or equivalent) folder should be sufficient.

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>.

Configuring HTML to PDF conversions

The HTML-to-PDF conversion process is designed to use the settings from Acrobat DC Pro that override the settings from PDF Generator.

NOTE: This configuration is required to enable the HTML-to-PDF conversion process, otherwise this conversion type will fail.

Configure the HTML-to-PDF conversion

- 1) Install and validate Acrobat as described in `ConfiguringAcrobatProfessional`.
- 2) Locate the `pdfgen.api` file in the `[aem-forms root]\plugins\x86_win32` directory and copy it to `[Acrobat root]\Acrobat\plug_ins` directory.

Enable support for Unicode fonts in HTML to PDF conversions

IMPORTANT: The HTML-to-PDF conversion fails if the zipped input file contains HTML files with double-byte characters in filenames. To avoid this problem, do not use double-byte characters when naming HTML files.

- 1) Copy the Unicode font to any of the following directories as appropriate for your system:

- Windows
 - `[Windows root]\Windows\fonts`
 - `[Windows root]\WINNT\fonts`
- UNIX
 - `/usr/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/cfqouser/Library/Fonts`
 - `/System/Library/Fonts`
 - `/Library/Fonts`
 - `/Users/ + System.getProperty(<username>, root) + /Library/Fonts`
 - `System.getProperty(JAVA_HOME) + /lib/fonts`
 - `/usr/share/fonts (Solaris)`

NOTE: Ensure that the directory `/usr/lib/X11/fonts` exists. If it does not exist, create a symbolic link from `/usr/share/X11/fonts` to `/usr/lib/X11/fonts` using the `ln` command.

NOTE: Ensure that the fonts are present in either `/usr/share/fonts` or `/usr/share/X11/fonts` directory.

- 2) Unzip the IBM type1 courier font to the `/usr/share/X11/fonts/font-ibm-type1-1.0.3` folder.
- 3) Create a symbolic link from `/usr/share/fonts` to `/usr/share/X11/fonts`.
- 4) Modify the font-name mapping in the `cffont.properties` file located in the `[aem-forms root]/deploy/adobe-generatepdf-dsc.jar` file:
 - Extract the archive file, and locate the `cffont.properties` file and open it in an editor.

- In the comma-separated list of Java font names, add a map to your Unicode system font for each font type. In the example below, `kochi mincho` is the name of your Unicode system font.


```
dialog=Arial, Helvetica, kochi mincho
dialog.bold=Arial Bold, Helvetica-Bold, kochi mincho ...
```
- Save and close the properties file, and then 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 Network Printer Client

PDF Generator includes an executable file to install the PDF Generator network printer on a client computer. After the installation is complete, a PDF Generator 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 Network Printer Client installation wizard available in the administration console is supported only on Windows operating system. Ensure that you use a 32-bit JVM to launch the Network Printer Client installation wizard. You will encounter an error if you use a 64-bit JVM.

If the PDFG Network Printer fails to install on Windows or if you want to install the printer on UNIX or Linux platforms, use the operating system's native Add Printer utility and configure it as described in `ConfigurePDFGNetworkPrinteronWindowsusingthenativeAddPrinterwizard`

Install the PDF Generator Network Printer Client

NOTE: Before installing the PDF Generator network printer client on Windows Server 2012, ensure that you have the Internet Printing Client feature installed on your Windows Server 2012. For installing the feature, see Windows Server 2012 Help.

- 1) Ensure that you have successfully installed PDF Generator on your server.
- 2) Do one of the following:
 - From a Windows client computer, open the following URL in your web browser, where `[host]` is the name of the server where you installed PDF Generator and `[port]` is the application server port used.


```
http://[host]:[port]/pdfg-ipp/install
```
 - In administration console, click **Home > Services > PDF Generator > PDFG Network Printer**. In the **PDFG Network Printer Installation** section, click **Click here** to launch the PDFG Network Printer Installation.

- 3) On the Configure Internet Port screen, select **Use the specified user account** option, and provide the credentials of a AEM Forms on JEE 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**.

NOTE: If the user's password changes, then users will need to reinstall the PDFG Network Printer on their computers. You cannot update the password from administration console.

Upon successful installation, a dialog box appears, indicating that the printer is successfully installed.

- 4) Click **OK**. You will now have a PDF Generator printer available in your list of printers.

Configure PDFG Network Printer on Windows using the native Add Printer wizard

- 1) Click **Start >Printers and Faxes** and double-click **Add Printer**.
- 2) Click **Next**, select **A network printer, or a printer attached to another computer**, and then click **Next**.
- 3) Select **Connect to a printer on the Internet or on a home or office network** and type the following URL for the PDFG printer, where *[host]* is the server name and *[port]* is the port number where the server is running:

```
http://[host]:[port]/pdfg-ipp/printer
```

- 4) On the Configure Internet Port screen, select **Use the specified user account** and provide valid User credentials.
- 5) In the **Printer Driver Select** box, choose any standard PostScript-based printer driver (for example, HP Color LaserJet PS).
- 6) Complete the installation by choosing appropriate options (for example, setting this printer as default).

NOTE: The user credentials used while adding the printer must have a valid email ID configured in User Management to receive the response.
- 7) Configure the email service's sendmail service. Provide a valid SMTP server and authentication information in the service's configuration options.

Install and configure the PDF Generator Network Printer Client using Proxy server port forwarding

- 1) Configure port forwarding on the CC Proxy server on a particular port to the AEM forms on JEE Server, and disable the authentication at proxy server level (because AEM Forms on JEE 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 AEM Forms on JEE Server.
- 2) Install PDFG Network Printer using the following URL:

```
http://[proxy server]:[forwarded port]/pdfg-ipp/install.
```
- 3) Provide the necessary credentials for authentication of the PDFG Network Printer.
- 4) The PDFG Network Printer will be installed on the client machine which you can use for PDF conversion using the firewall protected AEM Forms on JEE Server.

Changing File Block Settings

Change Microsoft Office trust center settings to enable PDFG to convert older versions of Microsoft office documents.

- 1) Click the **File tab** in any Office 2013 application. Under **File**, click **Options**; the Options dialog box appears
- 2) Click **Trust Center**, and then click **Trust Center Settings**.
- 3) In the **Trust Center settings**, click **File Block Settings**.
- 4) In the File Type list, uncheck open for the file type that you want PDF Generator to convert.

Watched folder performance parameters

To avoid `java.io.IOException` error messages indicating that not enough disk space is available to perform PDF conversions by using a watched folder, you can modify the settings for PDF Generator in administration console.

Set performance parameters for PDF Generator

- 1) Log in to 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.

Enable PDF Conversion for Microsoft Word document containing protected fields

PDF Generator supports Microsoft Word documents containing protected fields. To enable PDF Conversion for Microsoft Word document containing protected fields, change the file type settings:

- 1) In the **administration console**, navigate to **Services > PDF Generator > File Type Settings**, and open your file type settings profile.
- 2) Expand the **Microsoft Word** option and select the **Preserve document markup in Adobe PDF (for Microsoft Office 2003 or later)** option.
- 3) Click **Save As**, specify name of the file type setting, and click **OK**.

6.4. Configure SSL for Document Security

Document Security requires the application server to be configured to use SSL. See [administrationhelp](#).

6.5. Enable FIPS mode

NOTE: If you have configured it in the previous version, skip the following section:

AEM Forms on JEE 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 Configuration Manager during AEM Forms on JEE configuration or if you enabled it but want to turn it off, you can change this setting through 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.

Turn FIPS mode on or off

- 1) Log in to administration console.
- 2) Click **Settings > Core System Settings > Configurations**.
- 3) Select **Enable FIPS** to enable FIPS mode or deselect to disable FIPS mode.
- 4) Click **OK** and restart the application server.

NOTE: AEM forms on JEE 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).

6.6.

6.7. Configure Kerberos authentication support for AEM Forms on JEE Connector for Microsoft SharePoint

NOTE: If you have configured it in previous version, skip the following section:

- 1) Navigate to `[appserver root]/standalone/configuration`.
- 2) Open `lc_<db>.xml` file for editing.
- 3) Add following text to `lc_<db>.xml` file:

```
<security-domain name="LC_SP_CONNECTOR">
  <authentication>
    <login-module code="com.sun.security.auth.module.Krb5LoginModule"
      flag="required"> </login-module>
```

```
</authentication>
</security-domain>
```

- 4) Navigate to `[appserver root]/`
- 5) Create a file named `krb5.conf`
- 6) Modify following text according to your environment settings. Add modified text to `krb5.conf` file:

```
[libdefaults]
default_realm = SP.COM
default_checksum = rsa-md5
[realms]
SP.COM = {
kdc = hostname.sp.com
}
[domain_realm]
.sp.com = SP.COM
```

Note: You must ensure that,

- **SP.COM** is replaced with the domain name in capital letters.
 - **hostname.sp.com** is replaced with fully qualified domain name of the domain controller and domain name is in small letters.
 - **.sp.com** with replaced with domain name in small letters prefixed with a period (.).
- 7) Copy file `addSpnego.mar` from `[appserver root]/configurationManager/bin/Kerberos/modules/` to `[appserver root]/bin/modules/` directory. **NOTE:** If the directory named `modules` does not exist, create it.
 - 8) Restart JBoss Server to complete the configuration.

6.8.

6.9. Configuring Connector for EMC Documentum

NOTE: AEM Forms on JEE supports EMC Documentum 6.7 SP1 and 7.0 with minor updates only. Make sure your ECM is upgraded accordingly.

If you installed Connector for EMC Documentum as part of your AEM Forms on JEE, complete the following procedure to configure the service to connect to the Documentum repository.

Configure Connector for EMC Documentum

- 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 following Documentum Foundation Classes JAR files:
 - `dfc.jar`

- aspectjrt.jar
- log4j.jar
- jaxb-api.jar
- configservice-impl.jar
- configservice-api.jar
- commons-codec-1.3.jar
- commons-lang-2.4.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 6.7 SP1 and 7.0 only:

```
com.adobe.livecycle.ConnectorforEMCDocumentum.ext=
C:/Program Files/Documentum/Shared/dfc.jar,
C:/ProgramFiles/Documentum/Shared/aspectjrt.jar,
C:/Program Files/Documentum/Shared/log4j.jar,
C:/Program Files/Documentum/Shared/jaxb-api.jar,
C:/Program Files/Documentum/Shared/configservice-impl.jar,
C:/Program Files/Documentum/Shared/configservice-api.jar
C:/Program Files/Documentum/Shared/commons-codec-1.3.jar
C:/Program Files/Documentum/Shared/commons-lang-2.4.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) Open a web browser and enter this URL:
`http://[host]:[port]/adminui`
- 4) Log in using the default user name and password:
User name: *administrator*
Password: *password*
- 5) Navigate to **Services > 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 [Administration Help](#).
- 6) (Optional) Navigate to **Services > 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.)
- 7) If the application server is not currently running, start the server. Otherwise, stop and then restart the server.

- 8) Open a web browser and enter this URL.
`http://[host]:[port]/adminui`
- 9) Log in using the default user name and password:
User name: *administrator*
Password: *password*
- 10) Navigate to **Services > Applications and Services > Service Management** and select these services:
 - EMCDocumentumAuthProviderService
 - EMCDocumentumContentRepositoryConnector
 - EMCDocumentumRepositoryProvider
 - EMCDocumentumECMUpgradeService
- 11) Click **Start**. If any of the services do not start correctly, check the settings you completed earlier.
- 12) 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, continue with this procedure. Using the Documentum Authorization service overrides the default AEM Forms on JEE authorization and must be configured to log in to Workbench using Documentum credentials.
 - To use the AEM Forms on JEE repository, log in to Workbench by using the AEM Forms on JEE super administrator credentials (by default, *administrator* and *password*).

You have now completed the required steps for this procedure. Use the credentials provided in this step for accessing the default repository in this case and use the default AEM Forms on JEE authorization service.

- 13) Restart the application server.
- 14) Log in to administration console and click **Settings > User Management > Domain Management**.
- 15) 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 MySQL for your AEM Forms on JEE database, use only single-byte (ASCII) characters for the ID. (See "Adding enterprise domains" in AEM Forms on JEE administration help.)
- 16) Add a custom authentication provider:
 - Click **Add Authentication**.
 - In the Authentication Provider list, select **Custom**.
 - Select **EMCDocumentumAuthProvider** and then click **OK**.
- 17) Add an LDAP authentication provider:
 - Click **Add Authentication**.
 - In the Authentication Provider list, select **LDAP**, and then click **OK**.
- 18) 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.*

- 19) Click **OK** to exit the Add Directory page and then click OK again.
- 20) 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.*

- 21) Navigate to **Settings > User Management > Users and Groups**.
- 22) 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 AEM Forms on JEE 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.*

- 23) Start Workbench and log in by using the credentials for the Documentum repository:

Username: *[username]@[repository_name]*

Password: *[password]*

After you log in, the Documentum repository appears in the Resources view within Workbench. If you do not log in using the username@repository_name, Workbench attempts to log in to the default repository.

- 24) (Optional) To install the AEM Forms on JEE Samples for Connector for EMC Documentum, create a Documentum repository named Samples, and then install the samples in that repository.

After you configure the Connector for EMC Documentum service, see *AEM Forms on JEE administration help* for information about configuring Workbench with your Documentum repository.

Creating the XDP MIME format in a Documentum repository

Before users can store and retrieve XDP files from a Documentum repository, you must do one of these tasks:

- Create a corresponding XDP format in each repository where users will access XDP files.
- Configure the Connector for EMC Documentum service to use a Documentum Administrator account when accessing the Documentum repository. In this case, the Connector for EMC Documentum service uses the XDP format whenever it is required.

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.

Configure the Connector for EMC Documentum service to use a Documentum Administrator

- 1) Open a web browser and enter this URL:
http://[host]:[port]/adminui
- 2) Log in using the default user name and password:
User name: *administrator*
Password: *password*
- 3) Click **Services > 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 and 6 for all repositories where users will store XDP files.

Add support for multiple connection brokers

AEM Forms on JEE Configuration Manager supports configuring only one connection broker. Use AEM Forms on JEE Administrator Console to add support for multiple connection brokers:

- 1) Open AEM Forms on JEE Administrator Console.
- 2) Navigate to **Home > Services > Connector for EMC Documentum > Configuration Settings**.
- 3) In the **Connection broker Host Name or IP Address**, enter comma separated list of hostnames of different connection brokers. For example, *host1, host2, host3*.
- 4) In the **Port Number of Connection broker**, enter comma separated list of the ports of corresponding connection brokers. For example, *1489, 1491, 1489*.
- 5) Click **Save**.

6.10. Configuring the Connector for IBM Content Manager

NOTE: AEM forms supports IBM Content Manager. See the [Supported Platform Combinations](#) document and make sure your ECM is upgraded to the supported version.

If you installed the Connector for IBM Content Manager as part of your AEM Forms installation, complete the following procedure to configure the service to connect to the IBM Content Manager datastore.

Configure Connector for IBM Content Manager

- 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 IBM II4C JAR files:
 - `cmb81.jar`
 - `cmbcm81.jar`
 - `cmbicm81.jar`
 - `cmblog4j81.jar`
 - `cmbSDK81.jar`
 - `cmbutil81.jar`
 - `cmbutilicm81.jar`
 - `cmbview81.jar`
 - `cmbwas81.jar`
 - `cmbwcm81.jar`
 - `cmgmt`

NOTE: `cmgmt` is not a JAR file. On Windows, by default, this folder is at `C:/Program Files/IBM/db2cmv8/`.

- `common.jar`
- `db2jcc.jar`
- `db2jcc_license_cisuz.jar`
- `db2jcc_license_cu.jar`
- `ecore.jar`
- `ibmjgssprovider.jar`
- `ibmjsseprovider2.jar`
- `ibmpkcs.jar`
- `icmrm81.jar`
- `jcache.jar`
- `log4j-1.2.8.jar`
- `xerces.jar`
- `xml.jar`
- `xsd.jar`

The new system property looks similar to the following:

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

For example, using a default DB2 Universal Database Client and I14C installation, in the file, add the following system property on a new line, with no line breaks, and end the line with a carriage return:

```
C:/Program Files/IBM/db2cmv8/cmgt,  
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmjsseprovider2.jar,  
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmjgssprovider.jar,  
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmpkcs.jar,  
C:/Program Files/IBM/db2cmv8/java/jre/lib/xml.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbview81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmb81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbcm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/xsd.jar,  
C:/Program Files/IBM/db2cmv8/lib/common.jar,  
C:/Program Files/IBM/db2cmv8/lib/ecore.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbicm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbwcm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/jcache.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbutil81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbutilicm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/icrm81.jar,  
C:/Program Files/IBM/db2cmv8/lib/db2jcc.jar,  
C:/Program Files/IBM/db2cmv8/lib/db2jcc_license_cu.jar,  
C:/Program Files/IBM/db2cmv8/lib/db2jcc_license_cisuz.jar,  
C:/Program Files/IBM/db2cmv8/lib/xerces.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmblog4j81.jar,  
C:/Program Files/IBM/db2cmv8/lib/log4j-1.2.8.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbSDK81.jar,  
C:/Program Files/IBM/db2cmv8/lib/cmbwas81.jar
```

- 3) If the application server is not currently running, start the server; otherwise, stop and then restart the server.

You can now connect to the IBM Content Manager datastore from the IBMCCMConnectorService 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 datastore from IBMCCMConnectorService Property Sheets by using the Use Credentials From Process Context as the login mode, complete the following procedure.

Connect using Use Credentials from process context login mode

- 1) Open a web browser and enter this URL:
`http://[host]:[port]/adminui`
- 2) Log in using the super administrator credentials. Default values set during installation are:

User name: *administrator*

Password: *password*

- 3) Click **Services > Connector for IBM Content Manager**
- 4) Type all of the required repository information and click **Save**. For more information about the IBM Content Manager repository information, click the **Help** link in the upper-right corner of the page.
- 5) Do one of these tasks:
 - To use the IBM Content Manager Authorization service `IBMCMAuthProvider` to use content from an IBM Content Manager datastore, in the Processes view of Workbench, continue with this procedure. Using the IBM Content Manager Authorization service overrides the default AEM Forms authorization and must be configured to log in to Workbench by using IBM Content Manager credentials.
 - To use the System Credentials provided in step 4 to use content from an IBM Content Manager datastore, in the Processes view of Workbench, log in to Workbench by using the AEM Forms super administrator credentials (by default, *administrator* and *password*). You have now completed the required steps for this procedure. The System Credentials that are provided in step 4 use the default AEM Forms authorization service for accessing the default repository in this case.
- 6) Log in to the 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 MySQL for your AEM Forms database, use only single-byte (ASCII) characters for the ID. (See Adding enterprise domains in [administration help](#).)
- 8) Add a custom authentication provider:
 - Click **Add Authentication**.
 - In the **Authentication Provider** list, select **Custom**, and then select `IBMCMAuthProviderService` and click **OK**.
- 9) Add an LDAP authentication provider:
 - Click **Add Authentication**.
 - In the **Authentication Provider** list, select **LDAP** and then click **OK**.
- 10) Add an LDAP directory:
 - Click **Add Directory**.
 - In the **Profile Name** box, type a unique name, and then click **Next**.
 - Specify values for the **Server**, **Port**, **SSL**, **Binding**, and **Populate page with** options. If you select **User** for the **Binding** option, you must also specify values for the **Name** and **Password** fields. (Optional) Select **Retrieve Base DN** to retrieve base domain names, as required. When finished, click **Next**.
 - Configure the user settings, click **Next**, configure group settings as required, and then click **Next**.

*For details about the above settings, click the **Help** link in the upper-right corner of the page.*

- 11) Click **OK** to exit the Add Directory page and click **OK** again.
- 12) Select the new enterprise domain and click **Sync Now**. Depending on the number of users and groups in your LDAP network and the speed on your connection, the synchronization process may take several minutes.
- 13) To verify the status of the synchronization, click **Refresh** and view the status in the **Current Sync State** column.
- 14) Navigate to **Settings > User Management > Users and Groups**.
- 15) Search for users that were synchronized from LDAP and do these tasks:
 - Select one or more users and click **Assign Role**.
 - Select one or more AEM Forms 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 and log in using the following credentials for IBM Content Manager datastore:

Username: [username]@[repository_name]

Password: [password]

*The IBM Content Manager datastore can now be used in the Processes view within Workbench when the login mode for IBMCMConnectorService orchestrable components is selected as **Use Credentials from process context**.*

6.11. Configuring the Connector for IBM FileNet

AEM forms supports IBM FileNet 5.0 and 5.2 only. Make sure your ECM is upgraded accordingly.

NOTE: AEM Forms supports FileNet 5.2 Content Engine; FileNet 5.2 Process Engine is not supported.

If you installed Connector for IBM FileNet as part of your AEM Forms, you must configure the service to connect to the FileNet object store.

Complete the following procedure to configure Connector for IBM FileNet.

- 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 these FileNet Application Engine JAR files:
For FileNet 5.x add following JAR files
 - Jace.jar
 - javaapi.jar
 - log4j.jar
 - pe.jar
 - stax-api.jar
 - xlxpScanner.jar
 - xlxpScannerUtils.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
```

3) (FileNet Process Engine Connector only) Configure the connection properties for the process engine as follows:

- Using a text editor, create a file with the following content as a single line and end the line with a carriage return:

(FileNet 5.0 only)

```
RemoteServerUrl =
comp:http://[contentserver_IP]:[contentengine_port]/wsi/FNCEWS40DIME
/
```

(FileNet 5.2 only)

```
RemoteServerUrl =
comp:http://[contentserver_IP]:[contentengine_port]/wsi/FNCEWS40MTOM
/
```

- Save the file as `WcmApiConfig.properties` in a separate folder, and add the location of the folder that contains the `WcmApiConfig.properties` file to the `adobe-component-ext.properties` file.

For example, if you save the file as `c:/pe_config/WcmApiConfig.properties`, add the path `c:/pe_config` to the `adobe-component-ext.properties` file.

NOTE: The filename is case-sensitive.

4) Locate the `lc_turnkey.xml` file in the following folder and add the following application policy as a child of the `<security-domains>` node:

- **(Manually-configured JBoss, single server)** `[appserver root]/[appserver root]/standalone/configuration`
- **(Adobe-preconfigured JBoss, single server)** `[appserver root]/standalone/configuration`

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

If you are using process engine then add the following code after the </security-domain> node:

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

- **(Adobe-preconfigured JBoss, cluster) [appserver root]/domain/configuration/**

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

If you are using process engine then add the following code after the </security-domain> node:

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

- 5) If the application server is not currently running, start the server. Otherwise, stop and then restart the server.
- 6) If JBoss runs as a service, start (or restart) the JBoss for Adobe Experience Manager Forms 6.2 service.
- 7) (**Cluster only**) Repeat all previous steps on each instance on the cluster.
- 8) Open a web browser and enter this URL:
http://[host]:[port]/adminui
- 9) Log in using the default user name and password:
User name: *administrator*
Password: *password*
- 10) Click **Services > Connector for IBM FileNet**.
- 11) Provide the Content Engine URL. For example,
cemp:http://ContentEngineHostNameorIP:port/wsi/FNCEWS40MTOM?jaasConfigurationName=FileNetP8WSI
- 12) 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 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.

13) Click **Save** and navigate to **Services > Applications and Services > Service Management**.

14)

15) Select the check box next to each of these services and click **Start**:

- IBMFileNetAuthProviderService
- IBMFileNetContentRepositoryConnector
- IBMFileNetRepositoryProvider
- IBMFileNetProcessEngineConnector (if configured)

If any of the services do not start correctly, verify the *Process Engine settings*.

16) 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, continue with this procedure. Using the FileNet Authorization service overrides the default AEM Forms authorization and must be configured to log in to Workbench by using FileNet credentials.
- To use the AEM forms repository, log in to Workbench by using the super administrator credentials (by default, *administrator* and *password*). The credentials provided in step 16 use the default AEM Forms authorization service for accessing the default repository in this case.

17) Restart your application server.

18) Log in to administration console and click **Settings > User Management > Domain Management**.

19) 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.

When using MySQL for your AEM Forms database, use only single-byte (ASCII) characters for the ID. (See “Adding enterprise domains” in [Administration Help](#))

20) Add a custom authentication provider:

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

21) Add an LDAP authentication provider:

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

22) 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.*

- 23) Click **OK** to exit the Add Directory page, and then click **OK** again.
- 24) 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.*
- 25) Navigate to **Settings > User Management > Users and Groups**.
- 26) 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 AEM Forms 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.*

- 27) Start Workbench and log in using the following credentials for the IBM FileNet repository:

User name: [username]@[repository_name]

Password: [password]

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

- 28) (Optional) If you intend to install the AEM Forms Samples for Connector for IBM FileNet, create a FileNet object store named *Samples* and install the samples in that object store.
After you configure Connector for IBM FileNet, it is recommended that you see administration help for information about configuring Workbench functions properly with your FileNet repository.

6.12. Isolating JBoss Clusters

There are a lot of JBoss services that create multiple JGroup channels services. These channels should only communicate with specific channels. Isolate JGroups clusters from other clusters on the network to ensure that the communication happens only with specific channels. See application server documentation for steps to isolate JBoss clusters.

6.13. Enable JMX console security

In the default setup of AEM Forms on JEE, JBoss JMX console security is disabled. For steps to enable the JMX console security, see application server documentation.

6.14. Enable messaging on standalone JBoss

To enable messaging on a standalone JBoss server for AEM Forms on JEE:

- 1) Enable the messaging module on the JBOSS if it is not enabled yet.

Copy the following tags from the `standalone_full.xml` file to the specified location in the `lc_turnkey.xml` file. Both the files are located in the `<aem-forms root>/jboss/standalone/configuration` directory.

- Copy the entire tag with its content `<extension module="org.jboss.as.messaging">...</extension>` from the `standalone_full.xml` file and put it after the `<extensions>` tag in the `lc_turnkey.xml` file
- Copy the entire tag with its content `<subsystem xmlns="urn:jboss:domain:messaging:1.4">...</subsystem>` from the `standalone_full.xml` file and put it after the `<profile>` tag in the `lc_turnkey.xml` file

- 2) Run the `add-user.bat` script located at `<aem-forms root>/jboss/bin` to create an application user and add the user to the **guest** group. The JMS DSC component on AEM Forms on JEE expects a Connection Username and Password to be specified. This user must have permission to use JMS Queue/Topic for performing the Send/Receive operation.

***NOTE:** In the `lc_turnkey.xml` file, a user with a `guest` role is already defined under the `<security-setting match="#">.... </security-settings>` tag. The default user has the privilege to send-receive messages via JMS. However, you must create an application user on the JBoss server with the above role to send-receive JMS messages. While creating a user using the `add-user.bat` script, you can assign it the `guest` group.*

- 3) Change the JMS DSC Configuration with the user created in step 2.
 - a) Log in to the administration console for AEM Forms on JEE.
 - b) Navigate to **Services > Application and Services > Service Management**.
 - c) Search JMS service.
 - d) In the configuration tab, change the JMS configuration.

7. Advanced Production Configuration

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

7.1. Configuring pool size for Output and Forms

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 CPU cores that are available. The upper limit must be determined by the load pattern on your server. Generally, the upper limit should be set to twice the number of CPUs cores on your server.

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`

7.2. PDF Generator

PDF Generator 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, 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.

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 AEM Forms on JEE 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

Configure the pool size for PS2PDF and Image2PDF

7.3. Enabling CIFS on Windows

You will need to manually configure the Windows Server machine that host AEM Forms on JEE.

NOTE: Ensure that the server has a static IP address.

On Windows machines, you need to do the following:

Enable NetBIOS over TCP/IP

You need to enable NetBIOS over TCP/IP so that clients connecting to the AEM Forms on JEE Server can have their requests resolved for the server host name.

- 1) In the **Local Area Connection Properties** dialog box, on the **General** tab, select **Internet Protocol**, and then click **Properties**.
- 2) In the **General** tab of the **Internet Protocol (TCP/IP) Properties** dialog box, ensure that the server has a static IP address. Click **Advanced**.

- 3) In the **Advanced TCP/IP Settings** dialog box, select the **WINS** tab and select **Enable NetBIOS over TCP/IP**.

Add additional IP addresses

- 1) In the **Local Area Connection Properties** dialog box, on the **General** tab, select **Internet Protocol**, and then click **Properties**.
- 2) In the **General** tab of the **Internet Protocol (TCP/IP) Properties** dialog box, ensure that the server has a static IP address. Click **Advanced**.
- 3) In the **Advanced TCP/IP Settings** dialog box, select the **IP Settings** tab and click **Add**.
- 4) Specify a static IP address and click **Add**.

Disable File and Printer Sharing on Windows Server 2008

- Go to **Network Settings**, deselect **File and Printer Sharing for Microsoft Clients**, and click **Apply**.

Disable File and Printer Sharing on Windows Server 2012 only)

- Go to **Control Panel > Network and Internet > Network and Sharing Center > Advanced sharing settings**, and turn off **File and Printer Sharing**.

8. Appendix - Install using the Command Line Interface

8.1. Overview

AEM Forms on JEE provides a command line interface (CLI) for the installation program. The CLI is intended to be used by advanced users of AEM Forms on JEE 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.

After you start the installation process, follow the on-screen instructions to choose your installation options. Respond to each prompt to proceed to the next step in the installation.

NOTE: If you want to change a choice that you made on a previous step, type `back`. You can cancel the installation at any time by typing `quit`.

8.2. Install AEM Forms on JEE

- 1) Open a command prompt and navigate to the folder in the installation media or your hard disk that contains the installer executable:
 - (Windows) `server\Disk1\InstData\Windows_64\NoVM`
 - (Linux) `server/Disk1/InstData/Linux/NoVM`
 - (Solaris) `server/Disk1/InstData/Solaris/NoVM`
- 2) Open a command prompt and run the following command:
 - (Windows) `install.exe -i console`
 - (Non-Windows) `./install.bin -i console`

NOTE: Entering the command without the `-i console` option launches the GUI-based installer.
- 3) Respond to the prompts as described in the following table:

Prompt	Description
Choose Locale	Select the locale for the installation to use by entering a value between 1 and 3. You can select the default value by pressing Enter . The options are Deutsch, English, and Français. English is the default locale.

Prompt	Description
Choose Install Folder	On the Destination screen, press Enter to accept the default directory or type the new installation directory location. Do not use accented characters in the directory name. Otherwise, the CLI will ignore the accents and create a directory after modifying the accented characters.
Choose Operating System	(Windows only) Select the operating system that you want to install AEM Forms on JEE to.
AEM forms on JEE Server License Agreement	Press Enter to read through the pages of the license agreement. If you agree to the agreement, type Y and press Enter .
Pre-Installation Summary	Press Enter to continue installation with the choices you have made. Type <i>back</i> to go back to previous steps and change any of the settings.
Ready To Install	Press Enter to start the installation process.
Installing	During the installation process, the progress bar advances to indicate the progress of installation.
Configuration Manager	Press Enter to complete the installation of AEM Forms on JEE. You can run the Configuration Manager in GUI mode by invoking the following script: (Windows): C:\Adobe\Adobe_Experience_Manager_Forms\configurationManager\bin\ConfigurationManager.bat (Non-Windows): /opt/adobe/Adobe_Experience_Manager_Forms/configurationManager/bin/ConfigurationManager.sh
Installation Complete	Press Enter to exit the installer.

8.3. Error logs

If an error occurs, you can review the `install.log` in the log directory of your installation:

- (Windows) `[aem-forms root]\log`

9. Appendix - Configuration Manager Command Line Interface

The CLI is intended to be used in server environments that do not support the use of the Graphical User Interface (GUI) of the Configuration Manager.

9.1. Order of operations

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

- 1) Configure AEM Forms on JEE.
- 2) Configure CRX.
- 3) Migrate existing turnkey database. (Upgrade Turnkey only)
- 4) Manually deploy the configured EAR files.
- 5) Initialize AEM forms on JEE.
- 6) Validate AEM Forms on JEE.
- 7) Deploy the AEM Forms on JEE modules.
- 8) Validate the AEM Forms on JEE module deployment.
- 9) Check system readiness for PDF Generator.
- 10) Add administrator user for PDF Generator.
- 11) Configure Connector for IBM Content Manager.
- 12) Configure Connector for IBM FileNet.
- 13) Configure Connector for EMC Documentum.
- 14) Configure Connector for SharePoint.

IMPORTANT: You must restart each of your cluster nodes after you complete Configuration Manager CLI operations.

9.2. Command Line Interface property file

The Configuration Manager CLI requires a property file containing the defined properties for your AEM Forms on JEE environment. The template for the properties file, `cli_propertyFile_template.txt`, is located in the `[aem-forms root]/configurationManager/bin` folder. Create a copy of this file and edit the values. You can customize this file based on the Configuration Manager operations you intend to use. The following section describes the properties and values required.

- Use the property file `cli_propertyFile_template.txt` file as a template and edit the values based on the Configuration Manager operations you intend to use.

- Use the GUI of the Configuration Manager and then use the property file created by the GUI version as the CLI version property file. When you run the `[aem-forms root]/configurationManager/bin/ConfigurationManager.bat/sh` file, the `userValuesForCLI.properties` file is created in the `[aem-forms root]/configurationManager/config` directory. You can use this file as input for the Configuration Manager CLI.

NOTE: The file does not contain the properties listed below, which are optional. If required, you can manually add these properties to the file:

- `ApplicationServerRestartRequired`
- `lcGdsLocation`
- `lcPrevGdsLocation`

NOTE: In the CLI properties file, you must use the escape character (`\`) for Windows paths directory separator (`\`). For example, if the Fonts folder to be mentioned is `C:\Windows\Fonts`, in the Configuration Manager CLI script, you should enter it as `C:\\Windows\\Fonts`.

NOTE: The following modules depend on `ALC-LFS-ContentRepository`. If you are using the `cli_propertyFile_template.txt` as template then either remove the `ALC-LFS-ContentRepository` from `excludedSolutionComponents` list or add the following LFS in `excludedSolutionComponents` list:

- `ALC-LFS-ProcessManagement`
- `ALC-LFS-CorrespondenceManagement`
- `ALC-LFS-ContentRepository`
- `ALC-LFS-MobileForms`
- `ALC-LFS_FormsManager`

9.3. General configuration properties

Common properties

Common properties are:

AEM Forms on JEE Server specific properties: Required for the Initialize AEM Forms on JEE and Deploy AEM Forms on JEE Components operations.

These properties are required for the following operations:

- Initialize AEM Forms on JEE
- Deploy AEM Forms on JEE components.

Property	Values	Description
<i>AEM Forms on JEE Server specific properties</i>		

Property	Values	Description
LCHost	String	The hostname of the server where AEM Forms on JEE will be deployed. For cluster deployments, hostname of any one of the cluster nodes where the application server is running.
LCPort	Integer	The web port number where AEM Forms on JEE will be deployed.
excludedSolutionComponents	String. Values include: ALC-LFS-Forms, ALC-LFS-ConnectorEMCDocumentum, ALC-LFS-ConnectorIBMFileNet, ALC-LFS-ConnectorIBMContent Manager, ALC-LFS-DigitalSignatures, ALC-LFS-DataCapture, ALC-LFS-Output, ALC-LFS-PDFGenerator, ALC-LFS-ProcessManagement, ALC-LFS-ReaderExtensions, ALC-LFS-RightsManagement ALC-LFS-CorrespondenceManagement, ALC-LFS-ContentRepository, ALC-LFS-MobileForms, ALC-LFS_FormsManager	(Optional) List the AEM Forms on JEE modules you do not want to configure. Specify the excluded modules in a comma separated list.
includeCentralMigrationService	true: to include service false: to exclude service	The property to include or exclude Central Migration Bridge Service.
CRX Content repository The following properties are specified in the <code>cli_propertyFile_crx_template.txt</code> file.	true: false:	
contentRepository.rootDir		Path of the CRX repository.

Property	Values	Description
use.crx3.mongo	true: false:	If you have performed a fresh installation, to use Mongo DB with CRX3 set value to true. If the value is false CRX3 TAR is configured.
mongo.db.uri	<URI of Mongo DB>	If you are using Mongo DB, set URI of Mongo DB
mongo.db.name	<name of Mongo DB>	If you are using Mongo DB, provide name of Mongo DB instance
use.crx3.rdb.mk	true: false:	When the value of this property is true, the CRX repository is configured with RDB MK. The default value is false where the repository is configured as CRX3 TAR.

Configure AEM Forms on JEE properties

These properties only apply to the configure AEM Forms on JEE operation.

Property	Values	Description
AdobeFontsDir	String	Location of the Adobe server fonts directory. This path must be accessible from the server being deployed to. This path must be accessible from all cluster nodes being deployed to.
customerFontsDir	String	Location of the customer fonts directory. This path must be accessible from the server being deployed to. This path must be accessible from all cluster nodes being deployed to.

Property	Values	Description
systemFontsDir	String	Location of the system fonts directory. This path must be accessible from the server being deployed to. This path must be accessible from all cluster nodes being deployed to.
LCTempDir	String	Location of the temporary directory. This path must be accessible from the server being deployed to. This path must be accessible from all cluster nodes being deployed to.
LCGlobalDocStorageDir	String	The global document storage root directory. Specify a path to an NFS shared directory used to store long-lived documents and to share them among all cluster nodes. This path must be accessible from the server being deployed to. This path must be accessible from all cluster nodes being deployed to.
EnableDocumentDBStorage	true or false Default: false	Enables or disables document storage in database for persistent documents. Even if you enable document storage in database, you will need the file system directory for GDS.

Configure or validate application server properties

Configure JBoss properties

If you are installing AEM Forms on JEE with a JBoss application server, you must manually configure JBoss. See Manually configuring JBoss section in, [Preparing to Install AEM Forms on JEE \(SingleServer\) Guide](#). Use the Adobe pre-configured JBoss provided on the AEM Forms on JEE DVD, download from the internet, or use the JBoss turnkey option.

Initialize AEM Forms on JEE properties

These initialize AEM Forms on JEE properties only apply to the initialize AEM Forms on JEE operation.

Property	Values	Description
<i>For more information, see Common properties.</i>		

Deploy AEM Forms on JEE Components properties

These properties apply to the following operations:

- Deploy AEM Forms on JEE Components
- Validate AEM Forms on JEE Component Deployment
- Validate AEM Forms on JEE Server.

Property	Values	Description
<i>You must configure the AEM Forms on JEE Server Information section. For more information, see Common properties</i>		
LCAdminUserID	String	The user ID to assign to the AEM Forms on JEE Administrator user. This User ID is used to login to the Administrator Console.
LCAdminPassword	String	The password to assign to the AEM Forms on JEE Administrator user. This password is used to login to the Administrator Console.

Add administrator user for PDF Generator

These properties apply only to the adding administrator user for PDF Generator operation. These properties are present in cli_propertyFile_pdfg_template.txt

Property	Values	Description
LCHost	String	Hostname where AEM Forms on JEE Server is installed.
LCPort	Integer	Port number where AEM Forms on JEE application server is configured
LCAdminUserID	String	The user ID to assign to the AEM Forms on JEE Administrator user. This User ID is used to login to the Administrator Console.
LCAdminPassword	String	The password to assign to the AEM Forms on JEE Administrator user. This password is used to login to the Administrator Console.
LCServerMachineAdminUser	String	The user ID of the Administrator user of the Operation System hosting AEM forms on JEE
LCServerMachineAdminUserPassword	String	The password of the Administrator user of the Operation System hosting AEM forms on JEE

Configure Connector for IBM Content Manager

Property	Values	Description
LCHost	String	Hostname where AEM Forms on JEE Server is installed.
LCPort	Integer	Port number where AEM Forms on JEE application server is configured
LCAdminUserID	String	The user ID to assign to the AEM Forms on JEE Administrator user. This User ID is used to login to the Administrator Console.

Property	Values	Description
LCAdminPassword	String	The password to assign to the AEM Forms on JEE Administrator user. This password is used to login to the Administrator Console.
CDVTopology.appserverrootdir	String	The root directory of the application server instance that you are configuring on a remote server (on which you plan to deploy AEM Forms on JEE)
ConfigureIBMCM	true or false	Specify true to configure Connector for IBM Content Manager
IBMCMClientPathDirectory	String	Location of IBM Content Manager client installation directory.
DataStoreName	String	Name of the DataStore of IBM Content Manager Server that you want to connect to
IBMCMUsername	String	The user name assign to the IBM Content Manager Administrator user. This User ID is used to login to the IBM Content Manager.
IBMCMPassword	String	The password to assign to the IBM Content Manager Administrator user. This password is used to login to the IBM Content Manager.
ConnectionString	String	Additional arguments used in the connection string to connect to IBM Content Manager(Optional).

Configure Connector for IBM FileNet

Property	Values	Description
LCHost	String	Host name of the machine where AEM Forms on JEE Server is installed.
LCPort	Integer	Port number where AEM Forms on JEE application server is configured
LCAdminUserID	String	The user ID to assign to the AEM Forms on JEE Administrator user. This User ID is used to login to the Administrator Console.
LCAdminPassword	String	The password to assign to the AEM Forms on JEE Administrator user. This password is used to login to the Administrator Console.
CDVTopology.appserverrootdir	String	The root directory of the application server instance that you are configuring on a remote server (on which you plan to deploy AEM Forms on JEE)
ConfigureFileNetCE	true or false	Specify true to configure Connector for IBM FileNet
FileNetConfigureCEVersion	String	The FileNet client version to configure. Specify FileNetClientVersion5.0 or FileNetClientVersion5.2
FileNetCEClientPathDirectory	String	Location of IBM FileNet Content Manager client installation directory.
ContentEngineName	String	Host name or IP address of the machine where IBM FileNet Content Engine is installed
ContentEnginePort	String	The port number used by IBM FileNet Content Engine
CredentialProtectionSchema	CLEAR or SYMMETRIC	Specify the level of protection.

Property	Values	Description
EncryptionFileLocation	String	Location of the encryption file. This is required only when you select SYMMETRIC option for CredentialProtectionSchema attribute. Use a forward slash (/) or double backward slashes (\\) as a path separator.
DefaultObjectStore	String	Name of the ObjectStore for the Connector for IBM FileNet Content Server.
FileNetContentEngineUsername	String	The user ID to connect to the IBM FileNet Content server. The user ID with read-access privileges would be allowed to connect to the Default object Store.
FileNetContentEnginePassword	String	The password to assigned to the IBM FileNet user. This password is used to connect to Default object Store.
ConfigureFileNetPE	true or false	Specify true to configure Connector for IBM FileNet
FileNetPEClientPathDirectory	String	Location of IBM FileNet client installation directory
FileNetProcessEngineHostName	String	Host name or IP address of the process router.
FileNetProcessEnginePortNumber	Integer	Port number for IBM FileNet Content Server
FileNetPERouterURLConnectionPoint	String	Name of the process router.
FileNetProcessEngineUsername	String	The user ID to connect to the IBM FileNet Content Server
FileNetProcessEnginePassword	String	The password to connect to the IBM FileNet Content Server

Configure Connector for EMC Documentum

Property	Values	Description
LCHost	String	Host name where AEM Forms on JEE Server is installed.
LCPort	Integer	Port number where AEM Forms on JEE application server is configured
LCAdminUserID	String	The user ID to assign to the AEM Forms on JEE Administrator user. This User ID is used to login to the Administrator Console.
LCAdminPassword	String	The password to assign to the AEM Forms on JEE Administrator user. This password is used to login to the Administrator Console.
CDVTopology.appserverrootdir	String	The root directory of the application server instance that you are configuring on a remote server (on which you plan to deploy AEM Forms on JEE)
ConfigureDocumentum	true or false	Specify true to configure Connector for EMC Documentum
DocumentumClientVersion	String	The EMC Documentum client version to configure. Specify DocumentumClientVersion6.7 or DocumentumClientVersion7.0
DocumentumClientPathDirectory	String	Location of EMC Documentum client installation directory
ConnectionBrokerHostName	String	Host name or IP address of the EMC Documentum Content Server.
ConnectionBrokerPortNumber	String	Port number for EMC Documentum Content Server

Property	Values	Description
DocumentumUsername	String	The user ID to connect to the EMC Documentum Content Server.
DocumentumPassword	String	The password ID to connect to the EMC Documentum Content Server.
DocumentumDefaultRepositoryName	String	Name of the default repository of MC Documentum Content Server

Configure Connector for Microsoft SharePoint

Property	Values	Description
LCHost	String	Host name where AEM Forms on JEE Server is installed.
LCPort	Integer	Port number where AEM Forms on JEE application server is configured
LCAdminUserID	String	The user ID to assign to the AEM Forms on JEE Administrator user. This User ID is used to login to the Administrator Console.
LCAdminPassword	String	The password to assign to the AEM Forms on JEE Administrator user. This password is used to login to the Administrator Console.
CDVTopology.appserverrootdir	String	The root directory of the application server instance that you are configuring on a remote server (on which you plan to deploy AEM Forms on JEE)
ConfigureSharePoint	true or false	Specify true to configure Connector for Microsoft SharePoint
SharePointServerAddress	String	Host name or IP address of the Sharepoint Server

Property	Values	Description
SharePointUsername	String	The user ID to connect to the Sharepoint Server
SharePointPassword	String	The password to connect to the Sharepoint Server
SharePointDomain	String	The Domain Name of the Sharepoint Server
ConnectionString	String	Additional arguments used in the connection string to connect to the Sharepoint Server(optional

Command Line Interface Usage

Once you have configured your property file, you must navigate to the *[AEM Forms on JEE root]/configurationManager/bin* folder.

To view a complete description of the Configuration Manager CLI commands, type:

```
ConfigurationManagerCLI help <command name>.
```

Configure CRX CLI Usage

The Configure CRX Repository requires the following syntax:

```
configureCRXRepository -f <propertyFile>
```

Manually deploy configured EAR files

For detailed instructions to manually deploy configured ear files, see [Deploying to JBoss Application server](#)

Initialize AEM Forms on JEE CLI Usage

The initialize AEM Forms on JEE operation requires the following syntax:

```
initializeLiveCycle -f <propertyFile>
```

Validate AEM Forms on JEE Server CLI Usage

The Validate AEM Forms on JEE Server operation is optional and requires the following syntax:

```
validateLiveCycleServer -f <propertyFile> -LCAdminPassword <password>
```

Where:

- `-LCAdminPassword <password>`: Allows you to set the Admin password on the command line. If this argument is present, it will override the `targetServer.adminPassword` property in the property file.

Deploy AEM Forms on JEE Components CLI Usage

The Deploy AEM Forms on JEE Components operation requires the following syntax:

```
deployLiveCycleComponents -f <propertyFile> -LCAdminPassword <password>
```

Validate AEM Forms on JEE Component Deployment CLI Usage

The Validate AEM Forms on JEE Component Deployment operation is optional and requires the following syntax:

```
validateLiveCycleComponentDeployment -f <propertyFile> -LCAdminPassword <password>
```

Check system readiness for PDF Generator

The Checking system readiness for PDF Generator operation requires the following syntax:

```
pdfg-checkSystemReadiness
```

Adding administrator user for PDF Generator

The adding administrator user for PDF Generator operation requires the following syntax:

```
pdfg-addAdminUser -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](#).

Configure Connector for IBM Content Manager

The Configure Connector for IBM Content Manager operation is optional and requires the following syntax:

```
IBMCM-configurationCLI -f <propertyFile>
```

IMPORTANT: Modify the `<propertyFile>` called `cli_propertyFile_ecm_ibmcm_template.txt` located in the `[aem-forms root]\configurationManager\bin\` directory.

- 1) Copy the `adobe-component-ext.properties` file from `[aem-forms root]/configurationManager/configure-ecm/jboss` to the following `[appserver root]` directory.
- 2) Restart the Application Server.
- 3) Start the following services from administration console
 - IBMCMAuthProviderService
 - IBMCMConnectorService

Configure Connector for IBM FileNet

The Configure Connector for IBM FileNet operation is optional and requires the following syntax:

```
filenet-configurationCLI -f <propertyFile>
```

IMPORTANT: Modify the `<propertyFile>` called `cli_propertyFile_ecm_filenet_template.txt` located in the `[aem-forms root]\configurationManager\bin\` directory.

Perform the following steps manually to complete the configuration for Connector for IBM Content Manager.

- 1) Copy the *adobe-component-ext.properties* file from *[aem-forms root]/configurationManager/configure-ecm/jboss* to the following *[appserver root]/bin* directory.
- 2) Locate the *lc_<db>.xml* file in the *[appserver root]/standalone/configuration* folder. In the file search for *<security-domains>*. Below this tag add and the contents of *lc_turnkey.xml* file available in *[aem-forms root]/configurationManager/configure-ecm/jboss* directory.
Default jboss setup comes up with a [profile] value as "all". However, for Adobe Configured Jboss use [lc_DatabaseName] (e.g. lc_mysql, lc_oracle).
- 3) Restart the Application Server.
- 4) Start the following services from administration console
 - IBMFileNetAuthProviderService
 - IBMFileNetContentRepositoryConnector
 - IBMFileNetRepositoryProvider
 - IBMFileNetProcessEngineConnector(If configured)

Configure Connector for EMC Documentum

The Configure Connector for EMC Documentum operation is optional and requires the following syntax:

```
documentum-configurationCLI -f <propertyFile>
```

IMPORTANT: Modify the *<propertyFile>* called *cli_propertyFile_ecm_documentum_template.txt* located in the *[aem-forms root]\configurationManager\bin* directory.

Perform the following steps manually to complete the configuration for Connector for EMC Documentum.

- 1) Copy the *adobe-component-ext.properties* file from *[aem-forms root]/configurationManager/configure-ecm/jboss* to the following *[appserver root]/bin* directory.
- 2) Restart the Application Server.
- 3) Start the following services from administration console
 - EMCDocumentumAuthProviderService
 - EMCDocumentumRepositoryProvider
 - EMCDocumentumContentRepositoryConnector

Configure Connector for Microsoft SharePoint

The Configure Connector for Microsoft SharePoint operation is optional and requires the following syntax:

```
sharepoint-configurationCLI -f <propertyFile>
```

Where:

IMPORTANT: Modify the *<propertyFile>* called *cli_propertyFile_ecm_sharepoint_template.txt* located in the *[aem-forms root]\configurationManager\bin* directory.

9.4. Examples Usage

From the C:\Adobe\Adobe_Experience_Manager_Forms\configurationManager\bin, type:

```
ConfigurationManagerCLI configureLiveCycle -f cli_propertyFile.txt
```

Where *cli_propertyFile.txt* is the name of the property file you created.

9.5. Configuration Manager CLI Logs

If an error occurs, you can review the CLI logs located here in the *[aem-forms root]\configurationManager\log* folder. The log file generated will have a naming convention such as *lcmCLI.0.log* where the number in the filename (0) will increment when the log files are rolled over.

9.6. Next steps

If you used Configuration Manager CLI to configure and deploy AEM Forms on JEE, then do the following tasks now:

- Perform post deployment configurations

10. Appendix - Configuring JBoss as a Windows Service

This appendix describes how you can configure the JBoss application server to run as a Windows service using the JBoss Web Native Connectors. Use this procedure on Windows Server 2012 64-bit version.

10.1. Download the Web Native Connector

- 1) Download the JBoss Web Native Connector for Windows from the *JBoss Web Native Connectors - Current packages* download page. Depending upon your Windows version, download either of the following files:

(64-bit) <https://access.redhat.com/jbossnetwork/restricted/softwareDetail.html?softwareId=26703&product=appplatform&version=6.2.0&downloadType=distributions>

- 2) Extract the ZIP file and copy all contents of the `\modules\system\layers\base\native` folder to the `[appserver root]\modules\system\layers\base\native` folder of your JBoss installation folder.

- 3) Open the `service.bat` file in a text editor and update the variables.

You should update the variables for Service Name (SHORTNAME) Service Display (DISPLAYNAME) and Service Description (DESCRIPTION) with values that reflect your JBoss environment. For example, if your JBoss version is 6.4.0, enter the following:

```
set SHORTNAME=JBOSS_FOR_Adobe_Experience_Manager_FORMS
set DISPLAYNAME="JBoss for Adobe Experience Manager Forms"
set DESCRIPTION="JBoss for Adobe Experience Manager Forms"
```

- 4) In the `service.bat` file, add the following code after the `setlocal EnableExtensions EnableDelayedExpansion` line:

```
for /f "delims=" %%a in ('hostname') do @set HOSTNAME=%%a
```

- 5) On the master node, in the `service.bat` file, modify the `set STARTPARAM="/c \"set NOPAUSE=Y ^^^&^^^& standalone.bat\"` line as follows:

```
if /I "%IS_DOMAIN%" == "true" ( set STARTPARAM="/c \"set NOPAUSE=Y
^^&^^& domain.bat\" -b <master node IP or hostname> -c
domain_mssql.xml "
```

- 6) To shutdown master/slave node, in the `service.bat` file of the relevant node, modify the `set STARTPARAM="/c \"set NOPAUSE=Y ^^&^^& domain.bat\"` -b <node IP or machine name> " line as follows:

For master machine: `set STOPPARAM="/c \"set NOPAUSE=Y ^^&^^& jboss-cli.bat --controller=<node IP or master machine name>:<port> --connect /host=master:shutdown"`

For slave machine: `set STOPPARAM="/c \"set NOPAUSE=Y ^^&^^& jboss-cli.bat --controller=<node IP or machine name>:<port> --connect /host=slave:shutdown"`

NOTE: JBoss controller default port is 9999.

- 7) For auto start, add `--Startup=auto` in the following line in the `service.bat` file:


```
%PRUNSRV% install %SHORTNAME% %RUNAS% --Startup=auto
--DisplayName=%DISPLAYNAME% --Description %DESCRIPTION%
--LogLevel=%LOGLEVEL% --LogPath="%LOGPATH%" --LogPrefix=service
--StdOutput=auto --StdError=auto --StartMode=exe --StartImage=cmd.exe
--StartPath="%JBOSS_HOME%\bin" ++StartParams=%STARTPARAM%
--StopMode=exe --StopImage=cmd.exe --StopPath="%JBOSS_HOME%\bin"
++StopParams=%STOPPARAM%
```
- 8) Save and close the file.

NOTE: Specify JBoss cluster arguments in Step 4 and 5 to include the JBoss instance in the cluster. For detailed information about JBoss cluster arguments, see `RunningJBossinacluster`

10.2. Install the Windows service

- 1) From the `\sbin` folder of JBoss, create the Windows service using the following command:

For master machine: `service.bat install /host <master machine IP or hostname>`

For slave machine: `service.bat install /host <slave machine IP or hostname>`

If the command is successful, you will return command prompt without failure.
- 2) Check the Services applet in Windows Control Panel for a new service listed as *JBoss for Adobe Experience Manager forms* which is the value of the `DISPLAYNAME` variable in the `service.bat` file.
- 3) Using the Services applet in Windows Control Panel, set the *Startup type* to `Automatic`.
- 4) (Optional) In the *Recovery* tab, set the *First failure* and *Second failure* recovery options such as *Restart the Service* and *Restart the Computer* respectively.

NOTE: If necessary, you can change the Logon as value from the default Local System account to another user or service account.

10.3. Start and stop JBoss Application Server as a Windows service

Start JBoss as a Windows service

- 1) On the Windows server, select **Start > Control Panel > Administrative Tools > Services**, then select the Windows service for JBoss Application Server and click **Start**.

NOTE: When starting JBoss Application Server as a Windows service, the console output is redirected to the file

```
jboss_for_adobe_experience_manager_forms-stderr.<date>.log and
jboss_for_adobe_experience_manager_forms-stdout.<date>.log at
```

<JBOSS_HOME>\domain\log. *You can inspect the file to discover any errors that occur during service startup.*

Stop JBoss as a Windows service

- 1) On the Windows server, select **Start > Control Panel > Administrative Tools > Services**, then select the Windows service for JBoss Application Server and click **Stop**.

NOTE: When stopping JBoss Application Server as a Windows service, the console output is redirected to the file

jboss_for_adobe_experience_manager_forms-stderr.<date>.log and jboss_for_adobe_experience_manager_forms-stdout.<date>.log at <JBOSS_HOME>\domain\log. *You can inspect the file to discover any errors that occur during service shutdown.*

10.4. Verify the installation

- 1) Start the service from the Services applet in Windows Control Panel.
- 2) Watch (tail) the [appserver root]\standalone\log\server.log file to make sure that the service starts successfully.
- 3) Shutdown the service from the Services applet in Windows Control Panel and verify that it is shut down successfully.
- 4) Make sure that you are able to restart the service from the Services applet in Windows Control Panel.

10.5. Additional configuration

In addition to these steps, you can also perform additional configuration steps using either the Services applet in Windows Control Panel or by using the built-in Windows Service Configuration utility (sc).

For example, if you have a Microsoft SQL Server as the database, and the database service runs on the same machine instance, you can create a dependency on that service with the following command:

```
sc config JBOSS_FOR_Adobe_Experience_Manager_FORMS depend= MSSQL$MYSERVER
```

Update the MSSQL\$MYSERVER variable with service name of the Microsoft SQL Server 2016 service running on the same server instance.

NOTE: Ensure that there is no space before the =sign but after the =sign.

If the command is successful, you will get a response such as follows:

```
[SC] ChangeServiceConfig SUCCESS
```

11. Appendix - Configuring the Connector for Microsoft SharePoint on the SharePoint Server

The Connector for Microsoft SharePoint allows you to integrate workflows from both the AEM Forms on JEE and the SharePoint development perspectives. This module includes a AEM Forms on JEE service and a sample SharePoint feature that facilitates end-to-end connection between the two systems.

The service provides search, read, write, delete, update, and check in/out capabilities with a SharePoint repository. SharePoint users can initiate AEM Forms on JEE processes such as an approval process from within SharePoint, convert documents to Adobe PDF, and manage the rights on a file in PDF or native formats. In addition, from within the SharePoint context, you can automate running AEM Forms on JEE processes from within SharePoint workflows.

11.1. Installation and configuration

After you configured the AEM Forms on JEE installation, carry out the following steps to configure the connector on the SharePoint server.

System requirements for the SharePoint server

Ensure that your server that runs the SharePoint site meets the following requirements:

- Microsoft SharePoint Server 2007, 2010, or 2013
- Microsoft .NET Framework 3.5

Installation considerations

Keep in mind the following, before you plan your installation:

- If you are using Microsoft SharePoint Server 2007, the installation process stops and restarts the Windows IIS Server when installing Connector for Microsoft SharePoint on the SharePoint server.
- Before you run the installation, ensure that no other sites or web applications are using services on the IIS Server. Consult with your IIS Administrator before you proceed with the installation.
- (For Sharepoint server 2010 Farmed installation) The SharePoint administration service is running on the central administration server of the SharePoint server Farm. (For SharePoint server 2010 Standalone installation) The SharePoint administration service is stopped on the SharePoint server.

11.2. Installation and configuration on SharePoint server 2007

Extract the web part installer

When you installed the AEM Forms on JEE server, the web part installer for SharePoint server named `Adobe Connector-2007.zip` was created in the `[aem-forms root]\plugins\sharepoint` folder. Copy this file to a folder on the Windows server that hosts SharePoint, and then extract the files.

Edit the batch file

The folder extracted from the web part installer contains a batch file named `Install.bat`. You must update this batch file with the file and folder paths relevant to your SharePoint server.

- 1) Open the `Install.bat` file in a text editor.
- 2) Locate the following lines in the file and change them:

```
@SET GACUTILEXE="C:\Program Files\Microsoft SDKs\Windows\v6.0A\Bin\
gacutil.exe"
@SET TEMPLATEDIR="c:\Program Files\Common Files\Microsoft Shared\ web
server extensions\12\TEMPLATE"
@SET WEBAPPPDIR="C:\Inetpub\wwwroot\wss\VirtualDirectories\<port>"
@SET SITEURL="http://<SharePoint Server>:<port>/SiteDirectory/<site
name>/"
@SET STSADM="C:\Program Files\Common Files\Microsoft Shared\ web server
extensions\12\bin\stsadm.exe"
```

- **GACUTILEXE:** Change the path to the folder where the GAC utility is located.
- **TEMPLATEDIR:** Change the template directory path of the IIS Server on your system.
- **WEBAPPPDIR:** Change the path of the WEBAPPPDIR of the IIS Server on your system if it differs from the default value included in the batch file.
- **SITEURL:** Change the URL of the SharePoint site on your system on which you want to activate the AEM Forms on JEE feature.
- **STSADM:** Change the path to the folder where the STSADM utility is located.

NOTE: The AEM Forms on JEE feature is installed on a web application on the SharePoint server. The AEM Forms on JEE feature will be activated only on the site that you have provided the site URL for. You can activate the AEM Forms on JEE feature for other SharePoint sites later from the Site Settings page of those sites. See SharePoint Help for more information.

- 3) Save and close the file.

Run the batch file

Navigate to the folder where the edited batch file is present, and then run the `Install.bat` file.

Keep in mind that the SharePoint site will be unavailable for other services during the time the batch file runs.

When you run the batch file, the following occurs:

- Registers the `AdobeLiveCycleConnector.dll` and `AdobeLiveCycleWorkflow.dll` files. These dynamic libraries integrate the AEM Forms on JEE features with the SharePoint server.

- Uninstalls any previously installed SharePoint connector.
- Copies the template files to the *WSS \TEMPLATE* directory.
- Copies the resource files to *WEBAPPDIR\App_GlobalResources* directory.
- Installs and activates the AEM Forms on JEE features with web server extensions.
- Closes the installer and returns the prompt.

Copy the Service Model configuration to the IIS Web Application folder

You must copy the SharePoint Connector-specific configuration settings to the web application home directory of the IIS Server. This adds the AEM forms on JEE feature to the web application.

- 1) Navigate to the *sharepoint-webpart* folder that was created when you extracted the AEM Forms on JEE feature installer.
- 2) Open the `AdobeLiveCycleConnector.dll.config` file in a text editor.
- 3) Copy the content between `<system.serviceModel>` and `</system.serviceModel>` tags (including both the starting and ending tags), and then close the file.
- 4) Navigate to the web application home directory on the IIS Service on your computer that you specified in the batch file. Typically, the folder is
`C:\Inetpub\wwwroot\wss\VirtualDirectories\<port>`.
- 5) Create a backup of the `web.config` file and then open the original file in a text editor.
- 6) Append the content that you copied before the `</configuration>` tag.
- 7) Save and close the file.

11.3. Installation and configuration on the SharePoint server 2010 and SharePoint server 2013

Edit Environment Variables

Append path of `stsadm.exe` to `PATH` environment variable. The default path of `stsadm.exe` is
`C:\Program Files\Common Files\MicrosoftShared\Web Server Extensions\14\BIN`.

Extract the web part installer

When you installed the AEM Forms on JEE server, the web part installer for SharePoint server files named `Adobe Connector-2010.zip` and `Adobe Connector-2013.zip` are created in the `[aem-forms root]\plugins\sharepoint` folder.

- If you are using Microsoft SharePoint 2010, copy file `Adobe Connector-2010.zip` to a folder on the Windows server that hosts SharePoint, and then extract the copied file.

- If you are using Microsoft SharePoint 2013, copy file `Adobe Connector-2013.zip` to a folder on the Windows server that hosts SharePoint, and then extract the copied file.

Install and Activate the Connector

- 1) (Optional) Select options for SharePoint Server Context menu before installing connector. See [Enable/Disable features](#) for detailed steps.
- 2) Run following commands in the listed order to install the Connector for SharePoint Server. Ensure that you run `stsadm -o enumsolutions` after each command to verify that the changes have been the propagated to all the servers.

Run `stsadm -o enumsolutions` repeatedly, until the resultant xml contains `<state>pending</state>` tag.

```
install.bat -create
install.bat -add
install.bat -deploy
install.bat -install
```

NOTE: For the `install.bat -deploy` command, run `stsadm -o enumsolutions` repeatedly, until the resultant xml contains `<LastOperationResult>DeploymentSucceeded</LastOperationResult>` tag.

- 3) Activate the connector from SharePoint Web Application. To activate the connector:
 - a) Open SharePoint Web Application in a browser.
 - b) Click **Site Settings**.
 - c) Click **Site Collection Features**.
 - d) Click Activate for **Adobe Connector** and **Workflow** feature.

Enable/Disable features

You can change options of context menu and disable other features on SharePoint Sites. For the Sharepoint Connector installed with default set of options, following options are enabled on SharePoint Server:

- Convert to Adobe PDF
- Enable for commenting by adobe reader.
- Secure with Adobe Policy.
- Invoke AEM Forms on JEE Processes

You may make changes to `Elements.xml` file to change above options and to enable or disable another features. To make changes to `Elements.xml`

- 1) Navigate to the folder containing extracted contents of `Adobe Connector-2010.zip` or `Adobe Connector-2013.zip` file.
- 2) Take backup of `Elements.xml` file. The default location of `Elements.xml` is `< Directory containing Extracted Adobe Connector-2010/2013.zip File >\TEMPLATE\FEATURES\LiveCycle\Elements.xml`
- 3) Open the `Elements.xml` file in a text editor.

- 4) Delete or comment the CustomAction elements of features that you want to disable .

Docuent Server feature	CustomAction element ID	Description
ReaderExtens ions	LiveCycle.ApplyReaderExtensions	Enables Acrobat Reader DC extensions on PDF documents.
Rights Management	LiveCycle.RightsManagement.ApplyPo licyToPdf	Rights-protect PDF documents
	LiveCycle.RightsManagement.ApplyPo licyToDoc	Rights-protect Microsoft Word documents
	LiveCycle.RightsManagement.ApplyPo licyToXls	Rights-protect Microsoft Excel documents
	LiveCycle.RightsManagement.ApplyPo licyToPpt	Rights-protect Microsoft PowerPoint documents
	LiveCycle.RightsManagement.ApplyPo licyToDocx	Rights-protect Microsoft Word documents
	LiveCycle.RightsManagement.ApplyPo licyToXlsx	Rights-protect Microsoft Excel documents
	LiveCycle.RightsManagement.ApplyPo licyToPptx	Rights-protect Microsoft PowerPoint documents
	LiveCycle.RightsManagement.ApplyPo licyToDwg	Rights-protect Microsoft Excel documents
	LiveCycle.RightsManagement.ApplyPo licyToDxf	Rights-protect AutoCAD documents
	LiveCycle.RightsManagement.ApplyPo licyToDwf	Rights-protect AutoCAD documents
PDF Generator	LiveCycle.GeneratePDFFromPdf	Convert a PDF created from an image to a?text-based PDF if Standard OCR was used? as the file type in Site Settings.
	LiveCycle.GeneratePDFFromDoc	Generate PDF from Microsoft Word documents
	LiveCycle.GeneratePDFFromPs	Generate PDF from PostScript files
	LiveCycle.GeneratePDFFromEps	Generate PDF from EPS documents
	LiveCycle.GeneratePDFFromPrn	Generate PDF from PRN files

LiveCycle.GeneratePDFFromDocx	Generate PDF from Microsoft Word 2007 documents
LiveCycle.GeneratePDFFromPpt	Generate PDF from Microsoft PowerPoint documents
LiveCycle.GeneratePDFFromPptx	Generate PDF from Microsoft PowerPoint documents
LiveCycle.GeneratePDFFromXls	Generate PDF from Microsoft Excel documents
LiveCycle.GeneratePDFFromXlsx	Generate PDF from Microsoft Excel documents
LiveCycle.GeneratePDFFromBmp	Generate PDF from BMP files
LiveCycle.GeneratePDFFromGif	Generate PDF from GIF files
LiveCycle.GeneratePDFFromJpeg	Generate PDF from JPEG images
LiveCycle.GeneratePDFFromJpg	Generate PDF from JPG images
LiveCycle.GeneratePDFFromTiff	Generate PDF from TIFF images
LiveCycle.GeneratePDFFromTif	Generate PDF from TIF images
LiveCycle.GeneratePDFFromPng	Generate PDF from PNG images
LiveCycle.GeneratePDFFromJpf	Generate PDF from JPF images
LiveCycle.GeneratePDFFromJpx	Generate PDF from JPX images
LiveCycle.GeneratePDFFromJp2	Generate PDF from JPEG 2000 images
LiveCycle.GeneratePDFFromJ2k	Generate PDF from JPEG 2000 images
LiveCycle.GeneratePDFFromJ2c	Generate PDF from JPEG 2000 images
LiveCycle.GeneratePDFFromJpc	Generate PDF from JPEG 2000 images
LiveCycle.GeneratePDFFromHtm	Generate PDF from HTM documents
LiveCycle.GeneratePDFFromHtml	Generate PDF from HTML documents
(Deprecated) LiveCycle.GeneratePDFFromSwf	(Deprecated) Generate PDF from SWF files
LiveCycle.GeneratePDFFromFlv	Generate PDF from Flash video files
LiveCycle.GeneratePDFFromTxt	Generate PDF from text files
LiveCycle.GeneratePDFFromRtf	Generate PDF from Rich Text Format files

	LiveCycle.GeneratePDFFromMpp	Generate PDF from Microsoft Project files
	LiveCycle.GeneratePDFFromPub	Generate PDF from Microsoft Publisher?documents
Invoke LiveCycle process	LiveCycle.InvokeGenericLiveCycleProcessOnALL	Invoke LiveCycle Process
Adobe Forms Library	AdobeFormsLibrary	Set up SharePoint as the repository for forms data.Remove the CustomAction, ListTemplate and ListInstance elements.
AEM Forms user Tasks	LiveCycleUserTasks	Lists the user tasks.Remove the ListTemplate element.
LiveCycle Group Tasks	LiveCycleGroupTasks	Lists the group tasks.Remove the ListTemplate element.

5) Save and close Elements.xml

Uninstalling Connector for Microsoft SharePoint Server 2010 and Microsoft SharePoint Server 2013

- 1) Deactivate SharePoint Connector from Shrepoint Web Application. To deactivate SharePoint Connector
 - a) Open SharePoint Web Application in a browser.
 - b) Click **Site Settings**.
 - c) Click **Site Collection Features**.
 - d) Click Deactivate for **Adobe Connector** and **Adobe LiveCycle Workflow** Features.
- 2) On the command prompt, run the following commands in the given order. Ensure that you run stsadm - o enumsolutions after each command to verify that the changes have been the propagated to all the servers. Run stsadm - o enumsolutions repeatedly, until the resultant xml contains <state>pending</state>tag.

```
Install.bat -uninstall
Install.bat -retract
Install.bat -delete
```

NOTE: For the Install.bat -retract command, run stsadm - o enumsolutions repeatedly, until the resultant xml contains <LastOperationResult>RetractionSucceeded</LastOperationResult> tag.