2018 ACSA BPM 8.6 Installation , Configuration and Setup

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Phase 1-Week 1

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Installing and configuring your IBM Business Process Manager environment

1Preparing to install the product

Verifying the system requirements

For the minimum system requirements, see [System Requirements](#) *(The complete content of this topic has been loaded)*.

System requirements

Before you install, ensure that your system meets all system requirements.

For the latest information about platform-specific disk space requirements, supported operating systems, and supported database versions, click one of the following links. You can also find operating system fixes and patches that you must install to have a compliant operating system.

- [IBM Business Process Manager Advanced system requirements](#)
- [IBM Business Process Manager Tools and Add-Ons Requirements](#)

AIX   Linux   Solaris Note: If you plan to install IBM® Business Process Manager in group mode, you must use an instance of IBM Installation Manager that is installed in group mode. For more information, see the Installation Manager information center topic [Administrator, nonadministrator, and group mode](#).
Parent topic: [Preparing to install and configure the software](#)
Related concepts:
[Considerations for HADR setup and configuration](#)
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[Preparing operating systems for product installation](#)
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Preparing the operating system

To prepare an AIX system before you install this product, see [Preparing AIX systems for installation](#) *(The complete content of this topic has been loaded)*.

Preparing AIX systems for installation

Before you can install IBM® Business Process Manager, you must prepare your AIX® operating system.

About this task

Because certain steps are specific to a version of the operating system, all steps might not apply to your environment. If no qualifier is provided for a particular step, complete the step for all versions of the operating system.

Refer to the following technote for additional preparation information for configuring Installation manager to run on 64-bit AIX systems: [Installation Manager graphical environment issues on Solaris, Linux, AIX](#).

Procedure

Complete the following steps on your AIX system before installing IBM Business Process Manager:

1. Because WebSphere® Application Server is a prerequisite of IBM Business Process Manager, complete the required preparation steps in the [Preparing AIX systems for installation](#) topic in the WebSphere Application Server information center.
2. Increase the maximum number of open files. The default setting is usually not enough. You can check your current maximum number of open files by using `ulimit -n`. The following example shows the maximum number of open files being increased to 8800, which is large enough for most systems. The ulimit requirement is dynamically calculated at installation time and might need to be larger based on the options you select.

   Before installing, run the following command:

   - `ulimit -n 8800`

   Alternatively, you can use the following steps to edit the resource limits file:

   b. Open /etc/security/limits.
   c. Edit or add the default section and include this line:
      - `nofiles = 8800`
   d. Save and close the file.
   e. Log off from the operating system and log in again.
3. Set the umask value to 077 using the following command:
   - `umask 077`

   The value 077 is the most restrictive value that IBM Business Process Manager will tolerate. You can optionally choose to set a less restrictive umask value for the following access levels:

- o 037 for read-only access for a group of human administrators and tools
- o 027 for read and write access for a group of human administrators and tools
- o 007 for read, write, and execute access for a group of human administrators and tools

4. If you plan to install interactively, ensure that you have a supported version of Mozilla Firefox installed.
5. Before starting the data movement service, increase the number of processes configured in the AIX operating system to avoid a connection reset error. You can increase the number of processing using a command, or using the AIX interface.
   - o Run the command:

     ```
     chdev  -l sys0 -a maxuproc='256'
     ```

   - o In the AIX interface, enter smitty, then select System Environments > Change / Show Characteristics of Operating System > Number of processes allowed per user(Num.).
6. Complete the steps in [Tuning AIX systems](#).
7. Ensure all servers involved are set to the same time. Use the same network time protocol for all servers on all cluster nodes, including application, support, and database clusters. A time mismatch will cause erratic behavior, including duplicate system tasks.

Parent topic: [Preparing operating systems for product installation](#)
Related tasks:
➡ [Preparing AIX systems for installation](#)
➡ [Tuning AIX systems](#)

Considerations for high availability configurations

If you require a high availability disaster recovery environment with DB2, see [Considerations for HADR setup and configuration](#).

2Installing the software

Installing the product

To install the product silently, see [Installing silently using the command line](#) *(The complete content of this topic has been loaded)*.

Installing silently using the command line

You can install IBM® Business Process Manager silently using the command line. With this method, you need to run only one command to perform the installation.

Before you begin

If you do not have the prerequisite base products necessary for IBM Business Process Manager Advanced installation, you must install them as part of the silent installation. The required base products are:

- IBM Installation Manager. If you are installing IBM Business Process Manager in group mode, you must use an instance of IBM Installation Manager that is installed in group mode. For more information, see the Installation Manager information center topic [Administrator, nonadministrator, and group mode](#).
- WebSphere® Application Server Network Deployment, including the ejbdeploy and thinclient features.

If you are installing from downloaded images from Passport Advantage, ensure that you downloaded both required disk images for your operating system. If you are installing from the DVD images, obtain the compressed files from the DVDs. In both cases, extract all of the files from the compressed files to the same location on your hard disk. Overwrite directories, if prompted.

About this task

During the silent installation, the following tasks are perfomed:

- Installation Manager is installed or updated to the appropriate level.
- The required base products and IBM Business Process Manager Advanced are installed.

Only one IBM Installation Manager is required to install multiple instances of IBM Business Process Manager.

Procedure

1. Optional: Run the following command to generate encrypted passwords using IBM Installation Manager to securely connect to DB2 and the administrative console.

   ```
   extract_directory/IM64/tools/imutilsc -silent -nosplash encryptString
   password_to_encrypt
   ```

   Note: If you already have 32-bit Installation Manager installed, you can run the command from the *extract_directory*/IM/tools directory.

2. Read and accept the license terms before installing. Adding -acceptLicense to the command line means that you accept all licenses.
3. Run the following command:

   ```
   extract_directory/IM64/tools/imcl install list_of_package_IDs -
   acceptLicense -installationDirectory location -repositories repository
   -showVerboseProgress -log logName.log
   ```

Note: If you already have 32-bit Installation Manager installed, you can run the command from the *extract_directory*/IM/tools directory.

where:

- o *list_of_package_IDs* is a list of the IDs for the products and features that you want to install. You must include the required features. The syntax is *packageID*,*feature*,*feature*. Separate multiple products by using spaces.

Table 1. Package IDs		
Product	**Package ID**	**Feature and Description**
IBM BPM Advanced	com.ibm.bpm.ADV.v85	- AdvancedProcessCenter - AdvancedProcessServer.NonProduction - Test, staging, or development use - AdvancedProcessServer.Production - Production use - Case.Management - Optional. Basic case management capabilities. Requires a license and one of the other features to be also installed.
WebSphere Application Server Network Deployment	com.ibm.websphere.ND.v85	- core.feature: Required. WebSphere Application Server core content. - ejbdeploy: Required. Pre-Enterprise JavaBeans (EJB) 3.0 modules. - thinclient: Required. Stand-alone thin clients and resource adapters. - embeddablecontainer: Embeddable EJB container. - samples: Sample applications feature. - com.ibm.sdk.6_64bit: 64-bit SDK.
Installation Manager	com.ibm.cic.agent	- agent_core: Installation Manager core content. - agent_jre: Installation Manager Java Runtime Environment (JRE).

- *location* is the path to the directory where you want to install the products. To install into an existing supported instance of WebSphere Application Server Network Deployment, specify its directory.
- *repository* is the path to the repository where you have extracted the files:

  extract_directory/repository/repos_64bit

  For more than one repository, separate the repository locations with commas.

- *key=value* is a list of the keys and values that you want to pass to the installation, separated by commas. Do not put spaces between the commas.Create encrypted passwords using Installation Manager.

  Note: This table is applicable only when you install DB2 Express.

Table 2. Keys	
Key	**Description**
user.db2.port	Port for the DB2 database. The default value is 50000.

- *logName* is the name of the log file to record messages and results.

Running this command installs the product with the default features. To install specific features or make other changes, see the reference link for the command-line arguments for imcl.

Results

Installation Manager installs the list of products and writes a log file to the directory that you specified. The log file is empty if there are no errors or warnings.

Example

The following example installs IBM Business Process Manager Advanced and WebSphere Application Server Network Deployment on AIX.
```
imcl install com.ibm.bpm.ADV.v85,AdvancedProcessCenter
com.ibm.websphere.ND.v85,core.feature,ejbdeploy,thinclient,embeddablecontaine
r,samples,com.ibm.sdk.6_64bit -acceptLicense -installationDirectory
/usr/IBM/BPM85 -repositories /usr/tmp/BPM/repository -showVerboseProgress -
log silentinstall.log
```

What to do next

After you install IBM BPM, you must configure the product by creating profiles, setting up database tables, and configuring the network deployment environment. To do these configuration

tasks in one step, use the BPMConfig command. Alternatively, you can do each configuration step separately using the Profile Management Tool and the Deployment Environment wizard.
Important: If you are migrating business data and applications from a previous version, use the configuration instructions in the Migrating to IBM Business Process Manager section.
Parent topic: [Installing IBM Business Process Manager Advanced](#)
Related reference:
➥[Command-line arguments for imcl](#)
➥[IBM Business Process Manager Advanced system requirements](#)
[Warnings about GTK or ulimit on Linux or UNIX when installing or migrating](#)
Related information:
➥[IBM WebSphere Application Server Information Center](#)
[Messages and known issues during installation and profile creation](#)
[Installation and profile creation log files](#)
[Preparing to install and configure the software](#)

Granting write permission to nonroot users

If a different user with nonroot permissions will be creating or augmenting profiles, you can grant the write access that the user requires. See [Granting write permission of files and directories to nonroot users for profile creation or augmentation](#).

3Configuring

Creating DB2 databases

Important: Before you create databases and schema, ensure you have set the correct privileges to allow your user ID to create and work with databases. See [DB2 database privileges](#).

See [Creating DB2 databases](#) *(The complete content of this topic has been loaded)*.

Creating DB2 databases

You can create the required databases for IBM® Business Process Manager either before or after you run the BPMConfig command with the -create -de parameters to create profiles and configure your deployment environment.
The BPMConfig command requires input from a properties file that contains configuration settings for the profiles, deployment environment, and databases to be created. In this file, the bpm.de.deferSchemaCreation property determines when the databases can be created:

- If the property is set to `false`, database tables are automatically created when you run the BPMConfig command to create the profiles and deployment environment. Therefore, the empty databases must exist before you run the BPMConfig command.
- If the property is set to `true`, database table creation is deferred when you run the BPMConfig command to create the profiles and deployment environment. Therefore, you can create the databases either before or after running the command. You might find it

useful to create the databases after running the BPMConfig command because you can use the set of populated scripts, which the command generates, to create the databases and database tables at a time that you choose.

About this task

The default database names are BPMDB for the Process database, PDWDB for the Performance Data Warehouse database, and CMNDB for the Common database. Usually you require the Process database, the Performance Data Warehouse database, and the Common database.

The Process Server and Performance Data Warehouse require their own separate databases and cannot be configured on the same database as the other IBM Business Process Manager components.

In an Advanced-only deployment environment, you need only the Common database. For both Advanced and Advanced-only deployment environments, the Common database has two parts: one is scoped to the cell and the other is scoped to the deployment environment. Both parts can be defined to use CMNDB (which is the default) or they can use separate databases.

For more information about creating databases, see the following sections:

- [Creating the databases before creating the profiles and configuring the deployment environment](#)
- [Creating the databases after creating the profiles and configuring the deployment environment](#)

Parent topic: [Creating profiles, deployment environments, and databases simultaneously using the BPMConfig command](#)
Related tasks:
[Creating profiles, network deployment environments and database tables using BPMConfig](#)

Creating the databases before creating the profiles and configuring the deployment environment

To generate the database scripts that can be used to create and configure your databases, you can run the BPMConfig command with the -create -sqlfiles parameters, and additionally include the -outputDir parameter to specify a location for the generated scripts. When you run the BPMConfig command with these parameters, it generates the database scripts without configuring your environment.

Before you begin

Prepare the following information:

- Information about the database configuration that you are designing. This might be a document that describes the general purpose of the database configuration supplied by the database administrator or solution architect. Alternatively, it might be a description of required parameters and properties. This information must include:
    - The location of the databases
    - The user ID and password for authenticating to the database
- Information about how IBM Business Process Manager and its components have been installed, the database software used, and the properties required by that type of database.
- An understanding of the profiles that you plan to create, specifically, the functional relationship between the profile types and the databases.
- Information about the topology pattern to be implemented, and an understanding of how the database design fits into the pattern that you plan to use.

Procedure

1. On the computer where you installed IBM Business Process Manager, navigate to the following directory where the sample configuration properties files are stored:

   BPM_HOME/BPM/samples/config

2. Find the sample properties file that most closely represents your target deployment environment and make a copy of this file. For each of the different product configurations, there is a different folder containing sample properties files. For example, for configuring an Advanced, Advanced-only, or Standard deployment environment, there is an advanced, advancedonly, or standard folder containing a set of sample properties files. Within each folder, there is a set of files that is specific to the different database types and configuration environments. The sample properties files are named according to the following format: *de_type*[-*environment_type*]-*topology-database_type*[-*suffix*], where:
    - *de_type* can be set to Advanced, AdvancedOnly, or Standard.
    - *environment_type* can be set to PS for Process Server or PC for Process Center. This variable is not used if *de_type* is AdvancedOnly.
    - *topology* can be set to SingleCluster or ThreeClusters.
    - *database_type* can be set to DB2, DB2zOS, Oracle, or SQLServer.
    - *suffix* can be set to -WinAuth for an SQL Server database.

   For example, the sample configuration properties file for configuring an Advanced deployment environment with Process Center and a single cluster topology using a DB2 database is named Advanced-PC-SingleCluster-DB2.properties.

3. Edit the copied properties file and update the values as required to reflect your profile, deployment environment, and database configuration. When modifying the sample properties file, use the guidance provided within the file for specifying values.

   Tip: You can use this same properties file later when you run the BPMConfig command to create your profiles and deployment environment.

Additional considerations:

- o Your modified properties file must use UTF-8 encoding.
- o If you want to automatically create your database tables when you run the BPMConfig command later to create profiles and configure your deployment environment, set the bpm.de.deferSchemaCreation property to `false`.
- o Do not add any custom properties to this file when you perform your modifications or the BPMConfig command will fail when it is run.
- o If you need to use a backslash character (\) in your properties file, for instance when specifying path names or passwords, you must use an escape backslash before it. For example: bpm.dmgr.installPath=c:\\IBM\\BPM85.
- o If you are configuring a three-cluster setup that is based on the Advanced or AdvancedOnly template, and you want your deployment environment to include the optional Business Process Archive Manager, include the properties file entries that are described in the topic [Configuring Business Process Archive Manager](#).

For more information about the available properties, see the [BPMConfig command-line utility](#) topic and the descriptions in the [Configuration properties for the BPMConfig command](#) topic.

4. Run the BPMConfig command on the computer where IBM Business Process Manager is installed, passing it the name of the properties file that you created. For example:

```
BPM_HOME/bin/BPMConfig -create -sqlfiles
/directory_path/my_environment.properties -outputDir /my_bpmscripts_dir
```

In this syntax, *directory_path*/*my_environment*.properties is the location and name of your customized properties file, and *my_bpmscripts_dir* is the directory where you want to generate the database scripts.

The generated scripts include a set of files named createDatabase.sql, which can be used to create the databases. The createDatabase.sql files are generated into the following default locations:

- o /*my_bpmscripts_dir*/dbscripts/*cell_name*/DB2/CMNDB
- o /*my_bpmscripts_dir*/dbscripts/*deployment_environment_name*/DB2/CMNDB
- o /*my_bpmscripts_dir*/dbscripts/*deployment_environment_name*/DB2/BPMDB
- o /*my_bpmscripts_dir*/dbscripts/*deployment_environment_name*/DB2/PDWDB

The number of subdirectories that are generated is dependent on the deployment environment type and the number of databases that were defined in the properties file.

Note: These scripts are overwritten if you run the BPMConfig command again.

5. For each createDatabase.sql file that was generated, run the following command on your local or remote database server:

```
db2 -tvf createDatabase.sql
```

Creating the databases after creating the profiles and configuring the deployment environment

When you run the BPMConfig command with the -create -de parameters to create the profiles and configure the network deployment environment, database scripts are generated that are populated with the values from the properties file that you specified. You can use some of these scripts to create the databases if you chose to defer the creation of the database tables.

Before you begin

You must have already run the BPMConfig command to create the profiles and configure the network deployment environment.

Procedure

1. On the computer where you created the deployment manager profile, navigate to one or more of the following default subdirectories where the SQL database scripts were generated:
   o /*dmgr_profile_name*/dbscripts/*cell_name*/DB2/CMNDB
   o /*dmgr_profile_name*/dbscripts/*deployment_environment_name*/DB2/CMNDB
   o /*dmgr_profile_name*/dbscripts/*deployment_environment_name*/DB2/BPMDB
   o /*dmgr_profile_name*/dbscripts/*deployment_environment_name*/DB2/PDWDB

   These directories contain the createDatabase.sql scripts that you can use to create the databases.

   The number of subdirectories that are generated is dependent on the deployment environment type and the number of databases that were defined in the properties file.

2. For each createDatabase.sql file that was generated, run the following command on your local or remote database server:

   ```
   db2 -tvf createDatabase.sql
   ```

Creating profiles, network deployment environments and database tables

See [Creating profiles, network deployment environments and database tables using the BPMConfig command](#) *(The complete content of this topic has been loaded)*.

Creating profiles, network deployment environments and database tables using the BPMConfig command

You can use the BPMConfig command to create a typical network deployment environment using a properties file that contains all of the values used in the configuration of your deployment environment. At the same time as the deployment environment is created, you can create the required database tables, and create a new deployment manager profile and custom profiles for managed nodes by including settings for these profiles in the properties file used by the BPMConfig command.

Before you begin

Before you create a deployment environment using the BPMConfig command-line utility, you may need to manually create all of the databases that are specified in the properties file. Although the BPMConfig command can create the database schema and tables, it cannot create the databases. The databases must be created before the tables are created (and before the servers are started). Depending on the value that is set for the bpm.de.deferSchemaCreation property, the database schema and tables can be created when the BPMConfig command is run or they can be created after the command is run. Information about the bpm.de.deferSchemaCreation property is found in the "About this task" section below.

Important: Run the BPMConfig command with the same properties file on all computers that will participate in the deployment environment. You must first run the command on the computer that has the deployment manager profile and then run it on each computer that has a managed node. At any given time, only one profile creation can be performed on a computer and only one node federation can be performed against a particular deployment manager. For this reason, if you are creating multiple profiles at once on different computers, you must use the federateLater option of the BPMConfig command when creating the managed node profiles and then run the command with the -create -de option sequentially on each computer to federate the managed nodes.

About this task

When run with the `-create -de` options, the BPMConfig command performs the following tasks:

- Creates any local profiles specified in the configuration properties file that do not already exist.
- Creates the deployment manager node based on the values in the deployment manager properties file and starts the deployment manager.

- For each node specified in the configuration properties file, creates a managed node based on the specified values.
- Federates each managed node and adds the node to the deployment environment.
- Generates the deployment environment.
- If the properties file that is used has the parameter bpm.de.deferSchemaCreation set to `false`, then the database tables are also created when you run the command.
- If the bpm.de.deferSchemaCreation property in the configuration properties file is set to `true` then only the scripts for creating the database tables are generated. In this case, the database tables need to be created separately using these scripts, and the bootstrap utility will need to be run manually.

  Tip: If you run the `BPMConfig` command to generate the database scripts instead of creating the actual tables, you can pass along these scripts to your database administrator to review and run the scripts.

- If the bpm.de.deferSchemaCreation property is set to `true`, then the Process database is not loaded with system information and you must run the bootstrapProcessServerData utility manually.

Procedure

To create the deployment environment for the first time, complete the following steps:

1. If you previously ran the BPMConfig command with the -create -sqlfiles -outputDir parameters to generate the database scripts that are used to create your databases, you should already have a properties file. Verify that the value of the bpm.de.deferSchemaCreation property has been set, and then go to step 5 and complete the remaining steps.

   However, if you do not yet have a customized properties file that contains the configuration settings for your profiles, deployment environment, and databases, complete all of the following steps.

2. On the computer where you want to create the deployment environment, locate the appropriate sample properties file: *BPM_Home*/BPM/samples/config.
3. Find the sample properties file that most closely represents your target deployment environment and make a copy of this file. For each of the different product configurations, there is a different folder containing sample configuration files. For example, for configuring an `Advanced`, `AdvancedOnly`, or `Standard` deployment environment, there is an advanced, advancedonly, or standard folder containing a set of sample configuration properties files. Within each folder, there is a set of files that are specific to the different database types and configuration environments. The sample files are named according to the following format: *de_type*[-*environment_type*]-*topology-database_type*[-*suffix*], where:
   o *de_type* can be set to `Advanced`, `AdvancedOnly`, or `Standard`.

- *environment_type* can be set to `PS` for Process Server or `PC` for Process Center. This variable is not used if *de_type* is `AdvancedOnly`.
- *topology* can be set to `SingleCluster` or `ThreeClusters`.
- *database_type* can be set to `DB2`, `DB2zOS`, `Oracle`, or `SQLServer`.
- *suffix* can be set to `-WinAuth` for an SQL Server database.

For example, the sample configuration properties file for configuring `Advanced` deployment environments with Process Server in a single cluster topology using a DB2 database is called Advanced-PS-SingleCluster-DB2.properties.

4. Modify your version of the properties file so that the values correspond to your own configuration. When modifying the sample properties file, use the guidance provided within the file for specifying values.

   When you are configuring a Process Server environment to use Process Center remotely, you must change the default value for the `psProcessCenterHostname` property from `local host` to a valid host name. If you are configuring an offline Process Server and the value for `bpm.de.psOffline` is set to true, then you do not need to specify a value for the `psProcessCenterHostname` property.

   Note: Your modified properties file must use UTF-8 encoding.

   Do not add any custom properties to this file when you perform your modifications or the BPMConfig command will fail when it is run.

   If you need to use a backslash character (\) in your properties file, you must use an escape backslash before it, for example bpm.dmgr.installPath=c:\\IBM\\BPM85.

   If you are configuring a three-cluster setup that is based on the Advanced or AdvancedOnly template, and you want your deployment environment to include the optional Business Process Archive Manager, include the properties file entries that are described in Configuring Business Process Archive Manager.

   For more information about the available properties, read the comments in the sample files, or see the BPMConfig command-line utility and the sample property file descriptions in Configuration properties for the BPMConfig command.

5. Run the BPMConfig command on the computer that has the deployment manager, passing it the name of the properties file you created. For example:

   ```
   BPM_home/bin/BPMConfig -create -de my_environment.properties
   ```

6. Start the deployment manager. Run the BPMConfig command on each computer that has one or more managed nodes, passing it the name of the same properties file. The managed node profiles are created and federated into the deployment manager cell.

Note: For each node that is to be configured on a different machine from the deployment manager, check the soap port of the deployment manager and update the value of `bpm.dmgr.soapPort` in the properties file before running BPMConfig on the node.

Note: For each cluster member in the properties file, BPMConfig adds `http` and `https` ports to the virtual hosts list. Check the virtual hosts list after running BPMConfig to make sure that the assigned ports are acceptable.

What to do next

If you ran BPMConfig with the deferSchemaCreation set to `true`, then you must create your database tables and if your environment includes the ProcessServer component, you must also load the Process database. To create the database, run the SQL scripts that are generated by the BPMConfig command. To load the Process database, run the bootstrapProcessServerData utility. For more information see the related task link for running the generated scripts for creating database tables. After you have created your deployment environment and your database tables, you can start the deployment manager, node agents, and clusters by running the BPMconfig command with the -start action from the deployment manager computer. If you are creating an `Advanced` or `AdvancedOnly` deployment environment, the deployment manager and node agents need to be restarted for the cell scoped configuration to take affect. This is only required for the first deployment environment with `Advanced` or `AdvancedOnly` capabilities.

Parent topic: [Creating profiles, deployment environments, and databases simultaneously using the BPMConfig command](#)
Related information:
[BPMConfig command-line utility](#)
[Configuration properties for the BPMConfig command](#)
[Creating DB2 databases in a network deployment environment on AIX](#)
[Running the generated DB2 database scripts on AIX](#)

Loading the database with system information

See [Loading the database with system information](#) *(The complete content of this topic has been loaded)*.

Loading the database with system information in a network deployment environment

When you create a deployment environment, the bootstrapProcessServerData command must be completed successfully before you try to start or use Process Server or Process Center.

Procedure

Run the bootstrapProcessServerData command successfully at least once for each deployment environment before you start using the environment:

1. If you deferred DB table creation or you work with a SQL Server database that uses Windows authentication (`sqlServerWinAuth=true`), manually run the bootstrapProcessServerData command after the database tables are created.

   Note: When you created the deployment environment either by setting the bpm.de.deferSchemaCreation parameter to `false` for the BPMConfig command or by enabling Create Tables in the Deployment Environment wizard, the bootstrapProcessServerData command is run automatically.

   - For Linux and UNIX, run *DMgr profile_root*/bin/bootstrapProcessServerData.sh `-clusterName cluster_name`, where *cluster_name* is the deployment environment's application cluster for a three-cluster setup and is case sensitive.
   - For Windows, run *DMgr profile_root*/bin/bootstrapProcessServerData.bat `-clusterName cluster_name`, where *cluster_name* is the deployment environment's application cluster for a three-cluster setup and is case sensitive.

   Note: For Windows, ensure that the command prompt is opened using Run as an Administrator.

2. Check the bootstrapProcessServerData log for errors. If there are issues, correct them and rerun the bootstrapProcessServerData command until it is successful. The log file is located at *DMgr profile_root*/logs/bootstrapProcesServerData.*clusterName*.log.

Results

You have successfully loaded the database with system information for a deployment environment.

Parent topic: [Installing IBM Business Process Manager Advanced using a custom installation and configuration path](#)

Starting your environment and verifying the installation

See [Starting your environment and verifying the installation](#) *(The complete content of this topic has been loaded)*.

Starting your environment and verifying the installation

After you create the deployment environment and complete the relevant configuration tasks, you can start all the servers in a cluster or deployment environment. Then you can verify the IBM® Business Process Manager installation.

Procedure

1. Start the cluster or deployment environment as described in <u>Starting and stopping your environment</u>.
2. From the administrative console, verify that you can see IBM Business Process Manager on the Welcome page.
3. Check that the enterprise applications are started by clicking Applications > Application Types > WebSphere enterprise applications.
4. Check that the messaging engine is started by clicking Service integration > Buses. Then click the name of the bus, and under Topology, click Messaging engines.
5. If you configured an Advanced or Advanced-only deployment environment, verify that the Failed Event Manager is enabled. Click Servers > Deployment Environments. Click the name of the deployment environment, and under Additional Properties, click Failed Event Manager.

What to do next

After the cluster has started, verify that the applications are set up correctly by running a series of tests and deploying samples as detailed in the following table.

Table 1. Application verification tests	
Application and description	**Action**
Process Center Use the Process Center repository to keep all processes, services, and other assets created in IBM Business Process Manager. Test applications in Process Center and deploy applications to the Process Server, which is the process runtime environment. Restriction: This console is not available if you created an Advanced-only Process Server	Log on to the Process Center by using the account for the IBM Business Process Manager administrator or anyone who has been granted access to the Process Designer. Open the Process Center from the Quick Start menu (see <u>Starting your environment</u>) or by logging on to http://host:port/ProcessCenter/. For example, http://myserver:9080/ProcessCenter/

Table 1. Application verification tests	
Application and description	**Action**
deployment environment or if you installed Process Server only.	
Process Admin Console Use the Process Admin Console to manage the Process Servers in your runtime environments and the Process Center server. Restriction: This console is not available if you created an Advanced-only Process Server deployment environment.	Log on to the Process Admin Console by using the IBM Business Process Manager administrator account and password that was used for creating the deployment environment. Open the Process Admin Console from the Quick Start menu (see Starting your environment) or by logging on to http://host:port/ProcessAdmin/. For more information about accessing the Process Admin Console, see Accessing the Process Admin Console.
Performance Admin Console Use the Performance Admin Console tools to manage the Performance Data Warehouse queues in your environment, manage data transfer errors, and monitor overall performance. Restriction: This console is not available if you created an Advanced-only Process Server deployment environment.	Log on to the Performance Admin Console by using the administrator account and password. Open the Performance Admin Console from the Quick Start menu (see Starting your environment) or by logging on to http://host:port/PerformanceAdmin/. For more information about accessing the Performance Admin Console, see Managing Business Performance Data Warehouses.
Process Portal and Business Space Use Process Portal to interact with processes from a web browser. To ensure that Process Portal works properly in the IBM Business Process Manager runtime environment, Business Space is required. Restriction: Process Portal is not available if you created an Advanced-only Process Server deployment environment.	Process Portal and the Business Space component for Process Portal areconfigured by default. Verify that you can access Process Portal and that the applications used by Process Portal are all accessible, as described in Verifying Process Portal.
Business Process Choreographer	*Advanced and Advanced-only:*

Table 1. Application verification tests	
Application and description	**Action**
Use Business Process Choreographer if you require support for both Business Process Execution Language (BPEL) processes and human tasks in a WebSphere® Application Server environment.	Business Process Choreographer is configured by default. Verify that the basic functions work by running the Business Process Choreographer installation verification application, as described in Verifying that Business Process Choreographer works.
Hiring Sample process application

Use the samples that are provided with the product to further verify the installation and as tutorials to learn the product. | Run the Hiring Sample process application and tutorial in Process Designer, as described in Samples and scenarios.

Additionally deploy the samples to a Process Server and then run them, as described in Installing process application snapshots. |

To learn about security for the environment and applications, see Creating a secure environment.

Parent topic: Installing IBM Business Process Manager Advanced using a custom installation and configuration path

Creating a secure environment

See Creating a secure environment *(The complete content of this topic has been loaded)*.

Creating a secure environment

Security of IBM® Business Process Manager depends on securing the runtime environment and securing applications.

Application security is turned on by default in IBM Business Process Manager and cannot be turned off.

IBM Business Process Manager security is based on the WebSphere® Application Server version 8.5 security. For detailed information, see the documentation for WebSphere Application Server Network Deployment.

- Configuring the user registry
  To use an external security provider, you must add the provider to the federated repository. Several types of repositories are supported, including the local operating system registry, a standalone Lightweight Directory Access Protocol (LDAP) registry, a standalone custom registry, and federated repositories.

- Configuring multiple deployment environments
  You can isolate multiple deployment environments within a single cell in your IBM Business Process Manager configuration.
- Configuring IBM BPM endpoints to match your topology
  If the user's browser requests pass through a web server or load-balancing server before the request reaches the IBM BPM server, you must configure the virtual host information that is used by IBM BPM to generate URLs.
- Configuring third-party authentication products
  To use a third-party authentication product, you must customize various configuration settings.
- Security configuration properties
  Use the WebSphere command-line administration tool (wsadmin) AdminConfig commands to access and modify IBM Business Process Manager security properties as configuration objects.
- Configuring Secure Sockets Layer (SSL) for IBM Business Process Manager
  You can enable Secure Sockets Layer (SSL) communication for IBM Business Process Manager. This process enables secure https communication between the Process Center and the Process Server.
- Enabling a NIST SP800-131a compliant environment
  You can configure IBM Business Process Manager to support the National Institute of Standards and Technology (NIST) SP800-131a security standard. SP800-131a requires longer key lengths and stronger cryptography than other standards, such as FIPS 140-2. SP800-131a requires Transport Layer Security (TLS) V1.2.
- Configuring cross-cell security for IBM Process Center
  Before registering a Process Center with another Process Center in different cell, you must complete security configuration. Once the security configuration between the cells is completed, a Process Center in one cell can register a Process Center in another cell with HTTPS protocol over Secure Sockets Layer (SSL).
- Configuring administrative and application security
  The first step in securing your IBM Business Process Manager environment and your applications is to make sure that administrative security is enabled.
- Securing access to timetables in the Business Calendars widget
  The Security Roles widget provides you with the ability to secure access to individual timetables in the Business Calendars widget. You use the Security Roles widget to assign roles to the members of an organization. It is these roles that determine the level of access to the timetables.
- Setting up security for the Business Space component and Process Portal
  If you are using Process Portal with your environment, you must consider security options for the Business Space component. If you want to turn on security, set up application security and designate a user repository. To define administrators, assign a Business Space superuser role.
- Security in human tasks and BPEL processes
  There are a number of roles associated with human tasks and BPEL processes. These roles are unique to tasks and processes that run in Business Process Choreographer.

Parent topic: [Installing and configuring IBM Business Process Manager Advanced - Process Server](#)

4Optional next steps

Installing IBM Integration Designer

See [Installing IBM Integration Designer](#).

Modifying an existing IBM Business Process Manager installation

After you have successfully installed, configured, and started using IBM Business Process Manager, you can modify the environment to suit your changing needs. See the topics in the section [Modifying and exending an existing installation](#).

5Troubleshooting and support

Troubleshooting

If your installation or configuration has errors or fails, use the following troubleshooting information to help you resolve the problem:

- [Troubleshooting overview](#) - an overview of troubleshooting approaches and steps
- [Troubleshooting checklist](#) - a list of steps and resources for troubleshooting in IBM BPM
- [Troubleshooting installation and configuration](#) and its subtopics in the navigation tree - tips and known problems with the installation and configuration process and tools
- [Troubleshooting your deployment environment](#)
- [Troubleshooting administration tasks and tools](#)
- [Recovering from a failure](#)
- [Disaster recovery](#)

Messages and log files

For information about messages shown and log files created by the installation and configuration processes, see the following topics:

- [Messages overview](#)
- [Installation and configuration messages and known problems](#)
- [Installation and configuration log files](#)

Getting product fixes

For information about selecting fixes, applying them, and seeing which product fixes are required, see [Getting fixes](#).

Getting support

The following resources have information about contacting support and finding information about installation and configuration on the IBM Support website:

- Searching knowledge bases
- Contacting Support
- Knowledge collection for installation and configuration
- Support Portal - Filter by product name, version, operating system. Select "Troubleshooting documentation" to see technotes.