

## IBM Business Process Manager Interactive Installation and Configuration Guide

This guide takes you through the steps for installing and configuring IBM Business Process Manager (IBM BPM).

If you are migrating business data and applications from a previous version, use the [Interactive Migration Guide](#) instead of this guide. The Interactive Migration Guide generates instructions for a complete migration, including installing and configuring the product.

The Interactive Installation and Configuration Guide works best in supported versions of Internet Explorer on Windows 7. In most instances, the generated output is restricted to supported installation scenarios. However, it might be possible to generate an unsupported set of instructions. For information about supported installation scenarios, go to the [IBM Support Portal](#) or use the installation roadmaps.

The Interactive Installation and Configuration Guide uses installation and configuration rules and considerations that are described in other topics. Each of those topics is accessible to screen readers, but the Interactive Installation and Configuration Guide itself is not fully accessible. For fully accessible information, use the installation topics as an alternative to using the Interactive Installation and Configuration Guide.

You made the following selections:

To change these selections and generate a new guide, use the **Back** or **Start over** buttons on this page, rather than the web browser controls.

- Install the IBM BPM Express edition
- Install the product on the Microsoft Windows operating system
- Perform a custom installation using the graphical interface
- Use an existing database server
- Use Oracle as the database server

Use the BPMConfig command to configure profiles

- The configuration tools will automatically configure database tables.

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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 Express 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:**

**Related tasks:**

[Preparing operating systems for product installation](#)

[Configuring Oracle Data Guard for IBM Business Process Manager](#)

[Preparing the operating system](#)

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

[Preparing Windows systems for installation](#)

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

**Before you begin**

If you are planning to use DB2 Express with your IBM Business Process Manager installation, the user account must have administrative privileges (Administrator) on the machine where you will perform the installation.

**About this task**

Because WebSphere® Application Server is a prerequisite product for IBM Business Process Manager, you must complete all of the preparation tasks for WebSphere Application Server before installing IBM Business Process Manager.

**Procedure**

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

1. Complete the steps in the [Preparing Windows systems for installation](#) topic in the WebSphere Application Server information center.
2. Complete the steps in [Tuning Windows systems](#).
3. 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.
4. If you are installing on Windows 2008 R2 and you plan to install DB2 Express as part of the IBM Business Process Manager installation, ensure you have compatible Microsoft Visual C++ redistributable packages. See [Errors when running the db2start command](#) in the DB2 information center.
5. If you are using a Czech locale, you must change the system settings to prevent seeing corrupted characters in IBM Process Portal and IBM Process Designer. Change the Windows settings by completing the following steps:

1. Click **Regional and Language Options**, and open the **Administrative** tab.
2. In the **Language for non-Unicode programs** section, click **Change system locale . . .** to open the locale list.
3. Select **Czech** from the list and click **OK**.
6. If you are using DB2, make sure that all your DB2 parameters meet the DB2 naming rules.
7. Install 7-Zip file archiving tool for extracting installation files from downloaded compressed files and DVD images.
8. If you are installing off a network drive, and your network has a firewall or other security restrictions, work with your network administrator to ensure permissions, trusted sites, and security levels are sufficient for performing the installation.

**Parent topic:** [Preparing operating systems for product installation](#)

**Related tasks:**

➤ [Preparing Windows systems for installation](#)

➤ [Tuning Windows systems](#)

**Related information:**

➤ [General naming rules for DB2](#)

## Considerations for high availability configurations

If you require a high availability disaster recovery environment with Oracle Data Guard, see [Configuring Oracle Data Guard for IBM Business Process Manager](#).

## 2Installing the software

### Installing the product

See [Installing interactively with a new installation of WebSphere Application Server](#) (*The complete content of this topic has been loaded*).

### [Installing interactively with a new installation of WebSphere Application Server](#)

Using the custom installation option, you can install IBM® Business Process Manager with a new installation of WebSphere® Application Server.

#### **Before you begin**

If you are installing from downloaded images from Passport Advantage, ensure that you downloaded all three required images for Windows. 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.

When you install the product, also install any available cumulative fixes or fix packs. If you are using the launchpad to install and you have Internet access, you can include available fixes from the live repository during installation. Otherwise, you must install the upgrades from a local directory as described in Step 2 in the steps that follow. For example, you could add `fixpack.BPM_CF=local_repository_path` to the `bpm_updates.properties` file to include a cumulative fix.

### About this task

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

### Procedure

1. Go to the directory into which you extracted the images and enter the following command to start the launchpad:

```
extract_directory/launchpad64.exe
```

To install or run IBM Business Process Manager Express on Windows 7, Windows Vista, or Windows Server 2008, you must elevate your Microsoft Windows user account privileges. Whether you are an administrative user or a non-administrative user, right-click `launchpad64.exe` and select **Run as administrator**.

You can run only one launchpad at a time.

2. Optional: If you are prompted to update the launchpad, click **Update**. The updates are installed and your launchpad is restarted automatically.  
If you do not have access to the Internet and want updates to the launchpad to be installed from a local directory, you can modify a properties file to direct Installation Manager to the updates. Create the following file:

```
C:/HOMEPATH/bpm_updates.properties
```

where:

On Windows XP, the *HOMEPATH* environment variable points to `C:/Documents and Settings/user_name`

On Windows 7, Windows Vista, or Windows Server 2008, the *HOMEPATH* environment variable points to `C:/Users/user_name`

#### Note:

Ensure that you have read/write access to the folders that are specified in the `bpm_updates.properties` file.

The file uses a launchpad prefix, followed by a period. The name after the prefix and the period can be anything you want, which enables you to point to multiple locations for launchpad upgrades. The locations can be either local directories or URLs. The following code is an example of the prefixes and names in the properties file:

```
launchpad.1=C:/launchpad_updates
```

3. On the Welcome page, click **Custom installation**.

4. Select **Install as administrative user** to install the product as an administrative user. If you are in the Administrators group, you can perform the product installation as an administrative user. If you are not an administrative user, or if you want to install to your own user name without administrative privileges, clear this option.

5. Click **Install**. When you install IBM Business Process Manager, the required WebSphere Application Server Network Deployment is automatically installed.

**Note:**

IBM Business Process Manager can be installed only on top of the supported version of WebSphere Application Server Network Deployment. See system requirements for more information.

6. On the Install Packages page, **WebSphere Application Server Network Deployment**, **IBM WebSphere SDK Java Technology Edition (Optional)** (Java™ 7), **IBM Business Process Manager Express**, and **IBM DB2 Express** are selected by default. Clear the **IBM DB2 Express** option.

**Note:**

On Linux on Power LE, WebSphere Application Server Network Deployment installs only Java 7.1, and there is no option for installing or switching Java versions. For other platforms, Java 6 is always installed with WebSphere Application Server Network Deployment, but Java 7 is used if you install it. If you clear the Java 7 package option, Java 6 will be used. If you install Java 7 but find that you still need to use Java 6, you can switch before you create profiles by using the `managesdk` command. For more information, see [Switching the edition of Java used in IBM BPM](#).

On other platforms that support it, you can also optionally install **IBM WebSphere SDK Java Technology Edition 7.1** (Java 7.1) to use instead of Java 6 or Java 7. If you install Java 7.1, you must also follow the instructions for switching Java versions in the topic [Switching the edition of Java used in IBM BPM](#).

7. Click **Next** to continue. You are prompted to provide your IBM ID and password to connect to the IBM service repositories.

**Note:**

If you are using a local properties file, you do not need to provide your IBM ID and password. A connection to the service repositories is required to download and install fix packs and required interim fixes from the Internet, including fixes for WebSphere Application Server and IBM Business Process Manager. You can obtain an IBM ID and password by registering at <http://www.ibm.com>.

To continue installing without downloading the required fixes, click **Cancel** or clear the **Use your support account to include updates with the installation** option on the Installation summary page.

After successfully installing the product, you can use Installation Manager to install the required fixes.

8. On the Licenses page, read the license agreement. If you agree to the terms of the license agreement, click **I accept the terms in the license agreements**, and then click **Next**.
9. On the Location page, the **Create new package group** option is selected by default. Select a location for the shared resources directory and a location for the Installation Manager, and then click **Next**. You must select location for the Installation Manager only if it is not already installed.

**Tip:**

Keep the installation path as short as possible. Otherwise, you might run into problems later when the paths of other components, when added to this path, cause this path to exceed the 255-character path limit.

The Install Packages wizard checks your system for operating system prerequisites. If you are at a later release of a supported operating system, or if the operating system is not supported, you might receive a warning. You can continue with the installation, but the installation or product operation might not succeed until you apply product fix packs.

If you receive a warning, go to the product support web pages and obtain the latest fix packs to apply after installation. To migrate non-IBM prerequisite and corequisite products to the supported versions, see the documentation for those products.

10. On the Features page, expand the plus symbol to select the package features that you want to install. Installation Manager automatically enforces dependencies with other features and shows the updated download size and disk space requirements for the installation.

1. Select the translations to install. Under **Translations Supported by All Packages**, **English** is selected by default for the English version. To install other language versions, select the appropriate language under **Translations Supported by Only Some Packages**.
2. Optional: To see the dependency relationships between features, select **Show Dependencies**.
3. Optional: Click a feature to view its brief description under **Details**.
4. Select one of the following features to install.
  - IBM Process Center License
  - IBM Process Server Production License to use the server in production
  - IBM Process Server Non-production License to use the server only for development, test, or staging.

Your selection is recorded in the product tag for inventory purposes, so select the license feature that matches the license you have purchased and want to use. There are no functional differences.

**Restriction:**

Do not mix production and non-production servers in the same cell.

When you are finished selecting features, click **Next**.

11. On the Summary page, review your choices before installing the IBM Business Process Manager Express package. When you are satisfied with your installation choices, click **Install**. A progress indicator shows the percentage of the installation completed.
12. When the installation process is complete, a message confirms the success of the process.
  1. Optional: To open the installation log file for the current session in a new window, click **View Log File**. To continue, close the Installation Log window.
  2. If you plan to use the **BPMConfig** command-line utility to create your Deployment Environment, select **None** to complete the installation.
  3. Click **Finish**.

### What to do next

After you install IBM Business Process Manager, you must configure profiles and databases by using the **BPMConfig** command.

**Parent topic:** [Installing IBM Business Process Manager Express](#)

**Parent topic:** [Installing IBM Business Process Manager Express](#)

### Related reference:

[Warnings about GTK or ulimit on Linux or UNIX when installing or migrating](#)

### Related information:

[➔ Installation Manager updates](#)

[Messages and known issues during installation and profile creation](#)

[Installation and profile creation log files](#)

[Preparing to install and configure the software](#)

[DB2 log file error: SQL1092N "USERID does not have the authority to perform the requested command or operation."](#)

## 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 users for Oracle 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 [Oracle database privileges](#).

See [Creating users for Oracle databases \(The complete content of this topic has been loaded\)](#).



You can create the users for Oracle databases either before or after you run the **BPMConfig** command with the **-create -de** parameters to create the stand-alone profile. Create the deployment environment-level user, the Process Server user, and the Performance Data Warehouse user.

The **BPMConfig** command requires input from a properties file that contains configuration settings for the profile and database users to be created. In this file, the **bpm.de.deferSchemaCreation** property determines when the database users can be created:

- If the property is set to `false`, database tables are automatically created when you run the **BPMConfig** command to create the stand-alone profile. Therefore, the database users 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 stand-alone profile. Therefore, you can create the database users either before or after running the command. You might find it useful to create the database users after running the **BPMConfig** command because you can use the set of populated scripts, which the command generates, to create the database users and database tables at a time that you choose.

## Before you begin

Before you install your system in Oracle database, ensure that the minimum initial settings in the following table are met for IBM BPM database schema users:

Table 1. Minimum initial settings for BPM database schema users

Tuning item	Minimum memory for initial settings (MB)
Buffer cache	2048
Shared pool size	1024

### Note:

You might want to enlarge the memory for the preceding settings depending on the capacity of your BPM system. For more tuning details, consult your database administrator.

Recommendations for database tablespace settings:

On Oracle, IBM® Business Process Manager stores large objects (LOBs) with the SECUREFILE option. For SECUREFILE, it is recommended to use a tablespace with the AUTOALLOCATE option. If you use UNIFORM SIZE extents, ensure that the UNIFORM SIZE is big enough. Given the default block size of 8K, specify a UNIFORM SIZE of at least 120K. IBM BPM does not explicitly prescribe the tablespace options; it relies on the default Oracle settings (such as AUTOALLOCATE) to automatically manage extents.

For new IBM BPM installations, create tablespaces with the AUTOALLOCATE option.

For migrations, if you use tablespaces with a UNIFORM SIZE less than 120K, create new tablespaces with the AUTOALLOCATE option and make it the default tablespace for IBM BPM

database schema users.

You can use a single instance of Oracle for configuring IBM Business Process Manager. The Oracle instance must exist and be available for access. Consult the Oracle documentation to create an Oracle instance. If you use a single Oracle instance, make sure that you use different user IDs for the three different IBM Business Process Manager databases.

### 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.

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

- [Creating users for the databases before creating the stand-alone profile and database tables](#)
- [Creating users for the databases after creating the stand-alone profile](#)

**Parent topic:** [Configuring a stand-alone environment with an Oracle database server on Windows](#)

### Related information:

[Creating the BPM database tables on Oracle and configuring stand-alone profiles on Windows](#)

[Creating users for the databases before creating the stand-alone profile and database tables](#)

To generate the database scripts that can be used by the **BPMConfig** command to create the users and configure your databases, you can run **BPMConfig** 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.

**Important:**

If you are using an Oracle database, you must include the database user name and password for all databases, including the optional ones.

## 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:

```
install_root\BPM\samples\config\express
```

2. Find the sample properties file that most closely represents your target deployment environment and make a copy of this file. The sample properties files are named according to the following format: *de\_type*[-*environment\_type*]-*topology*-Oracle, where:

- *de\_type* is set to Express.
- *environment\_type* can be set to PS for Process Server or PC for Process Center. .
- *topology* is set to Standalone.

For example, the sample configuration properties file for a stand-alone Process Center environment using an Oracle database is named `Express-PC-Standalone-Oracle.properties`.

3. Edit the copied properties file and update the values as required to reflect your profile 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 stand-alone profile.

**Additional considerations:**

- Your modified properties file must use UTF-8 encoding.
- If you want to automatically create your database tables when you run the **BPMConfig** command later to create the stand-alone profile, set the `bpm.de.deferSchemaCreation` property to `false`.
- 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, for instance when specifying path names or passwords, you must use an escape backslash before it. For example: `bpm.de.node.1.installPath=c:\\IBM\\BPM85`.

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:

```
install_root\bin\BPMConfig -create -sqlfiles directory_path\my_environment
```

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 `createUser.sql`, which can be used to create the users for the databases. The `createUser.sql` files are generated into the following default locations:

- *my\_bpmscripts\_dir\dbscripts\cell\_name.deployment\_environment\_name\Oracle\oracle\_instance\_name\CMN\_user*
- *my\_bpmscripts\_dir\dbscripts\cell\_name.deployment\_environment\_name\Oracle\oracle\_instance\_name\PS\_user*
- *my\_bpmscripts\_dir\dbscripts\cell\_name.deployment\_environment\_name\Oracle\oracle\_instance\_name\PDW\_user*

The number of subdirectories that are generated is dependent on the number of database users that were defined in the properties file.

**Note:**

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

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

```
sqlplus oracle_user_ID/oracle_password@oracle_instance_name @createUser
```

**Note:**

Although you can specify the schema user password shown in the command syntax, you can alternatively edit the `createUser.sql` script and replace the parameter `&1` with the schema user password and then run the script without specifying any parameter.

## Creating users for the databases after creating the stand-alone profile

If you want to use the **BPMConfig** command to create the stand-alone profile separately from the database tables, you can first run the command with the **-create -de** parameters to create the profile. Afterwards, you can run the command again with the **-create -sqlfiles** parameters to generate the database scripts that can be used to create the users for the databases and the database tables. The generated database scripts are populated with the values from the properties file that you specified.

## Before you begin

You must have already run the **BPMConfig** command to create the stand-alone profile.

## Procedure

1. Note the location of the properties file that you specified when you ran the **BPMConfig** command to create the stand-alone profile.
2. On the computer where you created the stand-alone profile, run the **BPMConfig** command to generate the database scripts, passing it the name of the properties file. For example:  

```
install_root\bin\BPMConfig -create -sqlfiles directory_path\my_envirom
```

In this syntax, *directory\_path\my\_environment.properties* is the location and name of your customized properties file. (The **-outputDir** parameter and associated *my\_bpmscripts\_dir* value are optional and can be used to specify an alternative directory where you want to generate the database scripts.)

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

- `standalone_profile_root\dbscripts\cell_name.deployment_environment_name\Oracle\oracle_instance_name\CMN_user`
- `standalone_profile_root\dbscripts\cell_name.deployment_environment_name\Oracle\oracle_instance_name\PS_user`
- `standalone_profile_root\dbscripts\cell_name.deployment_environment_name\Oracle\oracle_instance_name\PDW_user`

The number of subdirectories that are generated is dependent on the number of database users that were defined in the properties file.

**Note:**

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

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

```
sqlplus oracle_user_ID/oracle_password@oracle_instance_name @createU
```

**Note:**

Although you can specify the schema user password shown in the command syntax, you can alternatively edit the `createUser.sql` script and replace the parameter `&1` with the schema user password and then run the script without specifying any parameter.

### Creating the database tables and configuring stand-alone profiles

You can either create the database tables and profiles simultaneously or separately.

To create them simultaneously, see [Creating databases and profiles simultaneously using the BPMConfig command](#) (*The complete content of this topic has been loaded*).

## Creating database tables and profiles simultaneously using the BPMConfig command

If you are running your databases on the same computer as your deployment environment, you can use the **BPMConfig** command to create a stand-alone profile and the database tables simultaneously.

### Before you begin

If you have an existing WebSphere® Application Server profile that you want to augment, you must use the **manageprofiles** command-line utility instead.

### Procedure

To create a stand-alone profile and the database tables at the same time, complete the following steps:

1. Locate the appropriate sample properties file based on your environment in `install_root\BPM\samples\config\express`. For example, the sample configuration properties file for a Process Center environment using Oracle with IBM® BPM Express is called `Express-PC-Standalone-Oracle.properties`.
2. Modify your version of the properties file so that the values correspond to your own configuration. When you save your file, ensure that it uses UTF-8 encoding. For information about the available properties, read the comments in the sample files, or see the [BPMConfig command-line utility](#) and the examples. To have the database tables created at the same time as the profile is created, ensure that the setting for `bpm.de.deferSchemaCreation` is set to `false`.
3. Run the **BPMConfig** command, passing it the name of the properties file that you created.  
`install_root\bin\BPMConfig -create -de my_environment.properties`  
The new stand-alone profile, database tables, and deployment environment are created based on the settings in your properties file.

### What to do next

Proceed to the Quick Start console and start the server for the stand-alone profile you created.

To learn about security for the environment and applications, see [Creating a secure environment](#).

**Parent topic:** [Creating the BPM database tables and configuring stand-alone profiles](#)

To create them separately, first generate the database scripts. See [Generating Oracle database scripts using the BPMConfig command](#) (*The complete content of this topic has been loaded*).

## Generating Oracle database scripts using the BPMConfig command

You can use the **BPMConfig** command to generate the database scripts that are used to create your database tables. If you used the **BPMConfig** command to create the stand-alone profiles and database tables, the scripts were generated for you.

### 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.
- 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.

### Important:

If you are using an Oracle database, you must include the database user name and password for all databases, including the optional ones.

### Procedure

To generate the database SQL scripts that you can use to create your database tables, complete the following steps:

1. On the computer where you installed IBM Business Process Manager, locate the appropriate sample properties file in the following path: `install_root\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 more information about the sample configuration files, refer to [Configuration properties for the BPMConfig command](#).
3. Edit the copied properties file and update the values as required to reflect your profile and database configuration. When modifying the sample properties file, use the guidance provided within the file for specifying values.  
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 with the parameter `-sqlfiles` and the name of the equivalent properties file you choose.
  - To generate the database scripts in the `dbscripts` directory of the stand-alone profile, use the following syntax:

```
install_root\bin\BPMConfig -create -sqlfiles my_environment.properti
```

#### Note:

The SQL scripts are generated in the *STAND-ALONE\_PROFILE*/dbscripts folder by default. These scripts are deleted if you run the **BPMConfig** command again.

- To generate the database scripts in an output directory of your choice, use the following syntax:

```
install_root\bin\BPMConfig -create -sqlfiles my_environment.properti
```

In the above syntax, *MyBPMScriptDir* is the directory you specify.

## Results

The database SQL scripts are generated in the *STAND-ALONE\_PROFILE*\dbscripts folder by default. This folder includes the following sub-folders:

- *cell\_name.deployment\_environment\_name* - For each deployment environment, this folder will contain the SQL files that need to be run.

These subdirectories also contain a **createDatabase.sql** script, which you can use to run the database scripts to create the Oracle database tables.

A default configuration for an Express deployment environment with Oracle databases contains the following sub-folders and SQL scripts:

- ***cell\_name.deployment\_environment\_name***
  - Oracle
    - *orcl*
      - *cmnuser*
        - *createSchema\_Express.sql*
        - *createSchema\_Messaging.sql*
      - *psuser*
        - *createSchema\_Express.sql*
        - *createProcedure\_Express.sql*
      - *pdwuser*
        - *createSchema\_Express.sql*

In the above example, *orcl* is the Oracle instance, *cmnuser* is the **deployment environment-level** user, *psuser* is the Process Server user, and *pdwuser* is the Performance Data Warehouse user.

**Parent topic:** [Creating database tables and profiles separately using the BPMConfig command](#)

**Related information:**



Creating database tables for Oracle and profiles simultaneously using the BPMConfig command on Windows

BPMConfig command-line utility

Second, run the database scripts. See [Running the generated Oracle database scripts](#) (*The complete content of this topic has been loaded*).

## Running the generated Oracle database scripts

If you run the **BPMConfig** command with the property `bpm.de.deferSchemaCreation` set to `true`, you must run the generated database scripts manually to create the database tables.

### Before you begin

Before you begin this task, you must have run the **BPMConfig** command to generate the correct SQL scripts. You also need to have created the required database users using the generated `createUser.sql` scripts.

If the `bpm.de.deferSchemaCreation` property is set to `false`, the SQL scripts used to create the database tables are automatically run when you create the deployment environment.

### About this task

The database SQL scripts are generated in the `profile_name\dbscripts` folder by default. This folder includes the following sub-folder:

- `cell_name.deployment_environment_name` - For each deployment environment, this folder will contain the SQL files that need to be run.

### Procedure

1. Locate the generated SQL scripts.

A default configuration for an Express deployment environment with Oracle databases contains the following sub-folders and SQL scripts:

- `cell_name.deployment_environment_name`
  - Oracle
    - `orcl`
      - `cmnuser`
        - `createSchema_Express.sql`
        - `createSchema_Messaging.sql`
      - `psuser`
        - `createSchema_Express.sql`
        - `createProcedure_Express.sql`
      - `pdwuser`

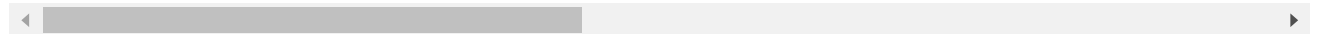
- `createSchema_Express.sql`

In the above example, `orcl` is the Oracle instance, `cmnuser` is the **deployment environment-level** user, `psuser` is the Process Server user, and `pdwuser` is the Performance Data Warehouse user.

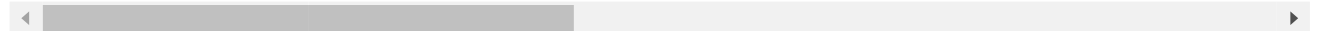
## 2. Run the scripts to apply the schema to the CMNDB.

For example, use the following commands to run the scripts manually for a **deployment environment-level** Common database configuration:

```
sqlplus cmnuser/cmnpassword@orcl @BPM_HOME\profiles\Server1Profile\dbsc
```



```
sqlplus cmnuser/cmnpassword@orcl @BPM_HOME\profiles\Server1Profile\dbsc
```



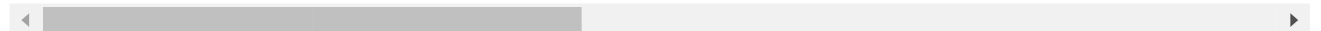
## 3. Run the scripts to apply the schema to the BPMDB.

For example, use the following commands to run the scripts manually for the Process database configuration:

```
sqlplus psuser/pspassword@orcl @BPM_HOME\profiles\Server1Profile\dbsc
```



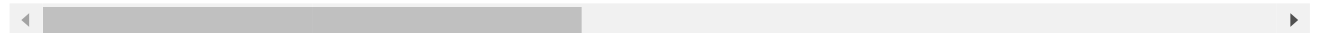
```
sqlplus psuser/pspassword@orcl @BPM_HOME\profiles\Server1Profile\dbsc
```



## 4. Run the scripts to apply the schema to the PDWDB.

For example, use the following commands to run the scripts manually for the Performance Data Warehouse database configuration:

```
sqlplus pdwuser/pdwpassword@orcl @BPM_HOME\profiles\Server1Profile\dbsc
```



## What to do next

You must now run the bootstrap utility to load configuration data for the IBM® Business Process Manager applications into the Process database. This data is required for the applications to run correctly.

**Parent topic:** [Creating database tables and profiles separately using the BPMConfig command](#)

### Related information:

[Generating Oracle database scripts using the BPMConfig command on Windows](#)

[Loading the database with system information in a stand-alone environment with an Oracle database server on Windows](#)

[BPMConfig command-line utility](#)

Third, create the profile. See [Creating stand-alone profiles with an Oracle database server using the BPMConfig command](#) (*The complete content of this topic has been loaded*).

## Creating stand-alone profiles using the BPMConfig command

You can configure a stand-alone profile using the **BPMConfig** command.

## Before you begin

If you have an existing WebSphere® Application Server profile that you want to augment, you must use the **manageprofiles** command-line utility instead.

## Procedure

1. Locate the appropriate sample properties file based on your environment in `install_root\BPM\samples\config\express`. For example, the sample configuration properties file for a Process Center environment using DB2 with IBM® BPM Express is called `Express-PC-Standalone-DB2.properties`.
2. Modify your version of the properties file so that the values correspond to your own configuration. When you save your file, ensure that it uses UTF-8 encoding. For information about the available properties, read the comments in the sample files, or see the [BPMConfig command-line utility](#) and the examples.
3. Run the **BPMConfig** command, passing it the name of the properties file that you created.  

```
install_root\bin\BPMConfig -create -de my_environment.properties
```

The new stand-alone profile and deployment environment are created based on the settings in your properties file.

## What to do next

- Proceed to the Quick Start console and start the server for the stand-alone profile you created.
- To learn about security for the environment and applications, see [Creating a secure environment](#)

**Parent topic:** [Creating database tables and profiles separately using the BPMConfig command](#)

Fourth, load 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 stand-alone environment

The **bootstrapProcessServerData** command must be completed successfully before you try to start or use Process Server or Process Center.

## Procedure

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:

If you created the stand-alone environment by using any method except setting the **bpm.de.deferSchemaCreation** parameter to `true` for the **BPMConfig** command, the **bootstrapProcessServerData** command is run automatically once.

- For Linux and UNIX, run `profile_root/bin/bootstrapProcessServerData.sh [-nodeName node_name -serverName server_name]`

The parameters are optional as the stand-alone profile only contains one server and it is used by default.

- For Windows, run `profile_root/bin/bootstrapProcessServerData.bat [-nodeName node_name -serverName server_name]`

The parameters are optional as the stand-alone profile only contains one server and it is used by default.

**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 `profile_root/logs/bootstrapProcessServerData.serverName.log`.

## Results

You have successfully loaded the database with system information for your stand-alone environment.

**Parent topic:** [Creating database tables and profiles separately using the BPMConfig command](#)

## 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 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.

**Parent topic:** [Installing and configuring IBM Business Process Manager Express](#)

## 4 Troubleshooting 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.

## [Terms and conditions](#)