

Oracle® Communications Billing and Revenue Management

Patch Set Installation Guide



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The Oracle logo, consisting of a solid red square with the word "ORACLE" in white, uppercase, sans-serif font centered within it.

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Preface

This guide provides general information on how to install and uninstall Oracle Communications Billing and Revenue Management (BRM) 12.0 patch sets.

Audience

This guide is intended for system administrators and those involved in planning BRM systems.

Documentation Accessibility

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1

Installing BRM 12.0 Patch Sets

Learn how to install and uninstall an Oracle Communications Billing and Revenue Management (BRM) 12.0 patch set.

Topics in this document:

- [About the Patch Set](#)
- [Performing Zero Downtime Upgrade](#)
- [Installing the Patch Set](#)
- [Post-Installation Tasks](#)
- [Installing the BRM Patch Set in Silent Mode](#)
- [Installing Optional Components on the BRM Patch Set](#)
- [Rolling Back the BRM Patch Set](#)



Note:

- To directly upgrade an existing BRM 7.5 installation (from BRM Maintenance Patch Set 1 through BRM 7.5 Patch Set 23) to a BRM 12.0 patch set, see *BRM Upgrade Guide*. For information on the supported upgrades, see "Supported BRM Upgrades" in *BRM Compatibility Matrix*.
- To do a full installation of a BRM 12.0 patch set, see *BRM Installation Guide*.

About the Patch Set



Note:

Test the patch on a non-production system before you deploy it on a production system.

The BRM Patch Set installer allows you to upgrade from BRM 12.0 or a BRM 12.0 Patch Set to the latest patch set. For example, you could upgrade a BRM 12.0 Patch Set 1 system to BRM 12.0 Patch Set 5.

When you do an upgrade, only files that have been changed are updated. The patch installer makes a backup of any file it updates. You use the backup files to merge your customizations and to uninstall the patch. The prepatch version of each updated file is stored with the extensions GA and TGA and is left in its original directory. For example, when you install BRM 12.0 Patch Set 5 to upgrade Pipeline Manager, the existing **sample.reg** file is renamed to **sample.reg.TGA**.

The patch contains multiple packages to upgrade different BRM and Pipeline Manager components. You can install or upgrade these components by installing their corresponding packages:

- BRM
- BRM SDK
- Pipeline Manager

Performing Zero Downtime Upgrade

Note:

Before performing the zero downtime upgrade, note the following:

- The zero downtime upgrade method is supported by BRM 12.0 Patch Set 3 and later releases.
- If you perform the zero downtime upgrade, billing might fail for some accounts. In that case, rerun billing for the failed bill units by running the billing utility with the **-retry** option.
- If your upgrade fails due to resource busy or timeout errors in the database, consult your DBA about increasing the value of the `DDL_LOCK_TIMEOUT` parameter for your database.

You can use the zero downtime upgrade method to upgrade your existing BRM installation with very minimal disruption to your existing installation and the services that are provided to your customers.

Before you perform the zero downtime upgrade, ensure the following:

- You have two instances of the existing BRM 12.0 patch set on your system; for example, two instances of BRM 12.0 Patch Set 2.
- Both BRM 12.0 patch set instances are currently running. This includes the primary and secondary instance and all the applications in the components connected to your BRM system.
- Both BRM 12.0 patch set instances are connected to the same BRM and Pipeline Manager database schemas.

To perform the zero downtime upgrade:

Note:

Do not shut down the applications in the components connected to your BRM system while the upgrade is running.

1. Route all the traffic (for example, phone calls or data usage) from the primary instance to the secondary instance.

2. Upgrade the *primary* instance and the BRM database schema to the BRM 12.0 patch set you want to install; for example, BRM 12.0 Patch Set 5. For instructions, see "[Installing the Patch Set](#)".
3. Start the *primary* instance. For instructions, see "Starting and Stopping the BRM System" in *BRM System Administrator's Guide*.
4. Reroute all traffic from the secondary instance to the primary instance.

 **Caution:**

During the database upgrade on the *primary* instance, ensure that the services or operations in the *secondary* instance are running until all of the requests are rerouted to the *primary* instance.

5. Upgrade the *secondary* instance to the BRM 12.0 patch set you want to install. For instructions, see "[Installing the Patch Set](#)".

 **Note:**

Because you have already upgraded the BRM database schema during the *primary* instance upgrade, you can skip "[Upgrading the BRM Database Schema](#)".

6. Perform post-installation tasks on both *primary* and *secondary* instances. See "[Post-Installation Tasks](#)".

 **Note:**

Batch operations, such as billing, might fail for a few accounts during the upgrade. You must restart the applications to complete your batch operations.

Installing the Patch Set

 **Caution:**

When upgrading a multischema system, pay close attention to the system on which each task is performed.

The patch is available for Oracle Linux and Oracle Solaris operating systems.

Perform the following tasks on your BRM system to install the BRM 12.0 patch set:

1. [Shutting Down the Current Instance](#)
2. [Backing Up Files](#)
3. [Backing Up Your BRM Database](#)
4. [Backing Up Your Pipeline Manager Database](#)

5. [Installing Perl](#)
6. [Installing Optional Components](#)
7. [Setting the BRM Wallet Location in sqlnet.ora](#)
8. [Setting Your Environment Variables](#)
9. [Downloading the Patch Set](#)
10. [Installing the Patch](#)
11. [Upgrading Business Operations Center](#)
12. [Installing BRM Thick Clients](#)
13. [Upgrading the BRM Database Schema](#)
14. [Upgrading the Pipeline Manager Database Schema](#)
15. [Adding Customizations](#)

Shutting Down the Current Instance



Note:

In multischema systems, all BRM instances must be shut down.

To shut down BRM:

1. Ensure that no users are logged in.
Users include customers, client applications, customer service representatives (CSRs), and so on.
2. Stop all BRM processes. For more information, see "Starting and Stopping the BRM System" in *BRM System Administrator's Guide*.
Only the database instances should be running during the patch installation.

Backing Up Files



Note:

In multischema systems, perform this task first on the primary BRM installation machine and then on the secondary BRM installation machines.

Back up your BRM files. In particular, make sure you back up all customized files, including source code, policy, **start_all**, **pin.conf**, **pin_ctl.conf**, **pin_setup.values**, and **Infranet.properties** files.

Some libraries that were used in previous patch sets are no longer needed for Patch Set 8. These libraries will be moved automatically to *BRM_home\deleted_files* for reference, so you do not need to back them up manually.

Backing Up Your BRM Database

 **Note:**

In multischema systems, perform this task first on the primary database schema and then on the secondary database schemas.

Make a complete offline backup of your BRM database using the appropriate backup tools for your database version and ensure that the backup is completely valid and usable. The backup must contain both the database definition and all the database contents. See your database software documentation for more information on performing full database backups.

 **Note:**

Store this backup in a safe location. The data in these files will become necessary if you encounter any issues in the upgrade process.

Backing Up Your Pipeline Manager Database

 **Note:**

In multischema systems, perform this task first on the primary database schema and then on the secondary database schemas.

If you are using Pipeline Manager, make a complete offline backup of your Pipeline Manager database using the appropriate backup tools for your database version and ensure that the backup is completely valid and usable. The backup must contain both the database definition and all the database contents. See your database software documentation for more information on performing full database backups.

 **Note:**

Store this backup in a safe location. The data in these files will become necessary if you encounter any issues in the upgrade process.

Installing Perl

Install the latest version of Perl certified with BRM on the system on which the BRM server is installed. For the latest version of Perl, see "Additional BRM Software Requirements" in *BRM Compatibility Matrix*.

Installing Perl on Linux

Before installing Perl (32 bit) on Linux, do this:

1. Install the required 32-bit libraries by doing this:
 - a. Go to the command prompt on the Linux server on which you want to install BRM.
 - b. Run these commands:

```
yum -y install gdbm-devel.i686
yum -y install libdb-devel.i686
```

Note:

If you use a proxy server as an intermediary for Internet access, configure a proxy server to access the Yum repository. See:

<https://docs.oracle.com/en/operating-systems/oracle-linux/software-management/sfw-mgmt-ConfigureaSystemtoUseOracleLinuxYumServer.html#config-proxy-with-yum>

2. Set the environment variable for installing Perl by running this command:

- For Bash shell:

```
export -n PATH
export -n LD_LIBRARY_PATH
export PATH=/usr/bin:/usr/local/bin:/bin
```

- For C shell:

```
unsetenv PATH
unsetenv LD_LIBRARY_PATH
setenv PATH /usr/bin:/usr/local/bin:/bin
```

To install Perl on Linux:

1. Download the source code for the compatible version of Perl to a temporary directory (*temp_dir*).

See "Additional BRM Software Requirements" in *BRM Compatibility Matrix*.

2. Go to *temp_dir* and unzip the source code by running this command:

```
gunzip perl-version.tar.gz
tar xf perl-version.tar
```

where *version* is the compatible version of Perl.

3. Run this command:

```
cd perl-version
sh Configure -des -Dcc="gcc -m32" -Dusetthreads -Duserelocatableinc -
Dprefix='perl_path'
```

where *perl_path* is the path to the directory in which you want to install Perl.

4. Run **make**.
5. Run **make test**.
6. Run **make install**.
7. Verify the Perl version by running this command:

```
Perl -v
```

The Perl version is displayed.

If the latest version of Perl certified with BRM is not displayed, the latest Perl is not installed.

Installing Perl on Solaris

Before installing Perl (32 bit) on Solaris, do this:

1. Install Oracle Developer Studio 12.5. See *Oracle Developer Studio Installation Guide* for instructions.
2. Comment these entries in the **util.c** file:

```
if(UNLIKELY(got != need)) {
    bad_handshake:/* recycle branch and string from above */
        /* if(got != (void *)HSF_NOCHK)
            noperl_die("%s: loadable library and perl binaries are mismatched"
                " (got handshake key %p, needed %p)\n",
                    file, got, need); */
}
```

3. Set the environment variable for installing Perl by running this command:

- For Bash shell:

```
export -n PATH
export -n LD_LIBRARY_PATH
export PATH=/usr/bin:/usr/local/bin:/bin
```

- For C shell:

```
unsetenv PATH
unsetenv LD_LIBRARY_PATH
unsetenv PERL5LIB
unsetenv PERL_HOME
setenv PATH /usr/bin:/usr/local/bin:/bin:/usr/ccs/bin:Oracle_dev_path
```

To install Perl on Solaris:

1. Download the source code for the compatible version of Perl to a temporary directory (*temp_dir*).

See "Additional BRM Software Requirements" in *BRM Compatibility Matrix*.

2. Go to *temp_dir* and unzip the source code by running this command:

```
gunzip perl-version.tar.gz
tar xf perl-version.tar
```

where *version* is the compatible version of Perl.

3. Run this command:

```
cd perl-version
sh Configure -des -Dcc="Oracle_dev_path" -Dusetthreads -Dusemorebits -
Dprefix='perl_path'
```

where:

- *Oracle_dev_path* is the path to the directory in which Oracle Developer Studio is installed.
- *perl_path* is the path to the directory in which you want to install Perl.

4. Run **make**.
5. Run **make test**.
6. Run **make install**.
7. Verify the Perl version by running this command:

```
perl -v
```

The Perl version is displayed.

If the latest version of Perl certified with BRM is not displayed, the latest Perl is not installed.

Installing Optional Components

Note:

In multischema systems, perform this task first on the primary BRM installation machine and then on the secondary BRM installation machines.

Before installing the BRM 12.0 patch set, install any BRM 12.0 optional components that you want to add to your BRM system. For example, if you want to add Collections Manager to your BRM system, install Collections Manager 12.0 before you install the latest BRM 12.0 patch set.

For more information, see "Installing Individual BRM Components" in *BRM Installation Guide*.

Setting the BRM Wallet Location in sqlnet.ora

By default, the BRM client wallet is stored in the *BRM_home/wallet/client* directory. If it is stored in a different location, update the **sqlnet.ora** file.

To set the BRM client wallet location in the **sqlnet.ora** file:

1. Open the **sqlnet.ora** file, which is located in the directory specified by \$TNS_ADMIN.
2. Add these entries:

```
SQLNET.WALLET_OVERRIDE = TRUE
WALLET_LOCATION= (
  SOURCE= (METHOD=FILE)
  (METHOD_DATA= (DIRECTORY=brm_wallet_path))
)
```

where *brm_wallet_path* is the path to the directory in which the BRM client wallet is stored.

3. Save and close the file.

Setting Your Environment Variables

To set your environment variables, perform these tasks on the machine on which you installed the BRM server:

1. Set the PERL_HOME environment variable to the directory in which the latest compatible version of Perl certified with BRM is installed:

```
setenv PERL_HOME Perl_path
```

where *Perl_path* is the path to the directory in which the latest version of Perl certified with BRM is installed, such as **/perl_5_32.1/linux**. For the latest version of Perl certified with BRM, see "BRM Software Compatibility" in *BRM Compatibility Matrix*.

2. If your BRM client wallet is not stored in the default location, set the BRM_CONF_WALLET and BRM_WALLET environment variables to point to the directory in which the BRM client wallet is stored:

```
setenv BRM_CONF_WALLET brm_wallet_path  
setenv BRM_WALLET brm_wallet_path
```

3. If your system is using an Oracle 19c database, set the TNS_SERVICE_NAME environment variable to the service name for your primary database:

```
setenv TNS_SERVICE_NAME service_name
```

4. If you use the Kafka Data Manager (DM), set the Kafka environment variables:

 **Note:**

The Kafka DM is supported in BRM 12.0 Patch Set 4 and later releases.

```
setenv KAFKA_HOME Kafka_path  
setenv KAFKA_BOOTSTRAP_SERVER_LIST KafkaHost1:port1,KafkaHost2:port2
```

where:

- *Kafka_path* is the path to the directory in which the Kafka library JARs are installed.
- *KafkaHost1:port1,KafkaHost2:port2* are the hosts and ports that the Kafka client will connect to in a bootstrap Kafka cluster the first time it starts. You can specify any number of hosts and ports in this list.
You can alternatively set this list in the **dm_kafka_config.xml** file. See "Mapping Business Events to Kafka Topics" in *BRM Developer's Guide*.

Downloading the Patch Set

To download the patch set, go to the Oracle support website (<https://support.oracle.com>). Search for and download the **Oracle Communications Billing and Revenue Management 12.0.0.x.0** software, where *x* is 1 for Patch Set 1, 2 for Patch Set 2, and so on.

Unzip the **pPatchNumber_1200x0_Generic.zip** file. The zip file includes the **brmsrver_12.0.0.x.0_platform_generic.jar** file for upgrading BRM Server and Pipeline Manager to the specified patch set.

Installing the Patch



Note:

In multischema systems, perform this task first on the primary BRM installation machine and then on the secondary BRM installation machines.

To install the patch:

1. Go to *temp_dir* and run one of these commands:

- To start the GUI installer:

```
Java_home/bin/java -jar brmsrver_12.0.0.x.0_platform_generic.jar
```

where *Java_home* is the directory in which you installed the latest compatible Java version.

- To start the GUI installer and install BRM using the **oralInventory** directory in a different location:

```
Java_home/bin/java -jar brmsrver_12.0.0.x.0_platform_generic.jar -  
invPtrLoc FilePath/oraInst.loc
```

where *FilePath* is the path to the directory in which the **oraInst.loc** file is located.

- To start the GUI installer and create a silent installer response file during the installation:

```
Java_home/bin/java -jar brmsrver_12.0.0.x.0_platform_generic.jar -  
record -destinationFile path
```

where *path* is the absolute path to the response file. See "[Installing the BRM Patch Set in Silent Mode](#)" for more information.

2. In the Welcome screen, click **Next**.
3. In the Installation Location screen, enter the full path or browse to the directory in which you installed BRM 12.0 and then click **Next**.
4. In the Specify Prerequisite Libraries Location screen, specify the following library information and then click **Next**.

Field	Description
Prerequisite Libraries	Enter the full path or browse to the directory in which the prerequisite libraries are stored.
Enable SSL for BRM server	If you do not want to enable secure communication between BRM server components, deselect the check box. To enable secure communication between BRM server components, leave the check box selected.

- In the Specify Wallet Details screen, enter the following information for accessing the Oracle wallets in BRM and then click **Next**.

Field	Description
Wallet Password	Enter a password for the client Oracle wallet.
Wallet Location	Enter the path or browse to the directory in which the client Oracle wallet is located.

- In the Installation Summary screen, review the selections you have made in the preceding screens and then click **Install**.

The Installation Progress screen appears.

 **Note:**

After installation begins, clicking **Cancel** stops the installation process, but the files that are already copied are not removed. You must manually remove the files. For instructions, see the steps to remove the files in "[Rolling Back the BRM Patch Set](#)".

- When the installation is done, click **Next**. The Installation Complete screen appears.
Note the provided URL. You will use this URL to access BRM.
- Click **Finish** to complete and exit.

Upgrading Business Operations Center

 **Note:**

Business Operations Center can only be upgraded to BRM 12.0 Patch Set 3 or later releases.

You can upgrade to Business Operations Center 12.0 Patch Set 3 or later from the following releases:

- Business Operations Center 7.5
- Business Operations Center 7.5 Patch Set 1 or later
- Business Operations Center 12.0
- Business Operations Center 12.0 Patch Set 1 and Patch Set 2

For instructions about upgrading to Business Operations Center 12.0 Patch Set 3 or later, see "Upgrading Business Operations Center" in *BRM Upgrade Guide*.

Installing BRM Thick Clients

Note:

BRM thick clients (such as Customer Center and Pricing Center) are supported by BRM 12.0 Patch Set 2 and later releases. For information about the clients and installations supported by BRM 12.0 Patch Set 2 and later releases, see "New Features in BRM" in *BRM Patch Set Release Notes*.

If the BRM client applications that you require are not installed, install the client applications.

For instructions on installing the client applications, see the discussion about installing BRM clients in *BRM Installation Guide*.

Upgrading the BRM Database Schema

The database objects associated with the optional components that are not already installed are not created or updated. To upgrade the BRM database schema, perform one of these procedures:

- [Upgrading the Schema on Single-Schema Systems](#)
- [Upgrading the Schema on Multischema Systems](#)

Upgrading the Schema on Single-Schema Systems

To upgrade the schema on single-schema systems:

1. Grant an additional permission to the BRM database user:
 - a. Connect to the primary database instance using SQL*Plus:

```
% sqlplus system@databaseAlias as sysdba
```

- b. Run the following command:

```
SQL> GRANT SELECT ON V_$SESSION TO BRM_user;  
Grant succeeded.  
SQL> commit;  
Commit complete.
```

- c. Exit SQL*Plus.

2. If you are using a SSL-enabled database, go to the *BRM_home/bin* directory and run these commands:

```
pin_config_editor -setconf -wallet DBWalletLocation -parameter  
oracle.security.client.connect_string1 -value DBConnectionString  
pin_config_editor -setconf -wallet DBWalletLocation -parameter  
oracle.security.client.username1 -value DBUsername
```

```
pin_config_editor -setconf -wallet DBWalletLocation -parameter
oracle.security.client.password1 -value DBpassword
```

where:

- *DBWalletLocation* is the path to the directory in which the BRM database wallet is stored.
 - *DBConnectionstring* is the connection string to the BRM database schema.
 - *DBusername* is the BRM database user name.
 - *DBpassword* is the BRM database password.
3. Open the *BRM_home/setup/scripts/pin_tables.values* file in a text editor.
 4. Set these parameters to **local**:


```
# For indexes on event tables
  $PIN_CONF_PARTITION_IND           = "local";
# For indexes on non event tables
  $PIN_CONF_NON_EVENT_PARTITION_IND = "local";
```
 5. Save and close the file.
 6. Go to *BRM_home* and source the **source.me** file:
 - Bash shell:


```
source source.me.sh
```
 - C shell:


```
source source.me.csh
```
 7. Go to the *BRM_home/setup/scripts* directory and run this script:


```
pin_upgrade_12psx.pl
```

where *x* is the patch set number, such as **1** for Patch Set 1, **2** for Patch Set 2, and so on.
 8. Merge the contents of the backed up **pin_ctl.conf** file into the new **pin_ctl.conf** file.

Upgrading the Schema on Multischema Systems

To upgrade the schema on multischema systems:

1. On the primary BRM installation machine, do this:
 - a. Grant an additional permission to the BRM database user:
 - i. Connect to the primary database instance using SQL*Plus:


```
% sqlplus system@databaseAlias as sysdba
```
 - ii. Run the following command:


```
SQL> GRANT SELECT ON V_$SESSION TO BRM_user;
Grant succeeded.
SQL> commit;
Commit complete.
```
 - iii. Exit SQL*Plus.
 - b. Ensure that the DMs in your secondary BRM installation machines are up and running.

- c. Ensure that the PERL_VERSION environment variable is set to the latest version of Perl certified with BRM.
- d. Open the *BRM_home/setup/pin_setup.values* file in a text editor.
- e. Set these parameters:

```
$SETUP_DROP_ALL_TABLES = "NO";
$SETUP_INIT_DB = "YES";
$SETUP_CONFIGURE = "YES";
$SETUP_DATABASE_TABLES = "NO";
```

- f. Save and close the file.
- g. Open the *BRM_home/setup/scripts/pin_tables.values* file in a text editor.
- h. Set these parameters to **local**:

```
# For indexes on event tables
$PIN_CONF_PARTITION_IND = "local";
# For indexes on non event tables
$PIN_CONF_NON_EVENT_PARTITION_IND = "local";
```

- i. Save and close the file.
- j. Go to *BRM_home* and source the **source.me** file:

Bash shell:

```
source source.me.sh
```

C shell:

```
source source.me.csh
```

- k. Go to the *BRM_home/apps/multi_db* directory and run this script:

```
./install.sh
```

Follow the on-screen instructions, entering this information for the primary schema and for each secondary schema when requested:

- Schema user name
- Schema password
- Schema SID (the BRM database alias of the schema)

 **Note:**

Repeat the "Do you have secondary schema to process" step for each secondary schema in your system.

The install script fixes any data errors caused by conflicting storable class IDs. The errors might have occurred during extended architecture (XA) transactions involving multiple schemas or when accounts were migrated from one schema to another.

 **Note:**

As the install script runs, it generates the *BRM_home/apps/multi_db/fix_multi_schema.log* file. To view the progress of the script, display the log file in a different console window.

- l. Go to the *BRM_home/setup/scripts* directory and run this script:

```
pin_upgrade_12psx.pl
```

where *x* is the patch set number, such as **1** for Patch Set 1, **2** for Patch Set 2, and so on.

- m. Merge the contents of the backed up **pin_ctl.conf** file into the new **pin_ctl.conf** file.

- n. Ensure that the BRM processes are not running.

2. On each secondary BRM installation machine, do this:

- a. Grant an additional permission to the BRM database user:

- i. Connect to the primary database instance using SQL*Plus:

```
% sqlplus system@databaseAlias as sysdba
```

- ii. Run the following command:

```
SQL> GRANT SELECT ON V_$SESSION TO BRM_user;
Grant succeeded.
SQL> commit;
Commit complete.
```

- iii. Exit SQL*Plus.

- b. Ensure that the BRM processes are not running.

- c. Open the *BRM_home/setup/scripts/pin_tables.values* file in a text editor.

- d. Set these parameters to **local**:

```
# For indexes on event tables
$PIN_CONF_PARTITION_IND          = "local";
# For indexes on non event tables
$PIN_CONF_NON_EVENT_PARTITION_IND = "local";
```

- e. Save and close the file.

- f. Go to *BRM_home* and source the **source.me** file:

Bash shell:

```
source source.me.sh
```

C shell:

```
source source.me.csh
```

- g. Copy the *BRM_home/setup/scripts/pin_multidb.conf* file from the primary environment to the same location in the secondary environment.

 **Note:**

After you copy this file manually to the secondary environment, the upgrade script will refresh the views by reading the copied file.

- h. Go to the *BRM_home/setup/scripts* directory and run this script:

```
pin_upgrade_12psx.pl
```

where *x* is the patch set number, such as **1** for Patch Set 1, **2** for Patch Set 2, and so on.

- i. Merge the contents of the backed up **pin_ctl.conf** file into the new **pin_ctl.conf** file.

3. On the primary BRM installation machine, do this:

- a. Go to the *BRM_home/apps/multi_db* directory and open the **config_dist.conf** file in a text editor.

- b. Add a line specifying the schema name at the end of each block in the file. For example, if you have two database schemas, your file might look like this:

```
DB_NO = "0.0.0.1" ;           # 1st database config block.
PRIORITY = 1 ;
MAX_ACCOUNT_SIZE = 100000 ;
STATUS = "OPEN" ;
```

```
DB_NO = "0.0.0.2" ;           # 2nd database config block.
PRIORITY = 1 ;
MAX_ACCOUNT_SIZE = 100000 ;
STATUS = "OPEN" ;
```

Update the file to look more like the following:

```
DB_NO = "0.0.0.1" ;           # 1st database config block.
PRIORITY = 1 ;
MAX_ACCOUNT_SIZE = 100000 ;
STATUS = "OPEN" ;
SCHEMA_NAME = "pin01" ;
```

```
DB_NO = "0.0.0.2" ;           # 2nd database config block.
PRIORITY = 1 ;
MAX_ACCOUNT_SIZE = 100000 ;
STATUS = "OPEN" ;
SCHEMA_NAME = "pin02" ;
```

using the correct schema names for your environment.

- c. Save and exit the **config_dist.conf** file.
- d. Go to the *BRM_home/setup/scripts* directory and run this command:

```
pin_multidb.pl -i
```

- e. At this prompt, enter **y**, which begins the configuration:

```
Do you want to start the configuration now? (y/n): y
```

- f. At this prompt, enter **2**, which initializes the primary database:

```
Please enter the starting step (0-8). If you don't know, enter 0: 2
```

- g. Follow the instructions displayed and exit the **pin_multidb.pl** script.

The refresh groups are recreated in the primary database.

- h. Run this command:

```
pin_multidb.pl -R all
```

The Connection Managers (CMs) in your secondary BRM installation machines are now started. The views, based on the information in the refresh groups, are re-created in the secondary databases.

Upgrading the Pipeline Manager Database Schema

Note:

In multischema systems, run the database upgrade script on the primary schema and then on the secondary schemas.

Pipeline Manager 12.0 Patch Set 5 includes changes to the Pipeline Manager database schema.

To upgrade your Pipeline Manager database schema to the Patch Set 5 or later release:

1. Open the *Pipeline_home/upgrade/pipeline_upgrade.cfg* file in a text editor, where *Pipeline_home* is the directory in which Pipeline Manager is installed.
2. Set the values of the following parameters:
 - Set **PIN_TEMP_DIR** to the directory in which you want to create the temporary files.
 - Set the **\$PIPELINE_TBSpace** environment variable to the tablespace where you want to create pipeline database objects.
 - In the **Information about the databases** section, configure the following database settings as required:

```
$MAIN_DB{'vendor'} = "oracle";
$MAIN_DB{'alias'} = ( $ENV{'ORACLE_SID_PIN'} or $ENV{'ORACLE_SID'} );
$MAIN_DB{'user'} = "USERNAME";
$MAIN_DB{'Database'} = "DATABASE_NAME";
$MAIN_DB{'Host'} = ( $ENV{'ORACLE_SID_PIN'} or $ENV{'ORACLE_SID'} );
```

3. Save and close the file.
4. Grant the required access to user **pin** on the Pipeline Manager tables and sequences, if you have not already done so.

See "Loading the Tailor-Made Stored Procedure" in *BRM Installation Guide* for more information about the Pipeline Manager tables and sequences that you should grant user **pin** access to.

5. Go to the *BRM_home/setup/scripts* directory and run this script:

```
pin_upgrade_12psx.pl
```

where *x* is the patch set number, such as **5** for Patch Set 5, **6** for Patch Set 6, and so on.

Adding Customizations

Note:

In multischema systems, incorporate customizations first on the secondary BRM installation machines and then on the primary BRM installation machine.

Incorporate any customizations you made, including source code, policy, **pin.conf**, **pin_ctl.conf**, **pin_setup.values**, and **Infranet.properties** files, if you have not already incorporated them.

(Production system only) Remove all entries for the **pin_virtual_time** utility from the configuration files.

Post-Installation Tasks

After you install the BRM 12.0 patch set, perform the following post-installation tasks:

1. [Configuring SSL for the BRM Database](#)
2. [Removing Invalid Objects from the Database](#)
3. [Merging the Price Lists](#)
4. [Setting the DM_IFW_SYNC Queue Database and CM Configuration Entries](#)
5. (Optional) [Setting the Bill State for Preexisting Bills](#)
6. [Migrating Tax Codes to Patch Set 5 or Later](#)
7. [Updating pin_inv_doc_gen Infranet.properties](#)

Configuring SSL for the BRM Database

Note:

SSL-enabled database is not supported on multischema systems.

On single-schema systems, you can configure secure sockets layer (SSL) for the BRM database by creating wallets for storing certificates and then modifying the following configuration files in the *Oracle_home/network/admin* directory, where *Oracle_home* is the directory in which the Oracle database is installed, to point to the appropriate wallet:

- **sqlnet.ora**
- **tnsnames.ora**

- **listener.ora**

You can use the **Orapki** utility to create the wallets.

For information about configuring SSL for the Oracle database, see the Oracle Database documentation.

Removing Invalid Objects from the Database

 **Note:**

In a multischema system, perform this task on the primary Oracle DM machine.

After installing the BRM patch set, run the **create_procedures** script to remove any invalid objects in the BRM database:

1. Go to the *BRM_home/sys/dm_oracle/data* directory.
2. Run this command, which opens SQL*Plus:

```
% sqlplus login@ORACLE_SID  
Enter password: password
```

where:

- *login* is the user name for the BRM database schema.
- *password* is the password for the specified user name.
- *ORACLE_SID* is the database alias of the BRM database schema.

3. Run this command:

```
SQL> @create_procedures_character_set.plb
```

where *character_set* specifies a database character set of either **UTF8** or **AL32UTF8**.

Merging the Price Lists

 **Note:**

Perform this task only if you were using branding in BRM 7.5.

Branding is not supported in BRM 12.0. Therefore, if you have upgraded BRM 7.5 to BRM 12.0 or if you are upgrading BRM 7.5 to the BRM 12.0 patch set, you must merge the brand price lists.

To merge the price lists:

1. Go to the *BRM_home/sys/dd/data* directory.
2. Run this command, which opens SQL*Plus:

```
sqlplus login/@ORACLE_SID  
Enter password: password
```

where:

- *login* is the user name for the BRM database schema.
- *ORACLE_SID* is the database alias of the BRM database schema.
- *password* is the password for the specified user name.

3. Run this command:

```
@merge_price_list.sql
```

Setting the DM_IFW_SYNC Queue Database and CM Configuration Entries

You must add the required DM_IFW_SYNC Queue Database and CM configuration entries to the corresponding **pin.conf** files.

To set the DM_IFW_SYNC queue database and CM configuration entries:

1. Open the *BRM_home/sys/dm_ifw_sync/pin.conf* file.
2. Add these required configuration entries:

```
- dm pcm_connect_max_retries 1
- dm pcm_reconnect_max_retries 3
- dm pcm_op_max_retries 0
- dm pcm_op_timeout_max_retries 0
- dm pcm_timeout_in_msecs -1
- dm pcm_auto_reconnect 1
- dm pcm_suspect_timeout_in_msecs -1
- dm pcm_bad_connection_retry_delay_time_in_secs 0
- dm pcm_reconnect first
- - custom_field_caching 0
-- ops_fields_extension_file dummy
```

3. Save and close the file.
4. Open the *BRM_home/sys/cm/pin.conf* file.
5. Add these required configuration entries:

```
- cm pcm_connect_max_retries 1
- cm pcm_reconnect_max_retries 3
- cm pcm_op_max_retries 0
- cm pcm_op_timeout_max_retries 0
- cm pcm_reconnect first
- cm pcm_timeout_in_msecs -1
- cm pcm_suspect_timeout_in_msecs -1
- cm pcm_auto_reconnect 1
- cm pcm_bad_connection_retry_delay_time_in_secs 0
- cm pcm_connect_rcvbuf_size 87380
- cm keepalive 1
- cm log_session 0
```

6. Save and close the file.

Setting the Bill State for Preexisting Bills

After applying BRM Patch Set 5, any new **/bill** objects include the **PIN_FLD_STATE** field set to the appropriate value. For all **/bill** objects that existed in the system before applying the BRM patch set, this field will be set to **UNDEFINED**.

You can optionally run a stored procedure to update the value of `PIN_FLD_STATE` on preexisting bills. This has no impact on functionality, but can be done for consistency.

To run the stored procedure:

1. Go to the `BRM_home/sys/dd/data` directory.
2. Connect to the Oracle database with SQL*Plus:

```
% sqlplus login@ORACLE_SID
Enter password: password
```

where:

- `login` is the user name for the BRM database schema.
- `password` is the password for the specified user name.
- `ORACLE_SID` is the database alias of the BRM database schema.

3. Run this command:

```
SQL> @update_bill_state_12PS5.source
```

The value is set according to the following conditions:

Condition	PIN_FLD_STATE Value
The value of <code>PIN_FLD_END_T</code> is 0	INPROGRESS
The value of <code>PIN_FLD_DUE</code> is not zero and is greater than or equal to the value of <code>PIN_FLD_CURRENT_TOTAL</code>	NEW
The value of <code>PIN_FLD_DUE</code> is not zero and is less than the value of <code>PIN_FLD_CURRENT_TOTAL</code>	PARTIALLYPAID
The value of <code>PIN_FLD_DUE</code> is zero.	SETTLED

See "About Bill States" in *BRM Concepts* for more information about these bill states.

Migrating Tax Codes to Patch Set 5 or Later

Starting with the Patch Set 5 release, tax codes are stored in the `/config/taxcodes_map` object rather than in the `taxcodes_map` file.

When you upgrade from a BRM 12.0 Patch Set 4 or earlier release to a Patch Set 5 or later release, the Patch Set installer loads the `/config/taxcodes_map` object with default values. You must migrate any existing tax codes from the `taxcodes_map` file to the `/config/taxcodes_map` object.

To migrate your existing tax codes to so, perform the following steps:

1. If your existing BRM system contains multiple `taxcodes_map` files, collate them into a single file.
2. Run the `convert_taxcode.pl` script to convert your existing tax codes into XML format:

```
perl BRM_home/setup/scripts/convert_taxcode.pl inputFile [outputFile]
```

where:

- *inputFile* is the name and location of the file that contains your pre-Patch Set 5 tax code configurations. By default, these tax codes are stored in the *BRM_home/sys/cm/taxcodes_map* file.
 - *outputFile* is the name of the output file to generate. This file will contain your tax codes converted into XML format. If not provided, the output file will be named **config_taxcodes_map.xml**.
3. Copy the generated **config_taxcodes_map.xml** file to the *BRM_home/sys/data/config* directory.
 4. Load the **config_taxcodes_map.xml** file into the BRM database:

```
BRM_home/apps/load_config/load_config -M BRM_home/sys/data/config/  
config_taxcodes_map.xml
```

See "load_config" in *BRM Developer's Guide* for information about the utility's syntax and parameters.

Your tax codes have been loaded into the */config/taxcodes_map* object.

Updating pin_inv_doc_gen Infranet.properties

Entries in the **pin_inv_doc_gen Infranet.properties** file have changed in the Patch Set 5 release.

Copy the changes from the *BRM_home/apps/pin_inv_doc_gen/Infranet.properties.sample* file to your *BRM_home/apps/pin_inv_doc_gen/Infranet.properties* file, and then set the following new entries:

- **infranet.schedulerdb.url**: Specifies the scheduler database URL in the following format:

```
jdbc:oracle:thin:hostname:port/service
```

where *hostname* is the hostname of the scheduler database, *port* is the port number for the scheduler database, and *service* is the service name of the scheduler database.

- **infranet.schedulerdb.user**: Specifies the user name for the scheduler database.
- **infranet.schedulerdb.credentials**: Specifies the security credentials for connecting to the scheduler database.
- **infranet.jdbcpool.size**: Specifies the initial number of connections maintained in the pool. The default is set to the same as **burst.threadpool.size**.
- **infranet.jdbcpool.maxsize**: Specifies the maximum number of connections that can be created. The default is set to the same as **burst.threadpool.maxsize**.

Installing the BRM Patch Set in Silent Mode

Use silent install mode when you are installing the BRM patch set using the same configuration repeatedly. Silent install mode does not use the GUI and it runs in the background.

In this mode, you use a response file template that contains a predefined set of values to install the BRM patch set. You can generate a response file that contains the parameters and values during the GUI installation.

Creating a Response File

To create a response file:

1. Create the response file by doing one of these:
 - Create a copy of the response file that was generated during the GUI upgrade. See ["Installing the Patch"](#) for more information.

Note:

The GUI Installer does not store passwords provided during installation in the response file. You must manually add the passwords after creating a copy of the response file.

- Create a response file using the template by running this command:

```
Java_home/bin/java -jar brmserver_12.0.0.x.0_platform_generic.jar -  
getResponseFileTemplates
```

where:

- *Java_home* is the directory in which you installed the latest supported Java version.
- *x* is the BRM patch set number, such as **1** for Patch Set 1, **2** for Patch Set 2, and so on.

A response file is created with the default values.

You can create as many response files as needed.

2. Open the file in a text editor.
3. Modify the response file you copied by specifying the key-value information for the parameters you want in your installation.

Note:

- The response file template contains guidelines and examples on how to enter the values in the parameters.
- The Installer treats incorrect context, format, and type values in a response file as if no value were specified.

4. Save and close the response file.

Installing the Patch in Silent Mode

To install the BRM patch set in silent mode:

1. Create the response file. See "[Creating a Response File](#)".
2. Copy the response file you created to the machine on which you run the silent installation.
3. On the machine on which you run the silent installation, go to the *temp_dir* directory in which you have downloaded the BRM server software pack, and run this command:

```
Java_home/bin/java -jar brmsserver_12.0.0.v.0_platform_generic.jar -debug -  
invPtrLoc Inventory_home/oraInventory/oraInst.loc [parameter=value] -  
responseFile path -silent
```

where:

- *path* is the absolute path to the response file.
- *parameter* is the name of an installation parameter.
- *value* is the value of the installation parameter.

For example:

```
Java_home/bin/java -jar brmsserver_12.0.0.2.0_platform_generic.jar -debug -  
invPtrLoc Inventory_home/oraInventory/oraInst.loc INSTALL_TYPE=Complete -  
responseFile /tmp/brm_patch.rsp -silent
```

The installation runs silently in the background.

Installing Optional Components on the BRM Patch Set

Typically, you install optional components before installing the patch set. In case you have already installed the BRM patch set and you want to install any optional component, do this:

1. Set the PERL_HOME environment variable to the directory in which Perl is installed by running this command:

```
setenv PERL_HOME Perl_path
```

where *Perl_path* is the path to the directory in which Perl is installed, such as */perl_5_28.1/linux*.

For the compatible Perl version, see "Additional BRM Software Requirements" in *BRM Compatibility Matrix*.

2. Install the required optional components. See "[Installing Optional Components](#)".
3. Set the PERL_HOME environment variable to the directory in which Perl is installed by running this command:

```
setenv PERL_HOME Perl_path
```

where *Perl_path* is the path to the directory in which Perl is installed, such as */perl_5_28.1/linux*.

4. Unset the PERL5LIB environment variable.
5. Go to the *BRM_home/setup* directory and run this command:

```
./pin_setup -GA
```
6. Upgrade the optional component to the BRM 12.0 patch set you want to install. See "[Installing the Patch](#)".

7. Set the PERL5LIB environment variable to the directory in which Perl is installed.

Rolling Back the BRM Patch Set

To roll back the BRM patch set:

1. Ensure that you take an offline backup of the data and customizations added after the patch set installation.
2. Stop all BRM daemons, processes, and managers.
See "Starting and Stopping the BRM System" in *BRM System Administrator's Guide*.
3. Log in as user **pin**.
4. Run this command:

```
./deinstall.sh
```

The Distribution to Uninstall screen appears.

5. Select the patch set and the components that you want to uninstall.

 **Note:**

Do not use the **Select All** option to select the patch set or components. If you use this option, the initial release and the patch sets are selected for uninstallation.

Ensure that you have selected only the components for the patch set that you want to uninstall.

6. Click **Uninstall**.

The Welcome screen appears.

 **Note:**

The Welcome screen displays the uninstaller version as **12.0.0.0.0**. You can ignore the version displayed in this screen.

7. Click **Next**.

The Uninstallation Summary screen appears.

8. Click **Uninstall**.

The Uninstallation Progress screen appears.

9. Click **Next**.

The Uninstallation Complete screen appears.

10. Click **Finish**.

The patch set is uninstalled and the backup files are stored in the system with the **.GA** extension.

11. To remove the backup files, run this command:

```
BRM_home/setup/scripts/RevertMe.pl 0 0 Oracle_home
```

where *Oracle_home* is the directory in which the Oracle database is installed.

12. If BRM and Pipeline Manager are installed on separate locations, run this command from the location in which Pipeline Manager is installed:

```
IFW_home/setup/scripts/RevertMe.pl 0 0 Oracle_home
```

where *IFW_home* is the directory in which Pipeline Manager is installed.

The backup files are removed and the BRM patch set is rolled back.