Oracle® Revenue Management and Billing

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Upgrade Guide

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Oracle Revenue Management and Billing Upgrade Guide

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Preface

About This Document

This document will help you to understand how to upgrade the Oracle Revenue Management and Billing application and its database. It also explains how to upgrade the application framework.

Intended Audience

This document is intended for the following audience:

- End-Users
- Consulting Team
- Implementation Team

Organization of the Document

The information in this document is organized into the following sections:

Section No.	Section Name	Description
Section 1	Preparing for Upgrade	Provides an overview of the upgrade process. It also lists the prerequisites for upgrading the application.
Section 2	Upgrading Application Framework	Lists and describes the steps for upgrading the application framework.
Section 3	Upgrading the Oracle Revenue Management and Billing Application	Lists and describes the steps for upgrading the Oracle Revenue Management and Billing application.
Section 4	Upgrading the Oracle Revenue Management and Billing Database	Lists and describes the steps for upgrading the Oracle Revenue Management and Billing database.
Section 5	Additional Tasks	Lists and describes the additional tasks that you need to perform after upgrading the application.
Appendix A	Known Issues	Lists the known issues in the current release of the Oracle Revenue Management and Billing application.
Appendix B	Third Party Software Upgrade	Provides a list of third party software that you need to upgrade before upgrading the application.

Related Documents

You can refer to the following documents for more information:

Document	Description
Oracle Revenue Management and Billing Release Notes Version 2.2.4.4	Provides a brief description about the new features and enhancements made in this release. It also highlights the bug fixes and known issues in this release.
Oracle Revenue Management and Billing Upgrade Path Guide	Explains the path and pre-requisites for upgrading Oracle Revenue Management and Billing from one version to another.

Contents

1. Preparing for Upgrade

This section provides an overview of the upgrade process. It also lists the pre-requisites for upgrading Oracle Revenue Management and Billing from one version to another.

1.1 Upgrade Overview

The following figure provides an overview of the steps that need to be taken for upgrading Oracle Revenue Management and Billing.

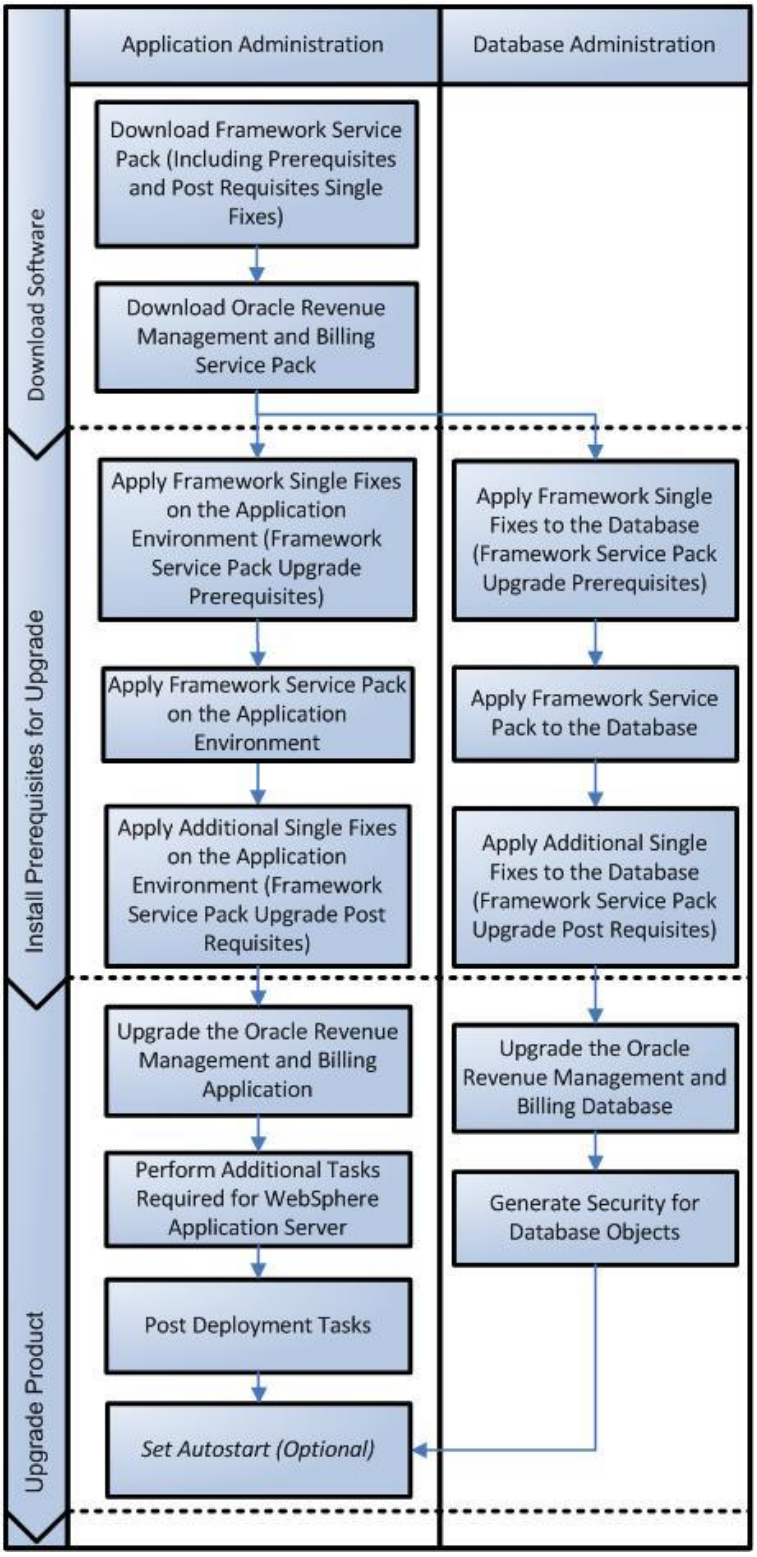

Figure 1 : Upgrade Process

1.2 Upgrade Pre-requisites

Before you upgrade Oracle Revenue Management and Billing, you need to upgrade the application framework as mentioned in the *Oracle Revenue Management and Billing Upgrade Path Guide*. While upgrading the application framework, you might have to apply some patches (additional single fixes) as pre-requisites or post-requisites.

Also, before you upgrade the application framework, you might have to upgrade some of the third party software. For more information, refer to the Upgrade Prerequisites section in the *Oracle Revenue Management and Billing Upgrade Path Guide.*

2. Upgrading Application Framework

This section explains how to upgrade the application framework. While upgrading the application framework, you must first apply the application framework service pack (patch set) to the database and then on the application environment.

This section describes how to:

- Download Application Framework Service Pack
- Decompress Service Pack
- Apply Application Framework Service Pack to the Database
- Generate Security for Database Objects
- Apply Application Framework Service Pack on the Application Environment

Note: Before you upgrade the application framework, you must take a backup of the application and the database.

2.1 Downloading Application Framework Service Pack

The application framework service pack is common for all platforms, such as AIX, Windows, and Linux. You can download upgrade-specific application framework service pack (patch set) using the following URL:

https://support.oracle.com/epmos/faces/PatchHome?_afrLoop=191268115038132&_afrWindowMode=0&_adf.ctrl-state=hb46dr5zj_4

Note: The downloaded file will be in the ZIP format for AIX, Windows and Linux platforms.

2.2 Decompressing Service Pack

Once the application framework service pack is downloaded, you must do the following:

1. Login to the application server using the administrator's credentials.
2. Create a temporary folder or directory (for example, TEMPDIR) on the application server using the following command:

   AIX, Windows and Linux:

   ```
   mkdir TEMPDIR
   ```

3. Copy the downloaded zip file to the TEMPDIR folder using the following command:

   AIX:

   ```
   cp <PATH>/<filename>.zip <PATH>/TEMPDIR
   ```

   Windows:

   ```
   cp <PATH>\<filename>.zip <PATH>\TEMPDIR
   ```

   Linux:

   ```
   cp <PATH>/<filename>.zip <PATH>/TEMPDIR
   ```

Note: You can also use File Transfer Protocol (FTP) to transfer the downloaded file from one host to another. You must use the binary mode while copying files through FTP.

4. Change to the TEMPDIR folder using the following command:

   AIX:

   ```
   cd <PATH>/TEMPDIR
   ```

   Windows:

   ```
   cd <PATH>\TEMPDIR
   ```

   Linux:

   ```
   cd <PATH>/TEMPDIR
   ```

5. Unzip the downloaded file using the following command:

   AIX:

   ```
   unzip <filename>.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   Windows:

   ```
   unzip <filename>.zip –d <PATH>\<DESTINATION_FOLDER>
   ```

   Linux:

   ```
   unzip <filename>.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   The contents of the zip file are extracted in the <DESTINATION_FOLDER> folder. Note that this folder contains a ZIP and a readme file. The ZIP file has the following naming convention:

   ```
   FW-<Framework_Version_Number>-<Service_Pack_Number>-
   MultiPlatform.zip
   ```

   The readme file lists the prerequisites, post-requisites, installation sequence, and the contents of the zip file. It also lists the bugs which are fixed in this service pack.

6. Unzip the extracted file using the following command:

   AIX:

   ```
   unzip <PATH>/FW-<Framework_Version_Number>-<Service_Pack_Number>-
   MultiPlatform.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   Windows:

   ```
   unzip <PATH>\FW-<Framework_Version_Number>-<Service_Pack_Number>-
   MultiPlatform.zip –d <PATH>\<DESTINATION_FOLDER>
   ```

   Linux:

   ```
   unzip <PATH>/FW-<Framework_Version_Number>-<Service_Pack_Number>-
   MultiPlatform.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   The contents of the zip file are extracted in the <DESTINATION_FOLDER> folder. Note that this folder includes a JAR file.

7. Decompress the JAR file using the following command:

AIX:

```
jar –xvf <PATH>/<filename>.jar
```

Windows:

```
jar –xvf <PATH>\<filename>.jar
```

Linux:

```
jar –xvf <PATH>/<filename>.jar
```

The contents of the JAR file are extracted in a folder. This folder has the following naming convention:

```
FW-<Framework_Version_Number>-<Service_Pack_Number>
```

This folder contains multiple folders - each folder represents a single fix or patch with the patch set.

Note: On Windows machine, you can either use the User Interface (UI) or the Command Prompt to execute these commands.

2.3 Applying Application Framework Service Pack to the Database

You can apply application framework service pack (patch set) only to the existing database. To apply the patch set to the database, you must have the following:

- Oracle Client (10.2.0.3 or later) installed on the machine from where you want to apply the service pack
- Ability to connect to the database

To apply the patch set to the database:

1. Unzip the database zip file in the TEMPDIR folder using the following command:

   AIX:

   ```
   unzip <PATH>/FW-<Framework_Version_Number>-<Service_Pack_Number>-
   Database.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   Windows:

   ```
   unzip <PATH>\FW-<Framework_Version_Number>-<Service_Pack_Number>-
   Database.zip –d <PATH>\<DESTINATION_FOLDER>
   ```

   Linux:

   ```
   unzip <PATH>/FW-<Framework_Version_Number>-<Service_Pack_Number>-
   Database.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   The contents of the zip file are extracted in the `<DESTINATION_FOLDER>` folder. Note that this folder contains two folders – `Oracle` and `MSQL`.

2. Depending on whether you are using Oracle or MySQL database, change to the respective folder using the following command:

   AIX:

```
cd <PATH>/Oracle
```

OR

```
cd <PATH>/MSQL
```

Windows:

```
cd <PATH>\Oracle
```

OR

```
cd <PATH>\MSQL
```

Linux:

```
cd <PATH>/Oracle
```

OR

```
cd <PATH>/MSQL
```

3. Unzip the `cdxdbi.zip` file using the following command:

   UINX:

   ```
   unzip cdxdbi.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   Windows:

   ```
   unzip cdxdbi.zip –d <PATH>\<DESTINATION_FOLDER>
   ```

   Linux:

   ```
   unzip cdxdbi.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   The contents of the zip file are extracted in the `<DESTINATION_FOLDER>` folder. Note that this folder contains multiple folders - each folder represents a single fix or patch that needs to be applied on the database. It also contains one utility program named CDXPatch which helps you to apply all patches on the Oracle or MySQL database.

4. Execute the `CDXPatch` utility using the following command:

   AIX:

   ```
   <PATH>/CDXPatch.exe
   ```

   Windows:

   ```
   <PATH>\CDXPatch.exe
   ```

   Linux:

   ```
   <PATH>/CDXPatch.exe
   ```

   The following message appears in the command line:

   ```
   Enter the target database type (O/M/D) [O]:
   ```

5. Depending on whether you have Oracle or MySQL database, enter `O` or `M`, respectively, and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the username that owns the schema:
   ```


6. Enter `CISADM` and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the password for the schema owner:
   ```

7. Enter the password as `CISADM` and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the name of the target database:
   ```

8. Enter the database name and then press **Enter**.

Note: This utility checks whether any patch is already applied to the database. If so, it skips the patch when you apply the patch set to the database.

   The following message appears in the command line:

   ```
   Ready to process patches, Do you want to continue? (Y/N)
   ```

9. Enter `Y` in the command line and then press **Enter**.

   The patch set is applied to the target database. A message appears indicating that the process has been completed successfully.

   A new working directory or folder is created each time you execute the CDXPatch utility. This folder has the following naming convention:

   ```
   XXXXXnnn
   ```

   where, `XXXXX` is the database name and `nnn` is a running number

   A log file is created in this working directory. This log file has log entries for each patch applied to the database.

2.4 Generating Security for Database Objects

Once you apply the patch set to the database, you need to execute a utility program named OraGenSec. This utility program helps you to generate security for all or specific objects in the database.

To generate security for all database objects:

1. Execute the `OraGenSec` utility using the following command:

   AIX:

   ```
   <PATH>/OraGenSec.exe
   ```

   Windows:

   ```
   <PATH>\OraGenSec.exe
   ```

   Linux:

   ```
   <PATH>/OraGenSec.exe
   ```

   The following message appears in the command line:

   ```
   Enter the Oracle user that owns the schema (e.g. CISADM):
   ```

2. Enter `CISADM` and then press **Enter**.

The following message appears in the command line:

```
Enter the password for the CISADM user:
```

3. Enter the password as `CISADM` and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the name of the target database:
   ```

4. Enter the database name and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter a comma-separated list of Oracle users in which synonyms need to be created (e.g. cisuser, cisread):
   ```

5. Enter `CISUSER`, `CISREAD` and then press **Enter**.

   The following message appears in the command line:

   ```
   Select the following options:

   (A/a): Generate security for all objects in the Database?

   (O/o): Generate security for specific Objects inputted in this terminal?

   (F/f): Generate security for specific objects generated from an input File?
   ```

6. Enter `A` to generate security for all objects in the database, and then press **Enter**.

   A message appears indicating that the database connection is established and security is defined for all objects in the database.

2.5 Applying Application Framework Service Pack on the Application Environment

Once you apply the patch set to the database and define security for all database objects, you must apply the patch set on the application environment. You can apply the patch set only on the existing application environment. On applying the patch set, all patches in the patch set are applied on the application environment.

To apply the patch set on the application environment:

1. Login to the application server using the administrator's credentials.
2. Initialize the application environment (on which you want to apply the patch set) using the following command:

   AIX:

   ```
   $SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
   ```

   Windows:

   ```
   %SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%
   ```


Linux:

```
$SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
```

Where, `$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed, and `$SPLENVIRON` or `%SPLENVIRON%` is the name of the application environment for which you want to set the environment variables.

3. Stop the application environment using the following command:

   AIX:

   ```
   $SPLEBASE/bin/spl.sh stop
   ```

   Windows:

   ```
   %SPLEBASE%\bin\spl.cmd stop
   ```

   Linux:

   ```
   $SPLEBASE/bin/spl.sh stop
   ```

4. Change to the `FW-<Framework_Version_Number>-<Service_Pack_Number>` folder using the following command:

   AIX:

   ```
   cd <PATH>/FW-<Framework_Version_Number>-<Service_Pack_Number>
   ```

   Windows:

   ```
   cd <PATH>\FW-<Framework_Version_Number>-<Service_Pack_Number>
   ```

   Linux:

   ```
   cd <PATH>/FW-<Framework_Version_Number>-<Service_Pack_Number>
   ```

5. Execute the `installSPack` utility using the following command:

   AIX:

   ```
   installSPack.sh
   ```

   Windows:

   ```
   installSPack.cmd
   ```

   Linux:

   ```
   installSPack.sh
   ```

Note: The `installSPack` utility checks whether any patch is already applied on the application environment. If so, it skips the patch when you apply the patch set on the application environment.

The following message appears in the command line:

```
Ready to process patches, Do you want to continue? (Y/N)
```

6. Enter `Y` in the command line and then press **Enter**.

   The patch set is applied on the application environment. A message appears indicating that the process has been completed successfully.

If any error occurs while applying the patch set on the application environment, the errors and error diagnosis steps are reported on the screen and in the log file. A log file is generated in the following folders:

- FW-<Framework_Version_Number>-<Service_Pack_Number> folder -
- Each patch folder

The errors that occurred while applying a patch on the application environment are maintained in the respective patch folder.

7. Execute the `SPErrorChecker` utility using the following command:

   AIX, Windows and Linux:

   ```
   perl SPErrorChecker.plx
   ```

Note: The `SPErrorChecker` utility scans the log file in all patch folders and reports any errors that have occurred while applying the patch set on the application environment.

A message appears indicating the number of log files that were generated and whether any error occurred while applying the patch set on the application environment.

8. Execute the `initialSetup` utility using the following command:

   AIX:

   ```
   $SPLEBASE/bin/initialSetup.sh
   ```

   Windows:

   ```
   %SPLEBASE%\bin\initialSetup.cmd
   ```

   Linux:

   ```
   $SPLEBASE/bin/initialSetup.sh
   ```

   Where, $`SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed.

   The `initialSetup` utility updates the configuration files including the WAR files on the system.

Note: You can view a list of patches and the order in which they are applied on the application environment in the $SPLEBASE/etc/installed_fixes.txt file.

3. Upgrading the Oracle Revenue Management and Billing Application

This section explains how to upgrade the application. Before you upgrade Oracle Revenue Management and Billing, you need to upgrade the application framework as mentioned in the *Oracle Revenue Management and Billing Upgrade Path Guide*.

This section describes how to:

- Download Application Service Pack
- Decompress Service Pack
- Install Application Service Pack
- Perform Additional Tasks Required for WebSphere Application Server
- Access the Oracle Revenue Management and Billing Application

Note:

Before you upgrade the application, you must take a backup of the application and the database. If you have updated the template files in the `$SPLEBASE/etc` folder, you must also take a backup of these files. Once the application is upgraded, you need to copy the latest template files back in the `$SPLEBASE/etc` folder.

When you upgrade the application, any metadata with the `Owner` flag set to `CM` is not overridden during the upgrade process.

3.1 Downloading Application Service Pack

Separate application service pack is available for each supported platform. For more information, refer to the Application Service Pack Numbers (Patch Numbers) section in the *Oracle Revenue Management and Billing Upgrade Path Guide*.

You can download application service pack using the following URL:

https://support.oracle.com/epmos/faces/PatchHome?_afrLoop=191268115038132&_afrWindowMode=0&_adf.ctrl-state=hb46dr5zj_4

Note: The downloaded file will be in the ZIP format for AIX, Windows and Linux platforms.

3.2 Decompressing Service Pack

Once the application service pack is downloaded, you must do the following:

1. Login to the application server using the administrator's credentials.
2. Create a temporary folder or directory (for example, TEMPDIR) on the application server using the following command:

   AIX, Windows and Linux:

   ```
   mkdir TEMPDIR
   ```

Note: You must skip this step if you have already created a temporary folder or directory while decompressing application framework service pack.

3. Copy the downloaded zip file to the TEMPDIR folder using the following command:

   AIX:

   `cp <PATH>/<filename>.zip <PATH>/TEMPDIR`

   Windows:

   `cp <PATH>\<filename>.zip <PATH>\TEMPDIR`

   Linux:

   `cp <PATH>/<filename>.zip <PATH>/TEMPDIR`

Note: You can also use File Transfer Protocol (FTP) to transfer the downloaded file from one host to another. You must use the binary mode while copying files through FTP.

4. Change to the TEMPDIR folder using the following command:

   AIX:

   `cd <PATH>/TEMPDIR`

   Windows:

   `cd <PATH>\TEMPDIR`

   Linux:

   `cd <PATH>/TEMPDIR`

5. Unzip the downloaded file using the following command:

   AIX:

   `unzip <filename>.zip –d <PATH>/<DESTINATION_FOLDER>`

   Windows:

   `unzip <filename>.zip –d <PATH>\<DESTINATION_FOLDER>`

   Linux:

   `unzip <filename>.zip –d <PATH>/<DESTINATION_FOLDER>`

   The contents of the zip file are extracted in the `<DESTINATION_FOLDER>` folder. Note that this folder contains the following three ZIP files:

   - `RMB-<RMB_Version_Number>-<Service_Pack_Number>-<Platform_Name>.zip`
   - `RMB-<RMB_Version_Number>-<Service_Pack_Number>-Database.zip`
   - `RMB-<RMB_Version_Number>-<Service_Pack_Number>-Docs.zip`

   It also contains one readme file.

6. Unzip the application zip file using the following command:

AIX:

```
unzip      <PATH>/RMB-<RMB_Version_Number>-<Service_Pack_Number>-
<Platform_Name>.zip -d <PATH>/<DESTINATION_FOLDER>
```

Windows:

```
unzip      <PATH>\RMB-<RMB_Version_Number>-<Service_Pack_Number>-
<Platform_Name>.zip -d <PATH>\<DESTINATION_FOLDER>
```

Linux:

```
unzip      <PATH>/RMB-<RMB_Version_Number>-<Service_Pack_Number>-
<Platform_Name>.zip -d <PATH>/<DESTINATION_FOLDER>
```

The contents of the application zip file are extracted in the `<DESTINATION_FOLDER>` folder. Note that this folder contains a ZIP and a readme file.

7. Unzip the extracted file using the following command:

AIX:

```
unzip    <PATH>/RMB_<RMB_Version_Number>[<Build_Number>].zip    -d
<PATH>/<DESTINATION_FOLDER>
```

Windows:

```
unzip    <PATH>\RMB_<RMB_Version_Number>[<Build_Number>].zip    -d
<PATH>\<DESTINATION_FOLDER>
```

Linux:

```
unzip    <PATH>/RMB_<RMB_Version_Number>[<Build_Number>].zip    -d
<PATH>/<DESTINATION_FOLDER>
```

The contents of the zip file are extracted in the `<DESTINATION_FOLDER>` folder.

Note: Before you install the application service pack, you must reflect the path where you have installed Micro Focus 5.1 in the $SPLEBASE/etc/cobdir.txt file.

3.3 Installing Application Service Pack

You must install application service pack only on the existing application environment. When you install application service pack on WebLogic application server, the application is deployed automatically on the server. However, when you install application service pack on WebSphere application server, the application is not deployed automatically on the server. You have to manually deploy the application on the server. For more information, refer to the Additional Tasks Required for WebSphere Application Server section.

Note: If the `spl-ccb-4.2.0.jar` file is available at `$SPLEBASE/etc/conf/root/WEB-INF/lib`, then delete the `spl-ccb-4.2.0.jar` file from the specified location before you install the application service pack.

To install the application service pack:

1. Login to the application server using the administrator's credentials.
2. Initialize the application environment (on which you want to install the service pack) using the following command:

AIX:

```
$SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
```

Windows:

```
%SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%
```

Linux:

```
$SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
```

Where, `$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed, and `$SPLENVIRON` or `%SPLENVIRON%` is the name of the application environment for which you want to set the environment variables.

3. Stop the application environment using the following command:

   AIX:

   ```
   $SPLEBASE/bin/spl.sh stop
   ```

   Windows:

   ```
   %SPLEBASE%\bin\spl.cmd stop
   ```

   Linux:

   ```
   $SPLEBASE/bin/spl.sh stop
   ```

Note: If you have WebLogic application server on AIX machine, you need to stop the application environment before you proceed with the installation. However, if you have WebSphere application server on AIX machine, you need to stop the application server before you proceed with the installation. To stop the application server, use the following command:

```
/opt/IBM/WebSphere/AppServer/bin/stopServer.sh <Server_Name>
```

4. Set the `ANT_OPTS` environment variable using the following command:

   Windows:

   ```
   Set ANT_OPTS= -Xms512m -Xmx1024m -XX:PermSize=256M
   ```

Note: This command helps to process some tasks which require more memory. This command is only applicable for Windows and not for AIX or Linux machine.

5. Change to the TEMPDIR folder using the following command:

   AIX:

   ```
   cd <PATH>/TEMPDIR
   ```

   Windows:

   ```
   cd <PATH>\TEMPDIR
   ```

   Linux:

   ```
   cd <PATH>/TEMPDIR
   ```

6. Install the service pack on the application environment using the following command:

   AIX:


```
<PATH>/install.sh
```

Windows:

```
<PATH>\install.cmd
```

Linux:

```
<PATH>/install.sh
```

Note: The `RMB_<RMB_Version_Number>[<Build_Number>].zip` file contains the `install.sh` and `install.cmd` files.

The following message appears in the command line:

```
Do you wish to proceed with the installation? Y/N:
```

7. Enter `Y` and then press **Enter**.

   The following message appears in the command line:

   Product CCB is already installed in the environment `$SPLENVIRON`. Do you want to reinstall it? [Y/N]

   Enter Choice:

8. Enter `Y` and then press **Enter**.

   A message appears indicating that the build is deployed successfully. In other words, it means the service pack is installed successfully on the application environment. The installation process might take some time to generate the WAR files.

   The following message appears in the command line:

   ```
   Do you wish to start the environment now? Y/N:
   ```

9. Enter `N` and then press **Enter**.

Note:

If you are installing application service pack on WebSphere application server, the following message appears before you are prompted to start the environment:

```
Would you wish to deploy web application to WebSphere now? Y/N:
```

Enter `N` and then press **Enter**.

Once the application service pack is installed, you need to manually deploy the application on WebSphere application server. For more information, refer to the Additional Tasks Required for WebSphere Application Server section.

10. Initialize the application environment (on which you have installed the service pack) using the following command:

    AIX:

    ```
    $SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
    ```

    Windows:

    ```
    %SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%
    ```


Linux:

```
$SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
```

Where, `$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed, and `$SPLENVIRON` or `%SPLENVIRON%` is the name of the application environment for which you want to set the environment variables.

11. Execute the `initialSetup` utility using the following command:

    AIX:

    ```
    $SPLEBASE/bin/initialSetup.sh
    ```

    Windows:

    ```
    %SPLEBASE%\bin\initialSetup.cmd
    ```

    Linux:

    ```
    $SPLEBASE/bin/initialSetup.sh
    ```

    Where, $`SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed.

    The `initialSetup` utility updates the configuration files including the WAR files on the system.

12. Start the application environment using the following command:

    AIX:

    ```
    $SPLEBASE/bin/spl.sh start
    ```

    Windows:

    ```
    %SPLEBASE%\bin\spl.cmd start
    ```

    Linux:

    ```
    $SPLEBASE/bin/spl.sh start
    ```

    A log file is generated. It indicates whether the application environment has started successfully or not. If any error occurred during startup, the same is recorded in the log file. By default, the log file is stored in the $SPLSYSTEMLOGS (%SPLSYSTEMLOGS% on Windows) directory.

Note: If you have WebLogic application server on AIX machine, you need to start the application environment. However, if you have WebSphere application server on AIX machine, you need to start the application server. To start the application server, use the following command:

```
/opt/IBM/WebSphere/AppServer/bin/startServer.sh <Server_Name>
```

But, before you start the server, you need to perform the tasks listed in the Additional Tasks Required for WebSphere Application Server section.

3.4 Additional Tasks Required for WebSphere Application Server

Once the application service pack is installed, you need to manually deploy the application on WebSphere application server. To deploy the application on WebSphere application server, you need to do the following in the specified order:

1. Deploy the SPLService.ear file
2. Deploy the SPLWeb.ear file
3. Configure the SPLService.ear file
4. Configure the SPLWeb.ear file
5. Map Users or Groups to the `cisusers` Role

Note:

If the SPLService.ear and SPLWeb.ear files are already deployed on WebSphere application server, you need to first uninstall them.

3.4.1 Deploying the SPLService.ear File

To deploy the SPLService.ear file on WebSphere application server:

1. Login to the Integrated Solutions Console using the administrator's credentials.
2. In the left pane, click the **Applications** option. A list appears.
3. Click the **Install New Application** link. The **Preparing for the application installation** page appears in the right pane.
4. Select the **Remote file system** option. The **Browse Remote Filesystems** page appears in the right pane.
5. Browse to the `$SPLEBASE\splapp\applications` location. The `applications` folder includes all `WAR` and `EAR` files.
6. Select the **SPLService.ear** option and click **OK**. The **Preparing for the application installation** page appears in the right pane.
7. Click **Next**. The **Install New Application** wizard appears in the right pane.
8. Click **Next**. The **Map modules to servers** wizard page appears.
9. Select the clusters or servers on which you want to install the modules that are contained in the application.
10. Select the check box corresponding to the module named **ServiceBean**. This indicates that you want to install the **ServiceBean** module on the selected server.
11. Click **Apply**. The module is mapped to the selected servers.
12. Click **Next**. The **Provide JNDI names for beans** wizard page appears.
13. Enter the Java Naming and Directory Interface (JNDI) name for the **ServiceBean** module. Use the following naming convention:

    `spl-<server name>/servicebean`

14. Click **Next**. The **Summary** wizard page appears.

15. Click **Finish**. The deployment process starts. It takes some time. A message appears indicating that the SPLService.ear file is deployed successfully on WebSphere application server.
16. Click the **Save** link to reflect the changes in the master configuration files.

3.4.2 Deploying the SPLWeb.ear File

To deploy the SPLWeb.ear file on WebSphere application server:

1. Login to the Integrated Solutions Console using the administrator's credentials.
2. In the left pane, click the **Applications** option. A list appears.
3. Click the **Install New Application** link. The **Preparing for the application installation** page appears in the right pane.
4. Select the **Remote file system** option. The **Browse Remote Filesystems** page appears in the right pane.
5. Browse to the `$SPLEBASE\splapp\applications` location. The `applications` folder includes all `WAR` and `EAR` files.
6. Select the **SPLWeb.ear** option and click **OK**. The **Preparing for the application installation** page appears in the right pane.
7. Select the **Show me all installation options and parameters** option and then click **Next**. Additional installation options and parameters appear in the right pane.
8. Click **Next**. The **Install New Application** wizard appears in the right pane.
9. Select the **Precompile JavaServer Pages files** check box and then click **Next**. The **Map modules to servers** wizard page appears.
10. Select the clusters or servers on which you want to install the modules that are contained in the application.
11. Select the check box corresponding to all modules, such as SPLApp.war, XAIApp.war, appViewer.war, and help.war. This indicates that you want to deploy all WAR files on the selected server.
12. Click **Apply**. The modules are mapped to the selected server.
13. Click **Next**. The **Provide options to compile JSPs** wizard page appears.
14. Enter `15` in the **JDK Source Level** field corresponding to all URIs.
15. Click **Next**. The **Provide JSP reloading options for Web modules** wizard page appears.
16. Click **Next**. The **Map shared libraries** wizard page appears.
17. Click **Next**. The **Initialize parameters for servlets** wizard page appears.
18. Click **Next**. The **Map virtual hosts for Web modules** wizard page appears.
19. Click **Next**. The **Map context roots for Web modules** wizard page appears.
20. Click **Next**. The **Map environment entries for Web modules** wizard page appears.
21. Click **Next**. The **Map security roles to users or groups** wizard page appears.
22. Click **Next**. The **Summary** wizard page appears.
23. Click **Finish**. The deployment process starts. It takes some time. A message appears indicating that the SPLWeb.ear file is deployed successfully on WebSphere application server.
24. Click the **Save** link to reflect the changes in the master configuration files.

3.4.3 Configuring the SPLService.ear File

To configure the SPLService.ear file:

1. Login to the Integrated Solutions Console using the administrator's credentials.
2. In the left pane, click the **Applications** option. A list appears.
3. Click the **Enterprise Applications** link. The **Enterprise Applications** page appears in the right pane.
4. Click the application (**SPLService-<Server Name>**) link. The **Configuration** tab appears where you can define settings of the application or its modules.
5. Under the **Modules** section, click the **Manage Modules** link. The **Manage Modules** page appears.
6. Click the **ServiceBean** link in the **Module** column. The **Configuration** tab appears where you can define settings of the module.
7. Enter `1` in the **Starting weight** field. This helps to indicate the startup priority for the **spl-servicebean-<Version Number>.jar** URI.
8. Click **OK**. The **Manage Modules** page appears.
9. Click **OK**. The **Configuration** tab appears where you can define settings of the application or its modules.
10. Click **OK**.
11. Click the **Save** link to reflect the changes in the master configuration files.

3.4.4 Configuring the SPLWeb.ear File

To configure the SPLWeb.ear file:

1. Login to the Integrated Solutions Console using the administrator's credentials.
2. In the left pane, click the **Applications** option. A list appears.
3. Click the **Enterprise Applications** link. The **Enterprise Applications** page appears in the right pane.
4. Click the application (**SPLWeb-<Server Name>**) link. The **Configuration** tab appears where you can define settings of the application or its modules.
5. Under the **Detail Properties** section, click the **Startup behavior** link.
6. Enter `2` in the **Startup order** field. This helps to indicate the order in which the application should be started.
7. Click **OK**. The **Configuration** tab appears.
8. Under the **Detail Properties** section, click the **Class loading and update detection** link.
9. Enter `0` in the **Polling interval for updated files** field. This helps to indicate the seconds within which the application file system should be scanned for updated files.
10. Click the **Classes loaded with application class loader first** option to indicate that you want class loader to first search application class loader to load a class.
11. Click **OK**. The **Configuration** tab appears.
12. Under the **Modules** section, click the **Manage Modules** link. The **Manage Modules** page appears.

13. Click the **SPLApp.war** link. The **Configuration** tab appears where you can define settings of the module.
14. Enter `10000` in the **Starting weight** field. This helps to indicate the startup priority for the module compared to other modules while starting a server.
15. Select the **Classes loaded with application class loader first** option from the **Class loader order** list. This helps to indicate that you want class loader to first search application class loader to load a class.
16. Click **OK**. The **Manage Modules** page appears.
17. Click the **XAIApp.war** link. The **Configuration** tab appears where you can define settings of the module.
18. Enter `10000` in the **Starting weight** field.
19. Select the **Classes loaded with application class loader first** option from the **Class loader order** list.
20. Click **OK**. The **Manage Modules** page appears.
21. Click the **appViewer.war** link. The **Configuration** tab appears where you can define settings of the module.
22. Enter `10000` in the **Starting weight** field.
23. Select the **Classes loaded with application class loader first** option from the **Class loader order** list.
24. Click **OK**. The **Manage Modules** page appears.
25. Click the **help.war** link. The **Configuration** tab appears where you can define settings of the module.
26. Enter `10000` in the **Starting weight** field.
27. Select the **Classes loaded with application class loader first** option from the **Class loader order** list.
28. Click **OK**. The **Manage Modules** page appears.
29. Click **OK**. The **Configuration** tab appears where you can define settings of the application or its modules.
30. Click **OK**.
31. Click the **Save** link to reflect the changes in the master configuration files.

3.4.5 Mapping Users or Groups to a Security Role

Once you deploy the application on WebSphere application server, you need to map users or groups to the `cisusers` role. To map users or groups to the `cisusers` role:

1. Login to the Integrated Solutions Console using the administrator's credentials.
2. In the left pane, click the **Applications** option. A list appears.
3. Click the **Enterprise Applications** link. The **Enterprise Applications** page appears in the right pane.
4. Click the application (**SPLService-<Server Name>**) link. The **Configuration** tab appears where you can define settings of the application or its modules.
5. Under the **Detail Properties** section, click the **Security role to user/group mapping** link.

6. Select the **All authenticated** check box corresponding to the `cisusers` role. This indicates that only authenticated users should be granted access to the `cisusers` role.
7. Select the **Select** check box corresponding to the `cisusers` role and then click **Look up users**. The **Look up users or groups** page appears.
8. Enter `SYSUSER` in the **Search String** field and then click **Search**. The user name appears in the **Available** list.
9. Select **SYSUSER** in the **Available** list and then click the **Move** () button. The selected user is moved to the **Selected** list.
10. Click **OK**. The user is mapped to the `cisusers` role.
11. Click **OK**. The **Configuration** tab appears where you can define settings of the application or its modules.
12. Click **OK**.
13. Click the **Save** link to reflect the changes in the master configuration files.
14. Similarly, repeat the steps from 5 to 13 for **SPLWeb-<Server Name>**.

3.5 Accessing the Oracle Revenue Management and Billing Application

The following table lists the URLs that you can use to access the application on various application servers:

Application Server	URL
WebLogic	http://<Hostname>:<WebLogic_Port_Number>/spl/
WebSphere	http://<Hostname>:<WebSphere_Port_Number>/spl-<Server_Name>/cis.jsp

4. Upgrading the Oracle Revenue Management and Billing Database

This section explains how to upgrade the Oracle Revenue Management and Billing database. When you upgrade the database, the system overwrites the database schema and the metadata present in the database. However, the transactional data is not affected.

Before you upgrade the database, you need to apply application framework service pack to the database as mentioned in the *Oracle Revenue Management and Billing Upgrade Path Guide*.

This section describes how to:

- Decompress the Database Zip File
- Upgrade the Oracle Revenue Management and Billing Database
- Generate Security for Database Objects

Note:

Before you upgrade the application, you must take a backup of the application and the database.

When you upgrade the application, any metadata with the `Owner` flag set to `CM` is not overridden during the upgrade process.

4.1 Decompressing Database Zip File

You can find the `RMB-<RMB_Version_Number>-<Service_Pack_Number>-Database.zip` file in the folder where you have unzipped the application service pack.

To decompress database zip file:

1. Login to the application server using the administrator's credentials.
2. Unzip the database zip file using the following command:

   AIX:

   ```
   unzip      <PATH>/RMB-<RMB_Version_Number>-<Service_Pack_Number>-
   Database.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   Windows:

   ```
   unzip      <PATH>\RMB-<RMB_Version_Number>-<Service_Pack_Number>-
   Database.zip –d <PATH>\<DESTINATION_FOLDER>
   ```

   Linux:

   ```
   unzip      <PATH>/RMB-<RMB_Version_Number>-<Service_Pack_Number>-
   Database.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

   The contents of the database zip file are extracted in the `<DESTINATION_FOLDER>` folder. Note that this folder contains a ZIP and a readme file.

3. Unzip the extracted zip file using the following command:

   AIX:

   ```
   unzip <PATH>/Database.zip –d <PATH>/<DESTINATION_FOLDER>
   ```

Windows:

```
unzip <PATH>\Database.zip –d <PATH>\<DESTINATION_FOLDER>
```

Linux:

```
unzip <PATH>/Database.zip –d <PATH>/<DESTINATION_FOLDER>
```

The contents of the zip file are extracted in the `<DESTINATION_FOLDER>` folder. Note that this folder contains the following files and folders:

- **Install-Upgrade** – This folder contains scripts and utilities which help you to upgrade the database.
- **DemoDB.dmp** – The demo database is a database which is developed for demonstration purpose. It contains sample data based on the functionalities provided with the current release.

4.2 Upgrading Database

Before you upgrade the Oracle Revenue Management and Billing database, you need to execute the following SQL query:

```
DELETE FROM CI_TXN_DTL_PRITM_SUMMARY;
```

This SQL query deletes the data from the CI_TXN_DTL_PRITM_SUMMARY table. If you do not execute this query, an error will occur while upgrading the database.

To upgrade the Oracle Revenue Management and Billing database:

1. Login to the application server using the administrator's credentials.
2. Execute the `CDXDBI.exe` utility using the following command:

   AIX:

   ```
   <PATH>/Install-Upgrade/CdxDBI.exe
   ```

   Windows:

   ```
   <PATH>\Install-Upgrade\CdxDBI.exe
   ```

   Linux:

   ```
   <PATH>/Install-Upgrade/CdxDBI.exe
   ```

   `Note: The CDXDBI.exe` utility helps to apply the blueprint to the database. In other words, it helps to reflect the metadata changes to the database.

   The following message appears in the command line:

   ```
   Enter the name of the target database:
   ```

3. Enter the name of the database which you want to upgrade and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the password for the SYSTEM user account in the database:
   ```

4. Enter the password and then press **Enter**.

   The following message appears in the command line:

```
Enter the name of the owner of Database Schema:
```

5. Enter the name of the user who owns the database schema and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the password for the user:
   ```

6. Enter the password of the user who owns the database schema and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the Oracle user with read-write privileges to Database Schema:
   ```

7. Enter the name of the user who has read and write privileges to the database, and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the Oracle user with read-only privileges to Database Schema:
   ```

8. Enter the name of the user who has read only privileges to the database, and then press **Enter**.

   If the target database connection is established successfully, the following message appears in the command line:

   ```
   Ready to upgrade the target database from <Old_RMB_Version> to <New_RMB_Version>. Do you want to continue (Y/N)?:
   ```

9. Enter `Y` and then press **Enter**.

   The system checks whether the specified user names exist in the database and then reflects the metadata changes in the database. If an error occurs while upgrading the database, the same is reflected in the log file. You can find these log files in the `Install-Upgrade` folder.

4.3 Generating Security for Database Objects

Once you upgrade the database, you need to execute a utility program named OraGenSec. This utility program helps you to generate security for all or specific objects in the database.

To generate security for all database objects:

1. Execute the `OraGenSec` utility using the following command:

   AIX:

   ```
   <PATH>/Install-Upgrade/OraGenSec.exe
   ```

   Windows:

   ```
   <PATH>\Install-Upgrade\OraGenSec.exe
   ```

   Linux:

   ```
   <PATH>/Install-Upgrade/OraGenSec.exe
   ```

   The following message appears in the command line:

   ```
   Enter the Oracle user that owns the schema (e.g. CISADM):
   ```


2. Enter `CISADM` and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the password for the CISADM user:
   ```

3. Enter the password as `CISADM` and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter the name of the target database:
   ```

4. Enter the database name and then press **Enter**.

   The following message appears in the command line:

   ```
   Enter a comma-separated list of Oracle users in which synonyms need to be created (e.g. cisuser, cisread):
   ```

5. Enter `CISUSER`, `CISREAD` and then press **Enter**.

   The following message appears in the command line:

   ```
   Select the following options:

   (A/a): Generate security for all objects in the Database?

   (O/o): Generate security for specific Objects inputted in this terminal?

   (F/f): Generate security for specific objects generated from an input File?
   ```

6. Enter `A` to generate security for all objects in the database, and then press **Enter**.

   A message appears indicating that the database connection is established and security is defined for all objects in the database.

5. Additional Tasks

This section describes the following tasks that you need to perform after upgrading the application:

- Generating the Application Viewer
- Starting the Thread Pool Worker
- Building Javadoc Index

5.1 Generating the Application Viewer

Once you upgrade the application, you need to regenerate the application viewer. To regenerate the application viewer:

1. Login to the application server using the administrator's credentials.
2. Initialize the application environment (on which you want to regenerate the application viewer) using the following command:

   AIX:

   ```
   $SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
   ```

   Windows:

   ```
   %SPLEBASE%\bin\splenviron.cmd -e %SPLENVIRON%
   ```

   Linux:

   ```
   $SPLEBASE/bin/splenviron.sh -e $SPLENVIRON
   ```

   Where, $SPLEBASE or %SPLEBASE% is the path where the application environment is installed, and $SPLENVIRON or %SPLENVIRON% is the name of the application environment for which you want to set the environment variables.

3. Set the ANT_OPTS environment variable using the following command:

   Windows: `Set ANT_OPTS= -Xms512m -Xmx1024m -XX:PermSize=256M`

Note: This command helps to process some tasks which require more memory. This command is only applicable for Windows and not for AIX or Linux machine.

4. Execute the genappvieweritems utility using the following command:

   AIX:

   ```
   $SPLEBASE/bin/genappvieweritems.sh
   ```

   Windows:

   ```
   %SPLEBASE%\bin\genappvieweritems.cmd
   ```

   Linux:

   ```
   $SPLEBASE/bin/genappvieweritems.sh
   ```

   If the application viewer is generated successfully, the response code is set to 0. However, if you get any other response code other than 0, it means an error has occurred while generating the application viewer. A log file is created in the $SPLEBASE/logs folder.

5. Execute the `initialSetup` utility using the following command:

   AIX:

   `$SPLEBASE/bin/initialSetup.sh`

   Windows:

   `%SPLEBASE%\bin\initialSetup.cmd`

   Linux:

   `$SPLEBASE/bin/initialSetup.sh`

   Where, `$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed.

   The `initialSetup` utility updates the configuration files including the WAR files on the system.

5.2 Starting the Thread Pool Worker

Once you upgrade the application, you need to start the thread pool worker. The thread pool worker is required when you execute batches either online or through batch scheduler.

You can use the **Distributed Thread Pool** property of the thread pool worker to set the number of threads that can run concurrently. By default, 5 threads run concurrently. You can change the default value by editing the following line in the `threadpoolworker.properties` file:

`com.splwg.grid.distThreadPool.threads.DEFAULT=5`

To start the thread pool worker, use the following command once you initialize the application environment:

AIX:

`$SPLEBASE/bin/threadpoolworker.sh`

Windows:

`%SPLEBASE%\bin\threadpoolworker.cmd`

Linux:

`$SPLEBASE/bin/threadpoolworker.sh`

Where, `$SPLEBASE` or `%SPLEBASE%` is the path where the application environment is installed.

5.3 Building Javadoc Index

Once you upgrade the application, you may want to regenerate the index file of Javadoc documentation. You must regenerate the Javadoc index file only when some modifications are made to the Java code.

To regenerate the Javadoc index file, use the following command:

AIX:

`$SPLEBASE/bin/buildJavadocsIndex.sh`

Windows:

```
%SPLEBASE%\bin\buildJavadocsIndex.cmd
```

Linux:

```
$SPLEBASE/bin/buildJavadocsIndex.sh
```

Where, $SPLEBASE or %SPLEBASE% is the path where the application environment is installed.

Appendix A : Known Issues

To view a list of known issues in the current release, refer to the *Oracle Revenue Management and Billing Version 2.2.4.4 Release Notes*.

Appendix B : Third Party Software Upgrade

To view a list of third party software that you need to upgrade to before upgrading the application, refer to the Upgrade Prerequisites section in the *Oracle Revenue Management and Billing Upgrade Path Guide.*

This section lists a set of activities that you need to perform while upgrading from Hibernate 3.2.5 to Hibernate 3.2.7.

B.1 Upgrading from Hibernate 3.2.5 to Hibernate 3.2.7

There might be customers who have application environments where Hibernate 3.2.5 is used. To upgrade from Hibernate 3.2.5 to Hibernate 3.2.7:

1. Login to the application server using the administrator's credentials.
2. Download the hibernate-3.2.7.ga.jar file from the Internet.
3. Copy the hibernate-3.2.7.ga.jar file to the desired location on the application server.
4. Set the value of the HIBERNATE_JAR_DIR environment variable to the location where you have copied the hibernate-3.2.7.ga.jar file.
5. Delete the hibernate-3.2.5.ga.jar file from the following locations:
   - `$SPLEBASE/splapp/businessapp`
   - `$SPLEBASE/splapp/standalone/lib`
   - `SPLApp.war/WEB-INF/lib`
6. Copy the hibernate-3.2.7.ga.jar file to the following locations:
   - `$SPLEBASE/splapp/businessapp`
   - `$SPLEBASE/splapp/standalone/lib`
   - `SPLApp.war/WEB-INF/lib`
7. Open the `MANIFEST.MF` file stored at the following location, and then replace hibernate-3.2.5.ga.jar with hibernate-3.2.7.ga.jar:

   `$SPLEBASE/splapp/businessapp/config`
8. Open the `ENVIRON.INI` file stored at the following location, and then replace hibernate-3.2.5.ga.jar with hibernate-3.2.7.ga.jar:

   `$SPLEBASE/etc`
9. Open the spl.properties file stored at the following location, and then replace hibernate-3.2.5.ga.jar with hibernate-3.2.7.ga.jar:

   `$SPLEBASE/splapp/businessapp/properties`
10. Execute the `initialSetup` utility to update the configuration files including the WAR files on the system:

    AIX:

    `$SPLEBASE/bin/initialSetup.sh`

Windows:

```
%SPLEBASE%\bin\initialSetup.cmd
```

Linux:

```
$SPLEBASE/bin/initialSetup.sh
```

Where, $SPLEBASE or %SPLEBASE% is the path where the application environment is installed.

