

Oracle® Fusion Middleware

Patching Guide for Oracle Identity and Access Management

11g Release 2 (11.1.2.1.0)

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This book describes the process used to patch your existing Identity and Access Management components.

Oracle Fusion Middleware Patching Guide for Oracle Identity and Access Management, 11g Release 2 (11.1.2.1.0)

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Contributing Author: Kevin Hwang, Lisa Jamen, Savita Thakur, Gururaj B.S.

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Preface

The *Oracle Fusion Middleware Patching Guide for Identity and Access Management* describes the tools and procedures required for you to patch your existing Oracle Identity and Access Management 11g Release 2 (11.1.2).

Intended Audience

This guide is intended for existing Oracle Fusion Middleware users who are upgrading their Oracle Fusion Middleware Identity and Access Management 11g Release 2 (11.1.2) environment to a more recent version or to the latest version. To follow the instructions provided in this document, the reader should be comfortable running system administration operations, such as creating users and groups, adding users to groups, and installing operating system patches on the computer where the products are going to be installed. Users on UNIX systems who are updating their Oracle Fusion Middleware software may need `root` access to run some scripts.

Documentation Accessibility

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Access to Oracle Support

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Related Documents

For additional information, see the following manuals:

- *Oracle Fusion Middleware Concepts*. This book introduces the common terms and concepts in an Oracle Fusion Middleware environment.
- *Oracle Fusion Middleware Administrator's Guide*. This book contains information for managing your Oracle Fusion Middleware environment after installation and configuration is complete.
- *Oracle Fusion Middleware High Availability Guide*. This book contains information for installing Oracle Fusion Middleware in high availability environments.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Oracle Fusion Middleware Patching and Upgrade Overview

This book describes the tools available for you to patch your existing Oracle Fusion Middleware Identity and Access Management environment 11g Release 2 (11.1.2.0.0) environment to the latest patch set.

The following topics are covered:

- Section 1.1, "Installation, Patching, and Upgrade Terminology"
- Section 1.2, "Patching and Upgrade Tools"
- Section 1.3, "About Database Patches for Oracle Fusion Middleware"

1.1 Installation, Patching, and Upgrade Terminology

This section describes various terms that you should be familiar with before you continue.

1.1.1 Patching

Patching involves copying a small collection of files over an existing installation. A **patch** is normally associated with a particular version of an Oracle product and involves updating from one minor version of the product to a newer minor version of the same product (for example, from version 11.1.2.0.0 to version 11.1.2.1.0).

A **patch set** is a single patch that contains a collection of patches designed to be applied together.

1.1.2 Migration

Migration typically involves moving from a third-party (non-Oracle) product to an Oracle product.

It can also be used to refer to moving an existing set of software parameters (for example, an existing configuration or existing domain) from one release to another.

1.1.3 Upgrade

Upgrade involves moving from a previous major version to a new major version. For example, an upgrade would be required to move from Oracle Application Server 10g to Oracle Fusion Middleware 11g.

1.1.4 Installation

Installation is when new software is copied onto your system for use. After the new software is installed, you can patch it or upgrade it as necessary.

1.2 Patching and Upgrade Tools

Table 1–1 provides a brief summary of the patching and upgrade tools, and provides pointers to more detailed information.

Table 1–1 Summary of Patching, Migration, and Upgrade Tools

Tool	Description	More Information
OPatch	<p>OPatch is typically used to patch the software on your system by copying a small collection of files over your existing installation.</p> <p>In Oracle Fusion Middleware, OPatch is used to patch an existing Oracle Fusion Middleware 11g installation.</p>	Chapter 2, "Patching Oracle Fusion Middleware with Oracle OPatch"
WebLogic Server Upgrade Installer	<p>WebLogic Server Upgrade Installer is used to update your existing Oracle WebLogic Server installation to the latest available version.</p> <p>Oracle Fusion Middleware products require the presence of Oracle WebLogic Server and its directory structure on your system. When you update your Oracle Fusion Middleware software, you must also update the version of Oracle WebLogic Server on your system using the WebLogic Server Upgrade Installer.</p> <p>The WebLogic Server Upgrade Installer is only available from My Oracle Support.</p>	<i>Oracle Fusion Middleware Upgrade Guide for Oracle WebLogic Server</i>
Upgrade Assistant	The Upgrade Assistant is used to upgrade schemas and configuration information from Oracle Application Server 10g to Oracle Fusion Middleware 11g.	<i>Oracle Fusion Middleware Upgrade Planning Guide</i>

1.3 About Database Patches for Oracle Fusion Middleware

This guide provides instructions for applying Oracle Fusion Middleware patches to your existing Oracle Fusion Middleware installations.

However, there are specific cases where you might be instructed to apply an Oracle Database patch to an existing Oracle Fusion Middleware Oracle home. This is because some Oracle Fusion Middleware products include specialized components, such as application programming interfaces (APIs), software libraries, and other software code developed for Oracle Database products.

In these specific cases, you might be referred to Oracle Database patching and installation documentation for more information.

Note that in most cases Oracle Fusion Middleware patches include all necessary software updates. You should apply Database patches only when specifically instructed or if you are experiencing a specific issue that can be resolved by the database patch.

Patching Oracle Fusion Middleware with Oracle OPatch

This document describes patching options available for Oracle Fusion Middleware.

The following topics are covered:

- Section 2.1, "About Patching"
- Section 2.2, "About OPatch"
- Section 2.3, "OPatch in a Fusion Middleware Environment"
- Section 2.4, "Running OPatch"
- Section 2.5, "Troubleshooting OPatch in a Fusion Middleware Environment"

2.1 About Patching

Patches are a small collection of files copied over to an existing installation. They are associated with particular versions of Oracle products.

2.1.1 Types of Patches That can be Used with OPatch

OPatch can be used for the following types of patches:

A patch set exception (also known as a PSE, one-off, or interim patch)

This is usually a single fix for a single problem. One-offs in Server Technology (ST) products (GC, DB/AS Control etc) are packaged and applied via OPatch. One-offs are bug fixes given to customers in critical need and are not cumulative, regressed or versioned. You can use the `opatch lsinventory` command to see which one-off patches are installed on your system.

A patch bundle (also known as an MLR patch)

This type of patch is created by putting several fixes into a single patch. This is usually done if several fixes are needed and the various interim patches apply to the same modules and cause the prior patch to be removed if applied individually as they can not coexist. Patch bundles are also applied using OPatch and metadata information about them are also kept in a set of XML files in the inventory and manipulated by OPatch.

Security Patches (also known as Critical Patch Updates or CPUs)

Security patches are different from other patch types in that they only fix a single or small number of problems, and that they should be applied as soon as possible – when

a security patch is released extra attention is brought to the existence of the security problem. CPUs are periodic security bundles released by Oracle and are very much like interim patches and will be applied just like an interim patch using OPatch. Just like interim patches, CPUs are not versioned.

Patch Set Updates (PSUs)

Patch Set Updates are released on a quarterly basis, following the same schedule as the Critical Patch Updates (CPUs). These come out the closest Tuesday to the 15th of the months of January, April, July and October. Patch Set Update content is intended to address the top fifty critical bugs affecting the broad customer base.

2.1.2 Types of Patches That can not be Used with OPatch

The only type of patch that cannot be used with OPatch is a patch set. A patch set contains a large number of merged patches, is thoroughly tested, changes the version of the product it is applied to, and can sometimes introduce new functionality. Patch sets are cumulative bug fixes that fix all bugs and consume all patches since the last base release. Patch sets and the Patch Set Assistant are usually applied through OUI-based product specific installers.

2.2 About OPatch

OPatch is a Java-based utility that runs on all supported operating systems and requires installation of the Oracle Universal Installer. This document contains information pertaining to OPatch commands that are most commonly used in an Oracle Fusion Middleware environment. You can use all supported OPatch commands if you choose; for a full list of OPatch commands and for more information about the OPatch utility, refer to the *Oracle Universal Installer and OPatch User's Guide* at the following URL:

http://download.oracle.com/docs/cd/E11882_01/em.112/e12255/toc.htm

This section contains the following:

- Section 2.2.1, "Getting OPatch"
- Section 2.2.2, "Getting Patches"
- Section 2.2.3, "OPatch Environment Variables"
- Section 2.2.4, "OPatch System Requirements"
- Section 2.2.5, "Backup and Recovery Considerations for Patching"

2.2.1 Getting OPatch

OPatch can be found in your Fusion Middleware product's `ORACLE_HOME/OPatch` (on UNIX operating systems) or `ORACLE_HOME\OPatch` (on Windows operating systems) directory.

Oracle recommends that you always check for and obtain the latest version of OPatch from My Oracle Support (formerly Oracle MetaLink).

1. Access and log into My Oracle Support at the following location:

<http://support.oracle.com/>

2. In the Search Knowledge Base field, enter **224346.1**. This is the ID of the document that describes how to obtain the latest version of OPatch.

3. In the search results, click on the link corresponding to document ID 224346.1.
4. In the document, click on the **Patch 6880880** link which will take you to the screen where you can obtain the latest version of OPatch based on release versions and platforms.

Make sure you verify that the OPatch release number in the "Release" column is "11.1.0.0.0" as this is the correct version of OPatch for Oracle Fusion Middleware 11g products.

2.2.2 Getting Patches

You can obtain the latest patches by specifying the patch ID in My Oracle Support (formerly *MetaLink*):

1. Access and log into My Oracle Support at the following location:
`http://support.oracle.com/`
2. Click the **Patches & Updates** link.
3. Enter the **Patch ID or Number**, then click **Search**. A Patch Search Results table appears.
4. Using the Release and Platform columns, find the desired patch, then click the associated Patch ID.
5. In the page that now appears, click the **Download** button in the right-hand column.

2.2.3 OPatch Environment Variables

OPatch uses the environment variables listed in Table 2–1:

Table 2–1 *OPatch Environment Variables*

Variable	Description
ORACLE_HOME	Points to the location of the Oracle home directory.
MW_HOME	Points to the location of the Middleware home directory.
PATH	Points to the location(s) from which various commands should be run.

2.2.4 OPatch System Requirements

The OPatch utility has the following requirements:

- The ORACLE_HOME environment variable must point to a valid Oracle home directory and match the value used during installation of the Oracle home directory.
- If the `-invPtrLoc` command-line argument was used during installation, then it must be used when using the OPatch utility. Oracle recommends the use of the default central inventory for a platform.
- The `java`, `ar`, `cp`, and `make` commands must be available in one of the directories listed in the PATH environment variable. The commands are not available for all platforms.

2.2.5 Backup and Recovery Considerations for Patching

It is highly recommended that you back up the `ORACLE_HOME` before any patch operation. You can back up the `ORACLE_HOME` using your preferred method. You can use any method such as `zip`, `cp -r`, `tar`, and `cpio` to compress the `ORACLE_HOME`.

If the `ORACLE_HOME` does not appear when you execute the `opatch lsinventory -detail` command, the `ORACLE_HOME` might be missing from the Central Inventory, or the Central Inventory itself could be missing or corrupted.

If the `ORACLE_HOME` is listed when you execute the `opatch lsinventory -detail` command, but the products and components within the `ORACLE_HOME` are not listed, the inventory within the `ORACLE_HOME` (local inventory) might be missing or corrupted.

If the local inventory is corrupted or lost for some reason, you can simply restore the `ORACLE_HOME/inventory` (on UNIX operating systems) or `ORACLE_HOME\inventory` (on Windows operating systems) if it was backed up. If a backup does not exist, you may have to reinstall the software.

2.3 OPatch in a Fusion Middleware Environment

This section describes the Oracle OPatch utility as it pertains to an Oracle Fusion Middleware environment. You should be familiar with the Oracle Fusion Middleware concepts introduced in the *Oracle Fusion Middleware Installation Planning Guide*, which is available at the following URL:

http://download.oracle.com/docs/cd/E15523_01/install.1111/b32474/toc.htm

This section contains the following:

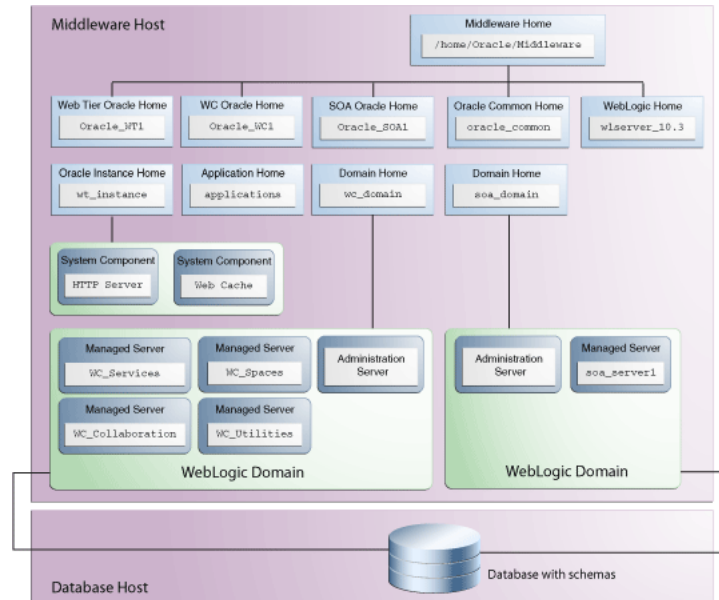
- Section 2.3.1, "A Typical Patching Scenario"
- Section 2.3.2, "Patching a Fusion Middleware Product"
- Section 2.3.3, "Patching in a Distributed Environment"
- Section 2.3.4, "Patching Artifacts Deployed Outside the Oracle Home"

2.3.1 A Typical Patching Scenario

Consider a common, non-distributed Fusion Middleware topology for Oracle SOA Suite, as shown in Figure 2-1:

Note: OPatch can be used to patch any Fusion Middleware product, even though only a few are shown in this example. OPatch can not be used to patch Oracle WebLogic Server.

Figure 2–1 Common Fusion Middleware Topology for Oracle SOA Suite and Oracle WebCenter



Suppose you have a problem in the SOA Domain. Below is a typical patching process:

Step 1. Contact Oracle Support

You can contact your Oracle support representative, or you can go to My Oracle Support (formerly OracleMetaLink):

<http://support.oracle.com/>

Step 2. Check for Existing Patches

If Oracle Support is not able to resolve the issue, they may ask to see if you have any patches already installed on your system. To determine this information, you should run the `opatch lsinventory` command.

To check if a particular patch is installed in the Oracle home (or the set of Oracle homes within a Middleware home) you use the `opatch checkInstalledOneOfFs` command. See Section 2.4.7, "Listing Patches Applied to an Oracle Home or WebLogic Domain" for more information about this command.

Step 3. Obtain OPatch and the Necessary Patch

Upon determining that you are in need of a new patch and it has not already been installed on your system, you should do the following:

1. Make certain that you have the latest version of OPatch, as described in Section 2.2.1, "Getting OPatch".
2. Obtain the patch as described in Section 2.2.2, "Getting Patches".

Step 4. Determine the Oracle Home

Once you obtain the patch, determine the Oracle home directory to which you are going to apply the patch.

The most common type of patch available in a Fusion Middleware environment involves patching a specific Oracle home directory. Some patches (for example, a patch pertaining to JRF) may apply to multiple Oracle home directories within a

specific Middleware home. A third type of patch could involve client components in one Oracle home and server components in a different Oracle home (for example, Oracle WebCenter in the WebCenter Oracle home depends on BPEL Process Manager in the Oracle SOA Suite Oracle home).

If you do not know the name of your Oracle home, you should run the `opatch lshomes` command as described in Section 2.4.6, "Listing the Applicable Oracle Homes for a Patch" to obtain a list of Oracle homes that pertain to the domain. In this example, the Oracle home to which the patch should be applied is the SOA Oracle home.

After you determine your Oracle home, you should run the `opatch checkApplicable` command as described in Section 2.4.6, "Listing the Applicable Oracle Homes for a Patch" to make sure that the patch can actually be applied to the Oracle home.

As the Middleware home is the top-level entity in a Fusion Middleware topology, the location of your Middleware home will be required for many of the OPatch commands in a Fusion Middleware environment.

Step 5. Read the README File

Read the README file that accompanies the patch. This file contains important information and instructions that must be followed prior to applying your patch.

For example, the README file may instruct you apply the patch using the `-auto` option (described in Section 2.4.1.2, "Using the -auto Option"). The more common scenario is that the README will instruct you to use a series of OPatch commands, including `opatch stop` and `opatch start` (see Section 2.4.10, "Starting or Stopping a Runtime Instance").

Step 6. Apply the Patch

After you determine the Oracle home to which you need to apply the patch, you should apply the patch with the `opatch apply` command as described in Section 2.4.1, "Applying Patches and Deploying Patched Artifacts to WebLogic Servers".

After Applying the Patch...

In most cases, after you apply the patch the instructions in the README file will tell you to run the `opatch start` command to re-start your servers.

After the patching is complete and your servers are restarted, you should check your product software to verify that the issue has been resolved.

If for some reason the result is not satisfactory, you can use the `opatch rollback` command to remove the patch from the Oracle home. See Section 2.4.2, "Rolling Back Patches and Deploying Patched Artifacts to WebLogic Servers" for more information, and consult the README file for specific instructions.

2.3.2 Patching a Fusion Middleware Product

Many Fusion Middleware artifacts are deployed to a runtime environment, where applications pick up these binaries for execution. A common example of this are J2EE artifacts (for example, `.ear`, `.war`, or `.rar` files) or J2EE shared libraries deployed to a Managed Server or cluster running within a domain. Patching in a Fusion Middleware environment involves updating and replacing these artifacts in the Oracle home. The servers to which the artifacts are deployed need to be restarted for the changes to take effect.

After the artifacts are deployed, there are various staging modes that affect how WebLogic Server treats these artifacts, which in turn determine how the applications are patched. All artifacts in Oracle Fusion Middleware 11g Release 2 (11.1.2.1.0) are deployed in NoStage Mode, which means that each Managed Server must access the archive files from a single source directory for deployment. If a J2EE application is deployed to three Managed Servers within a cluster, each Managed Server must be able to access the same application archive files from a shared or network-mounted directory in order to deploy the new J2EE application.

Take note of the following:

- If multiple Managed Servers on multiple machines are used, the path to the application bits must be the same on all machines because there is a single point of entry for the application in the domain configuration.
- Since the source location for the application bits is fixed and points back to its own *ORACLE_HOME* location, all domains that were created using a given *ORACLE_HOME* will pick up the patched bits once the *ORACLE_HOME* is patched.
- If you are using multiple Managed Servers on multiple machines and the product *ORACLE_HOME* is not shared or network-mounted on the target Managed Servers, then each machine must have the product installed on an *ORACLE_HOME* on the local file system from which the Managed Servers can access the application binaries. Therefore, the *ORACLE_HOME* on each local file system of each machine must be patched separately.

The steps that need to be performed for this scenario are as follows:

1. Stop all Managed Servers in the WebLogic Domain to which the application is deployed.
2. Use the `opatch apply` command to apply the bits to an Oracle home.
3. Restart all the Managed Servers in the same WebLogic Domain.

Steps 1 and 3 are performed by the Fusion Middleware capabilities in OPatch.

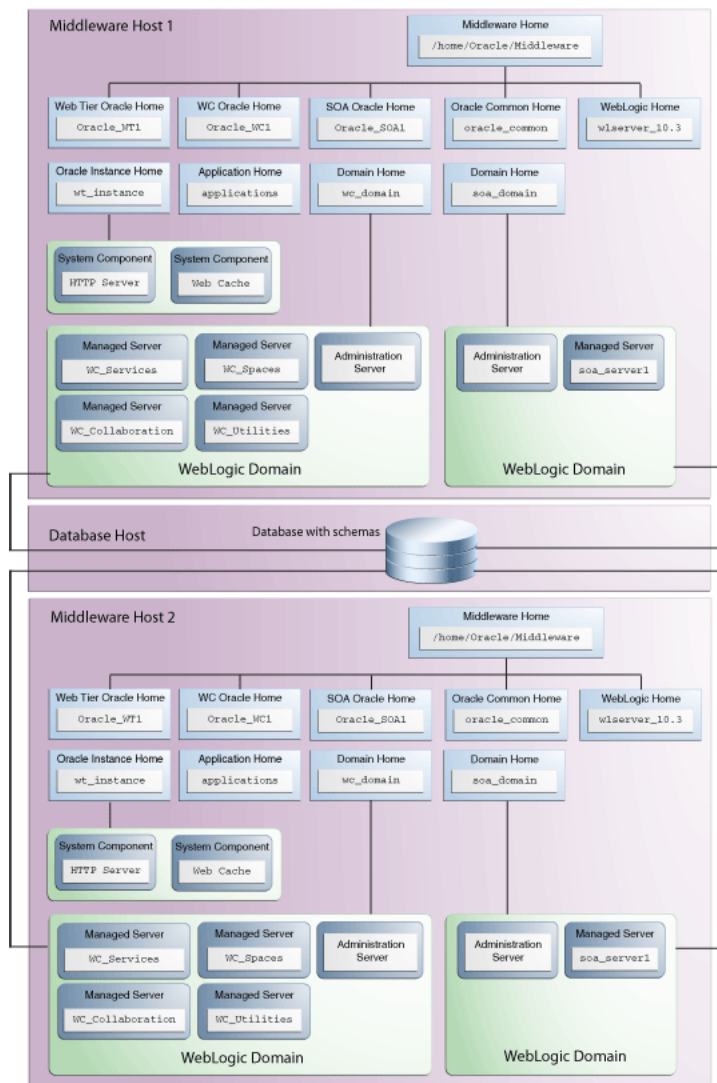
2.3.3 Patching in a Distributed Environment

The process to patch in a distributed environment depends on whether or not your Middleware home directory is shared or not shared.

2.3.3.1 Patching with a Local Middleware Home

Consider the environment shown in Figure 2–2. This is a distributed environment, where you have identical topologies on separate machines, each with its own local Middleware home and Fusion Middleware products inside the Middleware home:

Figure 2–2 Distributed Fusion Middleware Topology for Oracle SOA Suite and Oracle WebCenter

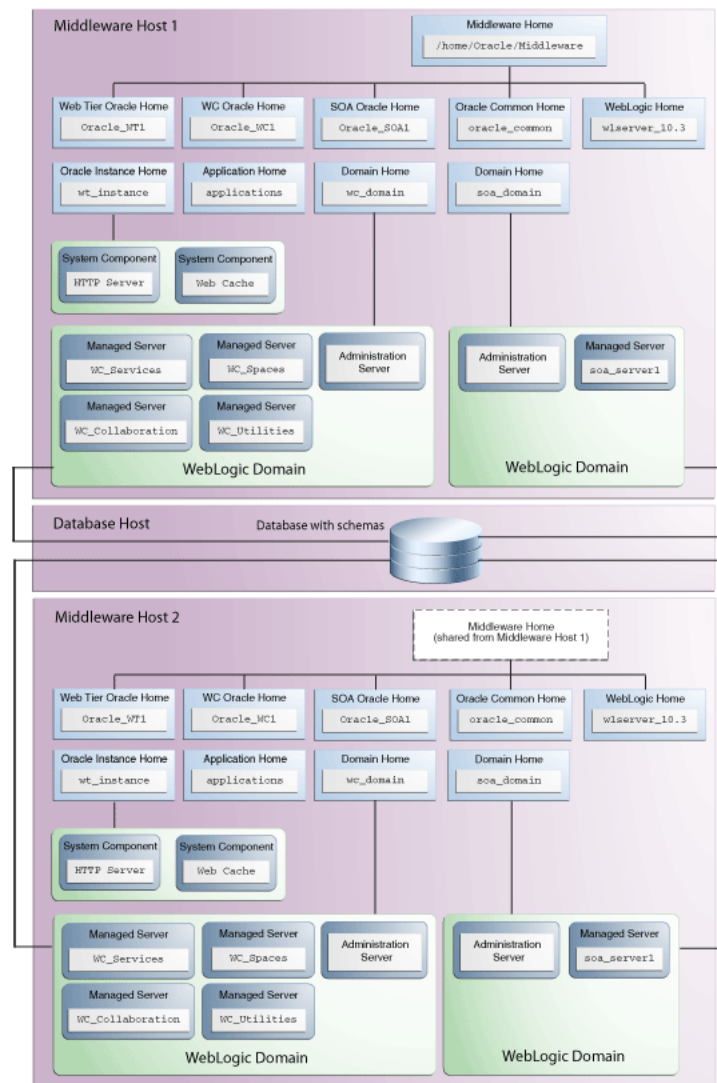


If you encountered a problem in the SOA domain, you would have to patch the corresponding Oracle home on each machine separately, according to the instructions in the README file. After you patch the SOA Oracle home on "Middleware Host 1," for example, you must then repeat the same procedure on "Middleware Host 2."

2.3.3.2 Patching with a Shared Middleware Home

Consider the environment shown in Figure 2–3. This is also a distributed environment, where you have identical topologies on separate machines, but the Middleware home on "Middleware Host 2" is shared or NFS mounted:

Figure 2-3 Distributed Fusion Middleware Topology for Oracle SOA Suite and Oracle WebCenter



In this topology, if you encountered a problem in the SOA Domain, you would only need to patch the SOA Oracle home on either "Middleware Host 1" or "Middleware Host 2" in accordance with the instructions in the README file, and OPatch would automatically patch all of the matching Oracle homes that share the same Middleware home.

2.3.4 Patching Artifacts Deployed Outside the Oracle Home

Some applications, such as Oracle Enterprise Manager Fusion Middleware Control and Oracle Web Services Manager Policy Manager (WSM-PM), are deployed outside of the product Oracle home (in the Oracle Common Home or `oracle_common`) directory. OPatch can also apply patches to files that reference the `oracle_common` directory.

2.4 Running OPatch

The OPatch utility is located in the `ORACLE_HOME/OPatch` (on UNIX operating systems) or `ORACLE_HOME\OPatch` (on Windows operating systems) directory. Below is the syntax for the OPatch utility:

```
path_to_opatch/opatch command -options
```

Acceptable values for *command* are described in Table 2–2.

Valid *options* for each *command* are described in the sections that describe each *command*.

Table 2–2 Commands for the OPatch Utility in a Fusion Middleware Environment

Command	Description
apply	Apply the patch to an Oracle home and deploy the patch to a WebLogic domain. For details, see Section 2.4.1, "Applying Patches and Deploying Patched Artifacts to WebLogic Servers".
rollback	Remove the patch from an Oracle home. For details, see Section 2.4.2, "Rolling Back Patches and Deploying Patched Artifacts to WebLogic Servers".
deploy	Deploy the patch to a WebLogic domain. For details, see Section 2.4.3, "Deploying Patched Artifacts to WebLogic Servers".
checkApplicable	List all Oracle homes to which a patch can be applied. For details, see Section 2.4.6, "Listing the Applicable Oracle Homes for a Patch".
lshomes	List the Oracle homes that have been used to create WebLogic Domains. For details, see Section 2.4.4, "Listing the Source Oracle Homes".
lsdomains	List all WebLogic domains created from the Middleware home or specific Oracle home. For details, see Section 2.4.5, "Listing the Domains Created from the Middleware Home or Oracle Home".
checkInstalledOneOffs	Check if certain patches are installed on any Oracle homes. For details, see Section 2.4.7, "Listing Patches Applied to an Oracle Home or WebLogic Domain".
start stop	Start or Stop a WebLogic Administration Server, Managed Server, or Cluster. For details, see Section 2.4.10, "Starting or Stopping a Runtime Instance".

To view additional information for these Fusion Middleware options, use the following command:

```
path_to_OPatch/opatch -help -fmw
```

2.4.1 Applying Patches and Deploying Patched Artifacts to WebLogic Servers

The `apply` command in a Fusion Middleware environment applies the patch to the Oracle home on the local machine.

Note: The option to apply a patch to a Middleware home (including all Oracle homes inside that Middleware home) is not yet available.

2.4.1.1 Using the OPatch Property File

Sensitive information such as Administration Server credentials, and other important information such as the Administration Server URL, domain location and applications directory location, are obtained by prompts from the console. In some cases, default values may be found and specified by OPatch; in these cases, press Enter to use these default values.

Automation applications such as Grid Control may invoke OPatch with the `-silent` option, which does not prompt for any input from the console. To supply the necessary Administration Server credentials and other information, a response file can be created and passed to OPatch as an argument with the `-property_file` option.

For Fusion Middleware components, `userConfigFile` and `userKeyFile` can be specified in the property file as keys with corresponding file names. The `userConfigFile` file contains an encrypted user name and password, while the `userKeyFile` contains a secret key that is used to encrypt and decrypt the user name and password. Similarly, the `AdminServerURL` (URL of the Administration Server), `DomainHome` (full path to the `domains` directory) and `ApplicationsDir` (full path to the `applications` directory) can also be specified in the properties file.

2.4.1.2 Using the `-auto` Option

Some patches are certified by Oracle Product Support as capable of being used with the `-auto` option, which can automate certain portions of your patching procedure. The `-auto` option applies the patch to the Oracle home; verifies that the patch is actually applied, then performs any necessary redeploy operations against the specified WebLogic Domain, including stopping and starting all the servers that are affected by the patch. If your patch is certified for use with the `-auto` option, you will be informed of such in the patch's README file.

2.4.1.2.1 Configuring Node Manager Beginning with OPatch release 11.1.0.8.2, the `-auto` option requires the Node Manager user name and password. In order for OPatch to be used properly:

- The Administration Server must be up and running.
- If the Managed Servers are up and running, OPatch will stop the servers, apply the patch, then restart the servers.

If the Managed Servers are not running, OPatch will apply the patch but then you must manually start the servers in order to see the effects of the patch.

To configure Node Manager, refer to "General Node Manager Configuration" in *Oracle Fusion Middleware Node Manager Administrator's Guide for Oracle WebLogic Server*.

2.4.1.2.2 Using the `-auto` Option with the `-domain` Option The `-auto` option should be used in conjunction with the `-domain` option; the only exception is if only one WebLogic Domain was configured from the Oracle home. In such cases, OPatch will use that domain as the default domain. If multiple domains have been created and the `-domain` option is not used, then it is the user's responsibility to run `opatch deploy` to redeploy the patched artifacts to their respective domains, and also stop and start the affected servers in each of the domains.

2.4.1.3 Using the apply Command

The `apply` command (with the `-auto` option specified) performs the following:

1. Stops all affected target servers.
 - This might involve stopping server instances on other nodes for:
 - a. Staged mode applications.
 - b. NoStage mode applications sharing the Oracle home.
2. Applies the patch to the Oracle home on the local machine.
3. Performs any required deploy operations for patched artifacts.
4. Restarts all affected servers.

The syntax for the `apply` command is shown below:

```
opatch apply
  [-auto [-domain domain_name]]
  [-mw_home MW_HOME]
  [-oh ORACLE_HOME]
  [-property_file path_to_property_file]
  [-report]]
```

A summary of the options for the `apply` command are described in Table 2–3.

Table 2–3 Options for the OPatch apply Command

Option	Description
<code>-auto [-domain <i>domain_name</i>]</code>	Optional - causes OPatch to automate the rollout of the patch to Oracle Fusion Middleware entities. If <code>-auto</code> is used then <code>-domain</code> must also be used to indicate the name of the domain in which the rollout should occur; the exception is when there is only one domain configured out of the Oracle home, in which case the <code>-domain</code> flag is optional. See Section 2.4.1.2, "Using the -auto Option" for more information.
<code>-mw_home <i>MW_HOME</i></code>	Optional - The Middleware home to which the patch will be applied. The Middleware home specified here supersedes the <code>MW_HOME</code> environment variable. If neither is specified, then the Middleware home from where the command is run will be used.
<code>-oh <i>ORACLE_HOME</i></code>	Optional - This option is used to specify the Oracle home to which the patch should be applied. This value supersedes the <code>ORACLE_HOME</code> environment variable. If neither is specified, OPatch will apply the updates to the Oracle home from which it was launched.
<code>-property_file <i>name</i></code>	Optional - absolute path and name of the property file. See Section 2.4.1.1, "Using the OPatch Property File" for more information.
<code>-report</code>	Optional - print out the actions that will be taken by executing the command, but does not actually execute the command.

2.4.1.4 Sample Output for the apply Command

Below is a sample output from the `opatch apply` command on a UNIX operating system:

```
[aime@stادن41 Oracle_SOA1]$ ./OPatch/opatch apply
-auto /OracleFMW/Middleware_PS1_RC2/FMWpatches/9991008/
```

```
-oh /OracleFMW/Middleware_PS1_RC2/oracle_common/  
-domain MySOAWebCenterDist  
Invoking OPatch 11.1.0.6.9
```

```
Oracle Interim Patch Installer version 11.1.0.6.9  
Copyright (c) 2009, Oracle Corporation. All rights reserved.
```

```
Oracle Home      : /OracleFMW/Middleware_PS1_RC2/oracle_common  
Central Inventory : /ade/aime_dte6989/oracle/work/EM_SH_1/oraInventory  
                  from      : /etc/oraInst.loc  
OPatch version   : 11.1.0.6.9  
OUI version      : 11.1.0.7.0  
OUI location     : /OracleFMW/Middleware_PS1_RC2/oracle_common//oui  
Log file location : /OracleFMW/Middleware_PS1_RC2/oracle_  
common/cfgtoollogs/opatch/opatch2009-12-06_09-44-02AM.log
```

```
Patch history file: /OracleFMW/Middleware_PS1_RC2/oracle_  
common/cfgtoollogs/opatch/opatch_history.txt
```

```
OPatch detects the Middleware Home as "/OracleFMW/Middleware_PS1_RC2"
```

```
Please enter the WebLogic Admin Server username:> weblogic  
Please enter the WebLogic Admin Server password:>  
Please enter the WebLogic Admin Server URL(t3://stadr41:7011):>  
Please enter the WebLogic domain directory  
location(/OracleFMW/MyDomains/domains/MySOAWebCenterDist):>  
Please enter the WebLogic applications directory  
location(/OracleFMW/MyDomains/applications/MySOAWebCenterDist):>  
[FMW] Running apply '-auto' prerequisite checks...  
      [FMW] ProductDriver::preReq_Product() succeeded  
      [FMW] ProductDriver::preReq_Deploy() succeeded
```

```
All the applications affected by this patch are deployed in 'No Stage' mode.  
Redeploy operation will not be performed for the affected applications.  
Please refer to the log file for more details.
```

```
      [FMW] ProductDriver::preReq_LifeCycle() succeeded  
[FMW] Apply '-auto' prerequisite checks succeeded...
```

```
ApplySession applying interim patch '9991008' to OH '/OracleFMW/Middleware_PS1_  
RC2/oracle_common'
```

```
Running prerequisite checks...
```

```
You selected -local option, hence OPatch will patch the local system only.
```

```
Please shutdown Oracle instances running out of this ORACLE_HOME on the local  
system.  
(Oracle Home = '/OracleFMW/Middleware_PS1_RC2/oracle_common')
```

```
Is the local system ready for patching? [y|n]
```

```
Y
```

```
User Responded with: Y
```

```
Backing up files and inventory (not for auto-rollback) for the Oracle Home  
Backing up files affected by the patch '9991008' for restore. This might take a  
while...
```

Backing up files affected by the patch '9991008' for rollback. This might take a while...

Patching component oracle.jrf.j2ee, 11.1.1.2.0...
Copying file to "/OracleFMW/Middleware_PS1_RC2/oracle_common/modules/oracle.jrf_11.1.1/jrf-api.jar"

Patching component oracle.jrf.dms, 11.1.1.2.0...
Copying file to "/OracleFMW/Middleware_PS1_RC2/oracle_common/modules/oracle.dms_11.1.1/dms.war"
ApplySession adding interim patch '9991008' to inventory

Verifying the update...
Inventory check OK: Patch ID 9991008 is registered in Oracle Home inventory with proper meta-data.
Files check OK: Files from Patch ID 9991008 are present in Oracle Home.

The local system has been patched and can be restarted.

[FMW] Ignoring Deploy operations as all patched artifacts are deployed in 'No Stage' mode

[FMW] Performing Auto Post-Deploy Actions

[FMW] Performing Auto Post-Bounce Actions

The following warnings have occurred during OPatch execution:

1) OUI-67851:

All the applications affected by this patch are deployed in 'No Stage' mode.
Redeploy operation will not be performed for the affected applications.
Please refer to the log file for more details.

OPatch Session completed with warnings.

OPatch completed with warnings.

2.4.2 Rolling Back Patches and Deploying Patched Artifacts to WebLogic Servers

The `rollback` command allows you to remove an existing one-off patch by specifying the unique patch ID.

The `rollback` command (with the `-auto` option specified) performs the following:

1. Stops all affected target servers.
 - This might involve stopping server instances on other nodes for:
 - a. Staged mode applications.
 - b. NoStage mode applications sharing the Oracle home.
2. Rolls back the patch on the Oracle home on the local machine.
3. Performs any required deploy operations for patched artifacts.
4. Restarts all affected servers.

The syntax for the `rollback` option is shown below:

```
opatch rollback -id patch_id
  [-auto [-domain domain_name]]
  [-mw_home MW_HOME]
  [-oh ORACLE_HOME]
  [-property_file path_to_property_file]
  [-report]]
```


A summary of the options for the `rollback` command are described in Table 2-4.

Table 2-4 Options for the OPatch rollback Command

Option	Description
<code>-id patch_id</code>	Use the <code>-lsinventory</code> option to display all applied patch IDs. Each one-off patch is uniquely identified by an ID. To rollback to a previous patch version, that patch version's ID must be supplied.
<code>-auto [-domain domain_name]</code>	Optional - causes OPatch to automate the rollout of the patch to Oracle Fusion Middleware entities. If <code>-auto</code> is used then <code>-domain</code> must also be used to indicate the name of the domain in which the rollout should occur; the exception is when there is only one domain configured out of the Oracle home, in which case the <code>-domain</code> flag is optional. Refer to Section 2.4.1, "Applying Patches and Deploying Patched Artifacts to WebLogic Servers" for more information.
<code>-mw_home MW_HOME</code>	Optional - The Middleware home to which the patch will be applied. The Middleware home specified here supersedes the <code>MW_HOME</code> environment variable. If neither is specified, then the Middleware home from where the command is run will be used.
<code>-oh ORACLE_HOME</code>	Optional - This option is used to specify the Oracle home to which the patch should be applied. This value supersedes the <code>ORACLE_HOME</code> environment variable. If neither is specified, OPatch will apply the updates to the Oracle home from which it was launched.
<code>-property_file name</code>	Optional - absolute path and name of the property file. Refer to Section 2.4.1, "Applying Patches and Deploying Patched Artifacts to WebLogic Servers" for more information.
<code>-report</code>	Optional - print out the actions that will be taken by executing the command, but does not actually execute the command.

2.4.3 Deploying Patched Artifacts to WebLogic Servers

This operation deploys modified artifacts from the Fusion Middleware `ORACLE_HOME` to the Fusion Middleware domain.

The location of the patch binaries must be specified using the `-ph` option. If the patch is installed in the current Oracle home (the Oracle home from which you are running this command) then the `-ph` option is not required.

If the patch is already applied to the Oracle home, the `-id` option can be used to specify the patch you want to use for deployment.

The syntax for the `deploy` command is shown below:

```
opatch deploy -id patch_id -ph patch_location
[-auto [-domain domain_name]]
[-mw_home MW_HOME]
[-oh ORACLE_HOME]
[-property_file path_to_property_file]
[-report]]
```

A summary of the options for the `deploy` command are described in Table 2-5.

Table 2–5 Options for the OPatch deploy Command

Option	Description
<code>-id patch_id</code>	The unique ID of the patch that is installed in the Oracle home.
<code>-ph patch_location</code>	The absolute path to the location of the patch. If none is specified, then the current directory is used.
<code>-auto [-domain domain_name]</code>	Optional - causes OPatch to automate the rollout of the patch to Oracle Fusion Middleware entities. If <code>-auto</code> is used then <code>-domain</code> must also be used to indicate the name of the domain in which the rollout should occur; the exception is when there is only one domain configured out of the Oracle home, in which case the <code>-domain</code> flag is optional. Refer to Section 2.4.1, "Applying Patches and Deploying Patched Artifacts to WebLogic Servers" for more information.
<code>-mw_home MW_HOME</code>	Optional - The Middleware home to which the patch will be applied. The Middleware home specified here supersedes the <code>MW_HOME</code> environment variable. If neither is specified, then the Middleware home from where the command is run will be used.
<code>-oh ORACLE_HOME</code>	Optional - This option is used to specify the Oracle home to which the patch should be applied. This value supersedes the <code>ORACLE_HOME</code> environment variable. If neither is specified, OPatch will apply the updates to the Oracle home from which it was launched.
<code>-property_file name</code>	Optional - absolute path and name of the property file. Refer to Section 2.4.1, "Applying Patches and Deploying Patched Artifacts to WebLogic Servers" for more information.
<code>-report</code>	Optional - print out the actions that will be taken by executing the command, but does not actually execute the command.

2.4.4 Listing the Source Oracle Homes

The `lshomes` command lists all the Oracle homes pertaining to logical entities such as Host or Domain. For a Host, the list of Oracle homes is obtained from the machine's central inventory. For a WebLogic domain, the list of homes is limited to product Oracle homes that are installed within a top-level Middleware home.

If the `-domain` or `-domaindir` option is used, the command lists the Oracle homes that have been used to create or extend the WebLogic domain. If not, all the homes registered with the machine's central inventory or the inventory location specified using `-invPtrLoc` are listed.

The Middleware home can be specified by using the `-mw_home` option or by setting the `MW_HOME` environment variable. When the Middleware home is specified and the `-domain` or `-domaindir` option is not specified, this command will list all the Oracle homes within the Middleware home that are registered with the machine's central inventory or the specified inventory location.

The syntax for the `lshomes` option is shown below:

```
opatch lshomes
  [-domain domain_name | -domain_dir domain_location]
  [-mw_home MW_HOME ]
  [-invPtrLoc path_to_oraInst.loc]
```

A summary of the options for the `lshomes` command are described in Table 2–6.

Table 2–6 Options for the OPatch lshomes Command

Option	Description
-domain <i>domain_name</i>	Optional - list the Oracle homes that have been used to create or extend this WebLogic Domain.
-domain_dir <i>domain_location</i>	Optional - list the Oracle homes that have been used to create or extend the WebLogic Domain at this location. You must specify the absolute path to the WebLogic Domain.
-mw_home <i>MW_HOME</i>	Optional - list only the Oracle homes registered with the machine's central inventory that are located in this Middleware home. You must specify the absolute path to the Middleware home directory; this value supersedes the <i>MW_HOME</i> environment variable. If neither is available, the Middleware home from which the command is executed will be used.
-invPtrLoc <i>path_to_oraInst.loc</i>	Optional - absolute path to the location of your <i>oraInst.loc</i> file; this option is needed if the installation was performed using the -invPtrLoc option.

Below is an example of the `opatch lshomes` command on a UNIX operating system:

```
[aime@stadn41 Oracle_SOA1]$ ./OPatch/opatch lshomes
-domain MySOAWebCenterDist
Invoking OPatch 11.1.0.6.9

Oracle Interim Patch Installer version 11.1.0.6.9
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UTIL session

Oracle Home      : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1
Central Inventory : /ade/aime_dte6989/oracle/work/EM_SH_1/oraInventory
                  from   : /etc/oraInst.loc
OPatch version   : 11.1.0.6.9
OUI version      : 11.1.0.7.0
OUI location     : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1/oui
Log file location : /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch2009-12-06_10-57-49AM.log

Patch history file: /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch_history.txt

OPatch detects the Middleware Home as "/OracleFMW/Middleware_PS1_RC2"

Invoking utility "lshomes"
Home path = "/OracleFMW/Middleware_PS1_RC2/oracle_common"
Home path = "/OracleFMW/Middleware_PS1_RC2/Oracle_SOA1"
Home path = "/OracleFMW/Middleware_PS1_RC2/Oracle_WC1"
OPatch command 'lshomes' done.

OPatch succeeded.
```

2.4.5 Listing the Domains Created from the Middleware Home or Oracle Home

The `lsdomains` command lists all the WebLogic Domains that have been created from a certain Oracle home:

- If the Oracle home is specified, then only those domains created from the specified Oracle home are listed. If no Oracle home is specified, OPatch will list the domains created from the Oracle home as defined by the `ORACLE_HOME` environment variable. If neither is available, then OPatch will use the Oracle home directory from which the command is run.
- If a Middleware home is specified, all domains created from all Oracle homes within the specified Middleware home are listed.
- If neither is specified, and neither the `MW_HOME` or `ORACLE_HOME` environment variable is defined, then OPatch will run the command for the Middleware home from where the command was run.

The syntax for the `lsdomains` command is shown below:

```
opatch lsdomains
  [-oh ORACLE_HOME]
  [-mw_home MW_HOME]
  [-invPtrLoc path_to_oraInst.loc]
```

A summary of the options for the `lsdomains` command are described in Table 2-7.

Table 2-7 Options for the OPatch Lsddomains Command

Option	Description
<code>-oh ORACLE_HOME</code>	Optional - absolute path to the Oracle home directory.
<code>-mw_home MW_HOME</code>	Optional - absolute path to the Middleware home directory.
<code>-invPtrLoc path_to_oraInst.loc</code>	Optional - absolute path to the location of your <code>oraInst.loc</code> file; this option is needed if the installation was performed using the <code>-invPtrLoc</code> option.

Below is an example of the `opatch lsdomains` command on a UNIX operating system:

```
[aime@stادن41 Oracle_SOA1]$ ./OPatch/opatch lsdomains
-oh /OracleFMW/Middleware_PS1_RC2/oracle_common
Invoking OPatch 11.1.0.6.9

Oracle Interim Patch Installer version 11.1.0.6.9
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UTIL session

Oracle Home      : /OracleFMW/Middleware_PS1_RC2/oracle_common
Central Inventory : /ade/aime_dte6989/oracle/work/EM_SH_1/oraInventory
                  from      : /etc/oraInst.loc
OPatch version   : 11.1.0.6.9
OUI version      : 11.1.0.7.0
OUI location     : /OracleFMW/Middleware_PS1_RC2/oracle_common/oui
Log file location : /OracleFMW/Middleware_PS1_RC2/oracle_
common/cfgtoollogs/opatch/opatch2009-12-06_11-04-41AM.log

Patch history file: /OracleFMW/Middleware_PS1_RC2/oracle_
common/cfgtoollogs/opatch/opatch_history.txt

OPatch detects the Middleware Home as "/OracleFMW/Middleware_PS1_RC2"

Invoking utility "lsdomains"
Domain Name = "MySOAWebCenterDist" Path =
```

```
"/OracleFMW/MyDomains/domains/MySOAWebCenterDist"
Domain Name = "MyWebCenterOnly" Path =
"/OracleFMW/MyDomains/domains/MyWebCenterOnly"
OPatch command 'lsdomains' done.
```

OPatch succeeded.

2.4.6 Listing the Applicable Oracle Homes for a Patch

This `checkApplicable` command produces a list of Oracle homes to which the patch can be applied. For Fusion Middleware, this command is limited in scope to the top-level Middleware home:

- If only the Middleware home is specified, OPatch will check to see whether or not this patch can be applied to all Oracle homes within the specified Middleware home.
- If an Oracle home is specified in addition to the Middleware home, OPatch will check to see if the patch can be applied to the specified Oracle home in the specified Middleware home.
- If neither is specified, and neither the `MW_HOME` or `ORACLE_HOME` environment variable is defined, then OPatch will run the command for the Middleware home from where the command was run.

The syntax for the `checkApplicable` command is shown below:

```
opatch checkApplicable
  [-ph patch_location]
  [-mw_home MW_HOME]
  [-oh ORACLE_HOME]
  [-invPtrLoc path_to_oraInst.loc]
```

A summary of the options for the `checkApplicable` command are described in Table 2–8.

Table 2–8 Options for the OPatch `checkApplicable` Command

Option	Description
<code>-ph <i>patch_location</i></code>	Optional - location of the patch for which you want to run the <code>checkApplicable</code> command. If not specified, then the patch in the current directory is used.
<code>-mw_home <i>MW_HOME</i></code>	Optional - absolute path to the Middleware home directory.
<code>-oh <i>ORACLE_HOME</i></code>	Optional - absolute path to the Oracle home directory.
<code>-invPtrLoc <i>path_to_oraInst.loc</i></code>	Optional - absolute path to the location of your <code>oraInst.loc</code> file; this option is needed if the installation was performed using the <code>-invPtrLoc</code> option.

Below is an example of the `opatch checkApplicable` command on a UNIX operating system:

```
[aime@stadn41 Oracle_SOA1]$ ./OPatch/opatch checkapplicable
-ph /OracleFMW/Middleware_PS1_RC2/FMWPatches/9991008/
Invoking OPatch 11.1.0.6.9
```

```
Oracle Interim Patch Installer version 11.1.0.6.9
Copyright (c) 2009, Oracle Corporation. All rights reserved.
```

UTIL session

```

Oracle Home      : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1
Central Inventory : /ade/aime_dte6989/oracle/work/EM_SH_1/oraInventory
                  from   : /etc/oraInst.loc
OPatch version   : 11.1.0.6.9
OUI version      : 11.1.0.7.0
OUI location     : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1/oui
Log file location : /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch2009-12-06_10-59-57AM.log

```

```

Patch history file: /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch_history.txt

```

OPatch detects the Middleware Home as "/OracleFMW/Middleware_PS1_RC2"

Invoking utility "checkapplicable"

```

"checkApplicable" passed for Patch "9991008" and Oracle Home
"/OracleFMW/Middleware_PS1_RC2/oracle_common".
"checkApplicable" failed for Patch "9991008" and Oracle Home
"/OracleFMW/Middleware_PS1_RC2/Oracle_SOA1".
The details are:
Patch 9991008: Required component(s) missing : [ oracle.jrf.j2ee, 11.1.1.2.0 ] , [
oracle.jrf.dms, 11.1.1.2.0 ]
"checkApplicable" failed for Patch "9991008" and Oracle Home
"/OracleFMW/Middleware_PS1_RC2/Oracle_WC1".
The details are:
Patch 9991008: Required component(s) missing : [ oracle.jrf.j2ee, 11.1.1.2.0 ] , [
oracle.jrf.dms, 11.1.1.2.0 ]
Some of the Oracle Homes under the Middleware Home "/OracleFMW/Middleware_PS1_RC2"
have failed this check.

```

OPatch command 'checkApplicable' done.

```

-----
The following warnings have occurred during OPatch execution:
1) OUI-67124:Some of the Oracle Homes under the Middleware Home
"/OracleFMW/Middleware_PS1_RC2" have failed this check.
-----

```

OPatch Session completed with warnings.

OPatch completed with warnings.

2.4.7 Listing Patches Applied to an Oracle Home or WebLogic Domain

The `checkInstalledOneOffs` command checks to see if the specified patch or patches have been applied to certain Oracle homes or WebLogic Domains:

- If a Middleware home is specified, OPatch checks all the Oracle homes within the specified Middleware home that are registered with the machine's central inventory. If not specified, then the `MW_HOME` environment variable is used.
- If an Oracle home is specified, OPatch checks the patch against the specified Oracle home only.
- If neither is specified, and neither the `MW_HOME` or `ORACLE_HOME` environment variable is defined, then OPatch will run the command for the Middleware home from where the command was run.
- If a WebLogic Domain is specified, OPatch checks against all the Oracle homes within the specified WebLogic Domain.

The syntax for the `checkInstalledOneOffs` command is shown below:

```
opatch checkInstalledOneOffs -id patch_IDS
    [-mw_home MW_HOME]
    [-oh ORACLE_HOME]
    [-domain domain_name]
    [-invPtrLoc path_to_oraInst.loc]
```

A summary of the options for the `checkInstalledOneOffs` command are described in Table 2-9.

Table 2-9 Options for the OPatch checkInstalledOneOffs Command

Option	Description
<code>-id patch_IDS</code>	ID of the patch or patches that you want to check. Separate multiple patch IDs with a comma (,) character.
<code>-mw_home MW_HOME</code>	Optional - absolute path to the Middleware home directory.
<code>-oh ORACLE_HOME</code>	Optional - absolute path to the Oracle home.
<code>-domain domain_name</code>	Optional - name of the WebLogic Domain.
<code>-invPtrLoc path_to_oraInst.loc</code>	Optional - absolute path to the location of your <code>oraInst.loc</code> file; this option is needed if the installation was performed using the <code>-invPtrLoc</code> option.

Below is an example of the `opatch checkInstalledOneOffs` command on a UNIX operating system. In this example, patch 8965224 is installed in the SOA Oracle home and patch 9991008 is installed in the Oracle Common Home:

```
[aime@stadr41 Oracle_SOA1]$ ./OPatch/opatch checkinstalleddoneoffs
-id 8965224,9991008
Invoking OPatch 11.1.0.6.9

Oracle Interim Patch Installer version 11.1.0.6.9
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UTIL session

Oracle Home      : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1
Central Inventory : /ade/aime_dte6989/oracle/work/EM_SH_1/oraInventory
    from          : /etc/oraInst.loc
OPatch version   : 11.1.0.6.9
OUI version      : 11.1.0.7.0
OUI location     : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1/oui
Log file location : /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch2009-12-06_09-40-41AM.log

Patch history file: /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch_history.txt

OPatch detects the Middleware Home as "/OracleFMW/Middleware_PS1_RC2"

Invoking utility "checkinstalleddoneoffs"

"checkInstalledOneOffs" failed for Oracle Home "/OracleFMW/Middleware_PS1_
RC2/oracle_common".
Not Installed Patch IDs: [8965224]

"checkInstalledOneOffs" failed for Oracle Home "/OracleFMW/Middleware_PS1_
```

```

RC2/Oracle_SOA1".
Not Installed Patch IDs: [9991008]

"checkInstalledOneOffs" failed for Oracle Home "/OracleFMW/Middleware_PS1_
RC2/Oracle_WC1".
Not Installed Patch IDs: [8965224, 9991008]

Some of the Oracle Homes under the Middleware Home "/OracleFMW/Middleware_PS1_RC2"
have failed this check.
OPatch command 'checkInstalledOneOffs' done.
-----
The following warnings have occurred during OPatch execution:
1) OUI-67124:Some of the Oracle Homes under the Middleware Home
"/OracleFMW/Middleware_PS1_RC2" have failed this check.
-----
OPatch Session completed with warnings.

OPatch completed with warnings.

```

2.4.8 Maintaining OPMN, Oracle HTTP Server, Fusion Middleware Control, and WebLogic Server

Oracle Process Management Notification (OPMN), Oracle HTTP Server, and Fusion Middleware Control are included in this release. These components, and any others installed within the Middleware home (including WebLogic Server 10.3.5), may be updated with any patch meant for these components (for example, a one-off patch applied via OPatch for OHS 11.1.1.5, or the WLS PSU 10.3.5.0.2). Note that some component versions may differ.

To determine the component versions installed in your environment, you can print a report using the following command from the `ORACLE_HOME/OPatch` directory:

```
opatch lsinventory -detail
```

2.4.9 Maintaining Oracle Client, JDBC and Networking

Oracle Fusion Middleware 11g is installed with Oracle Client Networking libraries equivalent to an 11.1.0.7 version. This includes libraries required for SSL processing and JDBC drivers where the included libraries will support connections to all certified Oracle Database Server versions.

There are specific cases where you might be instructed to apply an Oracle Database one-off patch to an existing Oracle Fusion Middleware Oracle home. This is because some Oracle Fusion Middleware products include specialized components, such as application programming interfaces (APIs), software libraries, and other software code developed for Oracle Database products. 11.1.0.7 Database one-off patches (bundled patches on Windows) may be applied to the Oracle Fusion Middleware 11g (11.1.2.x) homes.

2.4.10 Starting or Stopping a Runtime Instance

The `start` and `stop` commands allow Fusion Middleware runtime entities to be started or stopped, respectively. Only entities of the same type can be started or stopped; if you need to start or stop entities of multiple types, you must run this command separately for each entity type.

In order to run this command:

- Node Manager must be configured and running on the target server machine.

- The `WebLogic_Home/common/nodemanager/nodemanager.domains` (on UNIX operating systems) or `WebLogic_Home\common\nodemanager\nodemanager.domains` (on Windows operating systems) must be populated.
- You must be able to connect to the Administration Server, which must be up and running.

The syntax for the `start` and `stop` commands is shown below:

```
opatch start|stop
  -domain domain_name
  -targets product_entity_name
  -target_type product_entity_type
  [-oh ORACLE_HOME]
```

A summary of the options for the `start` and `stop` commands are described in Table 2–10.

Table 2–10 Options for the OPatch start and stop Commands

Option	Description
<code>-domain <i>domain_name</i></code>	The name of the domain in which the specified targets will be started or stopped.
<code>-targets <i>product_entity_name</i></code>	The name of the WebLogic or Fusion Middleware entity you want to start or stop. Only entities of the same type can be specified; multiple entities should be separated by a comma.
<code>-target_type <i>target_type</i></code>	The type of WebLogic or Fusion Middleware entity you want to start. Valid values are: <ul style="list-style-type: none"> ■ <code>fmwApplication</code> ■ <code>fmwServer</code> ■ <code>fmwCluster</code> ■ <code>fmwContainer</code> <p>The <code>fmwContainer</code> option starts or stops the container (for example, the WebLogic Server) hosting the application.</p> <p>The <code>fmwServer</code> option starts or stops the actual java process that is running (for example, a Managed Server).</p>
<code>-oh <i>ORACLE_HOME</i></code>	Optional - the absolute path to the Oracle home directory. If this is not specified, the value in the <code>ORACLE_HOME</code> environment variable is used. If neither is available, then the Oracle home from which the command is executed is used.

Below is an example of the `opatch start` command on a UNIX operating system:

```
[aime@stadr41 Oracle_SOA1]$ ./OPatch/opatch start
-targets soa_server1
-target_type fmwserver
-domain MySOAWebCenterDist
```

Invoking OPatch 11.1.0.6.9

```
Oracle Interim Patch Installer version 11.1.0.6.9
Copyright (c) 2009, Oracle Corporation. All rights reserved.
```

UTIL session

```
Oracle Home      : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1
```

```
Central Inventory : /ade/aime_dte6989/oracle/work/EM_SH_1/oraInventory
  from           : /etc/oraInst.loc
OPatch version   : 11.1.0.6.9
OUI version      : 11.1.0.7.0
OUI location     : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1/oui
Log file location : /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch2009-12-06_12-30-31PM.log
```

```
Patch history file: /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch_history.txt
```

OPatch detects the Middleware Home as "/OracleFMW/Middleware_PS1_RC2"

```
Invoking utility "start"
Please enter the WebLogic Admin Server username:> weblogic
Please enter the WebLogic Admin Server password:>
Please enter the WebLogic Admin Server URL(t3://stadr41:7011):>
[FMW] Performing Start Actions
[FMW] Finished Start Actions
OPatch command 'start' done.
```

OPatch succeeded.

Below is an example of the `opatch stop` command on a UNIX operating system:

```
[aime@stadr41 Oracle_SOA1]$ ./OPatch/opatch stop -targets soa_server1 -target_type
fmwserver -domain MySOAWebCenterDist
Invoking OPatch 11.1.0.6.9
```

```
Oracle Interim Patch Installer version 11.1.0.6.9
Copyright (c) 2009, Oracle Corporation. All rights reserved.
```

UTIL session

```
Oracle Home       : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1
Central Inventory : /ade/aime_dte6989/oracle/work/EM_SH_1/oraInventory
  from           : /etc/oraInst.loc
OPatch version   : 11.1.0.6.9
OUI version      : 11.1.0.7.0
OUI location     : /OracleFMW/Middleware_PS1_RC2/Oracle_SOA1/oui
Log file location : /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch2009-12-06_11-13-59AM.log
```

```
Patch history file: /OracleFMW/Middleware_PS1_RC2/Oracle_
SOA1/cfgtoollogs/opatch/opatch_history.txt
```

OPatch detects the Middleware Home as "/OracleFMW/Middleware_PS1_RC2"

```
Invoking utility "stop"
Please enter the WebLogic Admin Server username:> weblogic
Please enter the WebLogic Admin Server password:>
Please enter the WebLogic Admin Server URL(t3://stadr41:7011):>
[FMW] Performing Stop Actions
[FMW] Finished Stop Actions
OPatch command 'stop' done.
```

OPatch succeeded.

2.5 Troubleshooting OPatch in a Fusion Middleware Environment

This section describes common issues you may encounter when running the OPatch utility in a Fusion Middleware environment.

2.5.1 Notes About Patching the MDS Repository

For special information about patching the MDS repository, refer to "Understanding the MDS Repository" in the *Oracle Fusion Middleware Administrator's Guide*.

2.5.2 Setting the Machine Name and Listen Address

The machine name of the Administration Server and Managed Servers must be set to a valid value. It cannot be set to blank or None.

The listen address of the Administration and Managed Servers must be set to the real physical host's address (hostname, FQDN, or IP address). It cannot be set to blank or localhost.

These values need to be properly set only once; you will not need to reset them should you ever need to patch your software.

To set the machine name and listed address of the Managed Servers:

1. Open the Administration Console.
2. In the Domain Structure, navigate to *domain_name* > **Environments** > **Machines**.
3. If your WebLogic Server is running in Production Mode, click the **Lock & Edit** button on the left hand side. If your WebLogic Server is running in Development Mode, this step is not needed.
4. Click the **New** button to create a new machine. Specify a name and select the operating system.
5. Select the machine you just created, go to **Configuration** > **Node Manager** and change the Listen Address to the host on which the Node Manager is listening, then click the **Save** button.
6. In the Domain Structure, navigate to *domain_name* > **Environments** > **Servers**.
7. For each Managed Server, assign the machine you just created. In the Listen Address field, specify the name of the host on which the Node Manager is listening. Click **Save** when you are finished.
8. If your WebLogic Server is running in Production Mode, click the **Activate Changes** button on the left hand side. If your WebLogic Server is running in Development Mode, this step is not needed.

To set the machine name and listen address of the Administration Server:

1. Stop the Administration Server and all Managed Servers.
2. Back up the `config.xml` file in the domain.

The default location of this file is the `config` directory inside your Domain home.

3. Modify the existing `config.xml` file as follows:
 - a. Find the following line:


```
<name>AdminServer</name>
```
 - b. Add the following lines:

```
<machine>host_name</machine>  
<listen-address>host_name</listen-address>
```

- c.** Save the file.
- 4.** Restart the Administration Server and all the Managed Servers.

If you encounter any problems, revert back to the saved version of the `config.xml` file and contact Oracle Support.

Applying the Latest Oracle Fusion Middleware Patch Set

This chapter describes the tools and procedures required for you to patch your existing Oracle Identity and Access Management 11g Release 2 (11.1.2).

- [Section 3.1, "Summary of the Oracle Fusion Middleware Patching Process"](#)
- [Section 3.2, "General Pre-Patching Tasks"](#)
- [Section 3.3, "Downloading and Starting the Installer"](#)
- [Section 3.4, "Applying the Patch Set"](#)
- [Section 3.5, "Running the Patch Set Assistant"](#)
- [Section 3.6, "Starting the Administration Server and Managed Servers"](#)
- [Section 3.7, "Post-Patching Procedures"](#)
- [Section 3.8, "Restarting the Administration Server and OIM Managed Servers"](#)
- [Section 3.9, "Verifying Your Patch Set Installation"](#)

NOTE: The patching tasks described in this chapter are not required for all environments or upgrade paths. Perform only those tasks that apply to your specific deployment.

3.1 Summary of the Oracle Fusion Middleware Patching Process

[Table 3–1](#) provides links to additional information for each of the patching steps.

Table 3–1 Summary of Patching Procedures and Links to Documentation

Step	Description
1	Perform the following general pre-patching tasks: <ol style="list-style-type: none"> 1. Reviewing System Requirement, Certification and Interoperability Information 2. Installing Oracle SOA Suite Patches (Oracle Identity Manager Users Only) 3. Exporting Pre-Upgrade Oracle Privileged Account Manager (OPAM) Data (optional) 4. Exporting Oracle Identity Navigator 11.1.1.5.0 Metadata (optional) 5. Shutting Down Administration Server and Managed Servers 6. Backing Up Your Middleware Home, Domain Home and Oracle Instances 7. Backing Up Your Database and Database Schemas 8. Renaming the emCCR File for Silent Patching If you are patching in silent mode, see Section 3.2.8, "Renaming the emCCR File for Silent Patching" .
2	Download and start the appropriate installer for your product: For details, see Downloading and Starting the Installer .
3	Update the software in your Oracle home using the downloaded Installer.
4	Run the Patch Set Assistant to update any required schemas. For more information, see Updating Your Schemas with Patch Set Assistant
5	Start the Administration Server and SOA Manager Server. Starting the Administration Server and Managed Servers NOTE: Do not start the Oracle Identity Manager Managed Servers.
6	Perform the post-patching tasks that apply to your environment. For more information, see Post-Patching Procedures .
7	Restart the servers and processes. For more information, see Restarting the Administration Server and OIM Managed Servers .
8	Verify that your patch installation is complete. For more information, see Verifying Your Patch Set Installation .

If you are running your products in a distributed environment (for example, you have Managed Servers running in multiple domains on multiple systems) and you have set up a shared Middleware home on a shared network drive mounted to each machine that is part of your domain, then this patching procedure only needs to be done once (see [Section 2.3.3, "Patching in a Distributed Environment"](#)).

If your distributed environment has a separate Middleware home on each system, then this patching procedure must be repeated for each domain on each system.

More information about distributed topologies can be found in the Enterprise Deployment Guide for your specific product.

3.2 General Pre-Patching Tasks

This section describes tasks that should be completed before you patch your software:

- [Section 3.2.1, "Reviewing System Requirement, Certification and Interoperability Information"](#)
- [Section 3.2.2, "Installing Oracle SOA Suite Patches \(Oracle Identity Manager Users Only\)"](#)

- [Section 3.2.3, "Exporting Pre-Upgrade Oracle Privileged Account Manager \(OPAM\) Data"](#)
- [Section 3.2.4, "Exporting Oracle Identity Navigator 11.1.1.5.0 Metadata"](#)
- [Section 3.2.5, "Shutting Down Administration Server and Managed Servers"](#)
- [Section 3.2.6, "Backing Up Your Middleware Home, Domain Home and Oracle Instances"](#)
- [Section 3.2.7, "Backing Up Your Database and Database Schemas"](#)
- [Section 3.2.8, "Renaming the emCCR File for Silent Patching"](#)

3.2.1 Reviewing System Requirement, Certification and Interoperability Information

Before you begin to update your software, you should make sure that your system environment and configuration meet the minimum requirements for the software you want to install in order to perform the update. This section contains links to several key pieces of documentation you should review:

- [System Requirements and Specifications](#)
- [Certification and Supported Platforms for Identity and Access Management](#)
- [Interoperability and Compatibility](#)

3.2.1.1 System Requirements and Specifications

For certification information, refer to the System Requirements and Supported Platforms for Oracle Fusion Middleware document on the Oracle Fusion Middleware Supported System Configurations page at the following URL:

<http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-certification-100350.html>

This document contains information related to hardware and software requirements, minimum disk space and memory requirements, database schema requirements, and required system libraries, packages, or patches.

3.2.1.2 Certification and Supported Platforms for Identity and Access Management

Read the *System Requirements and Supported Platforms for Oracle Forms and Reports 11g Release 2 (11.1.2.x) Certification Matrix* document. This document contains certification information related to supported 32-bit and 64-bit operating systems, databases, web servers, LDAP servers, adapters, IPv6, JDKs, and third-party products.

3.2.1.3 Interoperability and Compatibility

Read *Oracle Fusion Middleware Interoperability and Compatibility Guide for Oracle Identity and Access Management*. This document contains important information regarding the ability of Oracle Fusion Middleware products to function with previous versions of other Oracle Fusion Middleware, Oracle, or third-party products. This information is applicable to both new Oracle Fusion Middleware users and existing users who are upgrading their existing environment.

3.2.2 Installing Oracle SOA Suite Patches (Oracle Identity Manager Users Only)

Oracle Identity Manager requires the process workflows in Oracle SOA Suite to manage request approvals. You must apply mandatory SOA patches before installing Oracle Identity Manager.

For information about the patches, refer to the "Mandatory Patches Required for Installing Oracle Identity Manager" topic in the 11g Release 2 Oracle Fusion Middleware Release Notes.

Caution: Failure to apply the required prerequisite patches may result in issues with your updated Oracle Identity and Access Management 11g Release 2 (11.1.2) deployment and supporting services.

3.2.3 Exporting Pre-Upgrade Oracle Privileged Account Manager (OPAM) Data

Pre-upgrade OPAM data, such as targets, accounts, and users, must be migrated after applying the 11.1.2.1.0 patch. The steps below describe the process used to export the OPAM data to an XML file. A manual export is required because the back end data store will be moved from the OPSS schema to a native OPAM data store in the new version. After the patch is applied, you must import the data to the data store as described in [Section 3.7.5](#).

Use the following procedure to export the OPAM data before applying the patch:

1. Set the following environment variables:

Variable	Description
ORACLE_HOME	Where Oracle Privileged Account Manager is installed.
JAVA_HOME	Location of JDK used for the WebLogic installation.

2. Navigate to `$ORACLE_HOME/opam/bin`.
3. Execute `./opam.sh` with the following parameters:

```
./opam.sh
[-url <OPAM server url>]] (defaults to https://localhost:18102/opam)
-u [user name] (the user should have OPAM_SECURITY_ADMIN and OPAM_USER_MANAGER
roles)
-p <password>
-x export -f [export xml file]
[-encpassword <encryption/decryption password>] (provide a value for
encpassword for better security)
[-enckeylen <Key Length for encryption/decryption of password>] (defaults to
128)
[-log <log file Location>] (defaults to opamlog_<timestamp>.txt)
```

Note: If the data was exported without an encryption password, then specify this with the parameter "`-noencrypt true`" while importing the data.

3.2.4 Exporting Oracle Identity Navigator 11.1.1.5.0 Metadata

To prevent data loss, pre-upgrade Oracle Identity Navigator (OINAV) metadata must also be exported to an XML file before applying the patch.

Refer to "Exporting Oracle Identity Navigator 11.1.1.5.0 Metadata" in the *Oracle Fusion Middleware Upgrade and Migration Guide for Oracle Identity and Access Management*.

3.2.5 Shutting Down Administration Server and Managed Servers

The patching process involves changes to the binaries and to the schema. Therefore, before you begin applying the patch, you must shut down the Administration Server and Managed Servers.

To shut down the Servers, do the following:

Stopping the Administration Server

To stop the Administration Server, do the following:

On UNIX:

Run the following command:

```
cd <MW_HOME>/user_projects/domains/<domain_name>/bin
./stopWebLogic.sh
```

On Windows:

Run the following command:

```
cd <MW_HOME>\user_projects\domains\<domain_name>\bin
stopWebLogic.cmd
```

Stopping Managed Servers

To stop the Managed Servers, do the following:

On UNIX:

1. Move from your present working directory to the <MW_HOME>/user_projects/domains/<domain_name>/bin directory by running the following command on the command line:

```
cd <MW_HOME>/user_projects/domains/<domain_name>/bin
```

2. Run the following command to stop the servers:

```
./stopManagedWebLogic.sh <server_name> <admin_url> <user_name>
<password>
```

where

<server_name> is the name of the Managed Server.

<admin_url> is URL of the administration console. Specify it in the format `http://<host>:<port>/console`. Specify only if the WebLogic Administration Server is on a different computer.

<user_name> is the username of the WebLogic Administration Server.

<password> is the password of the WebLogic Administration Server.

On Windows:

1. Move from your present working directory to the <MW_HOME>\user_projects\domains\<domain_name>\bin directory by running the following command on the command line:

```
cd <MW_HOME>\user_projects\domains\<domain_name>\bin
```

2. Run the following command to stop the Managed Servers:

```
stopManagedWebLogic.cmd <server_name> <admin_url> <username> <password>
```

where

<server_name> is the name of the Managed Server.

<admin_url> is URL of the administration console. Specify it in the format `http://<host>:<port>/console`. Specify only if the WebLogic Administration Server is on a different computer.

<username> is the username of the WebLogic Administration Server.

<password> is the password of the WebLogic Administration Server.

For more information, see "Stopping the Stack" in the *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management*.

3.2.6 Backing Up Your Middleware Home, Domain Home and Oracle Instances

After stopping the servers and processes, back up your Middleware home directory (including the Oracle home directories inside the Middleware home), your local Domain home directory, your local Oracle instances, and also the Domain home and Oracle instances on any remote systems that use the Middleware home.

If your patch set installation is unexpectedly interrupted, or if you choose to cancel out of the installation before it is complete, you may not be able to install the patch unless you restore your environment to the previous configuration before running the Installer again.

Note: There is no patch set deinstallation procedure. The `-deinstall` procedure that you would use for a typical installation will not remove the patch set.

3.2.7 Backing Up Your Database and Database Schemas

If the product you are installing has associated database schemas, you should also back up your database before you begin the patching procedure. Make sure this back up includes the schema version registry table, as each Fusion Middleware schema has a row in this table. The name of the schema version registry table is `SYSTEM.SCHEMA_VERSION_REGISTRY$`. Refer to your database documentation for instructions on how to do this.

If you run the Patch Set Assistant to update an existing schema and it does not succeed, you must restore the original schema before you can try again. Make sure you backup your existing database schemas before you run the Patch Set Assistant.

3.2.8 Renaming the emCCR File for Silent Patching

If you are patching your software in silent mode, you may encounter the following error messages:

```
"SEVERE:Values for the following variables could not be obtained from the command line or response file(s):
MYORACLESUPPORT_USERNAME(MyOracleSupportUsername) "
```

To work around this issue, rename the `ORACLE_HOME/ocr/bin/emCCR` (on UNIX operating systems) or `ORACLE_HOME\ocr\bin\emCCR` (on Windows operating systems) file.

Caution: Be sure to change the name back after the patching process has completed or you may encounter errors with other operations (such as My Oracle Support or other installers.)

For example, on a UNIX operating system:

```
cd ORACLE_HOME/ccr/bin
mv emCCR emCCR_LAST
```

On a Windows operating system:

```
cd ORACLE_HOME\ccr\bin
mv emCCR emCCR_LAST
```

See "Silent Oracle Fusion Middleware Installation and Deinstallation" in *Oracle Fusion Middleware Installation Planning Guide* for more details about silent installation.

3.3 Downloading and Starting the Installer

The following sections contain instructions on how to obtain the proper installer required to patch your product:

- [Section 3.3.1, "About the Installer Used for Patching"](#)
- [Section 3.3.2, "Downloading the Required Installer"](#)
- [Section 3.3.3, "Starting the Installer"](#)

3.3.1 About the Installer Used for Patching

The installer for Identity and Access Management is a full installer that can also function as an update installer. You can use it to update an existing Identity and Access Management home, or you can use it to install a new, complete Identity and Access Management home.

3.3.2 Downloading the Required Installer

To download and unpack the Installer files for your product:

1. Download the installer from the Oracle Technology Network, My Oracle Support, or Oracle Software Delivery Cloud (formerly E-Delivery).

For more information, see "Select an Oracle Fusion Middleware Software Download Site" and "Download the Software Required for Your Starting Point" in *Oracle Fusion Middleware Download, Installation, and Configuration ReadMe Files*.

2. Unpack the downloaded archive that contains the installer and software that you want to install into a directory on the target computer.

3.3.3 Starting the Installer

To start the installer you just downloaded and unpacked:

1. Change directory to the `Disk1` folder inside the unpacked archive folder.
2. Start the Installer:

On UNIX operating systems:

```
./runInstaller
```

On Windows operating systems run the following:

```
setup.exe
```

Depending on your system environment and product you are updating, you may be prompted to provide the location of a JRE/JDK on your system when you start the installer. When you installed Oracle WebLogic Server, a JRE was installed in the `jdk160_version` directory inside the Middleware home; you can use this location to start the installer.

Note: if you are installing on a 64-bit platform, you have to install 64-bit JRE before you can install the Oracle WebLogic Server. See the *System Requirements and Supported Platforms for Oracle Forms and Reports 11g Release 2 (11.1.2.x)* to determine which version is required with this release.

If you do not have Oracle WebLogic Server installed on your system, you can use the JDK in the `jdk` directory inside the Oracle home.

Make sure you specify the absolute path to your JRE/JDK location; relative paths are not supported.

The Installer can also be run in silent mode. See "Silent Oracle Fusion Middleware Installation and Deinstallation" in *Oracle Fusion Middleware Installation Planning Guide* for more details.

3.4 Applying the Patch Set

After you have started the Installer, follow the instructions on the screen to apply the patch set to your existing Middleware home.

Note: If your domain includes multiple host computers, you must run the Installer separately on each host to update the software on that host.

As you review each screen of the Patch Set installer, note that there may be differences between applying a patch set and installing software for the first time.

Note: When you are applying a patch set, you must identify an existing Middleware home on the Specify Installation Location screen.

[Table 3–2](#) provides a summary of the typical installation screens you will see when you are applying a patch set to an existing Middleware home.

If you need additional help with any of the installation screens click **Help** to access the online help.

Table 3–2 Typical Installation Flow For Installing a Patch Set

Screen	When Does This Screen Appear?	Description
Welcome	Always.	This page introduces you to the Oracle Fusion Middleware Installer.
Install Software Updates	Always.	Select the method you want to use for obtaining software updates, or select Skip Software Updates if you do not want to get updates. If updates are found, the installer will automatically attempt to apply them at this point; make sure that the server you are using to perform the installation is connected to the Internet.
Prerequisite Checks	Always.	Verify that your system meets all necessary prerequisites.
Specify Installation Location	Always.	Specify your existing Oracle Middleware home and product Oracle home locations.
Installation Summary	Always.	Verify the information on this screen, then click Install to begin the installation.
Installation Progress	Always.	This screen shows the progress of the installation. Click Next when the installation is 100% complete.
Installation Complete	Always.	Click Save to save your configuration information to a file. This information includes port numbers, installation directories, URLs, and component names which you may need to access at a later time. You can view the log file located in the <code>MW_HOME/oracle_common/upgrade/logs</code> (on UNIX operating systems) or <code>MW_HOME\oracle_common\upgrade\logs</code> (on Windows operating systems) directory for details about the upgrade. After saving your configuration information, click Finish to dismiss the installer.

3.5 Running the Patch Set Assistant

Once you have applied the patch set, as described in [Section 3.4](#), run the Patch Set Assistant to update any required schemas. For more information, see [Updating Your Schemas with Patch Set Assistant](#).

Once the schemas have been updated, complete any post-patching procedures that apply to your installation, as described in [Section 3.7](#).

Note: Before you start the servers and verify your installation, review [Section 3.7, "Post-Patching Procedures"](#) and perform any necessary post-patching tasks. You may need to start the servers after performing some of the tasks.

3.6 Starting the Administration Server and Managed Servers

Note: Do not start the Oracle Identity Manager Managed Servers.

After the upgrade is complete, start the WebLogic Administration Server, the Administration Server for the domain that contains Oracle Identity Management, and Managed Servers.

Starting the Administration

To start the Administration Server, do the following:

On UNIX:

Run the following command:

```
cd <MW_HOME>/user_projects/domains/<domain_name>/bin
./startWebLogic.sh
```

On Windows:

Run the following command:

```
cd <MW_HOME>\user_projects\domains\<domain_name>\bin
startWebLogic.cmd
```

Starting Managed Servers

To start the Managed Servers, do the following:

On UNIX:

1. Move from your present working directory to the <MW_HOME>/user_projects/domains/<domain_name>/bin directory by running the following command on the command line:

```
cd <MW_HOME>/user_projects/domains/<domain_name>/bin
```

2. Run the following command to start the Servers:

```
./startManagedWebLogic.sh <managed_server_name> <admin_url> <user_name>
<password>
```

where

<managed_server_name> is the name of the Managed Server

<admin_url> is URL of the administration console. Specify it in the format http://<host>:<port>/console. Specify only if the WebLogic Administration Server is on a different computer.

<user_name> is the username of the WebLogic Administration Server.

<password> is the password of the WebLogic Administration Server.

On Windows:

1. Move from your present working directory to the <MW_HOME>\user_projects\domains\<domain_name>\bin directory by running the following command on the command line:

```
cd <MW_HOME>\user_projects\domains\<domain_name>\bin
```

2. Run the following command to start the Managed Servers:

```
startManagedWebLogic.cmd <managed_server_name> <admin_url> <user_name>
<password>
```

where

<managed_server_name> is the name of the Managed Server.

<admin_url> is URL of the administration console. Specify it in the format http://<host>:<port>/console. Specify only if the WebLogic Administration Server is on a different computer.

<user_name> is the username of the WebLogic Administration Server.

<password> is the password of the WebLogic Administration Server.

For more information, see "Starting the Stack" in the *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management*.

3.7 Post-Patching Procedures

This section contains information about manual tasks performed after the Release 11.1.2.1.0 patch installation is complete. Some of the tasks may not apply to your environment as you may not be using the products in question.

- [Upgrading Oracle Identity Manager Middle Tier Using Property File](#)
- [Upgrading Oracle Identity Navigator Application](#)
- [Importing the Oracle Identity Navigator 11.1.2 Metadata](#)
- [Upgrading Oracle Privileged Account Manager \(OPAM\) Application](#)
- [Importing Pre-Upgrade OPAM Data](#)
- [Optional: Enabling TDE in Oracle Privileged Account Manager Data Store](#)
- [Optional: Configuring Non-TDE Mode](#)
- [Upgrading Oracle Entitlements Server Domain and Policy Store](#)
- [Configuring BI Publisher Reports](#)
- [Updating SOA Server Default Composite](#)
- [Copying Oracle Access Manager MBean XML Files](#)

3.7.1 Upgrading Oracle Identity Manager Middle Tier Using Property File

After you have applied the 11.1.2.1.0 patch set, you will need to run an additional upgrade utility to upgrade the Oracle Identity Manager's Middle Tier. The steps below describe the manual process:

Note: Before you begin this process be sure that the following prerequisites have been met:

- Back up your existing Middleware home, Domain home and any other relevant data as described in [Section 3.2.6](#).
 - Start the Admin Server and SOA Server. If the OIM Server is running, stop it before running the Middle Tier upgrade script.
-
-

On UNIX:

1. Move from your present working directory to the <OIM_ORACLE_HOME>/server/bin directory by running the following command on the command line:

```
cd <OIM_ORACLE_HOME>/server/bin
```

2. Change the path to <OIM_ORACLE_HOME>/bin.
3. Open the following file in a text editor:

```
oim_upgrade_input.properties
```

4. Add the parameters, as listed in [Table 3-3](#).

5. Move from your present working directory to the <MW_HOME>/Oracle_IDM1/server/bin directory by running the following command on the command line:

```
cd <MW_HOME>/Oracle_IDM1/server/bin
```

6. Run the following command:

```
./OIMUpgrade.sh
```

Note: The following warning is displayed:

```
[WARN][jrocket] PermSize=128M ignored: Not a valid option  
for JRocket
```

```
[WARN][jrocket] MaxPermSize=256M ignored: Not a valid option  
for JRocket
```

You can ignore this message.

On Windows:

1. Move from your present working directory to the <OIM_ORACLE_HOME>\server\bin directory by running the following command on the command line:

```
cd <OIM_ORACLE_HOME>\server\bin
```

2. Change the path to <OIM_ORACLE_HOME>\bin.
3. Open the following file in a text editor:

```
oim_upgrade_input.properties
```

4. Add the parameters, as listed in [Table 3-3](#).
5. Move from your present working directory to the <MW_HOME>\<OIM_ORACLE_HOME>\server\bin directory by running the following command on the command line:

```
cd <MW_HOME>\<OIM_ORACLE_HOME>\server\bin
```

6. Run the following command:

```
OIMUpgrade.bat
```

Note: The following warning is displayed:

```
[WARN][jrocket] PermSize=128M ignored: Not a valid option  
for JRocket
```

```
[WARN][jrocket] MaxPermSize=256M ignored: Not a valid option  
for JRocket
```

You can ignore this message.

7. Verify the Middle Tier Upgrade.
See [Section 3.9.3, "Verifying Oracle Identity Manager Middle Tier Upgrade"](#).
8. Restart the servers as described in [Section 3.8, "Restarting the Administration Server and OIM Managed Servers"](#).

Table 3–3 Oracle Identity Manager Middle Tier Upgrade Parameters

Parameter	Description
<code>oim.jdbcurl</code>	Specify the Oracle Identity Manager JDBC URL.
<code>oim.oimschemaowner</code>	Specify the Oracle Identity Manager schema owner.
<code>oim.oimmdsjdbcurl</code>	Specify the MDS JDBC URL.
<code>oim.mdsschemaowner</code>	Specify the MDS schema owner name.
<code>oim.adminhostname</code>	Specify the Oracle WebLogic Server Administration host name.
<code>oim.adminport</code>	Specify the Oracle WebLogic Server Administration port.
<code>oim.adminUserName</code>	Specify the Oracle WebLogic Server Administration user name.
<code>oim.soahostmachine</code>	Specify the SOA host name where SOA Server is running.
<code>oim.soaportnumber</code>	Specify the SOA Server port.
<code>oim.soasusername</code>	Specify the SOA Managed Server username.
<code>oim.domain</code>	Specify the Oracle Identity Manager domain location.

Example Parameters

```
oim.jdbcurl=db.example.com:5521/dbmode.example.com
oim.oimschemaowner=test_oim23
oim.oimmdsjdbcurl=db.example.com:5521/dbmode.example.com
oim.mdsschemaowner=test_mds
oim.adminport=7001
oim.adminhostname=<oim_host>:<oim_port>
oim.adminUserName=weblogic
oim.soahostmachine=<oim_soa_host>:<oim_soa_port>
oim.soaportnumber=8001
oim.soasusername=weblogic
oim.domain=/<MW_HOME>/user_projects/domains/<base_domain>
```

3.7.2 Upgrading Oracle Identity Navigator Application

Note: The OINAV version number is 11.1.1.3.0 while the Oracle Identity Navigator version number is 11.1.2.1.0.

This is not an error. The discrepancy is caused by a difference between how OINAV and Identity Access Management releases are tracked internally.

Upgrading Oracle Identity Navigator redeploys Oracle Identity Navigator using `oinav.ear` for Oracle Identity Navigator 11.1.2.1.0 release. There are two ways of redeploying the `oinav.ear`:

- Upgrading `oinav` using the WebLogic Server Administration Console.
- Upgrading `oinav` using the WebLogic Scripting Tool (WLST).

Using WebLogic Server Administration Console

Complete the following steps to upgrade Oracle Identity Navigator through the WebLogic Administration console:

1. Log in to WebLogic Administration console:

`http://<admin server host>:<admin server port>/console`

2. Under Domain Structure, click **Deployments**.
3. Select **oinav (11.1.1.3.0)** from the **Name** table.
4. Click **Update** and click **Finish** in the **Update Application Assistant** screen after verifying the source path.

Note: If WebLogic is running in production mode, click **Lock & Edit** before clicking **Update**.

Using WebLogic Scripting Tool (WLST)

Complete the following steps to upgrade Oracle Identity Navigator through the WLST console:

On UNIX

1. Move from your present working directory to the `<MW_HOME>/wlserver_10.3/common/bin` directory by running the following command on the command line:

```
cd <MW_HOME>/wlserver_10.3/common/bin
```

2. Run the following command to launch the WebLogic Scripting Tool (WLST):

```
./wlst.sh
```

3. Connect to the Administration Server using the following command:

```
connect('weblogic-username','weblogic-password','weblogic-url')
```

4. At the WLST prompt, run the following command:

```
redeploy('oinav#11.1.1.3.0')
```

5. Exit the WLST console using the `exit()` command.

On Windows

1. Move from your present working directory to the `<MW_HOME>\wlserver_10.3\common\bin` directory by running the following command on the command line:

```
cd <MW_HOME>\wlserver_10.3\common\bin
```

2. Run the following command to launch the WebLogic Scripting Tool (WLST):

```
wlst.cmd
```

3. Connect to the Administration Server using the following command:

```
connect('weblogic-username','weblogic-password','weblogic-url')
```

4. At the WLST prompt, run the following command:

```
redeploy('oinav#11.1.1.3.0')
```

5. Exit the WLST console using the `exit()` command.

3.7.3 Importing the Oracle Identity Navigator 11.1.2 Metadata

After applying the patch set, you must import any pre-upgrade OINAV metadata you may have exported.

Refer to "Importing the Oracle Identity Navigator 11.1.2 Metadata" in the *Oracle Fusion Middleware Upgrade and Migration Guide for Oracle Identity and Access Management*.

3.7.4 Upgrading Oracle Privileged Account Manager (OPAM) Application

Note: The OPAM application version number is 11.1.2.0.0 while the Oracle Privileged Account Manager version number is 11.1.2.1.0.

This is not an error. The discrepancy is caused by a difference between how OPAM and Identity Access Management releases are tracked internally.

Upgrading Oracle Privileged Account Manager redeploys Oracle Privileged Account Manager using `opam.ear` for Oracle Privileged Account Manager 11.1.2.1.0 release. There are two ways of redeploying the `opam.ear`:

- Upgrading `opam` using the WebLogic Server Administration Console.
- Upgrading `opam` using the WebLogic Scripting Tool (WLST).

Using WebLogic Server Administration Console

Complete the following steps to upgrade Oracle Privileged Account Manager through the WebLogic Administration console:

1. Log in to WebLogic Administration console:
`http://<admin server host>:<admin server port>/console`
2. Under Domain Structure, click **Deployments**.
3. Select **opam (11.1.2.0.0)** from the **Name** table.
4. Click **Update** and click **Finish** in the **Update Application Assistant** screen after verifying the source path.

Note: If WebLogic is running in production mode, click **Lock & Edit** before clicking **Update**.

Using WebLogic Scripting Tool (WLST)

Complete the following steps to upgrade Oracle Privileged Account Manager through the WLST console:

On UNIX

1. Move from your present working directory to the `<MW_HOME>/wlserver_10.3/common/bin` directory by running the following command on the command line:
`cd <MW_HOME>/wlserver_10.3/common/bin`
2. Run the following command to launch the WebLogic Scripting Tool (WLST):
`./wlst.sh`
3. Connect to the Administration Server using the following command:
`connect('weblogic-username','weblogic-password','weblogic-url')`
4. At the WLST prompt, run the following command:

```
redeploy('opam#11.1.2.0.0')
```

5. Exit the WLST console using the `exit()` command.

On Windows

1. Move from your present working directory to the `<MW_HOME>\wlserver_10.3\common\bin` directory by running the following command on the command line:

```
cd <MW_HOME>\wlserver_10.3\common\bin
```

2. Run the following command to launch the WebLogic Scripting Tool (WLST):

```
wlst.cmd
```

3. Connect to the Administration Server using the following command:

```
connect('weblogic-username','weblogic-password','weblogic-url')
```

4. At the WLST prompt, run the following command:

```
redeploy('opam#11.1.2.0.0')
```

5. Exit the WLST console using the `exit()` command.

3.7.5 Importing Pre-Upgrade OPAM Data

After applying the patch set, you must import the pre-upgrade OPAM data as described below:

1. Set the following environment variables:

Variable	Description
ORACLE_HOME	Oracle Privileged Account Manager is installed.
JAVA_HOME	Location of JDK used for the WebLogic installation.

2. Navigate to `$ORACLE_HOME/opam/bin`.
3. Execute the `opam.sh` script with the following parameters:

```
./opam.sh
-url <OPAM server url> (defaults to https://localhost:18102/opam)
-u <user name> (the user should have OPAM_SECURITY_ADMIN and OPAM_USER_MANAGER
roles)
-p <password>
-x import -f <import xml file>
-encpassword <encryption/decryption password>
-enckeylen <Key Length for encryption/decryption of password> (Defaults to 128)
-log <log file Location> (defaults to opamlog_<timestamp>.txt)
```

3.7.6 Optional: Enabling TDE in Oracle Privileged Account Manager Data Store

Oracle Privileged Account Manager can operate with Oracle Database TDE (Transparent Data Encryption) mode. You can choose to either enable or disable the TDE mode. Oracle strongly recommends to enable the TDE mode for enhanced security.

This section includes the following topics:

- [Enabling TDE in the Database](#)
- [Enabling Encryption in OPAM Schema](#)

3.7.6.1 Enabling TDE in the Database

For information about enabling Transparent Data Encryption (TDE) in the database for Oracle Privileged Account Manager, refer to the "Enabling Transparent Data Encryption" topic in *Oracle Database Advanced Security Administrator's Guide*.

For more information, see "Securing Stored Data Using Transparent Data Encryption" in the *Oracle Database Advanced Security Administrator's Guide*

After enabling TDE in the database for Oracle Privileged Account Manager, you must enable encryption in OPAM schema, as described in "Enabling Encryption in OPAM Schema" in *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management*.

3.7.6.2 Enabling Encryption in OPAM Schema

To enable encryption in the OPAM schema, run the `opamxencrypt.sql` script with the OPAM schema user, using `sqlplus` or any other client.

```
IAM_HOME/opam/sql/opamxencrypt.sql
```

Example:

```
sqlplus DEV_OPAM/welcome1 @IAM_HOME/opam/sql/opamxencrypt.sql
```

3.7.7 Optional: Configuring Non-TDE Mode

Note: This step is only necessary if you did not enable TDE as described in [Section 3.7.6.1, "Enabling TDE in the Database"](#).

While it is not recommended, if non-TDE mode is required by the user, the flag "tdemode" must be set to false. For more information, see "Setting Up Non-TDE Mode" in *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management*.

Caution: Oracle recommends that you always use Transparent Data Encryption(TDE). Without TDE, your data is not secure.

For more information on switching between the two modes, see "Securing Data On Disk" in the *Oracle Fusion Middleware Administrator's Guide for Oracle Privileged Account Manager*.

3.7.8 Upgrading Oracle Entitlements Server Domain and Policy Store

To upgrade Oracle Entitlements Server Administration Server and Policy Store, you must use the Oracle Identity and Access Management 11.1.2.1.0 Installer. During the procedure, point the Middleware Home to your existing 11.1.2.0.0 Middleware Home. Your Oracle Home is upgraded from 11.1.2.0.0 to 11.1.2.1.0.

For more information, see "Installing and Configuring Oracle Identity and Access Management (11.1.2)" in the *Oracle Fusion Middleware Installation Guide for Oracle Identity and Access Management*.

After the installation, use the Patch Set Assistant to upgrade OPSS Schemas (`prefix_`OPSS) as described in [Section 4.3.2, "Starting the Patch Set Assistant"](#).

3.7.9 Configuring BI Publisher Reports

Complete the following steps to configure the BI Publisher Reports:

1. Obtain the reports bundle `oim_product_BIP11gReports_11_1_2_1_0.zip` from the following location:

`MW_HOME/IAM_HOME/server/reports/oim_product_BIP11gReports_11_1_2_1_0.zip`

2. Unzip `oim_product_BIP11gReports_11_1_2_1_0.zip` at the following location:

`IAM_HOME/Middleware/user_projects/domains/domain_
name/config/bipublisher/repository/Reports/`

3. Configure reports by following the instructions in "Configuring Oracle Identity Manager Reports" in the *Oracle Fusion Middleware Developer's Guide for Oracle Identity Manager*.

3.7.10 Updating SOA Server Default Composite

In an integrated environment, Oracle Identity Management is front ended by OHS. All SOA server default composites must be updated. Perform the following steps:

1. Log in to Oracle Enterprise Manager Fusion Middleware Control Console.
2. Navigate to **SOA**, then **soa-infra** (*SOA server name*), then **default**.

Update the composite types applicable to your environment. For example: `ApprovalTask`, `Human Workflow`, `DisconnectedProvisioning`, etc.

See Also: The Fusion Middleware Control online help and SOA Suite documentation

3. For each default composite, perform the following:

- a. Click the *composite name*.
- b. From Component Metrics select the composite type. For example, click **ApprovalTask**.
- c. Select the **Administration** tab and update the fields as follows:

Host Name: *OHS host name*

HTTP Port: If SSL mode, leave blank. If non-SSL mode, enter *OHS HTTP port*.

HTTPS Port: If SSL mode, enter *OHS HTTPS port*. If non-SSL mode, leave blank.

- d. Click **Apply**.

3.7.11 Copying Oracle Access Manager MBean XML Files

Update the MBean XML files with Oracle Identity Management 11g Release 2 (11.1.2.1) MBean XML files using the offline WLST command `copyMbeanXmlFiles()`. This command copies the Oracle Access Manager and Oracle Identity Connect MBean XML files from the `OAM_ORACLE_HOME` to `DOMAIN_HOME`.

To copy Oracle Access Manager and Oracle Identity Connect MBean files to the `DOMAIN_HOME`:

1. Go to the following directory:

`OAM_ORACLE_HOME/common/bin`

2. Run the following command to launch the WebLogic Scripting Tool (WLST):

```
./wlst.sh
```

3. Run the following command:

```
copyMbeanXmlFiles('DOMAIN_HOME', 'ORACLE_HOME')
```

For example:

On Linux:

```
copyMbeanXmlFiles('/scratch/ste/MW_HOME/user_projects/domains/test_domain',
'/scratch/ste/MW_HOME/Oracle_IDM1')
```

Where the second parameter *OAM_ORACLE_HOME* is optional.

On Windows:

```
copyMbeanXmlFiles('C:\\Oracle\\MW_HOME\\user_projects\\domains\\test_
domain', 'C:\\Oracle\\MW_HOME\\Oracle_IDM1')
```

3.8 Restarting the Administration Server and OIM Managed Servers

Note: Start only the Oracle Identity Manager (OIM) Managed Servers at this time.

To restart the Administration Server and Oracle Identity Manager Managed Servers, you must stop them first before starting them again.

To stop the servers, see [Shutting Down Administration Server and Managed Servers](#).

To start the servers, see [Starting the Administration Server and Managed Servers](#).

To start the Oracle Identity Manager Managed Servers, do the following:

On UNIX:

1. Move from your present working directory to the <MW_HOME>/user_projects/domains/<domain_name>/bin directory by running the following command on the command line:

```
cd <MW_HOME>/user_projects/domains/<domain_name>/bin
```

2. Run the following command to start the Servers:

```
./startManagedWebLogic.sh <managed_server_name> <admin_url> <user_name>
<password>
```

where

<managed_server_name> is the name of the Managed Server

<admin_url> is URL of the administration console. Specify it in the format `http://<host>:<port>/console`. Specify only if the WebLogic Administration Server is on a different computer.

<user_name> is the username of the WebLogic Administration Server.

<password> is the password of the WebLogic Administration Server.

On Windows:

1. Move from your present working directory to the <MW_HOME>\user_projects\domains\<domain_name>\bin directory by running the following command on the command line:

```
cd <MW_HOME>\user_projects\domains\<domain_name>\bin
```

2. Run the following command to start the Managed Servers:

```
startManagedWebLogic.cmd <managed_server_name> <admin_url> <user_name>  
<password>
```

where

<managed_server_name> is the name of the Managed Server.

<admin_url> is URL of the administration console. Specify it in the format `http://<host>:<port>/console`. Specify only if the WebLogic Administration Server is on a different computer.

<user_name> is the username of the WebLogic Administration Server.

<password> is the password of the WebLogic Administration Server.

3.9 Verifying Your Patch Set Installation

After you have successfully patched your environment, you can verify the status of your installation by performing any combination of the following:

- [Verifying the Upgrade](#)
- [Verifying the Domain Server Logs](#)
- [Verifying OPMN Status](#)
- [Checking Browser URLs](#)
- [Clearing Pre-Upgrade OPSS Artifacts for OPAM](#)

Note: OPAM Users: After you have verified that the patch was successfully applied, you should clear the OPSS artifacts of the pre-upgrade instance as described in [Section 3.9.6](#).

3.9.1 Verifying the Upgrade

To verify your Oracle Identity Manager upgrade, perform the following steps:

1. Use the following URL in a web browser to verify that Oracle Identity Manager 11.1.2.1.0 is running:

```
http://<oim.example.com>:<oim_port>/sysadmin
```

```
http://oim.example.com:14000/identity
```

where

<oim.example.com> is the path of the administration console.

<oim_port> is the port number.

2. Use Fusion Middleware Control to verify that Oracle Identity Manager and any other Oracle Identity Management components are running in the Oracle Fusion Middleware environment.
3. Install the Diagnostic Dashboard and run the following tests:

- Oracle Database Connectivity Check
- Account Lock Status
- Data Encryption Key Verification
- JMS Messaging Verification
- SOA-Oracle Identity Manager Configuration Check
- SPML Web Service
- Test OWSM setup
- Test SPML to Oracle Identity Manager request invocation
- SPML attributes to Oracle Identity Manager attributes
- Username Test

3.9.2 Verifying the Domain Server Logs

Check the domain server logs, which are located in the `servers` directory inside the domain home directory. For example, on UNIX systems:

```
MW_HOME/user_projects/domains/domain_name/servers/server_name
```

On Windows systems:

```
MW_HOME\user_projects\domains\domain_name\servers\server_name
```

3.9.3 Verifying Oracle Identity Manager Middle Tier Upgrade

Complete the following steps to verify the Oracle Identity Manager Middle Tier upgrade:

1. Verify the log files created in the following location:

On UNIX:

```
<OIM_HOME>/server/upgrade/logs/MT
```

On Windows:

```
<OIM_HOME>\server\upgrade\logs\MT
```

The following log files are generated:

- OIMUpgrade<timestamp>.log
 - SeedSchedulerData.log
2. OIMupgrade.sh creates a detailed report. Complete the following steps to verify the Oracle Identity Manager Middle Tier upgrade:

- a. Go to the following path:

On UNIX:

```
<Oracle_IDM1>/server/upgrade/logs/MT/oimUpgradeReportDir
```

On Windows:

```
<Oracle_IDM1>\server\upgrade\logs\MT\oimUpgradeReportDir
```

- b. Click **index.html**.

This contains list of all Oracle Identity Manager features and upgrade status of the last middle tier run, in a table format.

- c. Click on the corresponding link of each feature for a detailed feature report.

3.9.4 Verifying OPMN Status

Run the `opmnctl status` command from the `INSTANCE_HOME/bin` (on UNIX operating systems) or `INSTANCE_HOME\bin` (on Windows operating systems) directory in your instance home location. The example below shows the output on a UNIX system:

```
> ./opmnctl status

Processes in Instance: asinst_1
-----+-----+-----+-----+
ias-component | process-type | pid | status |
-----+-----+-----+-----+
emagent_asinst_1 | EMAGENT | 11849 | Alive |
wc1 | WebCache-admin | 11333 | Alive |
wc1 | WebCache | 11332 | Alive |
ohs1 | OHS | 11207 | Alive |
```

This information shows the components configured for this installation. The status "Alive" means the component is up and running.

You can also run the `opmnctl status -l` command to obtain a list of ports used by the components. The example below shows the output on a UNIX system:

```
> ./opmnctl status -l

Processes in Instance: asinst_1
-----+-----+-----+-----+-----+-----+-----+-----+
ias-component | process-type | pid | status |
uid | memused | uptime | ports |
-----+-----+-----+-----+-----+-----+-----+-----+
emagent_asinst_1 | EMAGENT | 11849 | Alive |
1133259606 | 4204 | 0:09:38 | N/A |
wc1 | WebCache-admin | 11333 | Alive |
1133259605 | 43736 | 0:15:35 | http_admin:8091 |
wc1 | WebCache | 11332 | Alive |
1133259604 | 63940 | 0:15:35 | http_stat:8092,http_invalidation:8093,https_listen:8094,http_listen:8090 |
ohs1 | OHS | 11207 | Alive |
1133259603 | 50744 | 0:15:43 | https:8889,https:8890,http:8888 |
```

3.9.5 Checking Browser URLs

Verify that you can access your installed and configured products, as shown in [Table 3-4](#):

Table 3-4 Installed Product URLs

Product or Component	URL
Administration Server Console	<code>http://host:port/console</code>
Enterprise Manager Console	<code>http://host:port/em</code>
Enterprise Manager Agent	<code>http://host:port/emd/main</code>
Oracle Identity Manager	<code>http://oim.example.com:14000/identity</code>
System Administrator	<code>http://<oim.example.com>:<oim_port>/sysadmin</code>

3.9.6 Clearing Pre-Upgrade OPSS Artifacts for OPAM

This step is only required if you are patching Oracle Privileged Account Manager (OPAM).

After you have verified that the patch was successfully applied, you should clear the OPSS artifacts of the pre-upgrade instance.

For UNIX operating systems:

```
$ORACLE_HOME/common/bin/wlst.sh $ORACLE_HOME/opam/config/clean-opss.py <WebLogic  
Administrator Username> <WebLogic Administrator Password>  
<t3://<adminserver-host>:<adminserver-port>
```

For Windows operating systems:

```
$ORACLE_HOME\common\bin\wlst.cmd $ORACLE_HOME\opam\config\clean-opss.py <WebLogic  
Administrator Username> <WebLogic Administrator Password>  
<t3://<adminserver-host>:<adminserver-port>
```

Updating Your Schemas with Patch Set Assistant

The Patch Set Assistant is used in patch set releases only to update the database schemas of Oracle Fusion Middleware components. The schemas that are valid for updating with the Patch Set Assistant must meet one of the following criteria:

- The schema was created in an 11g release using the Repository Creation Utility (RCU).
- The schema was upgraded from 10g to 11g using the Upgrade Assistant.

Note: The Patch Set Assistant does not upgrade schemas that are in customer databases, which includes any database that has not been updated using the Upgrade Assistant (UA), Repository Creation Utility (RCU), or Patch Set Assistant (PSA).

The Patch Set Assistant updates 11g Release 2 schema versions starting at 11.1.2.0.0 to version 11.1.2.1.0. See [Table 4-1](#) for specific information.

If you are interested in creating new schemas or dropping existing schemas, you must use the Repository Creation Utility (RCU). Information is provided in *Oracle Fusion Middleware Repository Creation Utility User's Guide*.

This chapter contains the following topics:

- [Section 4.1, "Which Schemas Need to be Updated with Patch Set Assistant?"](#)
- [Section 4.2, "Before You Begin Using the Patch Set Assistant"](#)
- [Section 4.3, "Running the Patch Set Assistant"](#)
- [Section 4.4, "Patch Set Assistant Log Files"](#)

4.1 Which Schemas Need to be Updated with Patch Set Assistant?

The component schemas in [Table 4-1](#) (default names shown) must be updated with the Patch Set Assistant in order to update them to 11g Release 2 (11.1.2.1.0).

[Table 4-1](#) lists only the schemas for products that are available in the latest Oracle Identity and Access Management 11g Release 2 (11.1.2.1.0) patch set.

Table 4–1 Schemas That Require Updating for the Latest Release

Component Name	Schema(s)	Schema Version Before Upgrade	Schema Version After Upgrade	Dependencies
Oracle Privileged Account Manager (OPAM)	<i>prefix_OPAM</i>	11.1.2.0.0	11.1.2.1.0	The <i>prefix_OPSS</i> schema must be updated first.
Oracle Identity Manager (OIM)	<i>prefix_OIM</i>	11.1.2.0.0	11.1.2.1.0	
Oracle Access Manager (OAM)	<i>prefix_OAM</i>	11.1.2.0.0	11.1.2.1.0	

4.2 Before You Begin Using the Patch Set Assistant

This section contains information about things you should check before you run the Patch Set Assistant:

- [Section 4.2.1, "Back Up Your Database and Database Schemas"](#)
- [Section 4.2.2, "Check Your Database and Schemas"](#)
- [Section 4.2.3, "Shut Down All Components Using the Schemas You Want to Update"](#)

4.2.1 Back Up Your Database and Database Schemas

Make sure you have backed up your existing database and database schemas before you run the Patch Set Assistant, as instructed in [Section 3.2.7, "Backing Up Your Database and Database Schemas"](#).

4.2.2 Check Your Database and Schemas

Before running Patch Set Assistant, you should check to make sure that your database is up and running and that the schemas you want to upgrade are at versions that are supported for upgrade. To check this, perform the following SQL command:

```
SELECT OWNER, VERSION, STATUS, UPGRADED FROM SCHEMA_VERSION_REGISTRY;
```

If the number in the "VERSION" column is 11.1.1.2.0 or greater, then the schema is supported for upgrade.

If you are using an Oracle database, you should recompile database objects before running the Patch Set Assistant to check for invalid objects before the upgrade. Connect to the database as SYS and run the following from SQL*Plus:

```
/rdbms/admin/utlrlp.sql
```

After running `utlrlp.sql`, and before you upgrade your schema, issue the following query to ensure there are no longer any invalid database objects:

```
SELECT owner, object_name FROM all_objects WHERE status='INVALID';
```

Take note of any invalid objects. The existence of invalid database objects may prevent the upgrade from completing successfully.

4.2.3 Shut Down All Components Using the Schemas You Want to Update

Before running Patch Set Assistant, shut down all Oracle Fusion Middleware components (including the Managed Server and Oracle instances) that may be using the schemas you want to update.

4.3 Running the Patch Set Assistant

The following sections describe how to run the Patch Set Assistant when you are installing the Oracle Fusion Middleware 11g Release 2 (11.1.2.1.0) patch set:

- [Section 4.3.1, "General Information about the Patch Set Assistant"](#)
- [Section 4.3.2, "Starting the Patch Set Assistant"](#)
- [Section 4.3.3, "Using the Patch Set Assistant Graphical Interface"](#)
- [Section 4.3.4, "Using the Patch Set Installer from the Command Line"](#)
- [Section 4.3.5, "Verifying the Schema Version Number After Update"](#)
- [Section 4.3.6, "Checking for Invalid Database Objects"](#)

4.3.1 General Information about the Patch Set Assistant

The Patch Set Assistant is installed into the `bin` directory in the Oracle Common home by the Product or Patch Set Installer (see [Section 3.3.1, "About the Installer Used for Patching"](#)).

You can use the Patch Set Assistant to patch any component schema in the Middleware home from where the Patch Set Assistant started.

4.3.2 Starting the Patch Set Assistant

To start Patch Set Assistant, go to the `bin` directory in the Oracle Common home, then run the following command:

On UNIX operating systems:

```
cd MW_HOME/oracle_common/bin
./psa
```

On Windows operating systems:

```
CD MW_HOME\oracle_common\bin
psa.bat
```

4.3.3 Using the Patch Set Assistant Graphical Interface

Follow the instructions in [Table 4–2](#) to use the Patch Set Assistant to update your schemas.

If you need additional help with any of the screens, click **Help** on the screen to access the online help.

Table 4–2 Patch Set Assistant Screens

Screen	Description
Welcome	This page introduces you to the Patch Set Assistant.
Select Component	Select the single top-level component you want to upgrade. You may only upgrade one component at a time.

Table 4–2 (Cont.) Patch Set Assistant Screens

Screen	Description
Prerequisites	Verify that you have satisfied the database prerequisites.
Schema	Specify your database credentials to connect to your database, then select the schema you want to update. Note that this screen appears once for each schema that must be updated as a result of the component you selected on the Select Component screen.
Examine	This page displays the status of the Patch Set Assistant as it examines each component schema. Verify that your schemas have a "succeeded" or "already upgraded" indicator in the Status column.
Upgrade Summary	Verify that the schemas listed to be upgraded are the ones you expect.
Upgrade Progress	This screen shows the progress of the schema update.
Upgrade Success	

4.3.4 Using the Patch Set Installer from the Command Line

The full command line syntax for the Patch Set Assistant is shown below:

```
./psa (or psa.bat)
  -response response_file
  [-logLevel log_level]
  [-help]
```

See [Table 4–3](#) for descriptions for these parameters.

Table 4–3 Patch Set Assistant Command Line Parameters

Parameter	Required or Optional Parameter?	Description
-response	Required.	Full path and name of the input response file.
-logLevel	Optional.	Logging level. One of the following: <ul style="list-style-type: none"> ▪ TRACE ▪ NOTIFICATION ▪ WARNING ▪ ERROR ▪ INCIDENT_ERROR The default logging level is NOTIFICATION.
-help	Optional.	View all of the command line options.

To generate the response file used with the `-response` parameter, you should run the Patch Set Assistant GUI ([Section 4.3.3, "Using the Patch Set Assistant Graphical Interface"](#)). On the [Upgrade Summary](#) screen, click **Save Response File** to save your information to a response file.

Note: When Patch Set Assistant is run in `-response` file mode, it will not upgrade any schemas that return "already upgraded" during the Examine phase. These schemas will skip the upgrade phase entirely. This applies only when Patch Set Assistant is run in `-response` file mode.

4.3.5 Verifying the Schema Version Number After Update

You can use the SQL command below to verify that the schema version in `schema_version_registry` has been properly updated:

```
SQL> select owner,version,upgraded,status from schema_version_registry where
owner='DEV_OPAM';
```

```
OWNER VERSION U STATUS
-----
DEV_OPAM 11.1.2.1.0 Y VALID
```

Check that the number in the "VERSION" column matches the latest version number for that schema. See [Table 4–1](#) to verify that the updated version number is correct for your schema.

If the status appears as "INVALID" then the schema update failed. You should examine the logs files to determine the reason for the failure. For more information, see [Section 4.4, "Patch Set Assistant Log Files"](#).

4.3.6 Checking for Invalid Database Objects

If you are using an Oracle database, you should recompile database objects after running the Patch Set Assistant by connecting to the database as SYS and running the following from SQL*Plus:

```
cd $DB_HOME
SQL> @rdbms/admin/utlrb.sql
```

This will compile the database objects that were updated by Patch Set Assistant.

Then issue the following query to ensure there are no longer any invalid database objects:

```
SELECT owner, object_name FROM all_objects WHERE status='INVALID';
```

None of the database objects for the updated schema should be invalid at this point. If there are any, run the `utlrb.sql` command again and check again. If the problem persists, you should file a service request.

4.4 Patch Set Assistant Log Files

The Patch Set Assistant writes log files to the following locations:

On UNIX operating systems:

```
MW_HOME/oracle_common/upgrade/logs/psatimestamp.log
```

On Windows operating systems:

```
MW_HOME\oracle_common\upgrade\logs\psatimestamp.log
```

Some components will create a second log file called *psatimestamp.out*, also in the same location.

The *timestamp* will reflect the actual date and time that Patch Set Assistant was run.

Should any failures occur when running Patch Set Assistant, these log files will be needed to help diagnose and correct the problem; do not delete them. You can alter the contents of your log files by specifying a different `-logLevel` from the command line.

Some of the operations performed by the Patch Set Assistant may take longer to complete than others. If you want to see the progress of these long operations, you can see this information in the log file, or you can use the following query:

```
SELECT VERSION, STATUS, UPGRADED FROM SCHEMA_VERSION_REGISTRY WHERE OWNER='schema_name';
```

In the query results, the `STATUS` field will be either "UPGRADING" or "UPGRADED" during the schema patching operation, and will become "VALID" when the operation is finished.

Oracle Identity and Access Management Patch Set Installer Screens

This appendix describes the screens of the Oracle Identity and Access Management 11g software Installation Wizard that enables you to patch Oracle Identity Manager, Oracle Access Management, Oracle Adaptive Access Manager, Oracle Entitlements Server, Oracle Identity Navigator, Oracle Privileged Account Manager, and Oracle Access Management Mobile and Social.

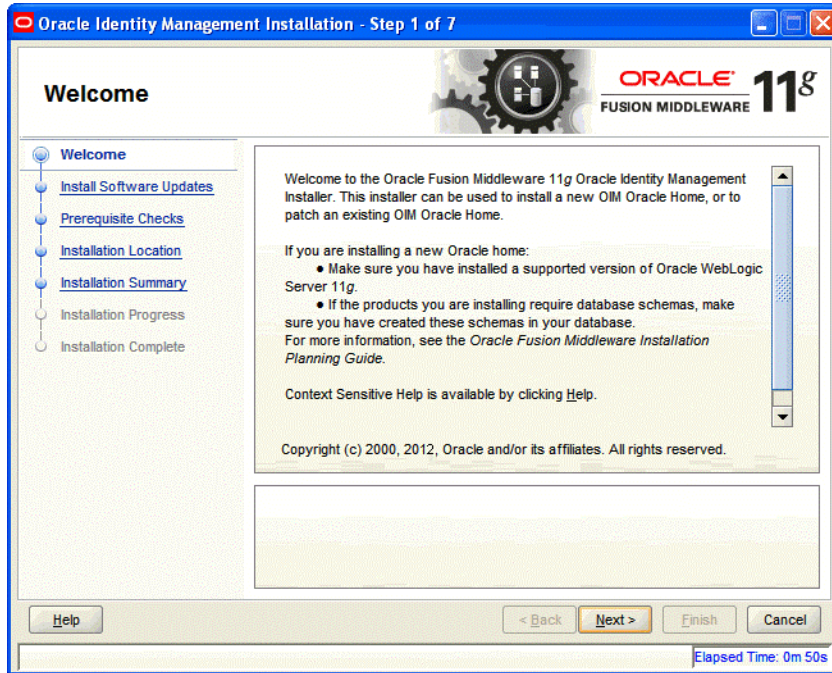
It contains the following topics:

- Welcome
- Install Software Updates
- Prerequisite Checks
- Specify Installation Location
- Installation Summary
- Installation Progress
- Installation Complete

A.1 Welcome

The Welcome screen is displayed each time you start the Oracle Identity and Access Management 11g Installer wizard.

Figure A-1 Welcome Screen

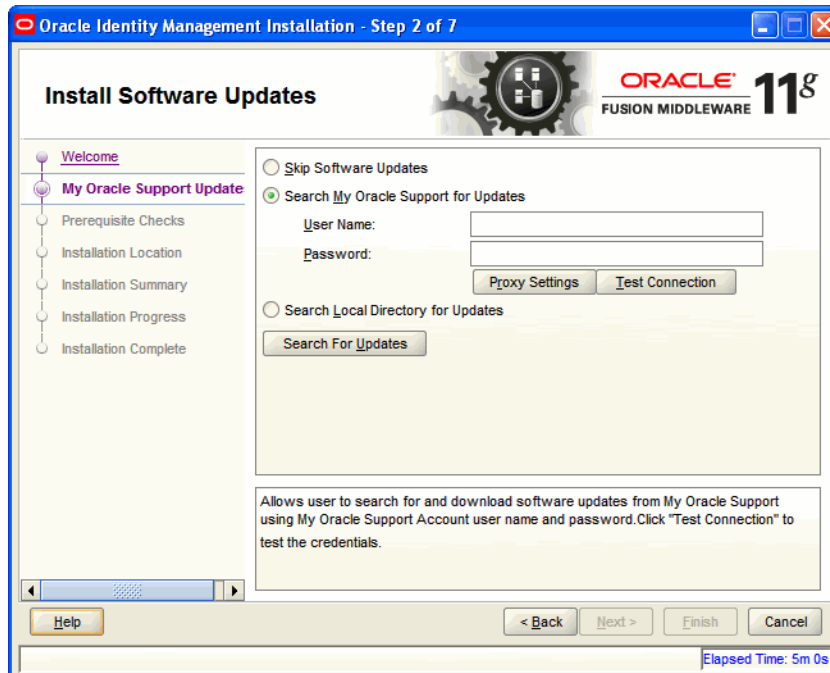


Click **Next** to continue.

A.2 Install Software Updates

This screen helps to quickly and easily search for the latest software updates, including important security updates, via your My Oracle Support account.

Figure A–2 *Install Software Updates*

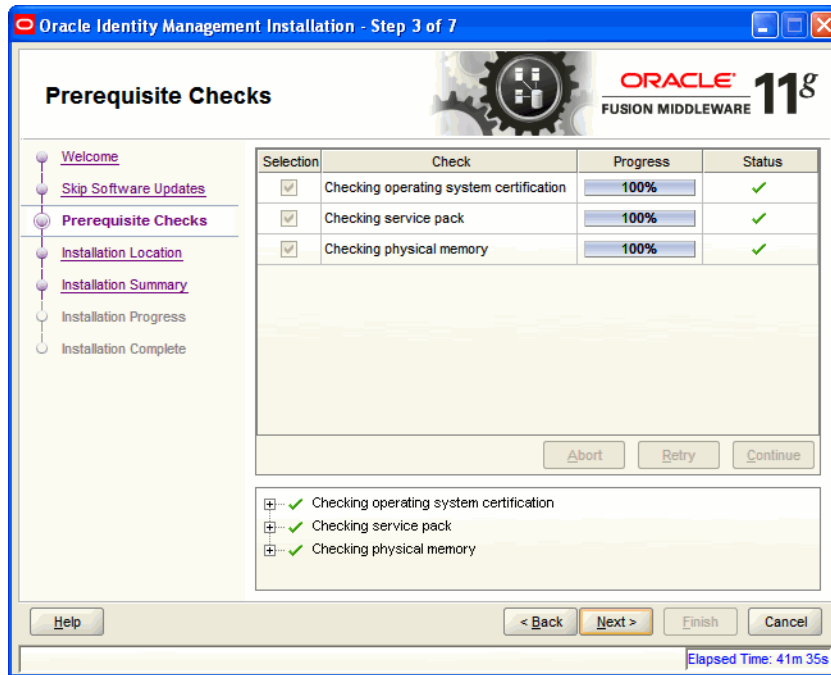


A.3 Prerequisite Checks

The installation program ensures that you have a certified version, the correct software packages, sufficient space and memory to perform the operations that you have selected. If any issues are detected, errors appear on this page.

The following example screen applies to Windows operating systems only.

Figure A-3 Prerequisite Checks Screen



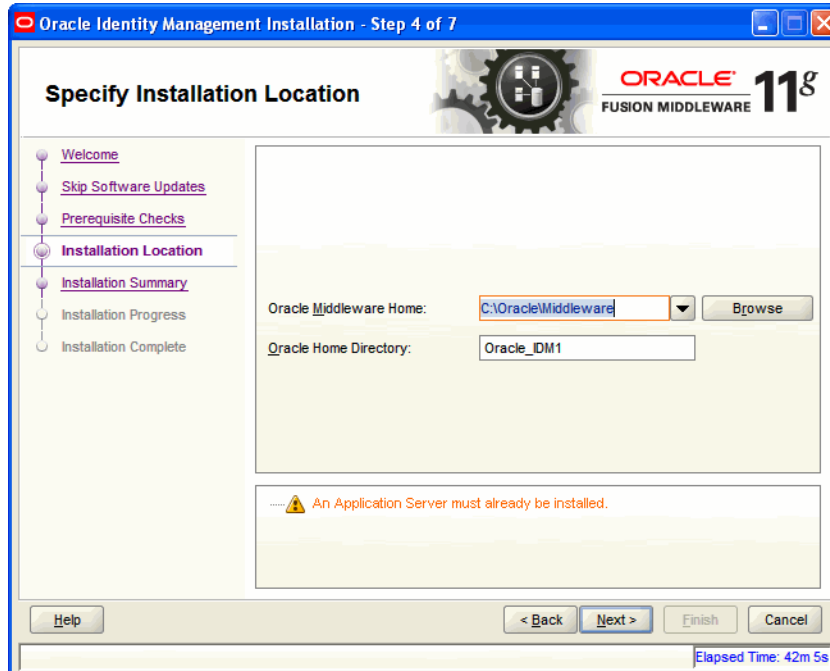
On this screen, you can select to **Abort**, **Retry**, or **Continue** with the installation.

If all the prerequisite checks pass inspection, click **Next** to continue.

A.4 Specify Installation Location

In this screen, you enter a location for the new Oracle Identity and Access Management 11g software being installed.

Figure A–4 Specify Installation Location Screen



Ensure that Oracle WebLogic Server is already installed on your machine. Navigate to the Oracle Fusion Middleware Home directory by clicking **Browse**. Enter a name for the new Oracle Home directory for Oracle Identity and Access Management 11g components.

If the Middleware location does not exist, you must install WebLogic Server and create a Middleware Home directory before running the Oracle Identity and Access Management Patch Set Installer.

Note: If you do not specify a valid Middleware Home directory on the Specify Installation Location screen, the Installer displays a message and prompts you to confirm whether you want to proceed with the installation of only Oracle Identity Manager Design Console and Oracle Identity Manager Remote Manager. These two components of Oracle Identity Manager do not require a Middleware Home directory.

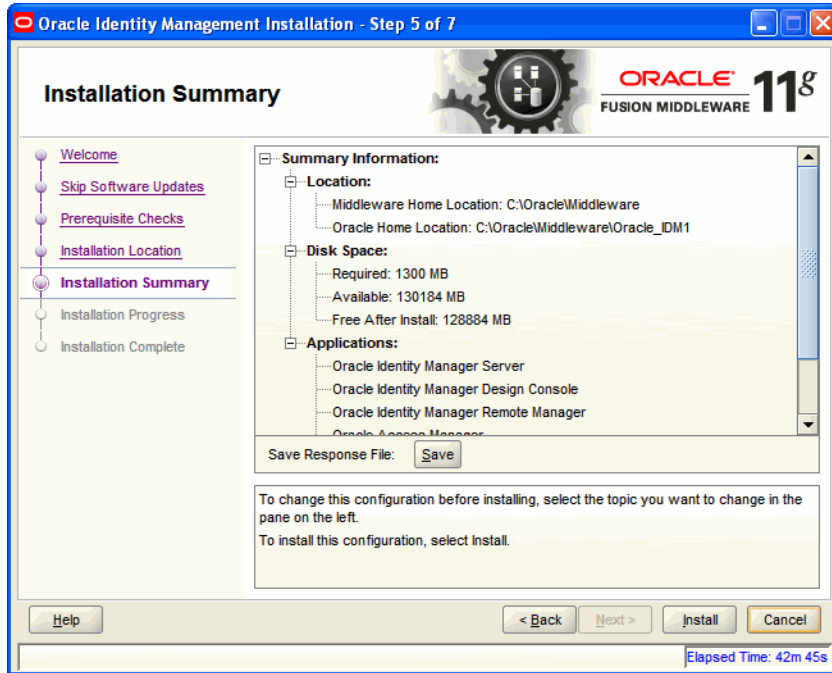
If you want to install only Oracle Identity Manager Design Console or Remote Manager, you do not need to install Oracle WebLogic Server or create a Middleware Home directory on the machine where Design Console or Remote Manager is being configured.

Click **Next** to continue.

A.5 Installation Summary

This screen displays a summary of your Oracle Identity and Access Management 11g installation.

Figure A-5 *Installation Summary Screen*

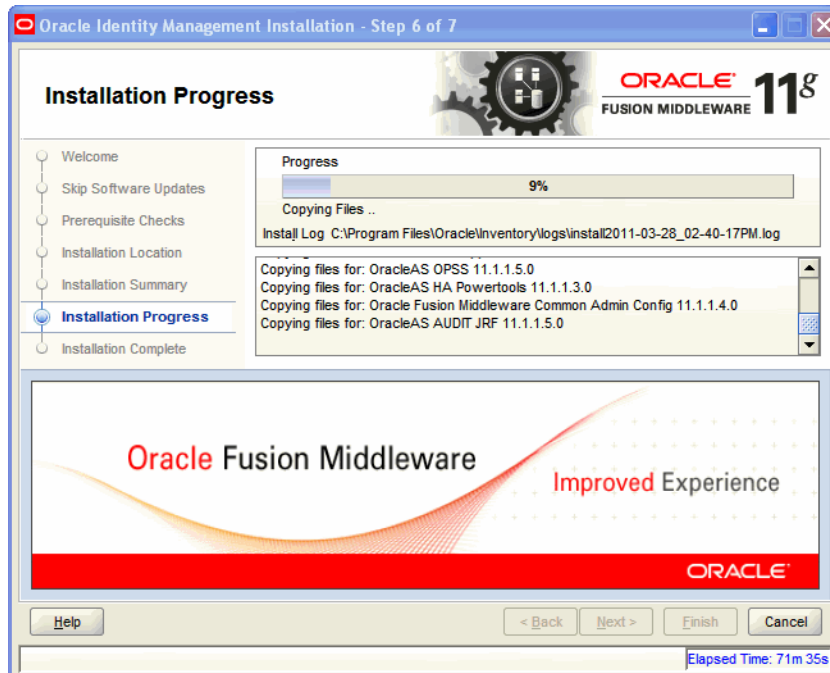


Review the contents of this screen, and click **Install** to start installing the Oracle Identity and Access Management 11g software.

A.6 Installation Progress

This screen displays the progress of the Oracle Identity and Access Management installation.

Figure A-6 Installation Progress Screen

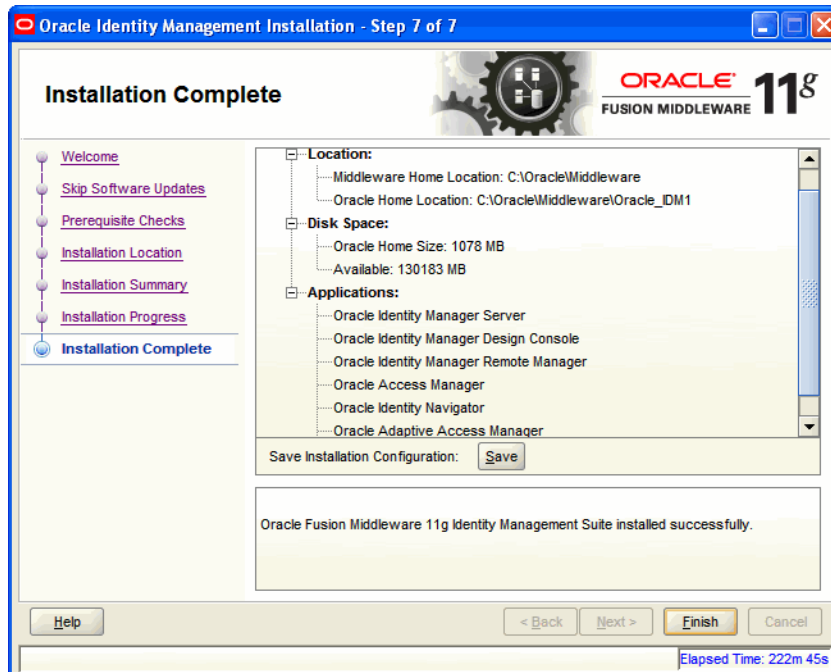


If you want to quit before the installation is completed, click **Cancel**. The installation progress indicator gives a running inventory of the files that are being installed. If you are only installing the software binaries, installation is complete after all of the binaries have been installed.

A.7 Installation Complete

This screen displays a summary of the installation parameters, such as Location, Disk Space, and Applications. To save the installation configuration in a response file, which is used to perform silent installations, click **Save**.

Figure A-7 Installation Complete Screen



Click **Finish** to complete the installation process.

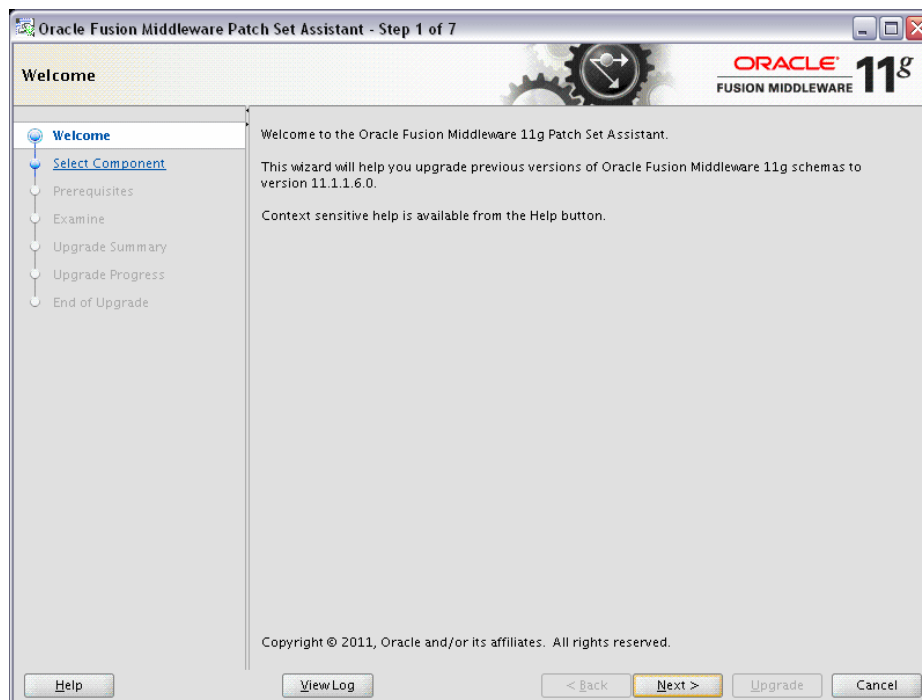
B

Patch Set Assistant Screens

This appendix contains screenshots and descriptions for the Patch Set Assistant screens:

- [Welcome](#)
- [Select Component](#)
- [Prerequisites](#)
- [Schema](#)
- [Examine](#)
- [Upgrade Summary](#)
- [Upgrade Progress](#)
- [Upgrade Success](#)

B.1 Welcome

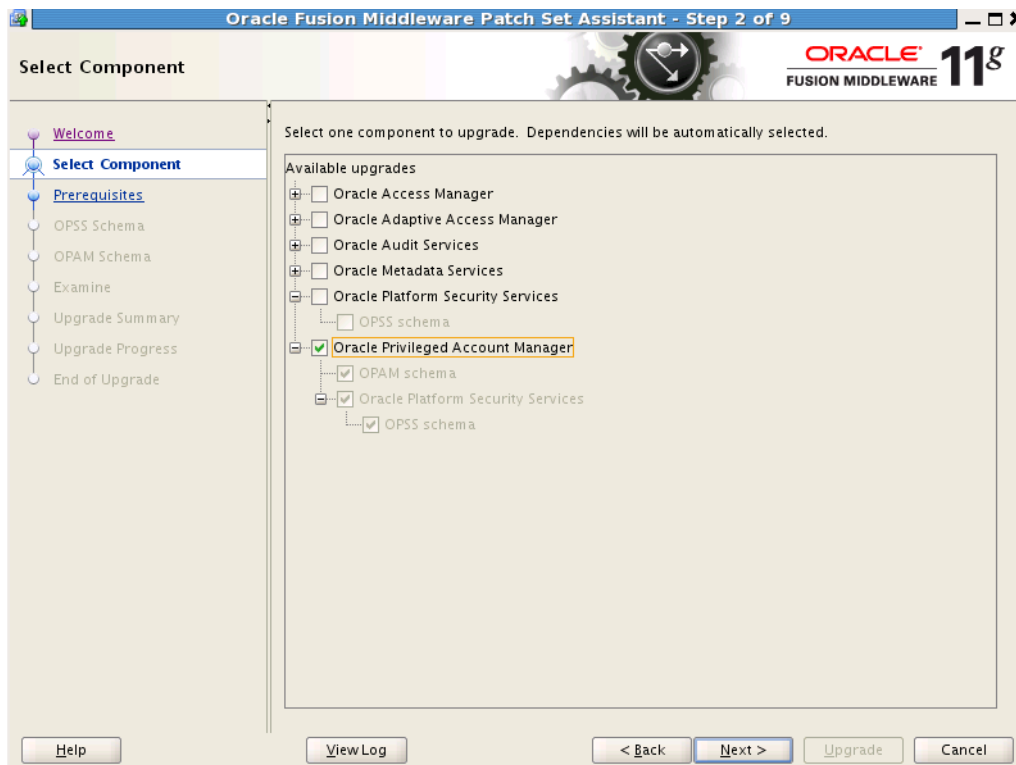


The Welcome screen is displayed each time you start the installer.

NOTE: The version number on the 11.1.2.1.0 Patch Set Assistant Welcome screen is listed as 11.1.1.6.0. This is a known issue.

You can click **View Log** at any time during the schema upgrade process to view the log file. A separate window (Log File Viewer) is displayed that contains the messages being written to the log file. The top of the Log File Viewer contains the location and name of the log file. You can click **Refresh** to see the most recent messages being logged.

B.2 Select Component



Use this screen to select the component schema you want to update.

The Patch Set Installer lists all components that are found in the Middleware home. For example, if you started the Patch Set Installer from the `/home/Oracle/Middleware/Oracle_IDM1/bin` directory (on UNIX operating systems) or `c:\Products\Oracle\Middleware\Oracle_IDM1\bin` directory (on Windows operating systems), the Patch Set Installer will list all components found in `/home/Oracle/Middleware` directory (on UNIX operating systems) or `c:\Products\Oracle\Middleware` directory (on Windows operating systems).

You can only use Patch Set Assistant to update one top-level component at a time. In the figure above, notice that Oracle Privileged Account Manager is selected, which means Patch Set Assistant would update the OPAM schema as well as the OPSS schema, upon which the OPAM schema is dependent. However, the top-level "Oracle Metadata Services" box is not selected even though that schema is going to be updated.

If you wanted to update either of the other two top-level schema found in this Middleware home (in this case, "Oracle Metadata Services") you would have to restart the Patch Set Assistant and select MDS separately.

B.3 Prerequisites

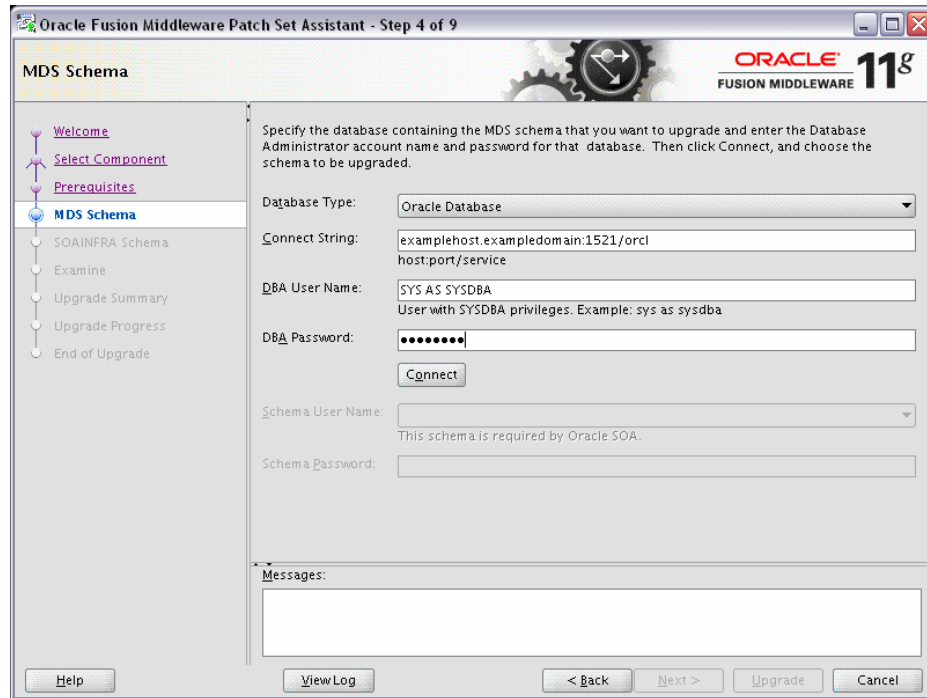


Use this screen to verify that you have satisfied the database prerequisites before you continue. You must check all the boxes acknowledging that all prerequisites for upgrade have been met, or else you will be unable to continue to the next screen.

Select **Database backup completed** to verify that you have backed up your database as described in [Section 4.2.1, "Back Up Your Database and Database Schemas"](#).

Select **Database version is certified by Oracle for Fusion Middleware upgrade** to verify that you have read the *System Requirements and Supported Platforms for Oracle Fusion Middleware 11gR1* document on the Oracle Fusion Middleware Supported System Configurations page, and that your database is certified for use with Oracle Fusion Middleware.

B.4 Schema



Use this screen to specify database connection credentials and schema information for upgrade. This screen appears once for each component schema that needs to be updated; each time after the first time the screen will have all the database credential values filled in for you. If you have schemas on different databases then you will need to alter your database connection information accordingly.

The following table describes the fields on this screen:

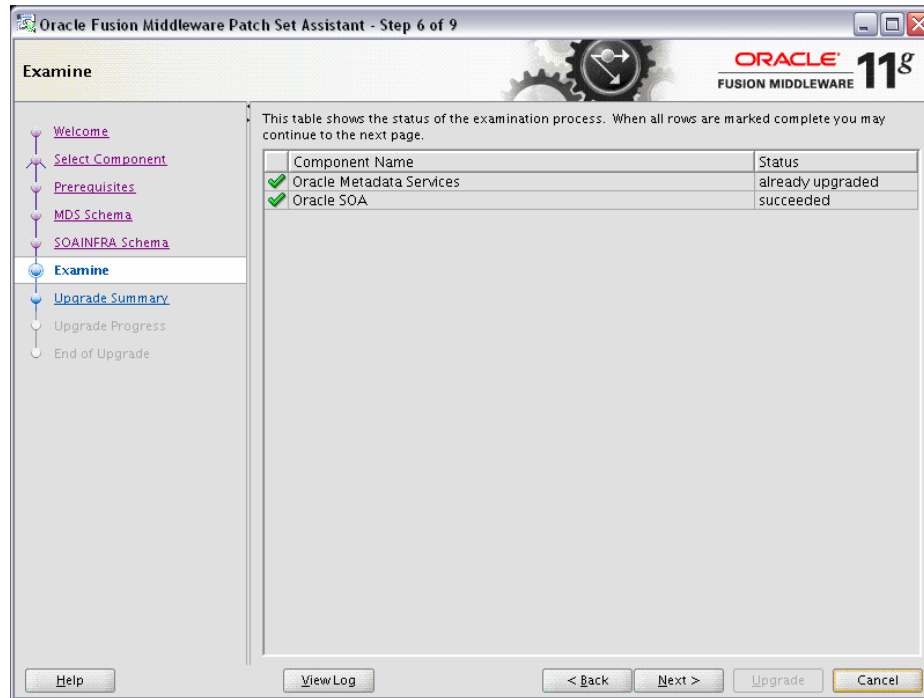
Field	Description
Database Type	Select your database type from the drop-down list. Only database types that are valid for the schema are available in this list.
Connect String	Specify the connection credentials to your database. <ul style="list-style-type: none"> ■ For Oracle databases: <i>host:port/service_name</i> ■ For Microsoft SQL Server and IBM DB2 databases: <i>host:port;DatabaseName=dbname</i>

Field	Description
DBA User Name	<p>Specify the user name and role of the database administrator user.</p> <p>NOTE: Oracle Privileged Account Manager schema must be updated by a Database user with SYSDBA privileges. So credentials provided to connect to the database should have SYSDBA privilege.</p> <ul style="list-style-type: none"> ■ For Oracle databases, enter SYS or any user with DBA role (for example, <code>sys as sysdba</code> or any user with DBA privileges). <p>Note that the SYS database user can grant DBA privileges to an ordinary database user 'SCOTT' with the following SQL DDL statement:</p> <pre>GRANT DBA TO SCOTT;</pre> <ul style="list-style-type: none"> ■ For Microsoft SQL Server databases, enter <code>sa</code> or any user with <code>db_owner</code> role. ■ For IBM DB2 databases, enter <code>db2admin</code> or any user with DBA role. ■ For Hypersonic databases, enter <code>sa</code>. ■ For Sybase databases, enter <code>sa</code>. ■ For MySQL databases, enter <code>root</code>.
DBA Password	Enter the password for your database administrator user.

After these values are filled in, click **Connect** to connect to your database. After the connection succeeds, two additional fields will become active on the screen:

Field	Description
Schema User Name	<p>This drop-down list contains all available product schemas in the database to which you are connected. Select the schema you want to update from the drop-down list.</p> <p>NOTE: The Oracle WebCenter Content Server - Complete (<i>prefix_OCS</i>) and Oracle WebCenter Content: Records (<i>prefix_URMSERVER</i>) schemas will require you to manually enter the name of the schema; they will not appear in the drop-down list and the Connect button will not be active for these schemas.</p> <p>NOTE: If the drop-down list is empty, make sure you have connected to the database as a user with the required privileges.</p>
Schema Password	Specify the password for the selected schema.

B.5 Examine



This page displays the status of each component schema for upgrade. The meaning of the status indicators for the components is listed in the following table.

Status	Description
in progress	The Patch Set Assistant is examining whether or not the schema can be upgraded.
pending	The schema will be examined when the Patch Set Assistant is finished examining the preceding component.
already upgraded	The schema was previously successfully upgraded with the Patch Set Assistant or was created with the latest version of the Repository Creation Utility (RCU). No action will be taken on this schema.
failed	The schema can not be upgraded.
skipped	The examination of this schema was skipped. This is caused when the examination of a dependent schema fails.
succeeded	The examination of the schema was successful and the schema is ready to be upgraded.

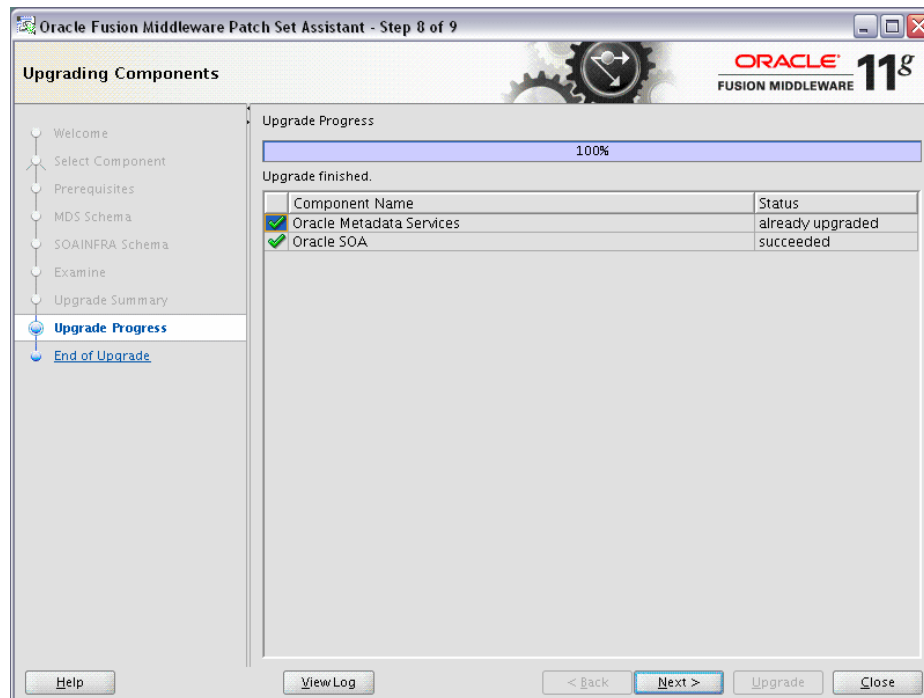
B.6 Upgrade Summary



Use this page to review a summary of the options you have selected and to start the upgrade process.

Click **Save Response File** to save this upgrade information to a response file. This file can be used later if you want to run the Patch Set Assistant from the command line. For more information, see [Section 4.3.4, "Using the Patch Set Installer from the Command Line"](#).

B.7 Upgrade Progress



This screen shows you the progress of your schema upgrade. The "Upgrade Progress" bar moves from 0% at the beginning to 100% when the upgrade is complete.

B.8 Upgrade Success



This screen indicates that the upgrade was successful.

Be sure to view the log file located in the `MW_HOME/oracle_common/upgrade/logs` (on UNIX operating systems) or `MW_HOME\oracle_common\upgrade\logs` (on Windows operating systems) directory for details about the upgrade. You can view the log file with any text editor, or you can click the **View Log** button.

