

Oracle® Enterprise Manager

Cloud Control Upgrade Guide

13c Release 1

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Oracle Enterprise Manager Cloud Control Upgrade Guide, 13c Release 1

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Preface

Oracle Enterprise Manager Cloud Control Upgrade Guide describes how you can upgrade the following to Enterprise Manager Cloud Control 13c:

- Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5)
- Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4)
- Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3)

Note: If you have configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you cannot directly upgrade to 13c. You must first upgrade to 12c Release 4 (12.1.0.4) or 12c Release 5 (12.1.0.5), and then upgrade to 13c Release 1. If you have not configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you can directly upgrade to 13c.

If you have 12c Release 1 (12.1.0.1) or 12c Release 2 (12.1.0.2), then first upgrade it to either 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5), and then upgrade it to 13c.

Audience

Oracle Enterprise Manager Cloud Control Upgrade Guide is meant for system administrators who want to upgrade an existing 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) Enterprise Manager system to 13c Release 1.

Documentation Accessibility

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Related Documents

For more information, see the following books in the Enterprise Manager Cloud Control documentation library:

- Oracle Enterprise Manager Cloud Control Basic Installation Guide
- Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide

For the latest releases of these and other Oracle documentation, check the Oracle Technology Network at the following URL:

<http://www.oracle.com/technetwork/indexes/documentation/index.html>

Enterprise Manager also provides extensive online Help. Click **Help** at the top-right corner of any Cloud Control page to display the online help window.

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.

Part I

Introduction to Upgrading an Enterprise Manager System to 13c Release 1

This part provides an overview of the new features in Enterprise Manager Cloud Control 13c Release 1, familiarizes you with the upgrade process for upgrading to 13c Release 1, and describes some key facts that you must know before you start the upgrade process.

In particular, this part covers the following:

- [Chapter 1, "What's New in This Product Release?"](#)
- [Chapter 2, "Overview of Upgrading to Enterprise Manager Cloud Control 13c"](#)

What's New in This Product Release?

This chapter describes what is new in this product release, what are the known issues with this release, and what bugs have been fixed in this release. In particular, this chapter covers the following:

- [What's New in This Product Release](#)

1.1 What's New in This Product Release

[Table 1–1](#) provides links to published documents on Oracle Technology Network (OTN) for various *What's New* topics related to Enterprise Manager Cloud Control 13c. Review the information available in these URLs, and understand why you must upgrade to 13c.

Table 1–1 *What's New in Enterprise Manager Cloud Control 13c Release 1*

What's New Topic	Reference URL
What's New in 13c Release 1?	<i>Oracle Enterprise Manager Cloud Control Introduction Guide</i> http://docs.oracle.com/en/enterprise-manager/
What's New in the 13c Release 1 Installation Process, Agent Deployment Process, and Upgrade Process?	<i>Published Documents on Oracle Technology Network</i> http://www.oracle.com/technetwork/oem/install-upgrade/index.html
What Are the Key Known Issues in 13c Release 1?	<i>Oracle Enterprise Manager Cloud Control Release Notes</i> http://docs.oracle.com/en/enterprise-manager/
Are My Bugs Fixed in 13c Release 1?	If you noticed a few bugs in the previous release, and if you want to know whether those bugs have been fixed in 13c Release 1, then raise a Service Request with Oracle Support.

Overview of Upgrading to Enterprise Manager Cloud Control 13c

Enterprise Manager Cloud Control 13c is the latest release of Enterprise Manager Cloud Control from Oracle. This new release offers a variety of new features, enhancements, performance improvements, and bug fixes compared to its previous releases. If you have Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3), then Oracle recommends that you upgrade it to 13c Release 1 to benefit from all the new features.

Before you start upgrading to Enterprise Manager Cloud Control 13c Release 1, you must understand the upgrade process, the upgrade utilities, and other key aspects related to upgrade, such as the supported environments, the supported upgrade paths, how ports are reused, what features from the previous release are automatically carried forward, what customization you must redo after the upgrade, so on. This will help you understand the requirements and the implications of the upgrade, and will help you prepare for a smooth transition from the previous release.

This chapter introduces you to the upgrade process, and describes the important aspects that you must know before you start the upgrade process. In particular, this chapter covers the following:

- [Supported OMS Environments for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Supported Platforms for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Upgrade Scope Offered for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Components Upgraded or Installed As Part of the Upgrade to Enterprise Manager Cloud Control 13c Release 1](#)
- [Ports Used by an Upgraded Enterprise Manager Cloud Control 13c](#)
- [Upgrading Oracle BI Publisher While Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Upgrading Plug-Ins While Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Status of Oracle Software Library After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)

- [Status of Connectors After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Custom Certificates Configured for OMS and Management Agent Are Reused After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [XML DB Feature in the Database After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Manually Restarting the OMS and the Management Agent After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Enabling Force Logging When Oracle Data Guard Is Configured with the Standby Database \(Management Repository\) After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Wizards or Consoles Used for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Changes to the OPSS Schema After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)

2.1 Supported OMS Environments for Upgrading to Enterprise Manager Cloud Control 13c Release 1

You can upgrade any of the following Oracle Management Service (OMS) environments:

- **Single-OMS Environments:** A single-OMS environment is an environment with one OMS that orchestrates with multiple Management Agents. Typically, small deployments.
- **Multi-OMS Environments:** A multi-OMS environment is an environment with two or more OMS instances moderated with a Server Load Balancer (SLB) that orchestrates with multiple Management Agents. Typically, large deployments.

2.2 Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading to Enterprise Manager Cloud Control 13c Release 1

[Table 2–1](#) lists the supported upgrade paths, and the supported upgrade approaches for each upgrade path.

Table 2–1 Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading an Enterprise Manager System

Upgrade From	Upgrade To	Supported Upgrade Approach
12c Release 5 (12.1.0.5)	13c Release 1	1-System Upgrade
12c Release 4 (12.1.0.4)	13c Release 1	1-System Upgrade

Table 2–1 (Cont.) Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading an Enterprise Manager System

Upgrade From	Upgrade To	Supported Upgrade Approach
<ul style="list-style-type: none"> ■ 12c Release 3 Plug-in Upgrade 1 (12.1.0.3) <i>(12c Release 3 (12.1.0.3) software with plug-ins released in October 2013)</i> ■ 12c Release 3 (12.1.0.3) 	13c Release 1 <i>If you have configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you cannot directly upgrade to 13c Release 1. You must first upgrade to 12c Release 4 (12.1.0.4) or 12c Release 4 (12.1.0.5), and then upgrade to 13c Release 1. If you have not configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you can directly upgrade to 13c Release 1.</i>	1-System Upgrade
<ul style="list-style-type: none"> ■ 12c Release 2 Plug-in Update 1 (12.1.0.2) <i>(12c Release 2 (12.1.0.2) software with plug-ins released in February 2013)</i> ■ 12c Release 2 (12.1.0.2) <i>(base release)</i> 	First upgrade to 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3), and then upgrade to 13c Release 1.	1-System Upgrade
<ul style="list-style-type: none"> ■ 12c Release 1 (12.1.0.1) patched with Bundle Patch 1 ■ 12c Release 1 (12.1.0.1) containing Bundle Patch 1 <i>(included by default)</i> ■ 12c Release 1 (12.1.0.1) <i>(base release)</i> 	First upgrade to 12c Release 4 (12.1.0.4) or 12c Release 3 (12.1.0.3), and then upgrade to 13c Release 1.	1-System Upgrade
<ul style="list-style-type: none"> ■ 11g Release 1 (11.1.0.1) ■ 10g Release 5 (10.2.0.5) 	First upgrade to 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3), and then upgrade to 13c Release 1.	<ul style="list-style-type: none"> ■ 1-System Upgrade ■ 2-System Upgrade ■ 1-System Upgrade on a Different Host
<ul style="list-style-type: none"> ■ 10g Release 4 (10.2.0.4) or lower ■ 10g Release 1 (10.1) 	First upgrade to 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1), then upgrade to 12c Release 5 (12.1.0.5) or 12c Release 4 (12.1.0.4) or 12c Release 3 (12.1.0.3), and then upgrade to 13c Release 1.	<ul style="list-style-type: none"> ■ 1-System Upgrade ■ 2-System Upgrade ■ 1-System Upgrade on a Different Host

2.3 Supported Platforms for Upgrading to Enterprise Manager Cloud Control 13c Release 1

To view a list of supported platforms, access the Enterprise Manager certification matrix available on My Oracle Support. For instructions, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

2.4 Upgrade Scope Offered for Upgrading to Enterprise Manager Cloud Control 13c Release 1

The following are some facts about upgrading to Enterprise Manager Cloud Control 13c:

- You can upgrade only 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1.
- If you have configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you cannot directly upgrade to 13c Release 1. You must first upgrade to 12c Release 4 (12.1.0.4) or 12c Release 5 (12.1.0.5), and then upgrade to 13c Release 1. If you have not configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you can directly upgrade to 13c Release 1.
- If you have 12c Release 1 (12.1.0.1) [with or without Bundle Patch 1], 12c Release 2 (12.1.0.2), or any pre-12c release such as 10g or 11g, then first upgrade it to either 12c Release 3 (12.1.0.3) 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5).
- You can upgrade only if the existing database is a database certified for 13c Release 1. If the existing database is not of the release that is supported for 13c Release 1, then upgrade it to the supported release before you start upgrading the OMS and the Management Repository.

For example, if you are upgrading from 12c Release 3 (12.1.0.3), then you might have an earlier release of the database that is not supported for 13c Release 1. In this case, ensure that you first upgrade your database to the minimum database release supported for 13c Release 1, and then upgrade the Enterprise Manager system to 13c Release 1.

- The upgrade operation is always an out-of-place upgrade where you see a new Oracle home for the OMS and the Management Agent. As a best practice, back up your old and new homes regularly.
- The upgrade approaches do NOT upgrade your existing database where the Management Repository is configured.

To upgrade such databases, use the database upgrade tool. For more information, on the upgrade tool, see the *Oracle Database Upgrade Guide* available in the Oracle Database documentation library at:

<http://docs.oracle.com/en/database/>

- [Table 2–2](#) describes compatibility between the OMS and the Management Agents across 13c and 12c releases. The OMS can communicate only with the Management Agent releases that are listed in this table.

Table 2–2 Compatibility Between the OMS and the Management Agents Across 13c and 12c Releases

	Oracle Management Agent 12c Release 3 (12.1.0.3)	Oracle Management Agent 12c Release 4 (12.1.0.4)	Oracle Management Agent 12c Release 5 (12.1.0.5)	Oracle Management Agent 13c Release 1 (12.1.0.5)
Oracle Management Service 13c Release 1	Yes	Yes	Yes	Yes

If you have any earlier releases of Management Agent, then before upgrading the OMS to 13c Release 1, make sure you upgrade the Management Agents of other earlier releases to either 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5), using the *Agent Upgrade Console* that is present within the Enterprise Manager Cloud Control Console.

- You can upgrade any Management Agent on any platform as long as the OMS 13c software for that platform is available.
- The Enterprise Manager Cloud Control Installation Wizard installs Java Development Kit (JDK) 1.7.0_80 and Oracle WebLogic Server 12c Release 1 (12.1.3.0) by default. A preinstalled JDK or Oracle WebLogic Server is *not* supported from 13c Release 1 onwards.
- You must ensure that the Oracle WebLogic Server 12c Release 1 (12.1.3.0) installed by the Enterprise Manager Cloud Control Installation Wizard is dedicated for Enterprise Manager Cloud Control. You must not have any other Oracle Fusion Middleware product installed in that Middleware home.

Enterprise Manager Cloud Control cannot coexist with any Oracle Fusion Middleware product in the same Middleware home because the `ORACLE_COMMON` property is used by both the products.

2.5 Components Upgraded or Installed As Part of the Upgrade to Enterprise Manager Cloud Control 13c Release 1

The upgrade to 13c Release 1 is an out-of-place upgrade, and therefore, when you invoke the Enterprise Manager Cloud Control 13c Installation Wizard, the wizard does the following:

- Installs Oracle WebLogic Server 12c Release 1 (12.1.3.0).
- Installs Java Development Kit (JDK) 1.7.0_80.
- Installs Oracle Management Service 13c Release 1.
- Installs Oracle JRF 12c Release 1 (12.1.3.0), which includes `oracle_common` directory.
- Installs Oracle Web Tier 12c Release 1 (12.1.3.0).
- Installs Oracle BI Publisher 12c Release 1 (12.1.3.0), which includes the `bi` directory. If an earlier release of Oracle BI Publisher is already present, then this approach upgrades that release to 12.1.3.0.
- Upgrades plug-ins, carries over the already deployed plug-ins, or deploys plug-ins:
 - Upgrades the deployed plug-ins if newer versions are available in the Enterprise Manager Cloud Control 13c Release 1 software.

Starting with 13c Release 1, as part of the Oracle Fusion Middleware Plug-in deployment or upgrade, one Java Virtual Machine Diagnostics (JVMD) Engine is installed by default on the OMS. For every additional OMS you deploy, you receive one JVMD Engine by default with that OMS.

JVMD enables administrators to diagnose performance problems in Java applications in the production environment. By eliminating the need to reproduce problems, it reduces the time required to resolve these problems, thus improving application availability and performance.

While JVMD Engine is installed by default on the OMS host, you will still need JVMD Agents to be manually deployed on the targeted JVMs. For instructions, see the chapter on installing JVMD Agents in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

If the previous release of Enterprise Manager Cloud Control had any JVMD Engines, then they are all automatically decommissioned. However, after

upgrade, the targets monitored by the previous JVM D Agents can no longer be monitored because the old JVM D Engines have been decommissioned. To continue monitoring those targets, you must redeploy those JVM D Agents on the targeted JVMs so that they communicate with the newly installed JVM D Engines.

- Migrates or carries over the deployed plug-ins without upgrading them in the following cases.
 - * If newer versions are not available in the Enterprise Manager Cloud Control 13c Release 1 software.
 - * If the deployed plug-ins are already of the higher or same version as the ones in the Enterprise Manager Cloud Control 13c Release 1 software.
- Deploys new plug-ins when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.
- Deploys any additional plug-in you select.
- Creates an Oracle WebLogic domain called GCDomain.
- Creates a Node Manager user account called nodemanager .
- Configures an Oracle Management Service Instance Base directory (`gc_inst`) for storing all configuration details related to Oracle Management Service 13c.
- Upgrades Oracle Management Repository in the existing certified Oracle Database.

Note: The central agent (*in other words, the Management Agent installed with the OMS*) is not upgraded by default. You must upgrade it using the *Agent Upgrade Console* available in the Enterprise Manager Cloud Control Console after upgrading the OMS.

2.6 Ports Used by an Upgraded Enterprise Manager Cloud Control 13c

When you upgrade the OMS or the Management Agents, the ports used by the earlier release of the Management Agents are carried over to the upgraded Management Agents. Therefore, your firewall settings are not affected in any way.

When you upgrade your OMS, then the ports used by all the core components of the earlier release are carried over.

Note: For information about the core components, the range within which a port is selected, and the free port that is assigned, see the chapter on installation basics in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

For information about what URLs should be made available through a firewall, when a firewall is configured for the OMS, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

2.7 Upgrading Oracle BI Publisher While Upgrading to Enterprise Manager Cloud Control 13c Release 1

Starting with 13c Release 1, Oracle BI Publisher is automatically upgraded from the earlier release to the latest release while upgrading the OMS. No additional step is required from your end.

2.8 Upgrading Plug-Ins While Upgrading to Enterprise Manager Cloud Control 13c Release 1

This section describes the following:

- [Upgrading Plug-Ins While Upgrading Oracle Management Agents to 13c Release 1](#)
- [Upgrading Plug-Ins While Upgrading Oracle Management Service to 13c Release 1](#)

2.8.1 Upgrading Plug-Ins While Upgrading Oracle Management Agents to 13c Release 1

While upgrading Oracle Management Agents to 13c Release 1 using the Agent Upgrade Console, all plug-ins of the earlier release are upgraded by default. No manual effort is required.

2.8.2 Upgrading Plug-Ins While Upgrading Oracle Management Service to 13c Release 1

While upgrading Oracle Management Service to 13c Release 1 using the Enterprise Manager Cloud Control Installation Wizard, plug-ins are automatically upgraded, migrated, or deployed under the following circumstances:

- Plug-ins are upgraded when newer versions exist.
- Plug-ins are migrated when newer versions do not exist.
- Plug-ins are deployed when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.
- Any additional plug-in you select on the Select Plug-ins screen of the Enterprise Manager Cloud Control Installation Wizard.

If you want to install plug-ins that are not listed on the Select Plug-ins screen, then follow these steps:

1. Manually download the required plug-ins from the following location:

<http://www.oracle.com/technetwork/oem/extensions/index.html>

In addition, if you want to download any partner or customer plug-ins, then download from the following location:

<https://apex.oracle.com/pls/apex/f?p=53891:1>

2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:

On UNIX platforms:

```
./em13100_<platform>.bin PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
```

On Microsoft Windows platforms:

```
setup_em_win64.exe PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
```

This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.

2.9 Status of Oracle Software Library After Upgrading to Enterprise Manager Cloud Control 13c Release 1

Oracle Software Library is functional the moment the Enterprise Manager is upgraded. No manual effort is required to make it functional.

2.10 Status of Connectors After Upgrading to Enterprise Manager Cloud Control 13c Release 1

After upgrading the entire Enterprise Manager system, the connectors that were configured with your old Enterprise Manager system will continue to work in Enterprise Manager Cloud Control. However, the ones that were not configured will not work.

2.11 Custom Certificates Configured for OMS and Management Agent Are Reused After Upgrading to Enterprise Manager Cloud Control 13c Release 1

When you upgrade to 13c Release 1, all custom certificates configured for the upload and console ports of the OMS, and all custom certificates configured for the Management Agents are automatically carried over from the previous release and are preserved in the upgraded release. You do not have to reconfigure any of these custom certificates.

2.12 XML DB Feature in the Database After Upgrading to Enterprise Manager Cloud Control 13c Release 1

Enterprise Manager is not affected when you enable or disable features such as XML DB on the Oracle Database in which you plan to configure the Management Repository. Therefore, you can enable or disable any feature in the database because Enterprise Manager does not rely on them.

2.13 Manually Restarting the OMS and the Management Agent After Upgrading to Enterprise Manager Cloud Control 13c Release 1

If you install the OMS and the Oracle Database, which houses the Management Repository, on the same host, then when you reboot the host, the OMS and the Management Agent installed with it will not automatically start up. You will have to manually start them.

To manually start the OMS, run the following command from the Oracle home of the OMS host:

```
$<ORACLE_HOME>/bin/emctl start oms
```

For example,

```
/u01/software/em13c/oraclehome/bin/emctl start oms
```

To manually start the Management Agent, run the following command from the Agent home:

```
$<AGENT_HOME>/bin/emctl start agent
```

For example,

```
/u01/software/em13c/agentbasedir/agent_13.1.0.0.0/bin/emctl start agent
```

2.14 Enabling Force Logging When Oracle Data Guard Is Configured with the Standby Database (Management Repository) After Upgrading to Enterprise Manager Cloud Control 13c Release 1

If you have Oracle Data Guard configured with your standby database, which houses the Oracle Management Repository, then enable force logging on the database using the following command:

```
ALTER DATABASE force logging;
```

If you do not enable force logging on the database, then use of `NOLOGGING` commands while upgrading the Enterprise Manager system might corrupt your standby database.

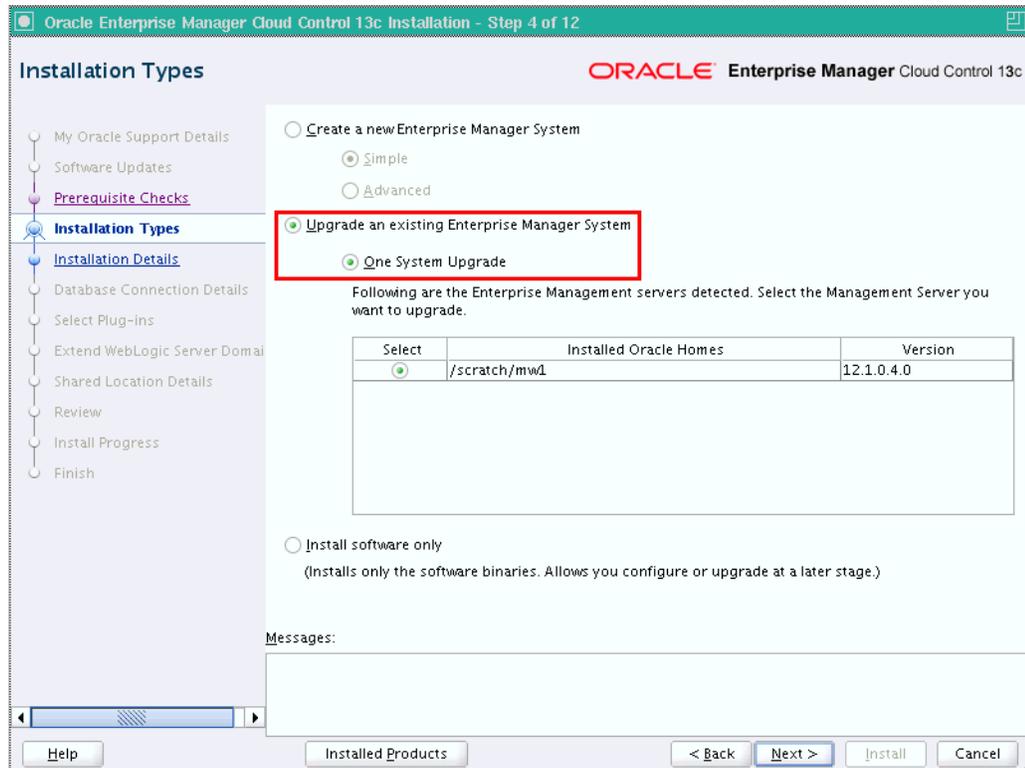
2.15 Wizards or Consoles Used for Upgrading to Enterprise Manager Cloud Control 13c Release 1

This section introduces you to the wizards or consoles to be used for upgrading to Enterprise Manager Cloud Control 13c. In particular, it covers the following:

- [Overview of the Enterprise Manager Cloud Control 13c Installation Wizard](#)
- [Overview of the Agent Upgrade Console in Enterprise Manager Cloud Control 13c Release 1](#)
- [Overview of the Gold Agent Images Console in Enterprise Manager Cloud Control 13c Release 1](#)

2.15.1 Overview of the Enterprise Manager Cloud Control 13c Installation Wizard

The Enterprise Manager Cloud Control 13c Installation Wizard is the primary user interface that enables you to upgrade your OMS and Management Repository. Since the upgrade happens on the same host where the earlier release of OMS exists, there is a reasonable downtime involved.



Note: The installer does NOT upgrade your existing Oracle Management Agents (Management Agent). After upgrading the OMS, you must upgrade the Management Agent separately using the *Agent Upgrade Console*. *Agent Upgrade Console* is a GUI console that you see in the Enterprise Manager Cloud Control Console after you upgrade the OMS. For more information, refer to [Section 2.15.2](#).

2.15.2 Overview of the Agent Upgrade Console in Enterprise Manager Cloud Control 13c Release 1

The Agent Upgrade Console is a graphical user interface that is built into the Enterprise Manager Cloud Control Console. The console acts as a single-window solution to mass-upgrade your existing central agents. Central agents are Management Agents installed by default with every OMS.

Note: You can use the Agent Upgrade Console to upgrade even the standalone Management Agents, but Oracle recommends that you use Agent Gold Images instead to upgrade the standalone Management Agents. You can create and manage gold images, and update the existing standalone Management Agents using the Gold Agent Images Console. See [Section 2.15.2](#).

To access the Agent Upgrade Console, from the **Setup** menu, click **Manage Cloud Control**, then select **Upgrade Agents**.

Note: Before you can use the Agent Upgrade Console to upgrade your central Management Agents, all OMS instances must be upgraded in a multi-OMS environment.

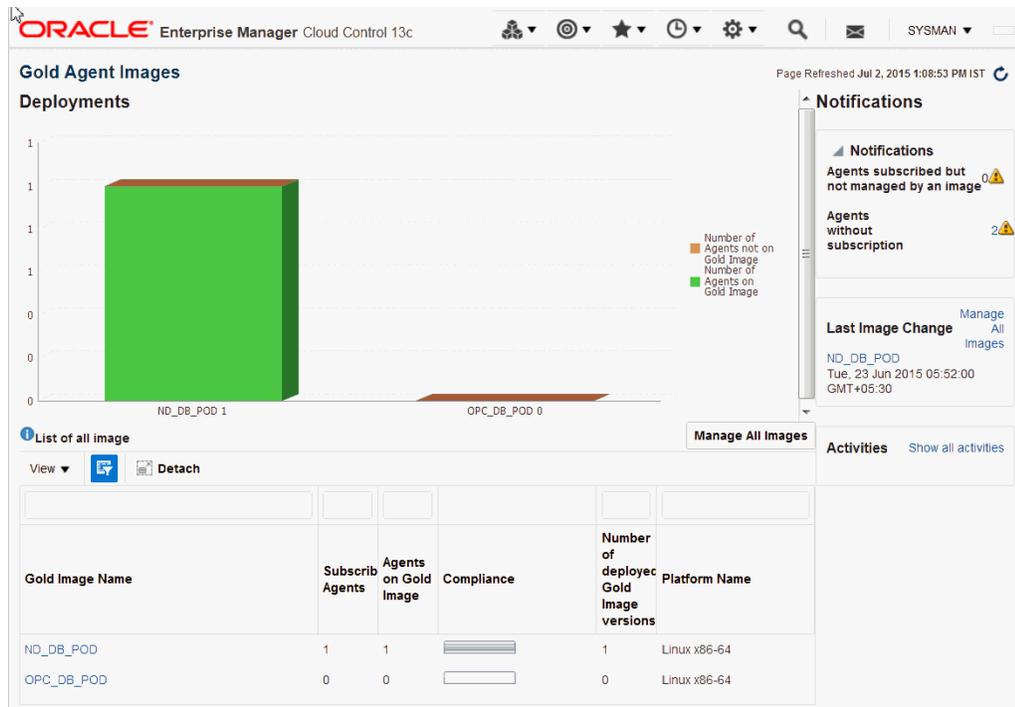
Agent Upgrade Console consists of the Agent Upgrade Tasks tab, and the Post Agent Upgrade Tasks tab.

- You can use the Agent Upgrade Tasks tab to upgrade central agents, view the central agents that cannot be upgraded, and view the summary of central agent upgrade jobs.
- You can use the Post Agent Upgrade Tasks tab to clean up the old directories of the upgraded central agents, and view a summary of the central agent clean up jobs. To access the Agent Upgrade Console, from the **Setup** menu, select **Manage Cloud Control**, then select **Upgrade Agents**.

2.15.3 Overview of the Gold Agent Images Console in Enterprise Manager Cloud Control 13c Release 1

The Gold Agent Images Console is a graphical user interface that is built into the Enterprise Manager Cloud Control Console. The console acts as a single-window solution to mass-upgrade your existing standalone Management Agents. Standalone Management Agents are Management Agents installed on unmanaged hosts to convert them to managed hosts and monitor the targets running on them.

To access the Gold Agent Images Console, from the **Setup** menu, select **Manage Cloud Control**, then select **Gold Agent Images**.



Using the Gold Agent Images Console, you can perform the following tasks:

- Provision new Management Agents.
- Update any existing Management Agents.
 - Upgrade your Management Agents (that is, upgrading the Management Agent software).
 - Deploy new plug-ins on your Management Agents.
 - Upgrade the existing plug-ins that are deployed on your Management Agents.
 - Deploy patches on your Management Agents.
 - Deploy patches on the plug-ins that are deployed on your Management Agents.
- Check the Agent Gold Image compliance level to identify what percentage of Management Agents in your environment are already associated with an Agent Gold Image, and what percentage are not.
- Track the Agent Gold Image activities, such as the gold image jobs submitted, their status, the start and end time of the activity, and so on.

2.16 Changes to the OPSS Schema After Upgrading to Enterprise Manager Cloud Control 13c Release 1

After the Enterprise Manager system is upgraded, SYSMANUPGR_OPSS is used instead of SYSMAN_OPSS for the Oracle Platform Security Service (OPSS) schema.

Part II

Upgrading to Enterprise Manager Cloud Control 13c Release 1

This part describes how you can upgrade Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1.

In particular, this part covers the following:

- [Getting Started with Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Prerequisites for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Upgrading Oracle Management Service and Oracle Management Repository to 13c Release 1](#)
- [Upgrading Oracle Management Agents](#)
- [Upgrading or Redeploying JVMMD Agents](#)
- [Postupgrade Tasks After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)

Getting Started with Upgrading to Enterprise Manager Cloud Control 13c Release 1

This chapter describes the high-level process for upgrading your Enterprise Manager 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1.

In particular, this chapter covers the following:

- [Upgrading to 13c Release 1 in a Single-OMS or Multi-OMS Non-HA Environment](#)
- [Upgrading to 13c Release 1 in an HA Environment \(Primary and Standby OMS Instances Where the Standby OMS Is Created Using Storage Replication\)](#)

Important:

- If you have configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you cannot directly upgrade to 13c Release 1. You must first upgrade to 12c Release 4 (12.1.0.4) or 12c Release 5 (12.1.0.5), and then upgrade to 13c Release 1. If you have not configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you can directly upgrade to 13c Release 1.
 - If you have Oracle Management Service (OMS) 12c Release 1 (12.1.0.1) [with or without Bundle Patch 1], 12c Release 2 (12.1.0.2), or any pre-12c release such as 10g or 11g, then first upgrade it to either 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5).
 - The Oracle Management Agent (Management Agent) releases that are supported for Enterprise Manager Cloud Control 13c Release 1 are 13c Release 1, 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), and 12c Release 3 (12.1.0.3). Therefore, if you have any earlier releases of Management Agent, then before upgrading the OMS to 13c Release 1, make sure you upgrade your Management Agent to either 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5), using the *Agent Upgrade Console* present within the Enterprise Manager Cloud Control Console.
-
-

3.1 Upgrading to 13c Release 1 in a Single-OMS or Multi-OMS Non-HA Environment

To upgrade your Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1 in a single-OMS or multi-OMS non-HA (non-high availability) environment, follow these steps:

1

[Optional] Prepare Yourself for the Upgrade

Familiarize yourself with the upgrade process, understand the implications, and review the important facts related to upgrade.

- [Supported OMS Environments for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Supported Platforms for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Upgrade Scope Offered for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Components Upgraded or Installed As Part of the Upgrade to Enterprise Manager Cloud Control 13c Release 1](#)
- [Ports Used by an Upgraded Enterprise Manager Cloud Control 13c](#)
- [Upgrading Oracle BI Publisher While Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Upgrading Plug-Ins While Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Status of Oracle Software Library After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Status of Connectors After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Custom Certificates Configured for OMS and Management Agent Are Reused After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [XML DB Feature in the Database After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Manually Restarting the OMS and the Management Agent After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Enabling Force Logging When Oracle Data Guard Is Configured with the Standby Database \(Management Repository\) After Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)
- [Wizards or Consoles Used for Upgrading to Enterprise Manager Cloud Control 13c Release 1](#)

2

Upgrade Your OMS, Repository, Central Agent, and Plug-ins

Upgrade of your Enterprise Manager system is a three-step process - you have to first meet the prerequisites; then run the installer to upgrade the OMS, the repository, the central agent, and the plug-ins; and then perform the postupgrade tasks. The installer guides you through the upgrade process, and upgrades not only the OMS but also the repository, the central agent, and the existing plug-ins. In addition to upgrading your existing plug-ins, you can also deploy additional new plug-ins of your choice.

Step 1: Meet the Prerequisites

Before starting the upgrade, meet the upgrade prerequisites so that your environment is ready for the upgrade.

- Hardware, Software, and Platform Requirements
- Supported Database Release Requirements
- Database Patch Requirements
- Optimizer Adaptive Feature Disabling Requirements
- Management Agent Patch Requirements
- Port Requirements
- Rule Set Backup Requirements
- Customization Removal Requirements
- Interim Upgrade Requirements for 12c Release 3 (12.1.0.3) Due to Oracle BI Publisher
- Oracle BI Publisher Shutdown Requirements
- Database Service Instance Creation Request Verification Requirements
- Repository Table Snapshot Verification Requirements
- Login and Logoff Trigger Setting Verification Requirements
- Delete Target Operation Auditing Requirements
- Selectively Skipping Some Job Type Updates for Reduced Downtime of Your Enterprise Manager System
- EMKEY Copy Requirements
- Certificate Key Strength Requirements
- Out-of-Box Memory Settings Backup Requirements
- Prerequisite Check and Environment Validation Requirements
- OMS Backup Requirements
- OMS Shutdown Requirements
- Management Agent Shutdown Requirements
- Management Agent Proxy Removal Requirements

Step 2: Upgrade Your OMS, Repository, and Plug-ins

Run the installer and select the upgrade option to upgrade your Enterprise Manager system. There are various ways in which you can upgrade the OMS and the Management Repository, either in interactive mode using the installer, in silent mode using a response file, or in software-only mode using the installer or a response file. This section lists only the steps of the interactive mode using the installer.

- [Step 1: Invoking the Enterprise Manager Cloud Control Installer in GUI Mode](#)
- [Step 2: Enabling Oracle Configuration Manager](#)
- [Step 3: Applying the Latest Software Updates](#)
- [Step 4: Running the Prerequisite Checks and Validating the Environment](#)
- [Step 5: Selecting the Installation Type](#)
- [Step 6: Configuring a Middleware Home and Validating the Host Name](#)

- [Step 7: Providing Database Connection Details](#)
- [Step 8: Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins](#)
- [Step 9: Deploying Additional Plug-ins](#)
- [Step 10: Extending the Existing WebLogic Server Domain](#)
- [Step 11: Configuring the Shared Locations for Oracle BI Publisher](#)
- [Step 12: Configuring the Ports](#)

- [Step 13: Reviewing the Upgrade Details](#)
- [Step 14: Monitoring the Upgrade Progress](#)
- [Step 15: Ending the Upgrade](#)
- [Step 16: Upgrading the Additional OMS Instances](#)
- [Step 17: Upgrading the Management Agents](#)

Step 3: Upgrade Your Central Agent

After Upgrading the OMS, immediately upgrade the central agent. A central agent can be upgraded only using the Agent Upgrade Console.

Oracle recommends that you upgrade your central agent immediately after upgrading your OMS instances. However, for some reason if you are unable to upgrade your central agent immediately after upgrading the OMS instances, then ensure that you apply the JDK 1.6u95 patch on your central agent. Otherwise, the targets of the GC WLS domain will not be monitored in the Enterprise Manager Cloud Control Console. This issue will not occur once the central agent is upgraded.

[Prerequisites for Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)

[Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console](#)

[After Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)

Step 4: Perform Postupgrade Tasks

Perform the postupgrade tasks to verify that the upgrade was successful.

-
- [Redoing the Custom Configurations](#)
 - [Reconfiguring Oracle WebLogic Server with Custom Certificates](#)
 - [Restarting the Management Agent After Upgrading an Additional OMS](#)
 - [Tracking the Status of Deferred Data Migration Jobs](#)
 - [Upgrading Oracle Exalogic System Targets](#)
 - [\(Optional\) Deleting the Old OMS Home](#)
 - [Deleting Unwanted Central Agents of 10g or 11g Release](#)
 - [Migrating the SYSMAN Schema to a Database Configured with CDB and PDB](#)
 - [Managing JVM Targets That Continue to Be Associated with the Old OMS](#)
 - [Enabling Upgrade of Job Types That Were Skipped Before the Upgrade of the Enterprise Manager System](#)

3

Upgrade Your Standalone Agents

Your upgrade is complete only after you upgrade all your standalone agents. Upgrade of your standalone agents is a three-step process - you have to first upgrade one of the standalone agents using the Agent Upgrade Console, then create a gold image out of that, and then upgrade the rest of them using that gold image.

Step 1: Upgrade a Standalone Agent

As a prerequisite, first upgrade one of your standalone agents.

[Prerequisites for Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)

[Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console](#)

[After Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)

Step 2: Create an Agent Gold Image

Create an agent gold image and an image version. Set it to the current version, and subscribe the standalone agents to this version.

[Step 1: Creating an Agent Gold Image Using Gold Agent Images Home Page](#)

[Step 2: Creating an Agent Gold Image Version Using the Gold Agent Images Home Page](#)

[Step 3: Setting a Particular Agent Gold Image Version as the Current Version Using Gold Agent Images Home Page](#)

[Step 4: Subscribing Management Agents to an Agent Gold Image Using Gold Agent Images Home Page](#)

Step 3: Update the Standalone Agents

Using the agent gold image, update all other standalone agents.

[Updating Standalone Management Agents Using Agent Gold Image Version Using Gold Agent Images Home Page](#)

3.2 Upgrading to 13c Release 1 in an HA Environment (Primary and Standby OMS Instances Where the Standby OMS Is Created Using Storage Replication)

To upgrade your primary and standby OMS instances where the standby OMS is created using Storage Replication, follow these steps:

1. Upgrade the primary Enterprise Manager site, both OMS and Management Agents. There will be some downtime as the primary OMS will go down during upgrade process. For instructions, see [Section 3.1](#).

2. Verify the new middleware home on the standby storage server. Contact your system administrator to make sure that the new middleware home is also replicated to the standby storage server.

Note: You do not have to remove the standby OMS as part of this procedure.

Prerequisites for Upgrading to Enterprise Manager Cloud Control 13c Release 1

Before upgrading your Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1, meet the following prerequisites:

- [Hardware, Software, and Platform Requirements](#)
- [Supported Database Release Requirements](#)
- [Database Patch Requirements](#)
- [Optimizer Adaptive Feature Disabling Requirements](#)
- [Management Agent Patch Requirements](#)
- [Port Requirements](#)
- [Rule Set Backup Requirements](#)
- [Customization Removal Requirements](#)
- [Interim Upgrade Requirements for 12c Release 3 \(12.1.0.3\) Due to Oracle BI Publisher](#)
- [Oracle BI Publisher Shutdown Requirements](#)
- [Database Service Instance Creation Request Verification Requirements](#)
- [Repository Table Snapshot Verification Requirements](#)
- [Login and Logoff Trigger Setting Verification Requirements](#)
- [Delete Target Operation Auditing Requirements](#)
- [Selectively Skipping Some Job Type Updates for Reduced Downtime of Your Enterprise Manager System](#)
- [EMKEY Copy Requirements](#)
- [Certificate Key Strength Requirements](#)
- [Out-of-Box Memory Settings Backup Requirements](#)
- [Prerequisite Check and Environment Validation Requirements](#)
- [OMS Backup Requirements](#)
- [OMS Shutdown Requirements](#)
- [Management Agent Shutdown Requirements](#)
- [Management Agent Proxy Removal Requirements](#)

4.1 Hardware, Software, and Platform Requirements

Ensure that you meet all the prerequisites, including the hardware requirements, listed in the chapter on installing Enterprise Manager Cloud Control, in the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

Also ensure that you upgrade only on the supported platforms as listed in [Section 2.3](#).

4.2 Supported Database Release Requirements

Ensure that the existing database is a database certified for 13c Release 1. You can see a list of certified databases in the Enterprise Manager certification matrix available on My Oracle Support. To access the Enterprise Manager certification matrix, follow these steps in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

If the existing database is not of the release that is supported for 13c Release 1, then upgrade it to the supported release before you start upgrading the OMS and the Management Repository. For example, if you are upgrading from 12c Release 3 (12.1.0.3), then you might have an earlier release of the database that is not supported for 13c Release 1. In this case, ensure that you first upgrade your database to the minimum database release supported for 13c Release 1, and then upgrade the Enterprise Manager system to 13c Release 1.

Before upgrading the database, ensure that you stop the OMS instances of the earlier release that are connected to the database. While upgrading the database, if you change the listener port, then follow these steps:

1. Complete the database upgrade with the changed listener port.
2. Start the administration server of the first OMS of the earlier release, which is connected to the database, by running the following command:

```
emctl start oms -admin_only
```

3. Update the first OMS and also the additional OMS instances with the changed listener port by running the following command on all the OMS instances:

```
emctl config oms -store_repos_details -repos_conndesc <connect  
descriptor> -repos_user sysman
```

When the aforementioned command is run on each OMS, you will be prompted to stop the OMS and start it again to reflect the changes. Do so on each OMS as instructed. You will have to stop them all in any case before starting the upgrade to 13c.

4. Proceed with the upgrade of the entire Enterprise Manager system to 13c.

4.3 Database Patch Requirements

Ensure that you apply the latest PSU on the supported database.

4.4 Optimizer Adaptive Feature Disabling Requirements

Ensure that you disable the optimizer adaptive feature (`optimizer_adaptive_features=FALSE`) in the Oracle Database that houses the Management Repository. To do so, follow these steps:

1. Disable the optimizer adaptive feature by setting the `optimizer_adaptive_features` parameter to `FALSE`. To do so, run the following SQL command:

```
alter system set optimizer_adaptive_features=false scope=both
```

2. Restart the database.
3. Verify that the changes have taken effect. To do so, run the following SQL command:

```
show parameter adaptive;
```

You should see the following output:

NAME	TYPE	VALUE
optimizer_adaptive_features	boolean	FALSE

4.5 Management Agent Patch Requirements

Ensure that you apply the following patches on the Management Agents running on IBM AIX operating systems:

- Patch 19154291 for Oracle Management Agent 12c Release 3 (12.1.0.3).
- Patch 20282974 for Oracle Management Agent 12c Release 4 (12.1.0.4).

4.6 Port Requirements

Ensure that the ports used by Oracle Management Service (OMS) are not set to a value lower than or equal to 1024. If they are, then the upgrade will fail. Ports up to 1024 are typically reserved for root users (super users). Therefore, make sure the ports are greater than 1024.

4.7 Rule Set Backup Requirements

Ensure that you make a copy (using the Create Like action) of the out-of-the-box rule sets you are using to receive e-mail notifications. Otherwise, you will lose the e-mail subscriptions made to the rule sets.

To make a copy, from the **Setup** menu, select **Incidents**, then select **Incident Rules**. On the Incident Rules - All Enterprise Rules page, in the table, select the out-of-the-box rule set you want to copy. Then, from the **Actions** menu, select **Create Like Rule Set**. In the Create Like Rule Set page, provide the required details and click **Save**.

4.8 Customization Removal Requirements

Ensure that you remove the following types of customization done to the OMS. Once the upgrade is complete, you can redo the customization.

- Additional data source parameters configured in the Weblogic Server.
- Smart card authentication for Enterprise Manager login.

4.9 Interim Upgrade Requirements for 12c Release 3 (12.1.0.3) Due to Oracle BI Publisher

If you have configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you cannot directly upgrade to 13c Release 1. You must first upgrade to 12c Release 4 (12.1.0.4) or 12c Release 4 (12.1.0.5), and then upgrade to 13c Release 1. If you have not

configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you can directly upgrade to 13c Release 1.

4.10 Oracle BI Publisher Shutdown Requirements

Ensure that you stop the Oracle BI Publisher deployed to your previous release. To do so, use one of the following approaches:

- If you are upgrading from Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) or 12c Release 4 (12.1.0.4), then run `emctl stop oms -all` on all the OMS instances, including the ones running a BI Publisher Server.
- If you are upgrading from Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3) or lower, then stop the primary BI Publisher Managed Server named *BIP* using the WebLogic Administration Console.

4.11 Database Service Instance Creation Request Verification Requirements

Ensure that you check for outstanding database service instance creation requests. If there are any requests in progress, then allow them to complete. For requests that are scheduled, suspend them.

To do so, follow these steps.

1. In Cloud Control, from the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**.
2. On the Infrastructure Cloud Self Service Portal page, right under the page title, select **My Databases** to view only database requests.
3. In the Requests table, for requests that are in progress, allow them to complete. For requests that are scheduled, suspend them.

To suspend the scheduled requests, click the request name. Click the **Deployment** tab. Click the deployment procedure listed there, and suspend it.

4.12 Repository Table Snapshot Verification Requirements

Ensure that the tables in the Management Repository do not have any snapshots created.

To verify this, log in to the Management Repository and run the following SQL query as SYSMAN user:

```
select master , log_table from all_mvview_logs where log_owner='<EM_REPOS_USER>';
```

For example,

```
select master , log_table from all_mvview_logs where log_owner='SYSMAN';
```

If there are snapshots created in a table, then the query displays the master table and the snapshot details. For example,

```
SQL> master log_table  
em-violations em$violation_log
```

If there are snapshots, then drop them by running the following command as SYSMAN user:

```
SQL> Drop snapshot log on <master>;
```

For example,

```
SQL> Drop snapshot log on em-violations;
```

4.13 Login and Logoff Trigger Setting Verification Requirements

Ensure that you do not have any login or logoff triggers set in the Oracle Database that houses the Oracle Management Repository.

To verify this, log into the database and run the following query. If the query results in anything other than zero or no rows selected, then manually disable the triggers. After completing the upgrade, you can enable them again.

- Verify if any login triggers are set:

```
SQL> SELECT COUNT (trigger_name) FROM sys.dba_triggers WHERE
TRIGGERING_EVENT LIKE 'LOGIN%' AND status='ENABLED';
```

```
SQL> SELECT trigger_name FROM sys.dba_triggers WHERE TRIGGERING_EVENT
LIKE 'LOGIN%' AND status='ENABLED';
```

- Verify if any logoff triggers are set:

```
SQL> SELECT COUNT (trigger_name) FROM sys.dba_triggers WHERE
TRIGGERING_EVENT LIKE 'LOGOFF%' AND status='ENABLED';
```

```
SQL> SELECT trigger_name FROM sys.dba_triggers WHERE TRIGGERING_EVENT
LIKE 'LOGOFF%' AND status='ENABLED';
```

To disable the triggers, run the following query:

```
SQL> alter trigger <trigger_name> disable;
```

For example,

```
SQL> alter trigger EXPFIL_ALTEREXPTAB_MAINT disable;
```

4.14 Delete Target Operation Auditing Requirements

Ensure that you enable auditing of the *Delete Target* operation.

- To view a list of operations, run the following command:

```
emcli show_operations_list
```

Some of the Delete operations include *Delete Target*, *Delete Named Credential*, *Delete Role*, *Delete Rule*, *Delete Monitoring Template*, *Delete User*.

- To verify the Delete operations that are currently enabled, run the following command:

```
emcli show_audit_settings
```

- If the *Delete Target* operation is not already enabled, then run the following command to enable it.

```
emcli update_audit_settings
```

```
-operations_to_enable="name_of_the_operations_to_enable._For_all_
operations_use_ALL"
```

```
-audit_switch="ENABLE"
```

`-directory="db_directory_name'` (*Should be configured with an OS directory where the export service archives the audit data files*)

`-file_prefix="file_prefix"` (*To be used by the export service to create the file name where audit data has to be written. The default value is em_audit. You can change per your standards for all sites*)

`-file_size="file_size (Bytes)"` (*Maximum value of each file size. The default value for this is 5000000 bytes*)

`-data_retention_period="data_retention_period (Days)"` (*Maximum period the Enterprise Manager repository stores audit data. The default value is 365 days*)

The aforementioned parameters help you to set up or configure an archive location for archiving the audit data from the Management Repository to a file system after the retention period.

4.15 Selectively Skipping Some Job Type Updates for Reduced Downtime of Your Enterprise Manager System

While upgrading the Enterprise Manager system, job types are registered. As part of the job type registration process, all active executions corresponding to a job type are automatically upgraded to the newly registered version of the job type. This job type upgrade process is skipped for all queued and waiting executions, thereby reducing the overall downtime of the Enterprise Manager system. However, in some cases, the Enterprise Manager system might experience a considerable backlog, and if such a backlog is not cleared before initiating the upgrade, then the downtime of the Enterprise Manager system can be much longer. To circumvent this issue, you can selectively skip or postpone the upgrade of certain job types so that they are upgraded only after the downtime.

To skip or postpone some job types from being upgraded, follow these steps:

1. Identify the job types that you want to exclude from being upgraded during the downtime.

To do so, as a SYSMAN user, log in to the database that houses the Oracle Management Repository, and run the following query. Particularly look for the job types that have a large number of active executions.

```
SELECT job_type, COUNT(1) as n_execs
FROM   MGMT_JOB_EXEC_SUMMARY
JOIN   MGMT_JOB_TYPE_INFO USING (job_type_id)
WHERE  status NOT IN (3,4,5,8,18,19,23)
GROUP BY job_type
HAVING COUNT(1) > 5000
ORDER BY COUNT(1) DESC;
```

2. Exclude the other job types you identified.

To do so, run the following query to exclude a job type from the MGMT_PARAMETERS table. For each job type you want to exclude, you must run one INSERT statement. For example, if you have three job types to exclude, then run the INSERT statement three times, each with a job type you want to exclude.

```
INSERT INTO MGMT_PARAMETERS(parameter_name, parameter_value) VALUES
('mgmt_job_skip_job_type_upg.1', '<job type>');
```

4.16 EMKEY Copy Requirements

[IN CASE OF MULTI-OMS UPGRADE, PERFORM THIS STEP ONLY FOR THE FIRST OMS UPGRADE]

Ensure that you copy the emkey from the existing OMS to the existing Management Repository. To do so, run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> refers to the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos [-sysman_pwd <sysman_pwd>]
```

For example:

```
/u01/software/em12c/mw/oms/bin/emctl config emkey -copy_to_repos [-sysman_pwd <sysman_pwd>]
```

To verify whether the emkey is copied, run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> refers to the Oracle home of the OMS:

```
$<ORACLE_HOME>/bin/emctl status emkey
```

For example,

```
/u01/software/em12c/mw/oms/bin/emctl status emkey
```

If the emkey is copied, then you will see the following message:

```
The EMKey is configured properly, but is not secure.
Secure the EMKey by running "emctl config emkey -remove_from_repos".
```

4.17 Certificate Key Strength Requirements

Ensure that the certificate key strength is at least 1024 bits.

For 11g Release 1 or lower, the certificates are generated with key strength 512 bits, and the certificates are carried over during upgrade to 12c Release 4 (12.1.0.4) or 12c Release (12.1.0.5), and subsequent upgrade to 13c Release 1. Therefore, if you are upgrading from 11g Release 1 or lower, then your certificates will continue to be with 512 bits, and this will eventually cause multiple communication issues. Therefore, ensure that the certificate key strength is at least 1024 bits.

For instructions to set the certificate key strength to at least 1024 bits, see My Oracle Support note 1611578.1.

4.18 Out-of-Box Memory Settings Backup Requirements

If you have changed the default, out-of-the-box memory settings for an OMS instance, then preserve the changes so that they are not lost during upgrade.

To preserve the changes, follow these steps:

1. Run the following command on the all the OMS instance you are about to upgrade. Here, <ORACLE_HOME> refers to the Oracle home of the OMS.:

```
$<ORACLE_HOME>/bin/emctl set property -name 'JAVA_EM_MEM_ARGS' -value '<java_memory_arguments>'
```

For example,

```
/u01/software/em12c/mw/oms2/bin/emctl set property -name 'JAVA_EM_MEM_ARGS' -value '-Xms256m -Xmx1740m'
```

- Run the following command to restart all the OMS instances. Here, <ORACLE_HOME> refers to the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl stop oms -all
```

```
<ORACLE_HOME>/bin/emctl start oms
```

For example,

```
/u01/software/em12c/mw/oms/bin/emctl stop oms -all
```

```
/u01/software/em12c/mw/oms/bin/emctl start oms
```

4.19 Prerequisite Check and Environment Validation Requirements

Ensure that you run the EM Prerequisite Kit and meet all the repository-related prerequisites before starting the upgrade.

To run the EM Prerequisite Kit, execute the following command and pass a response file that contains the parameters described in [Table 4-1](#).

```
./em13100_linux64.bin EMPREREQ_KIT=true EMPREREQKIT_PROPERTY_
FILE=<absolute_path_to_reponse_file>
```

Table 4-1 EM Prerequisite Kit Response File Parameters

Parameter	Description
installerMode	Specify <code>emprereqkit</code> .
connectString	Specify the database details in the following format: <pre>connectString=(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_ name>)(PORT=<port>)))(CONNECT_DATA=(SERVICE_ NAME=<service_name>)))</pre>
dbPassword	Specify the database user password.
dbRole	Specify <code>sysdba</code> .
dbUser	Specify <code>SYS</code> .
executionType	Specify <code>install</code> .
logLoc	Specify the absolute path to a directory where the logs of the execution of the EM Prerequisite Kit can be stored. The default location is <code><prereqResultLoc>/prerequisiteResults/log</code> .
prereqResultLoc	Specify the absolute path to a directory where the results (in the form of XML files) of the prerequisite checks can be stored.
reposUser	Specify <code>SYSMAN</code> .
runPrerequisites	Specify <code>true</code> .

The following are the contents of a sample response file.

```
installerMode=emprereqkit
connectString=(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(CONNECT_DATA=(SERVICE_
NAME=explsrv))
dbPassword=<password>
dbRole=sysdba
dbUser=SYS
executionType=install
logLoc=/u01/software/em13c/prerequisiteResults/log
```

```
prereqResultLoc=/u01/software/em13c/prerequisiteResults
reposUser=SYSMAN
runPrerequisites=true
```

4.20 OMS Backup Requirements

Ensure that you back up the OMS (the middleware home and the inventory), Oracle Management Repository, and Oracle Software Library. In case the upgrade fails, you can always restore using the backup. For instructions to back up, refer to *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

4.21 OMS Shutdown Requirements

Ensure that you shut down the OMS you are about to upgrade and also the other OMS instances that connect to it.

IMPORTANT: If you are upgrading a multi-OMS environment using the software-only upgrade approach, then skip this step. You can stop the OMS instances after installing the software binaries as described in [Section 5.3.1](#) or [Section 5.4.1](#).

1. Stop the JVM and ADP engines explicitly:

To stop them in graphical mode, access the weblogic console, and stop the JVM and ADP weblogic managed servers manually.

To stop them in silent mode, run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> refers to the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl extended oms jvmd stop -all
```

```
$<ORACLE_HOME>/bin/emctl extended oms adp stop -all
```

For example,

```
/u01/software/em12c/mw/oms/bin/emctl extended oms jvmd stop -all
```

```
/u01/software/em12c/mw/oms/bin/emctl extended oms adp stop -all
```

2. Shut down the OMS you are about to upgrade and also the other OMS instances that connect to it. To do so, run the following command. Here, <ORACLE_HOME> refers to the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl stop oms -all
```

For example,

```
/u01/software/em12c/mw/oms/bin/emctl stop oms -all
```

4.22 Management Agent Shutdown Requirements

Ensure that you shut down the Management Agent that monitors the *Management Services and Repository* target, to prevent the Management Agent from connecting to the Management Repository for metric collections. **Not shutting down this Management Agent might cause the OMS upgrade to fail.**

IMPORTANT: If you are upgrading a multi-OMS environment using the software-only upgrade approach, then skip this step. You can stop the Management Agent after copying the software binaries as described in [Section 5.3.1](#) or [Section 5.4.1](#).

4.23 Management Agent Proxy Removal Requirements

Ensure that you remove any proxy that is configured for the standalone Management Agents. Otherwise, the upgrade of the standalone Management Agents will fail. Although this requirement is more for Management Agent upgrade and does not affect the OMS upgrade, Oracle recommends that you remove the Management Agent-side proxy before you begin the OMS upgrade.

Upgrading Oracle Management Service and Oracle Management Repository to 13c Release 1

This chapter describes the different ways of upgrading your Oracle Management Service (OMS) and Oracle Management Repository (Management Repository) of 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1. Select the one that best suits your requirement, and follow the instructions outlined in the respective section. The upgrade instructions apply to single-OMS as well as multi-OMS environments.

This chapter describes the following:

- [Upgrading the OMS and the Management Repository to 13c Release 1 in Graphical Mode](#)
- [Upgrading the OMS and the Management Repository to 13c Release 1 in Silent Mode](#)
- [Upgrading the OMS and the Management Repository to 13c Release 1 Using the Software-Only Method in Graphical Mode](#)
- [Upgrading the OMS and the Management Repository to 13c Release 1 Using the Software-Only Method in Silent Mode](#)

Note:

- If you have configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you cannot directly upgrade to 13c Release 1. You must first upgrade to 12c Release 4 (12.1.0.4) or 12c Release 5 (12.1.0.5), and then upgrade to 13c Release 1. If you have not configured Oracle BI Publisher with 12c Release 3 (12.1.0.3), then you can directly upgrade to 13c Release 1.
 - If you have Oracle Management Service 12c Release 1 (12.1.0.1) [with or without Bundle Patch 1], 12c Release 2 (12.1.0.2), or any pre-12c release such as 10g or 11g, then first upgrade it to either 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5).
 - The Oracle Management Agent releases that are supported for Enterprise Manager Cloud Control 13c Release 1 are 13c Release 1, 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), and 12c Release 3 (12.1.0.3). Therefore, if you have any earlier releases of Oracle Management Agent, then before upgrading the Oracle Management Service to 13c Release 1, make sure you upgrade your Oracle Management Agent to either 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5), using the *Agent Upgrade Console* present within the Enterprise Manager Cloud Control Console.
 - If you are upgrading a multi-OMS environment, then Oracle recommends that you use the software-only upgrade approach as described in [Section 5.3](#) or [Section 5.4](#), as this approach minimizes the downtime of the OMS instances.
-
-

Note: Oracle Management Agent (Management Agent) that was installed with the Oracle Management Service (OMS) is not upgraded by default. You must upgrade it (along with other Management Agents) using the *Agent Upgrade Console*. This is an expected behavior. For instructions to use the *Agent Upgrade Console* to upgrade Management Agents, see [Chapter 6](#).

WARNING: Do not install Enterprise Manager Cloud Control 13c on servers of SPARC series: T1000, T2000, T5xx0, and T3-*. For more information, see My Oracle Support note 1590556.1.

5.1 Upgrading the OMS and the Management Repository to 13c Release 1 in Graphical Mode

To upgrade your OMS and Management Repository of 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1 in graphical mode, follow these steps:

- **Step 1:** [Invoking the Enterprise Manager Cloud Control Installer in GUI Mode](#)
- **Step 2:** [Enabling Oracle Configuration Manager](#)
- **Step 3:** [Applying the Latest Software Updates](#)

- [Step 4: Running the Prerequisite Checks and Validating the Environment](#)
- [Step 5: Selecting the Installation Type](#)
- [Step 6: Configuring a Middleware Home and Validating the Host Name](#)
- [Step 7: Providing Database Connection Details](#)
- [Step 8: Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins](#)
- [Step 9: Deploying Additional Plug-ins](#)
- [Step 10: Extending the Existing WebLogic Server Domain](#)
- [Step 11: Configuring the Shared Locations for Oracle BI Publisher](#)
- [Step 12: Configuring the Ports](#)
- [Step 13: Reviewing the Upgrade Details](#)
- [Step 14: Monitoring the Upgrade Progress](#)
- [Step 15: Ending the Upgrade](#)
- [Step 16: Upgrading the Additional OMS Instances](#)
- [Step 17: Upgrading the Management Agents](#)

Note: If you see an error message stating that you have not copied the emkey, do the following:

- If your OMS is configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.


```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -repos_conndesc '(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=<>) (PORT=<>))) (CONNECT_DATA=(SERVICE_NAME=<>)))' -repos_user SYSMAN [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/sysman/config/emkey.ora
```
- If your OMS is not configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.


```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -repos_host <host> -repos_port <port> -repos_sid <sid> -repos_user SYSMAN [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/sysman/config/emkey.ora
```

Here, the Management Repository details are details of the existing or old Management Repository. You will be prompted for the administration server password and the repository password if you do not explicitly specify them in the command line.

Note: If you are upgrading a multi-OMS environment, always start the upgrade process with the first OMS, where the Admin Server is running, and not with any of the additional OMS instances.

To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl status oms -details
```

You should see a similar output:

```
Oracle Enterprise Manager Cloud Control 13c
Copyright (c) 1996, 2012 Oracle Corporation. All rights reserved
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : myhost.example.com
.
.
.
WLS Domain Information
Domain Name : GCDomain
Admin Server Host: myhost.example.com
.
.
.
```

5.1.1 Invoking the Enterprise Manager Cloud Control Installer in GUI Mode

Oracle strongly recommends that you back up the Management Repository, the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails.

Invoke the Enterprise Manager Cloud Control Installation Wizard on the host where your existing OMS is running.

```
./em13100_<platform>.bin [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Note:

- For information about the additional, advanced options you can pass while invoking the installer, refer to [Section 5.1.1.1](#).
- To invoke the installation wizard on UNIX platforms, run `./em13100_<platform>.bin`. To invoke on Microsoft Windows platforms, run `setup_em_win64.exe`.
- While invoking the installer, ensure that you pass the `invPtrLoc` argument if the OMS you are upgrading was installed using the `invPtrLoc` argument.
- The installer requires about 10 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 10 GB of space.

The directory specified by this parameter will also be used as the location for the Provisioning Advisor Framework (PAF) staging directory, which is used for copying the Software Library entities related to the deployment procedures. The PAF staging directory is used only for provisioning activities — entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

For example,

```
./em13100_linux64.bin
-J-Djava.io.tmpdir=/u01/software/em13c/stage/
```

- While upgrading on IBM AIX, if you see an error message stating that your JDK version in the middleware home is not of a supported version, then make sure you install the supported version mentioned in the message, and then invoke the installer passing the `-skipJDKValidation` argument.

For example,

```
./em13100_<platform>.bin -skipJDKValidation
```

- `-invPtrLoc` is not supported on Microsoft Windows.

5.1.1.1 Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode

The following are some additional, advanced options you can pass while invoking the installer in graphical mode:

- By default, a Provisioning Advisor Framework (PAF) staging directory is created for copying the Software Library entities related to the deployment procedures. By default, this location is the scratch path location (`/tmp`). The location is used only for provisioning activities—entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

If you want to override this location with a custom location, then invoke the installer with the `-J-Djava.io.tmpdir` option, and enter a unique custom location.

For example,

```
./em13100_linux64.bin -J-Djava.io.tmpdir=/u00/install/em/STAGE/
```

- During upgrade, if you want to install some plug-ins that are not in the software kit (DVD, downloaded software), then follow these steps:
 1. Manually download the required plug-ins from the following location:
<http://www.oracle.com/technetwork/oem/extensions/index.html>
In addition, if you want to download any partner or customer plug-ins, then download from the following location:
<https://apex.oracle.com/pls/apex/f?p=53891:1>
 2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:
On UNIX platforms:

```
./em13100_<platform>.bin PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
```


On Microsoft Windows platforms:

```
setup_em_win64.exe PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
```


This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.
- After the upgrade operation ends successfully, the OMS and the Management Agent start automatically. If you do not want them to start automatically, then invoke the installer with `START_OMS` and `START_AGENT` options, and set them to true or false depending on what you want to control.
For example, if you do not want the Management Agent to start automatically, then run the following command:

```
./em13100_<platform>.bin START_OMS=true START_AGENT=false
```


To understand the limitations involved with this advanced option, see [Section 5.1.1.2](#).

5.1.1.2 Limitations with the Advanced Installer Options Supported for Installing an Enterprise Manager System in Graphical Mode

When you use `START_OMS` and `START_AGENT` as advanced options to control the way the OMS and the Management Agent start up automatically, sometimes the Management Agent and the host on which it was installed do not appear as targets in the Cloud Control console.

[Table 5–1](#) lists the different combinations of these advanced options, and describes the workaround to be followed for each combination:

Table 5–1 Advanced Options and Workarounds

Advanced Option	Workaround
START_OMS=false	1. Start the OMS:
START_AGENT=false	<code>\$<ORACLE_HOME>/bin/emctl start oms</code> 2. Secure the Management Agent: <code>\$<AGENT_HOME>/bin/emctl secure agent</code> 3. Start the Management Agent: <code>\$<AGENT_HOME>/bin/emctl start agent</code> 4. Add the targets: <code>\$<AGENT_HOME>/bin/emctl config agent addinternaltargets</code> 5. Upload the targets: <code>\$<AGENT_HOME>/bin/emctl upload agent</code> 6. Manually configure the EM CLI tool in the bin directory of the Oracle home of the OMS. To do so, refer to the <i>Oracle Enterprise Manager Command Line Interface Guide</i> .
START_OMS=true	Start the Management Agent:
START_AGENT=false	<code>\$<AGENT_HOME>/bin/emctl start agent</code>
START_OMS=false	1. Start the OMS:
START_AGENT=true	<code>\$<ORACLE_HOME>/bin/emctl start oms</code> 2. Secure the Management Agent: <code>\$<AGENT_HOME>/bin/emctl secure agent</code> 3. Add the targets: <code>\$<AGENT_HOME>/bin/emctl config agent addinternaltargets</code> 4. Upload the targets: <code>\$<AGENT_HOME>/bin/emctl upload agent</code> 5. Manually configure the EM CLI tool in the bin directory of the Oracle home of the OMS. To do so, refer to the <i>Oracle Enterprise Manager Command Line Interface Guide</i> .

5.1.2 Enabling Oracle Configuration Manager

(Optional) On the My Oracle Support Details screen, enter your *My Oracle Support* credentials to enable Oracle Configuration Manager, and click **Next**. If you do not want to enable Oracle Configuration Manager now, click **Next** without entering any details, and go to [Section 5.1.3](#).

If the host from where you are running the installation wizard does not have a connection to the Internet, then enter only the e-mail address and leave the other fields blank. After you complete the installation, manually collect the configuration information and upload it to *My Oracle Support*. For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

5.1.3 Applying the Latest Software Updates

On the Software Updates screen, apply the latest software updates, including the latest PSU patches, click **Next**.

You can download the software updates in offline mode (if you do not have Internet connectivity) or online mode (if you have Internet connectivity). For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

5.1.4 Running the Prerequisite Checks and Validating the Environment

On the Prerequisite Checks screen, check the status of the prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next**.

The installation wizard runs the prerequisite checks automatically when you come to this screen. The status of the prerequisite check can be either **Warning**, **Failed**, **Succeeded**, **Not Executed**, **In Progress**, or **Pending**.

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Rerun** to check the prerequisites again.

5.1.5 Selecting the Installation Type

On the Installation Types screen, select **Upgrade an existing Enterprise Manager system**, then select **One System Upgrade**. Select the OMS you want to upgrade, and click **Next**.

5.1.6 Configuring a Middleware Home and Validating the Host Name

On the Installation Details screen, do the following, and click **Next**.

- Enter a new middleware home where the installer can automatically install Oracle WebLogic Server 12c Release 1 (12.1.3.0) and Java Development Kit 1.7.0_80 for you.

For example, `/u01/software/em13c/oraclehome`

Note: Ensure that the Middleware home you enter or validate here is used only for Enterprise Manager Cloud Control. Ensure that no other Oracle Fusion Middleware products or components are installed in the same Middleware home.

- Validate the host name. By default, the host name is the name of the host where the existing, earlier release of Enterprise Manager was installed. This is a non-editable field.

5.1.7 Providing Database Connection Details

On the Database Connection Details screen, do the following, and click **Next**.

- Enter the passwords for the SYS and SYSMAN user accounts of the database that houses the Management Repository for the selected OMS.
- Confirm that you have backed up the Management Repository (*although the installer checks only if you have backed up the Management Repository, Oracle strongly recommends that you back up the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails*). As a prerequisite, you must back up the Management Repository before starting the upgrade process. If you have

not already taken a backup, then do so immediately, and then return to the installer to continue with the upgrade.

- If you have to stop the Enterprise Manager system for postupgrade maintenance, then select **Disable DDMP Jobs** to disable the DDMP jobs. If you do not plan to stop the Enterprise Manager system for postupgrade maintenance, and hence do not want to disable the DDMP jobs, then do not select the option.

Deferred Data Migration (DDMP) is a post-upgrade activity to migrate the format of the data stored in an earlier release of Enterprise Manager to the format compatible with the upgraded Enterprise Manager system. The migration activity is essentially a job in Enterprise Manager that is submitted when the Oracle Management Repository gets upgraded, and is scheduled to run in the background when the upgraded Enterprise Manager system starts functioning.

The time taken to migrate the data format depends on the volume of data available in your earlier release of Enterprise Manager. Therefore, if you have a large amount of data, then it takes longer to migrate.

If you have to stop the Enterprise Manager system for postupgrade maintenance, then you can choose to disable the DDMP jobs now and run them later from the postupgrade console after the maintenance period ends and after the Enterprise Manager system becomes operational.

To run the DDMP jobs later from the Post Upgrade Console, in the Enterprise Manager Cloud Control Console, from the **Setup** menu, select **Manage Cloud Control**, then select **Post Upgrade Tasks**.

Note: If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in 13c Release 1, then you are prompted to first remove those plug-ins from the previous release. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.

To remove the obsolete plug-ins, follow these steps:

1. First, undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on managing plug-ins in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
 2. Finally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on updating cloud control in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
-

Note: If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically.

To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl status oms -details.
```

To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl extended oms adp stop -all.
```

Note: For information about the various prerequisite checks that are run on the database at this point, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

5.1.8 Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins

On the Plug-In Upgrade screen, review the plug-ins that will experience one of the following effects, and click **Next**.

- Upgraded when newer versions exist
- Migrated when newer versions do not exist
- Deployed when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.

Here, newer versions refer to the newer versions of plug-ins available in the Enterprise Manager software (DVD, or downloaded software) that you are using to install.

Note: You might have a deprecated plug-in in your environment that can be upgraded to a plug-in version that is supported only in 13c Release 1 but not in any of the future releases. If such a deprecated plug-in is selected by default in this screen for upgrade, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the upgrade of such plug-ins.

IMPORTANT: Before you proceed to the next screen, run the following command to stop all the associated OMS instances. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$_<ORACLE_HOME>/bin/emctl stop oms -all
```

Note:

- If the newer versions do not exist in the Enterprise Manager software that you are using, but exist on Oracle Technology Network (OTN), then you can choose to manually download them from OTN and upgrade your existing plug-ins, instead of having them automatically migrated by default. To do so, follow these steps:

1. Manually download the required plug-ins from the following location:

<http://www.oracle.com/technetwork/oem/extensions/index.html>

In addition, if you want to download any partner or customer plug-ins, then download from the following location:

<https://apex.oracle.com/pls/apex/f?p=53891:1>

2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:

On UNIX platforms:

```
./em13100_<platform>.bin PLUGIN_
LOCATION=<absolute_path_to_plugin_
software_location>
```

On Microsoft Windows platforms:

```
setup_em_win64.exe PLUGIN_
LOCATION=<absolute_path_to_plugin_
software_location>
```

This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.

Once the newer versions of the plug-ins are made available, this screen lists those plug-ins as plug-ins that will automatically be upgraded.

- If you see a message stating that you have unsupported plug-ins on the OMS or on some of the Management Agents, then follow the instructions outlined in the message to upgrade the plug-ins, and then retry upgrading the OMS.

5.1.9 Deploying Additional Plug-ins

On the Select Plug-ins screen, select the optional plug-ins you want to deploy in addition to the plug-ins that will automatically be upgraded while upgrading the OMS, and click **Next**.

Note: If you select a deprecated plug-in that is supported only in 13c Release 1 but not in any of the future releases, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the deployment of such plug-ins.

Note: If you want to install some plug-ins that are not listed on this screen, then follow these steps:

1. Manually download the required plug-ins from the following location:
<http://www.oracle.com/technetwork/oem/extensions/index.html>

In addition, if you want to download any partner or customer plug-ins, then download from the following location:

<https://apex.oracle.com/pls/apex/f?p=53891:1>

2. Invoke the installer with the following option and pass the location where the additional plug-ins have been downloaded:

On UNIX platforms:

```
./em13100_<platform>.bin PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
```

On Microsoft Windows platforms:

```
setup_em_win64.exe PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
```

This displays a list of plug-ins available in the software kit (DVD, downloaded software) as well as the plug-ins available in this custom location. You can choose the ones you want to install.

5.1.10 Extending the Existing WebLogic Server Domain

On the Extend WebLogic Server Domain screen, do the following to create a new WebLogic domain and a new OMS instance base directory for the upgraded OMS, and click **Next**.

- Validate the AdminServer host name and its port, and the WebLogic user name, and enter the WebLogic user account password. This is required to create a new WebLogic domain (GCDomain) on the same port and host name as the AdminServer used by the earlier release of the OMS you are upgrading.

Note: If you are upgrading an additional OMS, then enter the host name and port of the AdminServer configured for the first OMS that you have already upgraded, and then, enter the credentials for the existing WebLogic Server user account.

The host name is the name of the host where the first OMS is running. To identify the port, check the value set to the parameter AS_HTTPS_PORT in the following file:

```
<OMS_INSTANCE_HOME>/em/EMGC_OMS<n>/emgc.properties
```

- Enter the absolute path to the new OMS instance base directory (`gc_inst`), which will be created for storing the configuration information related to the upgraded OMS. This `gc_inst` directory must *not* be your old `gc_inst` directory of 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3), so enter a new directory location. If you enter the old `gc_inst` directory, then the installer will display a warning that the directory is not empty.

For example, `/u01/software/em13c/gc_inst`

Make sure the path you enter leads up to the instance base directory, and is maintained outside the middleware home.

Note: If you are installing on an NFS-mounted drive and creating the OMS instance base directory (`gc_inst`) on that NFS-mounted drive, then after you install, move the lock files from the NFS-mounted drive to a local file system location. Modify the lock file location in the `httpd.conf` file to map to a location on a local file system. For instructions, refer to [Section 5.1.10.1](#).

5.1.10.1 Moving Lock Files from an NFS-Mounted Drive to a Local File System Location

If you are installing in an NFS-mounted drive and creating the OMS instance base directory (`gc_inst`) in that NFS-mounted drive, then after you install, move the lock files from the NFS-mounted drive to a local file system location. To do so, modify the lock files location in the `httpd.conf` file to map to a location on a local file system.

1. Stop the OMS by running the following command from the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl stop oms
```

For example,

```
/u01/software/em13c/oraclehome/bin/emctl stop oms
```

2. Open the following file:

Note: Oracle recommends you to take a backup of this file before editing it

```
<WEBTIER_INSTANCE_HOME>/user_
projects/domains/GCDomain/config/fmwconfig/components/OHS/instances/ohs
<#>/httpd.conf
```

For example,

```
/u01/software/em13c/gc_inst/user_
projects/domains/GCDomain/config/fmwconfig/components/OHS/instances/ohs
1/httpd.conf
```

3. Search for sections related to the modules `mpm_prefork_module` and `mpm_worker_module`. In both these sections, for the `LockFile` parameter, specify the absolute path to a location on the local file system where Oracle HTTP Server can automatically create the `http_lock` file. If the location you specify does not already exist, then create it first, and then specify the path here.

```
<IfModule mpm_prefork_module>
StartServers 5
```

```

MinSpareServers 5
MaxSpareServers 10
MaxClients 150
MaxRequestsPerChild 0
AcceptMutex fcntl
LockFile u01/em/ohs_locks
</IfModule>
....
<IfModule mpm_worker_module>
StartServers 2
MaxClients 150
MinSpareThreads 25
MaxSpareThreads 75
ThreadsPerChild 25
MaxRequestsPerChild 0
AcceptMutex fcntl
LockFile u01/em/ohs_locks
</IfModule>

```

For example, if you want to specify the location path `u01/em/ohs_locks` where `/u01/em` is a location on your local file system, then make sure the directory `ohs_locks` already exists. If it does not exist, create it in the following way, and then specify this path in the `httpd.conf` file.

```
mkdir -p /u01/em/ohs_locks
```

Oracle HTTP Server will automatically create the following lock file:

```
u01/em/ohs_locks/http_lock
```

4. Save the changes.
5. Start the OMS by running the following command from the Oracle home of the OMS:

```
<ORACLE_HOME>/bin/emctl start oms
```

For example,

```
/u01/software/em13c/oraclehome/bin/emctl start oms
```

5.1.11 Configuring the Shared Locations for Oracle BI Publisher

On the Enterprise Manager Shared Location Details screen, do the following, and click **Next**.

- If you are upgrading an OMS that already has Oracle BI Publisher installed and configured in a shared location, then the fields for configuring Oracle BI Publisher are prefilled and grayed out. You can leave them as they are and proceed to the other sections of this screen.

However, if you are upgrading an OMS that does not already have Oracle BI Publisher installed, or if you are upgrading an OMS that has Oracle BI Publisher installed but not configured in a shared location, then do the following:

(i) Identify a shared location that you can use for Oracle BI Publisher.

If you do not have an existing shared location, create a new one and ensure that it is visible on the host where you are installing the first OMS and also on other hosts where you plan to install additional OMS instances.

At install time, for the installation to be successful, you can reserve approximately 400 MB of hard disk space for the shared directory. However, Oracle recommends

that you scale it to at least 10 GB eventually, and ensure that it can be extended further in the future because the space utilization increases over a period of time as you install additional plug-ins and create more reports.

Caution: If you already have a shared location that you were using for the Software Library or for staging gold images in the previous release of Enterprise Manager, then you can choose to use the same location. However, ensure that the directories within the shared location are unique for Oracle BI Publisher, Software Library, and staged gold images. For example, if you already are using the shared location `/u01/software/examplehost/shrd/` where the Software Library is configured in `/u01/software/examplehost/shrd/SW`, then you can use the same location, but make sure the directory within this shared location for Oracle BI Publisher is `/u01/software/examplehost/shrd/BIP`.

(ii) On this screen, select **Configure a Shared Location for Oracle BI Publisher**. Enter the following directory paths. Ensure that the user account that you are using to install the first OMS has read and write permission on these paths.

Note: When you invoke the installer on Microsoft Windows, the Enterprise Manager Shared Location Details screen does not show the Config Volume and Cluster Volume options. This is an expected behavior.

For **Config Volume**, enter the path leading up to the `/config` directory on the shared storage location where Oracle BI Publisher repository and configuration files can be stored. For example, `/u01/software/examplehost/shrd/BIP/config`

For **Cluster Volume**, enter the path leading up to the `/cluster` directory on the shared storage location where Oracle BI Publisher scheduler storage can be maintained for Oracle BI Publisher to operate in a high-availability environment. For example, `/u01/software/examplehost/shrd/BIP/cluster`

WARNING: Do not delete these directories after the installation. The directories are required for proper functioning of Oracle BI Publisher, and therefore are required during the installation and also after the installation.

- Enable or disable the installed and configured Oracle BI Publisher. Enabling Oracle BI Publisher starts the software and keeps it ready for use within the Enterprise Manager system. Disabling Oracle BI Publisher leaves the software as it is without starting it.

To enable Oracle BI Publisher, select **Enable Oracle BI Publisher**.

Note: If you choose to disable Oracle BI Publisher during the installation, then you can enable it after the installation by running the following EM CTL command from the Oracle home of the upgraded OMS.

```
$<ORACLE_HOME>/bin/emctl config oms -enable_bip
```

For example,

```
/u01/software/em13c/oraclehome/bin/emctl config oms -enable_bip
```

The command only enables Oracle BI Publisher, but does not start it. To start it, run the following command from the Oracle home of the upgraded OMS.

```
$<ORACLE_HOME>/bin/emctl start oms -bip_only
```

```
/u01/software/em13c/oraclehome/bin/emctl start oms -bip_only
```

5.1.12 Configuring the Ports

On the Port Configuration Details screen, customize the ports to be used for the new components being added for this release, and click **Next**.

The ports for most components are automatically carried over from the previous release, and therefore, this screen lists only the ports for the new components being added for this release.

Note: If all the ports on this screen appear as -1, then it indicates that the installer is unable to bind the ports on the host. To resolve this issue, exit the installer, verify the host name and the IP configuration of this host (ensure that the IP address of the host is not being used by another host), restart the installer, and try again.

You can enter a free custom port that is either within or outside the port range recommended by Oracle.

To verify if a port is free, run the following command:

- On Unix:

```
netstat -an | grep <port no>
```

- On Microsoft Windows:

```
netstat -an|findstr <port_no>
```

However, the custom port must be greater than 1024 and lesser than 65535.

Alternatively, if you already have the ports predefined in a `staticports.ini` file and if you want to use those ports, then click **Import staticports.ini file** and select the file.

Note: If the `staticports.ini` file is passed during installation, then by default, the ports defined in the `staticports.ini` file are displayed. Otherwise, the first available port from the recommended range is displayed.

The `staticports.ini` file is available in the following location:

```
<Software_Extracted_Location>/response
```

5.1.13 Reviewing the Upgrade Details

On the Review screen, review the details you have provided for the upgrade.

1. If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.
2. After you verify the details, if you are satisfied, click **Upgrade** to begin the upgrade.

5.1.14 Monitoring the Upgrade Progress

On the Install Progress screen, view the overall progress (in percentage) of the upgrade operation and the status of each of the Configuration Assistants.

Note:

- If a Configuration Assistant fails, the installer stops and none of the subsequent Configuration Assistants are run until the issue related to the failed Configuration Assistant is resolved. In this case, diagnose the issue, resolve it, and then, click **Retry** on the Install Progress screen to rerun the Configuration Assistants starting from the Configuration Assistant that failed.

However, if you accidentally exit the installer before clicking **Retry**, then do NOT restart the installer to reach the same screen; instead, invoke the `runConfig.sh` script from the Oracle home of the OMS to rerun the Configuration Assistant in silent mode. If the `runConfig.sh` script fails, raise a service request and contact Oracle Support.

```
$<ORACLE_HOME>/oui/bin/runConfig.sh ORACLE_
HOME=<absolute_path_to_Middleware_home> MODE=perform
ACTION=configure COMPONENT_XML={encap_oms.1_0_0_0_0.xml}
```

For example,

```
/u01/software/em13c/oraclehome/oui/bin/runConfig.sh
ORACLE_HOME=/u01/software/em13c/oraclehome MODE=perform
ACTION=configure COMPONENT_XML={encap_oms.1_0_0_0_0.xml}
```

If the `runConfig.sh` script fails, raise a service request and contact Oracle Support.

- If the Management Repository upgrade fails with the following error in the schemamanager logs, then restart the database, and then try the upgrade again.

```
ORA-04020: deadlock detected while trying to lock object
SYSMAN.MGMT_GLOBAL
```

5.1.15 Ending the Upgrade

On the Finish screen, you should see information pertaining to the upgrade of Enterprise Manager. Review the information and click **Close** to exit the wizard.

Once the software binaries are copied and configured, you are prompted to run the `allroot.sh` script. Open another window, log in as `root`, and manually run the scripts.

If you are installing on Microsoft Windows operating system, then you will NOT be prompted to run this script.

5.1.16 Upgrading the Additional OMS Instances

If you have additional OMS instances, then start upgrading each of them sequentially by following [Section 5.1.1](#) to [Section 5.1.15](#).

5.1.17 Upgrading the Management Agents

After upgrading all the OMS instances, upgrade the Management Agents, including the one that was installed with the first, old OMS (that is, central agent). For more information, refer to [Chapter 6](#).

Note:

- Oracle recommends that you upgrade your central agent immediately after upgrading your OMS instances. However, for some reason if you are unable to upgrade your central agent immediately after upgrading the OMS instances, then ensure that you apply the JDK 1.6u95 patch on your central agent. Otherwise, the targets of the GC WLS domain will not be monitored in the Enterprise Manager Cloud Control Console. This issue will not occur once the central agent is upgraded.
 - After upgrading the central agent, if you find the agent base directory of the upgraded central agent in the old Oracle Middleware home, and if you want to move it outside that old Oracle Middleware home, then follow the instructions outlined in [Appendix C](#).
-
-

5.2 Upgrading the OMS and the Management Repository to 13c Release 1 in Silent Mode

To upgrade your OMS and Management Repository of 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1 in silent mode, follow these steps:

- **Step 1:** [Generating the Response File for Silent Installation](#)
- **Step 2:** [Editing the Response File for Silent Installation](#)
- **Step 3:** [Invoking the Enterprise Manager Cloud Control Installer in Silent Mode](#)
- **Step 4:** [Upgrading the Additional OMS Instances](#)
- **Step 5:** [Upgrading the Management Agents](#)

Note: If you see an error message stating that you have not copied the emkey, do the following:

- If your OMS is configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -repos_conndesc "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<>)(PORT=<>)))(CONNECT_DATA=(SERVICE_NAME=<>)))" -repos_user <> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/sysman/config/emkey.ora
```

- If your OMS is not configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -repos_host <host> -repos_port <port> -repos_sid <sid> -repos_user <username> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/sysman/config/emkey.ora
```

Here, the Management Repository details are details of the existing or old Management Repository. You will be prompted for the administration server password and the repository password if you do not explicitly specify them in the command line.

Note: If you are upgrading a multi-OMS environment, always start the upgrade process with the first OMS, where the Admin Server is running, and not with any of the additional OMS instances.

To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl status oms -details
```

You should see a similar output:

```
Oracle Enterprise Manager Cloud Control 13c
Copyright (c) 1996, 2012 Oracle Corporation. All rights reserved
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : myhost.example.com
.
.
.
WLS Domain Information
Domain Name : GCDomain
Admin Server Host: myhost.example.com
.
.
.
```

Note: If the Management Repository upgrade fails with the following error in the schemamanager logs, then restart the database, and then try the upgrade again.

```
ORA-04020: deadlock detected while trying to lock object
SYSMAN.MGMT_GLOBAL
```

5.2.1 Generating the Response File for Silent Installation

Invoke the installer and generate the response file you need to use for performing a silent upgrade:

```
./em13100_<platform>.bin -getResponseFileTemplates -outputLoc <absolute_
path_to_a_directory_to_store_the_generated_response_file>
```

Note: The command generates three response files. You must use only the `upgrade.rsp` file for this silent installation.

5.2.2 Editing the Response File for Silent Installation

Edit the `upgrade.rsp` response file and enter appropriate values for the parameters described in [Appendix A](#).

Note: If you have any plug-ins that are obsolete and are not supported in 13c Release 1, then you must first remove those plug-ins from the previous release. You can proceed with the upgrade only after removing those obsolete plug-ins.

To remove the obsolete plug-ins, follow these steps:

1. First, undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on managing plug-ins in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
 2. Finally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on updating cloud control in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
-
-

5.2.3 Invoking the Enterprise Manager Cloud Control Installer in Silent Mode

Invoke the installer in silent mode and pass the updated response file:

```
./em13100_<platform>.bin -silent -responseFile <absolute_path_to_the_
directory_where_the_generated_and_updated_response_file_is_
stored>/upgrade.rsp
```

Note:

- To invoke the installation wizard on UNIX platforms, run `./em13100_<platform>.bin`. To invoke on Microsoft Windows platforms, run `setup_em_win64.exe`.
- For information about the additional, advanced options you can pass while invoking the installer, refer to [Section 5.2.3.1](#).
- The installer requires about 10 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 10 GB of space.

The directory specified by this parameter will also be used as the location for the Provisioning Advisor Framework (PAF) staging directory, which is used for copying the Software Library entities related to the deployment procedures. The PAF staging directory is used only for provisioning activities — entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

For example,

```
./em13100_linux64.bin
-J-Djava.io.tmpdir=/u01/software/em13c/stage/
```

- While upgrading on IBM AIX, if you see an error message stating that your JDK version in the middleware home is not of a supported version, then make sure you install the supported version mentioned in the message, and then invoke the installer passing the `-skipJDKValidation` argument.

For example,

```
./em13100_<platform>.bin -skipJDKValidation
```

- If a prerequisite check fails reporting a missing package, then make sure you install the required package, and retry the installation. The installer validates the package name as well as the version, so make sure you install the packages of the minimum versions mentioned in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*. To understand the logic the installer uses to verify these packages, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

5.2.3.1 Advanced Installer Options Supported for Installing an Enterprise Manager System in Silent Mode

After the installation ends successfully, the OMS and the Management Agent start automatically. If you do not want them to start automatically, then invoke the installer with `START_OMS` and `START_AGENT` options, and set them to true or false depending on what you want to control.

For example, if you do not want the Management Agent to start automatically, then run the following command:

```
./em13100_<platform>.bin START_OMS=true START_AGENT=false -silent
-responseFile <absolute_path>/upgrade.rsp
```

To understand the limitations involved with this advanced option, see [Section 5.1.1.2](#).

5.2.4 Upgrading the Additional OMS Instances

If you have additional OMS instances, then start upgrading each of them sequentially by following Step (1) to Step (3) as outlined in [Section 5.2](#) (this section.)

5.2.5 Upgrading the Management Agents

After upgrading all the OMS instances, upgrade the Management Agents, including the one that was installed with the first, old OMS (that is, central agent). For more information, refer to [Chapter 6](#).

Note:

- Oracle recommends that you upgrade your central agent immediately after upgrading your OMS instances. However, for some reason if you are unable to upgrade your central agent immediately after upgrading the OMS instances, then ensure that you apply the JDK 1.6u95 patch on your central agent. Otherwise, the targets of the GC WLS domain will not be monitored in the Enterprise Manager Cloud Control Console. This issue will not occur once the central agent is upgraded.
 - After upgrading the central agent, if you find the agent base directory of the upgraded central agent in the old Oracle Middleware home, and if you want to move it outside that old Oracle Middleware home, then follow the instructions outlined in [Appendix C](#).
-
-

5.3 Upgrading the OMS and the Management Repository to 13c Release 1 Using the Software-Only Method in Graphical Mode

This section explains how you can upgrade your OMS and Management Repository of 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1 using the software-only method in graphical mode.

Using the software-only method, you essentially install the software binaries of Enterprise Manager Cloud Control 13c Release 1 at one point, and upgrade the earlier release of Enterprise Manager to the newly installed 13c Release 1 software binaries at a later point.

This upgrade approach is best suited for multi-OMS environments, as it minimizes the downtime of the OMS instances. This approach consists of three parts, mainly copying the software binaries, running the `root.sh` script, and configuring the software binaries. You can copy the software binaries on all the OMS hosts *in parallel* without shutting down the OMS instances. This not only saves time but also enables the earlier release of the OMS instances to remain up and running at this point. Once the software binaries are copied, you can shut down all the OMS instances, and configure the software binaries to upgrade the OMS instances, one after the other. Therefore, the downtime begins only when you start configuring the OMS instances, and not while copying the software binaries to the host.

In particular, this section covers the following:

- [Installing the Enterprise Manager Cloud Control 13c Release 1 Software Binaries in Graphical Mode](#)
- [Running the `allroot.sh` Script](#)

- **Configuring the Enterprise Manager Cloud Control 13c Release 1 Software Binaries in Graphical Mode**

Note: If you see an error message stating that you have not copied the emkey, do the following:

- If your OMS is configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_
file -repos_conndesc '"(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<>)(PORT=<>)))(CONNECT_
DATA=(SERVICE_NAME=<>))"' -repos_user <> [-repos_pwd
<pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_
home>/sysman/config/emkey.ora
```

- If your OMS is not configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_
file -repos_host <host> -repos_port <port> -repos_sid
<sid> -repos_user <username> [-repos_pwd <pwd> ] [-admin_
pwd <pwd>] -emkey_file <oracle_
home>/sysman/config/emkey.ora
```

Here, the Management Repository details are details of the existing or old Management Repository. You will be prompted for the administration server password and the repository password if you do not explicitly specify them in the command line.

Note: If you are upgrading a multi-OMS environment, always start the upgrade process with the first OMS, where the Admin Server is running, and not with any of the additional OMS instances.

To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl status oms -details
```

You should see a similar output:

```
Oracle Enterprise Manager Cloud Control 13c
Copyright (c) 1996, 2012 Oracle Corporation. All rights reserved
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : myhost.example.com
.
.
.
WLS Domain Information
Domain Name : GCDomain
Admin Server Host: myhost.example.com
.
.
.
```

5.3.1 Installing the Enterprise Manager Cloud Control 13c Release 1 Software Binaries in Graphical Mode

To install the software binaries of Enterprise Manager Cloud Control, follow these steps:

- **Step 1:** [Invoking the Enterprise Manager Cloud Control Installer for Installing Only the Software Binaries in GUI Mode](#)
- **Step 2:** [Enabling Oracle Configuration Manager](#)
- **Step 3:** [Applying the Latest Software Updates](#)
- **Step 4:** [Running the Prerequisite Checks and Validating the Environment](#)
- **Step 5:** [Selecting the Installation Type](#)
- **Step 6:** [Configuring a Middleware Home, Installing the Central Agent, and Validating the Host Name](#)
- **Step 7:** [Reviewing the Installation Details](#)
- **Step 8:** [Monitoring the Installation Progress](#)
- **Step 9:** [Ending the Installation](#)
- **Step 11:** [Deinstalling the Management Agent and Deleting the Agent Base Directory](#)
- **Step 12:** [Copying the Software Binaries to the Additional OMS Hosts in Silent Mode](#)

5.3.1.1 Invoking the Enterprise Manager Cloud Control Installer for Installing Only the Software Binaries in GUI Mode

Invoke the Enterprise Manager Cloud Control Installation Wizard on the host where your existing OMS is running.

```
./em13100_<platform>.bin [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Note:

- To invoke the installation wizard on UNIX platforms, run `./em13100_<platform>.bin`. To invoke on Microsoft Windows platforms, run `setup_em_win64.exe`.
- While invoking the installer, ensure that you pass the `invPtrLoc` argument if the OMS you are upgrading was installed using the `invPtrLoc` argument.
- `-invPtrLoc` is not supported on Microsoft Windows.
- The installer requires about 10 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 10 GB of space.

The directory specified by this parameter will also be used as the location for the Provisioning Advisor Framework (PAF) staging directory, which is used for copying the Software Library entities related to the deployment procedures. The PAF staging directory is used only for provisioning activities — entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

For example,

```
./em13100_linux64.bin
-J-Djava.io.tmpdir=/u01/software/em13c/stage/
```

Note: While installing on IBM AIX, if you see an error message stating that your JDK version in the middleware home is not of a supported version, then make sure you install the supported version mentioned in the message, and then invoke the installer passing the `-skipJDKValidation` argument.

For example,

```
./em13100_<platform>.bin -skipJDKValidation
```

5.3.1.2 Enabling Oracle Configuration Manager

(Optional) On the My Oracle Support Details screen, enter your *My Oracle Support* credentials to enable Oracle Configuration Manager, and click **Next**. If you do not want to enable Oracle Configuration Manager now, click **Next** without entering any details, and go to [Section 5.3.1.3](#).

If the host from where you are running the installation wizard does not have a connection to the Internet, then enter only the e-mail address and leave the other fields blank. After you complete the installation, manually collect the configuration information and upload it to *My Oracle Support*. For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

5.3.1.3 Applying the Latest Software Updates

On the Software Updates screen, apply the latest software updates, including the latest PSU patches, and click **Next**.

You can download the software updates in offline mode (if you do not have Internet connectivity) or online mode (if you have Internet connectivity). For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

5.3.1.4 Running the Prerequisite Checks and Validating the Environment

On the Prerequisite Checks screen, check the status of the prerequisite checks run by the installation wizard, and verify whether your environment meets all the minimum requirements for a successful upgrade. Then click **Next**.

The installation wizard runs the prerequisite checks automatically when you come to this screen.

The status of the prerequisite check can be either **Warning**, **Failed**, **Succeeded**, **Not Executed**, **In Progress**, or **Pending**.

If some checks result in **Warning** or **Failed** status, then investigate and correct the problems before you proceed with the upgrade. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Rerun** to check the prerequisites again.

Note: If a prerequisite check fails reporting a missing package, then make sure you install the required package, and click **Rerun**. The installation wizard validates the package name as well as the version, so make sure you install the packages of the minimum versions mentioned in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*. To understand the logic the installation wizard uses to verify these packages, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

5.3.1.5 Selecting the Installation Type

On the Installation Types screen, select **Install software only**, and click **Next**.

5.3.1.6 Configuring a Middleware Home, Installing the Central Agent, and Validating the Host Name

On the Installation Details screen, do the following, and click **Next**.

1. Enter a new middleware home where the installer can automatically install Oracle WebLogic Server 12c Release 1 (12.1.3.0) and Java Development Kit 1.7.0_80 for you.

For example, `/u01/software/em13c/oraclehome`

Note: Ensure that the Middleware home you enter or validate here is used only for Enterprise Manager Cloud Control. Ensure that no other Oracle Fusion Middleware products or components are installed in the same Middleware home.

2. Enter the absolute path to the agent base directory, a location outside the Oracle Middleware home where the Management Agent can be installed. Ensure that this location is empty and has write permission. Also ensure that it is always maintained outside the Oracle Middleware home.

For example, `/u01/software/em13c/agentbasedir`

Note: This is a mandatory field although the Management Agent installed with the OMS is not required, and must be deinstalled as described in Step (15).

3. Validate the host name. By default, the host name is the name of the host where the existing, earlier release of Enterprise Manager was installed. This is a non-editable field.

5.3.1.7 Reviewing the Installation Details

On the Review screen, review the details you provided for the selected installation type.

- If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.
- After you verify the details, if you are satisfied, click **Install** to begin the installation process.

5.3.1.8 Monitoring the Installation Progress

On the Install Progress screen, view the overall progress (in percentage) of the installation.

5.3.1.9 Ending the Installation

On the Finish screen, you should see information pertaining to the installation of Enterprise Manager. Review the information and click **Close** to exit the installation wizard.

5.3.1.10 Deinstalling the Management Agent and Deleting the Agent Base Directory

Deinstall the Management Agent and delete the agent base directory you created in Step (2) of [Section 5.3.1.6](#). For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

The Management Agent you installed and the agent base directory you created in Step 10 (b) is essentially for a fresh installation, and is not used while upgrading Management Agents using the Agent Upgrade Console.

5.3.1.11 Copying the Software Binaries to the Additional OMS Hosts in Silent Mode

If you have additional OMS instances, then copy the software binaries on those additional OMS hosts as well by following steps outlined in this section ([Section 5.3.1](#)).

5.3.2 Running the allroot.sh Script

(For UNIX Only) After you install the software binaries, log in as a *root* user in a new terminal and run the `allroot.sh` script from the Oracle home of the OMS you installed in [Section 5.3.1](#).

```
$<ORACLE_HOME>/allroot.sh
```

For example,

```
/u01/software/em13c/oraclehome/allroot.sh
```

If you have additional OMS instances, then run this script on those additional OMS hosts as well.

Note: If you do not have the permission to run this script at this point, you can always run it after configuring the software binaries, but make sure you run it before you start upgrading the Management Agents.

5.3.3 Configuring the Enterprise Manager Cloud Control 13c Release 1 Software Binaries in Graphical Mode

To configure the software binaries of Enterprise Manager Cloud Control, follow these steps:

- [Step 1: Invoking the Enterprise Manager Cloud Control Installer for Configuring the Software Binaries in GUI Mode](#)
- [Step 1: Selecting the Installation Type](#)
- [Step 2: Providing Database Connection Details](#)
- [Step 3: Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins](#)
- [Step 4: Deploying Additional Plug-ins](#)
- [Step 5: Extending the Existing WebLogic Server Domain](#)
- [Step 6: Configuring the Shared Locations for Oracle BI Publisher](#)
- [Step 7: Configuring the Ports](#)
- [Step 8: Reviewing the Upgrade Details](#)
- [Step 9: Monitoring the Upgrade Progress](#)
- [Step 10: Ending the Upgrade](#)
- [Step 11: Upgrading the Additional OMS Instances](#)
- [Step 12: Upgrading the Management Agents](#)

5.3.3.1 Invoking the Enterprise Manager Cloud Control Installer for Configuring the Software Binaries in GUI Mode

Invoke the installation wizard by running the following script from the Oracle home of the OMS you installed in [Section 5.3.1](#).

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Note:

- On Microsoft Windows, run `ConfigureGC.bat`.
 - While installing the software binaries as described in [Section 5.3.1](#), if you had passed the argument `-invPtrLoc`, then pass the same argument here as well.
 - For information about the additional, advanced options you can pass while invoking the script, refer to [Section 5.3.3.1.1](#).
-
-

5.3.3.1.1 Advanced Script Options Supported for Software-Only Upgrade to Enterprise Manager Cloud Control 13c Release 1 The following are some additional, advanced options you can pass while invoking the `configureGC.sh` script:

- By default, `GCDomain` is the default name used for creating the WebLogic Domain. To override this and use a custom WebLogic Domain name, invoke the script with the `WLS_DOMAIN_NAME` option, and enter a unique custom name.

For example, if you want to use the custom name `EMDomain`, then run the following command:

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh WLS_DOMAIN_NAME=<custom_name>
```

For example,

```
/u01/software/em13c/oraclehome/sysman/install/ConfigureGC.sh WLS_DOMAIN_NAME=EMDomain
```

- After the configuration ends successfully, the OMS and the Management Agent start automatically. If you do not want them to start automatically, then invoke the script with `START_OMS` and `START_AGENT` options, and set them to `true` or `false` depending on what you want to control.

For example, if you do not want the Management Agent to start automatically, then run the following command:

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh START_OMS=true START_AGENT=false
```

For example,

```
/u01/software/em13c/oraclehome/sysman/install/ConfigureGC.sh START_OMS=true START_AGENT=false
```

To understand the limitations involved with this advanced option, see [Section 5.1.1.2](#).

5.3.3.2 Selecting the Installation Type

On the Install Types screen, do the following:

1. Select **Upgrade an existing Enterprise Manager system**, and then, select **One System Upgrade**.
2. Select the OMS you want to upgrade.
3. Click **Next**.

5.3.3.3 Providing Database Connection Details

On the Database Connection Details screen, do the following, and click **Next**.

- Enter the passwords for the `SYS` and `SYSMAN` user accounts of the database that houses the Management Repository for the selected OMS.
- Confirm that you have backed up the Management Repository (*although the installer checks only if you have backed up the Management Repository, Oracle strongly recommends that you back up the OMS, the inventory, the Software Library, and other components that are critical to the functioning of Enterprise Manager. This will enable you to revert to the original contents if the upgrade fails*). As a prerequisite, you must back up the Management Repository before starting the upgrade process. If you have not already taken a backup, then do so immediately, and then return to the installer to continue with the upgrade.
- If you have to stop the Enterprise Manager system for postupgrade maintenance, then select **Disable DDMP Jobs** to disable the DDMP jobs. If you do not plan to

stop the Enterprise Manager system for postupgrade maintenance, and hence do not want to disable the DDMP jobs, then do not select the option.

Deferred Data Migration (DDMP) is a post-upgrade activity to migrate the format of the data stored in an earlier release of Enterprise Manager to the format compatible with the upgraded Enterprise Manager system. The migration activity is essentially a job in Enterprise Manager that is submitted when the Oracle Management Repository gets upgraded, and is scheduled to run in the background when the upgraded Enterprise Manager system starts functioning.

The time taken to migrate the data format depends on the volume of data available in your earlier release of Enterprise Manager. Therefore, if you have a large amount of data, then it takes longer to migrate.

If you have to stop the Enterprise Manager system for postupgrade maintenance, then you can choose to disable the DDMP jobs now and run them later from the postupgrade console after the maintenance period ends and after the Enterprise Manager system becomes operational.

To run the DDMP jobs later from the Post Upgrade Console, in the Enterprise Manager Cloud Control Console, from the **Setup** menu, select **Manage Cloud Control**, then select **Post Upgrade Tasks**.

Note: If the installer finds that some plug-ins deployed in the previous release of Enterprise Manager are obsolete and are not supported in 13c Release 1, then you are prompted to first remove those plug-ins from the previous release. You can return to the installer and proceed with the upgrade only after removing those obsolete plug-ins.

To remove the obsolete plug-ins, follow these steps:

1. First, undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on managing plug-ins in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
 2. Finally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on updating cloud control in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
-
-

Note: If you have any JVM Diagnostics Engines (JVMD Engines) or Application Dependency and Performance Engines (ADP Engines) configured in your environment, then check whether they are up and running. If they are, then check whether the Admin Server is up and stop the JVMD Engines and the ADP Engines. Once the upgrade is successful, the JVMD Engines start automatically.

To check whether the Admin Server is running, run the following command from the OMS you are upgrading. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl status oms -details.
```

To stop the engines, on each OMS instance, run the following command from the OMS you are upgrading. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl extended oms adp stop -all.
```

Note: For information about the various prerequisite checks that are run on the database at this point, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

Note: If you see an error about missing plug-ins, then do the following:

1. Make a note of the plug-in version and plug-in update as shown in the missing plug-ins error message. The plug-ins displayed in the error message have the following format:

```
PluginID:PluginVersion:PluginUpdate
```

2. Manually download the required plug-ins from the following location:

```
http://www.oracle.com/technetwork/oem/extensions/index.html
```

In addition, if you want to download any partner or customer plug-ins, then download from the following location:

```
https://apex.oracle.com/pls/apex/f?p=53891:1
```

3. Invoke the `ConfigureGC.sh` script with the following parameter, and pass the location where the additional plug-ins have been downloaded. Here, `<ORACLE_HOME>` is the Oracle home of the OMS host you installed in [Section 5.3.1](#) (or the middleware home).

```
<ORACLE_HOME>/sysman/install/ConfigureGC.sh PLUGIN_LOCATION=<absolute_path_to_plugin_sw>
```

Proceed to the next step only after you have installed these missing plug-ins.

5.3.3.4 Upgrading or Migrating Plug-ins, or Deploying Dependent Plug-ins

On the Plug-In Upgrade screen, review the plug-ins that will experience one of the following effects, and click **Next**.

- Upgraded when newer versions exist
- Migrated when newer versions do not exist
- Deployed when the plug-ins being upgraded have new dependencies, or when there are any new default plug-ins introduced with a release.

Here, newer versions refer to the newer versions of plug-ins available in the Enterprise Manager software (DVD, or downloaded software) that you are using to install.

Note: You might have a deprecated plug-in in your environment that can be upgraded to a plug-in version that is supported only in 13c Release 1 but not in any of the future releases. If such a deprecated plug-in is selected by default in this screen for upgrade, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the upgrade of such plug-ins.

IMPORTANT: Before you proceed to the next screen, run the following command to stop all the associated OMS instances. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl stop oms -all
```

Note:

- If the newer versions do not exist in the Enterprise Manager software that you are using, but exist on OTN, then you can choose to manually download them from OTN and upgrade your existing plug-ins, instead of having them automatically migrated by default. To do so, follow these steps:

1. Manually download the required plug-ins from the following location:

<http://www.oracle.com/technetwork/oem/extensions/index.html>

In addition, if you want to download any partner or customer plug-ins, then download from the following location:

<https://apex.oracle.com/pls/apex/f?p=53891:1>

2. Invoke the `ConfigureGC.sh` script with the following parameter, and pass the location where the additional plug-ins have been downloaded. Here, <ORACLE_HOME> is the Oracle home of the OMS you installed in [Section 5.3.1](#) (or the middleware home).

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh  
PLUGIN_LOCATION=<absolute_path_to_plugin_software_location>
```

Once the newer versions of the plug-ins are made available, this screen lists those plug-ins as plug-ins that will automatically be upgraded.

- If you see a message stating that you have unsupported plug-ins on the OMS or on some of the Management Agents, then follow the instructions outlined in the message to upgrade the plug-ins, and then retry upgrading the OMS.
-
-

5.3.3.5 Deploying Additional Plug-ins

On the Select Plug-ins screen, select the optional plug-ins you want to deploy in addition to the plug-ins that will automatically be upgraded while upgrading the OMS, and click **Next**.

Note: If you select a deprecated plug-in that is supported only in 13c Release 1 but not in any of the future releases, then you are prompted to evaluate your selection and decide whether or not you want to proceed with the deployment of such plug-ins.

Note: If you want to install any additional plug-ins that are not listed on this screen, then follow these steps:

1. Manually download the required plug-ins from the following location:

<http://www.oracle.com/technetwork/oem/extensions/index.html>

In addition, if you want to download any partner or customer plug-ins, then download from the following location:

<https://apex.oracle.com/pls/apex/f?p=53891:1>

2. Invoke the installer with the following parameter, and pass the location where the plug-ins have been downloaded. Here, <ORACLE_HOME> is the Oracle home of the OMS you installed in [Section 5.3.1](#).

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh PLUGIN_
LOCATION=<absolute_path_to_plugin_software_location>
```

5.3.3.6 Extending the Existing WebLogic Server Domain

On the Extend WebLogic Server Domain screen, do the following to create a new WebLogic domain and a new OMS instance base directory for the upgraded OMS, and click **Next**.

- Validate the AdminServer host name and its port, and the WebLogic user name, and enter the WebLogic user account password. This is required to create a new WebLogic domain (GCDomain) on the same port and host name as the AdminServer used by the earlier release of the OMS you are upgrading.

Note: If you are upgrading an additional OMS, then enter the host name and port of the AdminServer configured for the first OMS that you have already upgraded, and then, enter the credentials for the existing WebLogic Server user account.

The host name is the name of the host where the first OMS is running. To identify the port, check the value set to the parameter AS_HTTPS_PORT in the following file:

```
<ORACLE_HOME>/gc_inst/em/EMGC_OMS<n>/emgc.properties
```

- Enter the absolute path to the new OMS instance base directory (`gc_inst`), which will be created for storing the configuration information related to the upgraded OMS. This `gc_inst` directory must *not* be your old `gc_inst` directory of 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3), so enter a new directory location. If you enter the old `gc_inst` directory, then the installer will display a warning that the directory is not empty.

For example, `/u01/software/em13c/oraclehome`

Make sure the path you enter leads up to the instance base directory, and is maintained outside the middleware home.

Note: If you are installing on an NFS-mounted drive and creating the OMS instance base directory (`gc_inst`) on that NFS-mounted drive, then after you install, move the lock files from the NFS-mounted drive to a local file system location. Modify the lock file location in the `httpd.conf` file to map to a location on a local file system. For instructions, refer to [Section 5.1.10.1](#).

Note: If you want to change the Oracle WebLogic Server password or the Node Manager password, see My Oracle Support note 1450798.1.

5.3.3.7 Configuring the Shared Locations for Oracle BI Publisher

On the Enterprise Manager Shared Location Details screen, do the following:

1. If you are upgrading an OMS that already has Oracle BI Publisher installed and configured in a shared location, then the fields for configuring Oracle BI Publisher are prefilled and grayed out. You can leave them as they are and proceed to the other sections of this screen.

However, if you are upgrading an OMS that does not already have Oracle BI Publisher installed, or if you are upgrading an OMS that has Oracle BI Publisher installed but not configured in a shared location, then do the following:

- (i) Identify a shared location that you can use for Oracle BI Publisher.

If you do not have an existing shared location, create a new one and ensure that it is visible on the host where you are installing the first OMS and also on other hosts where you plan to install additional OMS instances.

At install time, for the installation to be successful, you can reserve approximately 400 MB of hard disk space for the shared directory. However, Oracle recommends that you scale it to at least 10 GB eventually, and ensure that it can be extended further in the future because the space utilization increases over a period of time as you install additional plug-ins and create more reports.

Caution: If you already have a shared location that you were using for the Software Library or for staging gold images in the previous release of Enterprise Manager, then you can choose to use the same location. However, ensure that the directories within the shared location are unique for Oracle BI Publisher, Software Library, and staged gold images. For example, if you already are using the shared location `/u01/software/examplehost/shrd/` where the Software Library is configured in `/u01/software/examplehost/shrd/SW`, then you can use the same location, but make sure the directory within this shared location for Oracle BI Publisher is `/u01/software/examplehost/shrd/BIP`.

- (ii) On this screen, select **Configure a Shared Location for Oracle BI Publisher**. Enter the following directory paths. Ensure that the user account that you are using to install the first OMS has read and write permission on these paths.

Note: When you invoke the installer on Microsoft Windows, the Enterprise Manager Shared Location Details screen does not show the Config Volume and Cluster Volume options. This is an expected behavior.

For **Config Volume**, enter the path leading up to the `/config` directory on the shared storage location where Oracle BI Publisher repository and configuration files can be stored. For example, `/u01/software/examplehost/shrd/BIP/config`

For **Cluster Volume**, enter the path leading up to the `/cluster` directory on the shared storage location where Oracle BI Publisher scheduler storage can be maintained for Oracle BI Publisher to operate in a high-availability environment. For example, `/u01/software/examplehost/shrd/BIP/cluster`

WARNING: Do not delete these directories after the installation. The directories are required for proper functioning of Oracle BI Publisher, and therefore are required during the installation and also after the installation.

2. Enable or disable the installed and configured Oracle BI Publisher. Enabling Oracle BI Publisher starts the software and keeps it ready for use within the Enterprise Manager system. Disabling Oracle BI Publisher leaves the software as it is without starting it.

To enable Oracle BI Publisher, select **Enable Oracle BI Publisher**.

Note: If you choose to disable Oracle BI Publisher during the installation, then you can enable it after the installation by running the following EM CTL command from the Oracle home of the upgraded OMS.

```
$<ORACLE_HOME>/bin/emctl config oms -enable_bip
```

For example,

```
/u01/software/em13c/oraclehome/bin/emctl config oms -enable_bip
```

The command only enables Oracle BI Publisher, but does not start it. To start it, run the following command from the Oracle home of the upgraded OMS.

```
$<ORACLE_HOME>/bin/emctl start oms -bip_only
```

```
/u01/software/em13c/oraclehome/bin/emctl start oms -bip_only
```

5.3.3.8 Configuring the Ports

On the Port Configuration Details screen, customize the ports to be used for the new components being added for this release. The ports for most components are automatically carried over from the previous release, and therefore, this screen lists only the ports for the new components being added for this release.

Note: If all the ports on this screen appear as -1, then it indicates that the installer is unable to bind the ports on the host. To resolve this issue, exit the installer, verify the host name and the IP configuration of this host (ensure that the IP address of the host is not being used by another host), restart the installer, and try again.

You can enter a free custom port that is either within or outside the port range recommended by Oracle.

To verify if a port is free, run the following command:

- On Unix:

```
netstat -an | grep <port no>
```

- On Microsoft Windows:

```
netstat -an|findstr <port_no>
```

However, the custom port must be greater than 1024 and lesser than 65535. Alternatively, if you already have the ports predefined in a `staticports.ini` file and if you want to use those ports, then click **Import staticports.ini file** and select the file.

Note: If the `staticports.ini` file is passed during installation, then by default, the ports defined in the `staticports.ini` file are displayed. Otherwise, the first available port from the recommended range is displayed.

The `staticports.ini` file is available in the following location:

```
<Software_Extracted_Location>/response
```

5.3.3.9 Reviewing the Upgrade Details

On the Review screen, review the details you provided for the selected installation type.

- If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.
- After you verify the details, if you are satisfied, click **Configure** to begin the installation process.

5.3.3.10 Monitoring the Upgrade Progress

On the Install Progress screen, view the overall progress (in percentage) of the installation.

Note:

- If a Configuration Assistant fails, the installer stops and none of the subsequent Configuration Assistants are run until the issue related to the failed Configuration Assistant is resolved. In this case, diagnose the issue, resolve it, and then, click **Retry** on the Install Progress screen to rerun the Configuration Assistants starting from the Configuration Assistant that failed.

However, if you accidentally exit the installer before clicking **Retry**, then do NOT restart the installer to reach the same screen; instead, invoke the `runConfig.sh` script from the Oracle home of the OMS to rerun the Configuration Assistant in silent mode. If the `runConfig.sh` script fails, raise a service request and contact Oracle Support.

```
$<ORACLE_HOME>/oui/bin/runConfig.sh ORACLE_
HOME=<absolute_path_to_Middleware_home> MODE=perform
ACTION=configure COMPONENT_XML={encap_oms.1_0_0_0_0.xml}
```

For example,

```
/u01/software/em13c/oraclehome/oui/bin/runConfig.sh
ORACLE_HOME=/u01/software/em13c/oraclehome MODE=perform
ACTION=configure COMPONENT_XML={encap_oms.1_0_0_0_0.xml}
```

If the `runConfig.sh` script fails, raise a service request and contact Oracle Support.

- If the Management Repository upgrade fails with the following error in the schemamanager logs, then restart the database, and then try the upgrade again.

```
ORA-04020: deadlock detected while trying to lock object
SYSMAN.MGMT_GLOBAL
```

5.3.3.11 Ending the Upgrade

On the Finish screen, you should see information pertaining to the installation of Enterprise Manager. Review the information and click **Close** to exit the installation wizard.

5.3.3.12 Upgrading the Additional OMS Instances

If you have additional OMS instances, then start upgrading each of them sequentially by following steps outlined in this section ([Section 5.3.3](#)).

5.3.3.13 Upgrading the Management Agents

After upgrading all the OMS instances, upgrade the Management Agents, including the one that was installed with the first, old OMS (that is, central agent). For more information, refer to [Chapter 6](#).

Note:

- Oracle recommends that you upgrade your central agent immediately after upgrading your OMS instances. However, for some reason if you are unable to upgrade your central agent immediately after upgrading the OMS instances, then ensure that you apply the JDK 1.6u95 patch on your central agent. Otherwise, the targets of the GC WLS domain will not be monitored in the Enterprise Manager Cloud Control Console. This issue will not occur once the central agent is upgraded.
 - After upgrading the central agent, if you find the agent base directory of the upgraded central agent in the old Oracle Middleware home, and if you want to move it outside that old Oracle Middleware home, then follow the instructions outlined in [Appendix C](#).
-

5.4 Upgrading the OMS and the Management Repository to 13c Release 1 Using the Software-Only Method in Silent Mode

This section explains how you can upgrade your OMS and Management Repository of 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3) to 13c Release 1 using the software-only method in silent mode.

Using the software-only method, you essentially install the software binaries of Enterprise Manager Cloud Control 13c Release 1 at one point, and upgrade the earlier release of Enterprise Manager to the newly installed 13c Release 1 software binaries at a later point.

This upgrade approach is best suited for multi-OMS environments, as it minimizes the downtime of the OMS instances. This approach consists of three parts, mainly copying the software binaries, running the `root.sh` script, and configuring the software binaries. You can copy the software binaries on all the OMS hosts *in parallel* without shutting down the OMS instances. This not only saves time but also enables the earlier release of the OMS instances to remain up and running at this point. Once the software binaries are copied, you can shut down all the OMS instances, and configure the software binaries to upgrade the OMS instances, one after the other. Therefore, the downtime begins only when you start configuring the OMS instances, and not while copying the software binaries to the host.

In particular, this section covers the following:

- [Installing the Enterprise Manager Cloud Control 13c Release 1 Software Binaries in Silent Mode](#)
- [Running the allroot.sh Script](#)
- [Configuring the Enterprise Manager Cloud Control 13c Release 1 Software Binaries in Silent Mode](#)

Note: If you see an error message stating that you have not copied the emkey, do the following:

- If your OMS is configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -repos_conndesc '(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<>)(PORT=<>))) (CONNECT_DATA=(SERVICE_NAME=<>)))' -repos_user <> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/sysman/config/emkey.ora
```

- If your OMS is not configured with a service name, then run the following command on the OMS you are about to upgrade. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
<ORACLE_HOME>/bin/emctl config emkey -copy_to_repos_from_file -repos_host <host> -repos_port <port> -repos_sid <sid> -repos_user <username> [-repos_pwd <pwd> ] [-admin_pwd <pwd>] -emkey_file <oracle_home>/sysman/config/emkey.ora
```

Here, the Management Repository details are details of the existing or old Management Repository. You will be prompted for the administration server password and the repository password if you do not explicitly specify them in the command line.

Note: If you are upgrading a multi-OMS environment, always start the upgrade process with the first OMS, where the Admin Server is running, and not with any of the additional OMS instances.

To identify the OMS where the Admin Server is running, run the following command on the OMS you are about to upgrade, and verify if the output displays the Admin Server details. Here, <ORACLE_HOME> is the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emctl status oms -details
```

You should see a similar output:

```
Oracle Enterprise Manager Cloud Control 13c
Copyright (c) 1996, 2012 Oracle Corporation. All rights reserved
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : myhost.example.com
.
.
.
WLS Domain Information
Domain Name : GCDomain
Admin Server Host: myhost.example.com
.
.
.
```

5.4.1 Installing the Enterprise Manager Cloud Control 13c Release 1 Software Binaries in Silent Mode

To install the software binaries of Enterprise Manager Cloud Control 13c, follow these steps:

- [Step 1: Generating the Response File for Software-Only Installation in Silent Mode](#)
- [Step 2: Editing the Response File for Software-Only Installation in Silent Mode](#)
- [Step 3: Installing the Software Binaries in Silent Mode](#)
- [Step 4: Deinstalling the Management Agent and Deleting the Agent Base Directory](#)
- [Step 5: Copying the Software Binaries to the Additional OMS Hosts in Silent Mode](#)

5.4.1.1 Generating the Response File for Software-Only Installation in Silent Mode

Invoke the installer and generate the response file you need to use for performing a silent software-only installation:

```
./em13100_<platform>.bin -getResponseFileTemplates -outputLoc <absolute_path_to_a_directory_to_store_the_generated_response_file>
```

Note: The command generates three response files. You must use only the `software_only.rsp` file for this silent software-only installation.

5.4.1.2 Editing the Response File for Software-Only Installation in Silent Mode

Edit the `software_only.rsp` file and enter appropriate values for the parameters described in [Table 5-2](#).

Table 5-2 *Editing the software_only.rsp Response File for Software-Only Installation in Silent Mode*

Parameter	Data Type	Double Quotes Required for Values?	Description
UNIX_GROUP_NAME	String	Yes	<i>(Required only when central inventory does not exist)</i> Enter the name of the UNIX group you belong to. For example, "dba".
INVENTORY_LOCATION	String	Yes	<i>(Required only when central inventory does not exist and if the OMS you are upgrading was installed using the invPtrLoc argument)</i> Enter the absolute path to the Central Inventory. For example, "/scratch/oracle/oraInventory".

Table 5–2 (Cont.) Editing the software_only.rsp Response File for Software-Only Installation in in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
SECURITY_UPDATES_VIA_MYORACLESUPPORT	Boolean	Yes	<ul style="list-style-type: none"> Enter <code>TRUE</code> if you want to download and install security updates. Then, enter the credentials for the following parameters in double quotes: <code>MYORACLESUPPORT_USERNAME</code> <code>MYORACLESUPPORT_PASSWORD</code> Enter <code>FALSE</code> if you do not want to download and install security updates:
DECLINE_SECURITY_UPDATES	Boolean	No	<ul style="list-style-type: none"> Enter <code>TRUE</code> if you want to decline the security updates. In this case, you should have entered <code>FALSE</code> for <code>SECURITY_UPDATES_VIA_MYORACLESUPPORT</code>. Enter <code>FALSE</code> if you do not want to decline the security updates. In this case, you should have entered <code>TRUE</code> for <code>SECURITY_UPDATES_VIA_MYORACLESUPPORT</code>.
INSTALL_UPDATES_SELECTION	String	Yes	<p>By default, this parameter is set to "skip" indicating that the software updates will not be installed during installation.</p> <ul style="list-style-type: none"> If you want to install the software updates from My Oracle Support, then set this parameter to "download". Then, enter the credentials for the following parameters in double quotes: <code>MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES</code> <code>MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES</code> If you want to install the software updates from a staged location, then set this parameter to "staged". Then, for the <code>STAGE_LOCATION</code> parameter, enter the absolute path, which leads to the Updates directory where the software updates are available, in double quotes. For this option, as a prerequisite, you must have already downloaded the software updates. For instructions, see <i>Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide</i>.

Table 5–2 (Cont.) Editing the software_only.rsp Response File for Software-Only Installation in in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
ORACLE_MIDDLEWARE_HOME_LOCATION	String	Yes	<p>Upgrade to 13c Release 1 is an out-of-place upgrade, therefore enter a new middleware home where the installer can automatically install Oracle WebLogic Server 12c Release 1 (12.1.3.0) and JDK 1.7.0_80.</p> <p>Ensure that the middleware location has <i>write</i> permission to create the Oracle homes for OMS and Management Agent.</p> <p>For example, /u01/software/em13c/oraclehome</p> <p>Note: Ensure that the Middleware home you enter here is used only for Enterprise Manager Cloud Control. Ensure that no other Oracle Fusion Middleware products or components are installed in the same Middleware home.</p>
AGENT_BASE_DIR	String	Yes	<p>Enter the absolute path to the agent base directory, a location outside the Oracle Middleware home where the Management Agent can be installed. You will eventually remove this Management Agent from the host because you will upgrade the earlier release’s Management Agent using the Agent Upgrade Console. However, for the software binaries to be successfully copied, you need to have this parameter and specify a valid location so that the Management Agent binaries can be copied, thereby allowing the installation to go through successfully.</p> <p>For example, /u01/software/em13c/agentbasedir</p> <p>Ensure that this location is empty and has write permission. Also ensure that it is always maintained outside the Oracle Middleware home.</p> <p>Note: (Only for Microsoft Windows) Ensure that the number of characters in the agent base directory path does not exceed 25 characters. For example, the agent base directory path C:\Oracle\Agent\ containing only 16 characters is acceptable. However, C:\Oracle\ManagementAgent\13c\new containing more than 25 characters is not acceptable.</p>

Table 5–2 (Cont.) Editing the software_only.rsp Response File for Software-Only Installation in in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
ORACLE_HOSTNAME	String	Yes	<p>Enter a fully qualified domain name that is registered in the DNS and is accessible from other network hosts, or enter an alias host name that is defined in the <code>/etc/hosts</code> file on all the OMS instances at this site.</p> <p>The host name must resolve to the local host because the host name is used for the local Oracle WebLogic Server as well as the Oracle Management Service. Do not provide a remote host or a load balancer virtual host in this field. Do not enter an IP address. Do not use underscores in the name. Short names are allowed, but you will see a warning, so Oracle recommends that you enter a fully qualified domain name instead.</p> <p>If you do not mention the host name, the installation wizard will proceed further, honoring the host name it automatically detects for that host.</p>

5.4.1.3 Installing the Software Binaries in Silent Mode

To copy the software binaries in silent mode, invoke the installer in the following way:

```
./em13100_<platform>.bin -silent -responseFile <absolute_path_to_the_directory_where_the_generated_and_updated_response_file_is_stored>/software_only.rsp [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Note:

- To invoke the installation wizard on UNIX platforms, run `./em13100_<platform>.bin`. To invoke on Microsoft Windows platforms, run `setup_em_win64.exe`.
- For information about the additional, advanced options you can pass while invoking the installer, refer to [Section 5.2.3.1](#).
- The installer requires about 10 GB of hard disk space in the temporary directory. If your temporary directory does not have this space, then pass the `-J-Djava.io.tmpdir` parameter and provide an alternative directory where there is 10 GB of space.

The directory specified by this parameter will also be used as the location for the Provisioning Advisor Framework (PAF) staging directory, which is used for copying the Software Library entities related to the deployment procedures. The PAF staging directory is used only for provisioning activities — entities are copied for a deployment procedure, and then, deleted once the deployment procedure ends.

For example,

```
./em13100_linux64.bin  
-J-Djava.io.tmpdir=/u01/software/em13c/stage/
```

- While installing on IBM AIX, if you see an error message stating that your JDK version in the middleware home is not of a supported version, then make sure you install the supported version mentioned in the message, and then invoke the installer passing the `-skipJDKValidation` argument.

For example,

```
./em13100_<platform>.bin -skipJDKValidation
```

5.4.1.4 Deinstalling the Management Agent and Deleting the Agent Base Directory

Deinstall the Management Agent and delete the agent base directory you created. For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

The Management Agent you installed and the agent base directory you created is essentially for a fresh installation, and is not used while upgrading Management Agents using the Agent Upgrade Console.

5.4.1.5 Copying the Software Binaries to the Additional OMS Hosts in Silent Mode

If you have additional OMS instances, then copy the software binaries on those additional OMS hosts as well by following steps outlined in [Section 5.4.1](#).

5.4.2 Running the `allroot.sh` Script

(For UNIX Only) After you install the software binaries, log in as a `root` user in a new terminal and run the `allroot.sh` script from the Oracle home of the OMS you installed in [Section 5.4.1](#).

```
$(ORACLE_HOME)/allroot.sh
```

For example,

```
/u01/software/em13c/oraclehome/allroot.sh
```

If you have additional OMS instances, then run this script on those additional OMS hosts as well.

Note: If you do not have the permission to run this script at this point, you can always run it after configuring the software binaries, but make sure you run it before you start upgrading the Management Agents.

5.4.3 Configuring the Enterprise Manager Cloud Control 13c Release 1 Software Binaries in Silent Mode

To configure the software binaries of Enterprise Manager Cloud Control, follow these steps:

- [Step 1: Editing the Response File for Configuring the Software Binaries in Silent Mode](#)
- [Step 2: Configuring the Software Binaries in Silent Mode](#)
- [Step 3: Upgrading the Additional OMS Instances](#)
- [Step 4: Upgrading the Management Agents](#)

Note: If the Management Repository upgrade fails with the following error in the schemamanager logs, then restart the database, and then try the upgrade again.

```
ORA-04020: deadlock detected while trying to lock object
SYSMAN.MGMT_GLOBAL
```

5.4.3.1 Editing the Response File for Configuring the Software Binaries in Silent Mode

Access the `upgrade.rsp` file that you generated in [Section 5.4.1.1](#) while generating the `software_only.rsp` file. Edit the `upgrade.rsp` file and enter appropriate values for the parameters described in [Appendix A](#).

Note: If you have any plug-ins that are obsolete and are not supported in 13c Release 1, then you must first remove those plug-ins from the previous release. You can proceed with the upgrade only after removing those obsolete plug-ins.

To remove the obsolete plug-ins, follow these steps:

1. First, undeploy the obsolete plug-ins from the Management Agents. Next, undeploy them from the OMS instances. For instructions, see the chapter on managing plug-ins in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
 2. Finally, remove the binaries of these obsolete plug-ins from the Self Update Console. For instructions, see the chapter on updating cloud control in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
-

5.4.3.2 Configuring the Software Binaries in Silent Mode

Configure the software binaries by invoking the `ConfigureGC.sh` script from the Oracle home of the OMS you installed in [Section 5.4.1.3](#), and passing the response file you edited in the previous step.

```
$<ORACLE_HOME>/sysman/install/ConfigureGC.sh -silent -responseFile  
<absolute_path_to_the_directory_where_the_generated_and_updated_response_  
file_is_stored>/upgrade.rsp [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Note:

- While installing the software binaries as described in [Section 5.4.1.3](#), if you had passed the argument `-invPtrLoc`, then pass the same argument here as well.
 - For information about the additional, advanced options you can pass while invoking the script, refer to [Section 5.3.3.1.1](#).
 - If a prerequisite check fails reporting a missing package, then make sure you install the required package, and retry the installation. The installer validates the package name as well as the version, so make sure you install the packages of the minimum versions mentioned in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*. To understand the logic the installer uses to verify these packages, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.
-
-

Note: If you see an error about missing plug-ins, then do the following:

1. Make a note of the plug-in version and plug-in update as shown in the missing plug-ins error message. The plug-ins displayed in the error message have the following format:
`PluginID:PluginVersion:PluginUpdate`
2. Manually download the required plug-ins from the following location:
<http://www.oracle.com/technetwork/oem/extensions/index.html>

In addition, if you want to download any partner or customer plug-ins, then download from the following location:

<https://apex.oracle.com/pls/apex/f?p=53891:1>

3. Invoke the `ConfigureGC.sh` script with the following parameter, and pass the location where the additional plug-ins have been downloaded. Here, `<ORACLE_HOME>` is the Oracle home of the OMS you installed in [Section 5.4.1](#):

```
<ORACLE_HOME>/sysman/install/ConfigureGC.sh PLUGIN_  
LOCATION=<absolute_path_to_plugin_sw>
```

Proceed to the next step only after you have installed these missing plug-ins.

5.4.3.3 Upgrading the Additional OMS Instances

If you have additional OMS instances, then start upgrading each of them sequentially by following steps outlined in [Section 5.4.3.1](#) and [Section 5.4.3.2](#).

5.4.3.4 Upgrading the Management Agents

After upgrading all the OMS instances, upgrade the Management Agents, including the one that was installed with the first, old OMS (that is, central agent). For more information, refer to [Chapter 6](#).

Note:

- Oracle recommends that you upgrade your central agent immediately after upgrading your OMS instances. However, for some reason if you are unable to upgrade your central agent immediately after upgrading the OMS instances, then ensure that you apply the JDK 1.6u95 patch on your central agent. Otherwise, the targets of the GC WLS domain will not be monitored in the Enterprise Manager Cloud Control Console. This issue will not occur once the central agent is upgraded.
 - After upgrading the central agent, if you find the agent base directory of the upgraded central agent in the old Oracle Middleware home, and if you want to move it outside that old Oracle Middleware home, then follow the instructions outlined in [Appendix C](#).
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-

Upgrading Oracle Management Agents

This chapter describes how you can upgrade your central agent and one of your standalone Management Agents to 13c using the Agent Upgrade Console or EM CLI, and how you can create an Agent Gold Image and upgrade all your other standalone Management Agents using that gold image. In particular, this chapter covers the following:

- [Overview of Upgrading Management Agents Using Agent Gold Images](#)
- [Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)
- [Creating an Agent Gold Image](#)
- [Creating an Agent Gold Image Version](#)
- [Setting a Particular Agent Gold Image Version as the Current Version](#)
- [Subscribing Management Agents to an Agent Gold Image](#)
- [Updating Standalone Management Agents Using an Agent Gold Image Version](#)
- [Upgrading Hybrid Cloud Gateway Agents and Hybrid Cloud Agents](#)

WARNING: You cannot directly subscribe a Shared Agent (NFS Agent) to an Agent Gold Image. To subscribe to an Agent Gold Image, you must first convert the Shared Agent to a standalone Management Agent, and then subscribe to an Agent Gold Image.

Note: Do not discover any Oracle ZFS Storage Appliance target in 13c environment.

6.1 Overview of Upgrading Management Agents Using Agent Gold Images

Starting with 13c Release 1, Enterprise Manager Cloud Control offers *Agent Gold Images*, in addition to the Agent Upgrade Console and EM CLI, to upgrade your Management Agents. Oracle recommends that you use Agent Gold Images to upgrade all your Management Agents, although you can use other upgrade approaches.

To understand what an Agent Gold Image is, what it contains, and how you benefit by using it to upgrade your Management Agents, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

Oracle recommends that you use Agent Gold Images to upgrade all your Management Agents, although you can use other upgrade approaches. However, to update your Management Agents using a gold image, you need a gold image that is based on a 13c standalone Management Agent. You cannot create a gold image using a 13c central agent.

Therefore, if you are upgrading your Enterprise Manager system from 12c, then after upgrading Oracle Management Service (OMS) to 13c, use the Agent Upgrade Console or EM CLI to upgrade your central agent and one of your standalone Management Agents to 13c. Then, create a gold image using the standalone Management Agent that is upgraded to 13c, and finally update all other standalone Management Agents using that gold image. Once you have updated some of your Management Agents to 13c using the gold image, you can use those updated Management Agents to create several other gold images.

The following is the agent base directory structure before and after the update operation:

Before Update

```
<agent_base_directory>
|___agentimage.properties
|___agentInstall.rsp
|___plugins
|___core
|___12.1.0.5.0
|___agent_inst
```

After Update

```
<agent_base_directory>
|___agentimage.properties
|___agentInstall.rsp
|___core
|___agent_inst
|___GoldImage_<Image Version Name>
|___13.1.0.0.0
```

6.2 Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI

This section describes how you can upgrade standalone Management Agents to 13c Release 1 or higher using the Agent Upgrade Console or EM CLI. In particular, this section covers the following:

- [Overview of Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)
- [Before You Begin Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)
- [Prerequisites for Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)
- [Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console](#)
- [Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using EM CLI](#)

- [After Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI](#)
- [Troubleshooting 13c Management Agent Upgrade](#)

6.2.1 Overview of Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI

The Agent Upgrade Console acts as a single-window solution to mass-upgrade your existing Management Agents to the latest version for which the software is available in Oracle Software Library (Software Library). When you upgrade a Management Agent using the Agent Upgrade Console, the structure of the installation base directory is modified suitably. The following is an example of the installation base directory structure of a 12c Release 5 (12.1.0.5) Management Agent, when it is upgraded to 13c Release 1:

Before Upgrade

```
<agent_base_directory>
|___sbin
|___core
|___12.1.0.5.0
|___plugins
|___agent_inst
|___agentimage.properties
.
.
.
```

After Upgrade

```
<agent_base_directory>
|___sbin
|___backup_agtup
|___agent_13.1.0.0.0
|___core
|___12.1.0.5.0
|___plugins
|___agent_inst
|___agentimage.properties
.
.
.
```

Note:

- When you upgrade a Management Agent, you cannot change the location of the agent base directory.
 - When you upgrade a Management Agent, the plug-ins installed on the Management Agent host are also upgraded by default, as long as the latest versions of these plug-ins exist in Oracle Software Library (Software Library). If the latest versions of these plug-ins do not exist in the Software Library, their old versions are retained.
 - *(For Microsoft Windows hosts)* If you upgrade a 13.1.0.x Management Agent and you want to install another Management Agent on the same host, which points to a different OMS, ensure that you specify the `s_agentSrvcName` parameter while installing the Management Agent, as described in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.
-

6.2.2 Before You Begin Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI

Before you upgrade your Oracle Management Agents to 13c Release 1 or higher, keep the following points in mind:

- You must upgrade the central agent installed along with the old Oracle Management Service (OMS).

Management Agents, including the central agent installed on the OMS host, are not upgraded automatically while you upgrade your OMS to 13c Release 1. Ensure that you upgrade the central agent installed on the OMS host immediately after upgrading the old OMS to 13c Release 1.

Oracle recommends that you upgrade your central agent immediately after upgrading your OMS instances. However, for some reason if you are unable to upgrade your central agent immediately after upgrading the OMS instances, then ensure that you apply the JDK 1.6u95 patch on your central agent. Otherwise, the targets of the GC WLS domain will not be monitored in the Enterprise Manager Cloud Control Console. This issue will not occur once the central agent is upgraded.

- You can use the Agent Upgrade Console or EM CLI to upgrade the central agent of only 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5).
- You can upgrade a Management Agent using the Agent Upgrade Console or EM CLI even when you do not have preferred privileged credentials or non-privileged credentials set, or are not aware of the Management Agent credentials. Privileged credentials are only required to run the `root.sh` script post-upgrade.

If you upgrade a Management Agent as a user who does not have `root` privileges, or you upgrade a Management Agent without having preferred privileged credentials, a warning appears. You can ignore this warning during the upgrade. Later, you can log in to the Management Agent host as the `root` user, and run the `$(AGENT_BASE_DIR)/agent_13.1.0.0.0/root.sh` script.

- In some cases, the deployed version of a plug-in may not be supported on the upgraded version of a Management Agent. In these cases, ensure that you either undeploy the plug-ins that are not supported on the upgraded version of the

Management Agent, or deploy versions of the plug-ins that are supported on the upgraded Management Agent.

For information on how to undeploy and deploy a plug-in, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

- In Enterprise Manager Cloud Control 13c Release 1, you can save the Management Agent one-off patches that you want to apply on a particular version of the Management Agent software, such that these patches are automatically applied on the software whenever a new Management Agent of the same version is deployed, or an old Management Agent is upgraded to that version.

For information on how to do this, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Also, you can apply one-off patches on a plug-in and create a custom patched plug-in, such that this custom patched plug-in is deployed on all the new Management Agents that you deploy, and all the old Management Agents that you upgrade.

For information on how to do this, see *Oracle Enterprise Manager Cloud Control Administration Guide*.

- Upgrading Management Agents does not require Cygwin, PsExec, or any SSH connectivity tools, as Enterprise Manager uses the existing Management Agent - OMS communication channels to perform the upgrade.
- You cannot specify a custom inventory location while upgrading Management Agents. The upgraded Management Agent uses the inventory location of the old Management Agent.
- If you select a Management Agent installed on a cluster, or a shared Management Agent for upgrade, the set of related Management Agents, that is, the other Management Agents of the cluster or the shared Oracle Home are selected for upgrade automatically.
- You cannot upgrade a Management Agent in the following scenarios:
 - The Management Agent is not up and running
 - The Management Agent is not secure
 - The Management Agent is not reachable
 - The new Management Agent software (of the same version as the OMS version) is not present in Oracle Software Library (Software Library)
 - The Management Agent Oracle home property is missing
 - The Management Agent is already undergoing an upgrade
 - The Management Agent is in blackout state
- Upgrading a lower release of Solaris by applying a kernel patch or a patch bundle is not equivalent to installing the actual Solaris 5.10 Update 9 image. Oracle Management Agent 13c Release 1 was built, tested, and certified on a minimum update version of Solaris 5.10 Update 9, so Oracle recommends that you install Oracle Management Agent only on Solaris 5.10 Update 9, and not on any release that was upgraded using patches.
- You may not be able to upgrade certain Management Agents using the Agent Upgrade Console or EM CLI. [Table 6-1](#) describes the reasons for this.

Table 6–1 Why Some Management Agents Cannot Be Upgraded

Reason	Description and Recommended Action
Latest Agent Software Missing	<p>The latest Management Agent software of the OMS version is not available in Oracle Software Library.</p> <p>To upgrade a Management Agent for which the latest Management Agent software is not available, you need to first download and apply the latest software using the Self Update console, then use the Upgrade Agents page.</p> <p>To access the Self Update Console, from the Setup menu, select Extensibility, then select Self Update. To download the latest Management Agent software, click Agent Software, select the required software, then click Download. For more information on using the Self Update console to download and apply the latest Management Agent software, see <i>Oracle Enterprise Manager Cloud Control Basic Installation Guide</i>.</p>
Agent Unsecured	<p>The Management Agent is not secure.</p> <p>To upgrade a Management Agent which is not secure, you need to first secure the Management Agent, then use the Upgrade Agents page.</p> <p>To secure the Management Agent, from the Setup menu, select Manage Cloud Control, then select Agents. Click the required Management Agent name. From the Agent menu, click Secure.</p> <p>You can also run the following command to secure the Management Agent:</p> <pre><EMSTATE>/bin/emctl secure agent</pre> <p><EMSTATE> refers to the Management Agent instance directory, that is, <AGENT_BASE_DIRECTORY>/agent_inst</p>
Oracle Home Property Missing	<p>The Oracle Home property for the Management Agent is missing.</p> <p>This property is required to obtain the platform of the Management Agent that you want to upgrade. For upgrading <i>Shared Agents</i>, this property plays a key role in maintaining the relationship between the <i>Shared Agent</i> and the <i>Master Agent</i>. It is also required for certain essential Management Agent lifecycle operations, such as patching.</p> <p>To upgrade a Management Agent for which the Oracle Home property is missing, first run the OMS collections on the Management Agent. To do so, do one of the following:</p> <ul style="list-style-type: none"> <li> <p>■ Run the following command from the Management Agent host:</p> <pre><EMSTATE>/bin/emctl control agent runCollection <TARGET_NAME>:oracle_home oracle_home_config</pre> <p><EMSTATE> refers to the Management Agent instance directory, that is, <AGENT_BASE_DIRECTORY>/agent_inst</p> <p><TARGET_NAME> refers to the Management Agent home listed as oracle_home in the <EMSTATE>/sysman/emd/targets.xml file. You can also verify using the emctl config agent listtargets command.</p> <li> <p>■ Navigate to the Management Agent Home page in the Enterprise Manager Cloud Control Console. On the Home page of the Management Agent, in the Summary section, in the Configuration subsection, click Oracle Home and Patch Details. On the Oracle Home page, click Refresh Configuration.</p>

Table 6–1 (Cont.) Why Some Management Agents Cannot Be Upgraded

Reason	Description and Recommended Action
Agent Unreachable	<p>The Management Agent is not reachable, that is, the Oracle Management Service (OMS) cannot communicate with the Management Agent.</p> <p>A Management Agent is generally unreachable when it is down, when it is blocked by the OMS, or when the Management Agent host is down. A Management Agent may also be unreachable due to network problems or certain other issues.</p> <p>To upgrade a Management Agent that is unreachable, you need to first restore communication between the OMS and the Management Agent. To restore communication between the OMS and the Management Agent, from the Setup menu, select Manage Cloud Control, then select Agents. Click the required Management Agent name to navigate to the Management Agent home page. Click the displayed error icon, and perform the recommended actions.</p>
Agent Pending Activation	<p>The Management Agent version is not 12c Release 2 (12.1.0.2) or later.</p> <p>You cannot upgrade 10g, 11g, or 12c Release 1 (12.1.0.1) Management Agents using the Upgrade Agents page. Deinstall these Management Agents and install fresh Management Agents on the hosts.</p> <p>For information on deinstalling Management Agents, refer to <i>Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide</i>. For information on installing fresh Management Agents, refer to <i>Oracle Enterprise Manager Cloud Control Basic Installation Guide</i>.</p>

You can use the Not Upgradable Agents page to search for and view a set of Management Agents that currently cannot be upgraded. To search for and view these Management Agents, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Upgrade Agents**.
2. Click **Not Upgradable Agents**.
3. Enter or select values for parameters you want to use to search for Management Agents. You can search for Management Agents using the Management Agent name, version, platform, and the reason why the Management Agent cannot be upgraded.
4. For **Match**, select **All** or **Any** to search for results that match all the search parameters, or any of the search parameters, respectively.
5. Click **Search**.

6.2.3 Prerequisites for Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI

Before you upgrade your Management Agents to 13c Release 1 or higher, meet the following prerequisites:

- If you want to upgrade a Management Agent running on a platform different from the OMS host platform, ensure that the latest Management Agent software for the platform is downloaded and applied in Software Library, using Self Update.

To access Self Update, from the **Setup** menu, select **Extensibility**, then select **Self Update**. To check whether the latest Management Agent software for a platform is downloaded and applied, click **Agent Software**, then check the **Version** and the **Status** columns for the required platform. The software version for the platform must be the same as the OMS version. The status must read **Applied**.

If the latest software is not downloaded and applied, select the software, then click **Download** to download it. After downloading the software, click **Apply** to apply the software. If the software has been downloaded, but not applied, click **Apply** to apply the software.

For more information on using Self Update to download and apply the latest Management Agent software for a platform, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

- Ensure that the Management Agents you want to upgrade are up and running.

To verify if a Management Agent is up and running, from the **Setup** menu, select **Manage Cloud Control**, then select **Agents**. Check the **Status** column of the required Management Agent.

If the Management Agent is unreachable, click the Management Agent name to navigate to the Management Agent home page. Click the Agent Unreachable icon, and perform the recommended actions.

- Ensure that the Management Agents you want to upgrade are secure.

To verify if a Management Agent is secure, from the **Setup** menu, select **Manage Cloud Control**, then select **Agents**. Check the **Secure Upload** column of the required Management Agent.

If the Management Agent is not secure, from the **Agent** menu, select **Secure** to secure it.

Also, you can run the following command to verify if a Management Agent is secure:

```
<EMSTATE>/bin/emctl status agent
```

<EMSTATE> refers to the Management Agent instance directory, that is, <AGENT_BASE_DIRECTORY>/agent_inst

If the Management Agent is secure, the Management Agent URL displayed is a HTTPS URL. However, if the Management Agent URL displayed is a HTTP URL, secure the Management Agent by running the following command:

```
<EMSTATE>/bin/emctl secure agent
```

- Ensure that Oracle home collections are run on all the Management Agents that you want to upgrade.

If Oracle home collections are not run on some Management Agents, they are not upgradable. These Management Agents are displayed on the Not Upgradable Agents page, with the reason displayed as *Oracle Home Property Missing*. For information on how to access this page, see [Table 6-1](#).

To run Oracle home collections for all the Management Agent that you want to upgrade, run the following command from the Management Agent host:

```
<EMSTATE>/bin/emctl control agent runCollection <TARGET_NAME>:oracle_home oracle_home_config
```

<EMSTATE> refers to the Management Agent instance directory, that is, <AGENT_BASE_DIRECTORY>/agent_inst

<TARGET_NAME> refers to the Management Agent home listed as `oracle_home` in the <EMSTATE>/sysman/emd/targets.xml file. You can also verify using the `emctl config agent listtargets` command.

- Ensure that the old Management Agent does not come up during the Management Agent upgrade process.

You may have scheduled certain cron jobs, or configured certain notification managers that start up a Management Agent when it is down. The old Management Agent is shut down as part of the upgrade process. Ensure that this Management Agent is not brought up.

- Ensure that the install user has read permissions on all the files present in Oracle Inventory, and write permissions on the Oracle Inventory directory.

To grant read permissions on all the files present in Oracle Inventory, run the following command as the install user:

```
chmod -R +r $<INVENTORY_LOCATION>
```

To grant write permissions on the Oracle Inventory directory, run the following command as the install user:

```
chmod +rw $<INVENTORY_LOCATION>
```

- Ensure that you meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

6.2.4 Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console

To upgrade your Management Agents to 13c Release 1 or higher using the Agent Upgrade Console, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Upgrade Agents**.
2. For **Job Name**, accept the default job name, or enter a unique job name.

A unique job name enables you to identify the upgrade job, know details of its execution, and track its progress on the Agent Upgrade Status page.

The job name can have a maximum length of 64 characters. It can consist of alphanumeric and special characters, and can begin with either of these.

3. Click **Add** to select the Management Agents you want to upgrade.

In the Upgradable Agents window, search for the Management Agents you want to upgrade, using the **Agent**, **Installed Version**, **Platform**, and **Group** fields.

Select the Management Agents you want to upgrade. Click **OK**.

Important:

- In this release, you can only upgrade your 12c Management Agents to 13c Release 1, and not to any other version.
 - If you select a Management Agent that is part of a particular group for upgrade, the other Management Agents of the group are not selected for upgrade by default. If you want to upgrade the other Management Agents of the group, you must select them in the Upgradable Agents window.
-
-

4. (Optional) For **Pre-upgrade Script** and **Post-upgrade Script**, enter the absolute path of the script that you want to run before and after the upgrade, respectively.

For example, `/scratch/software/oracle/configure.sh`.

The scripts you want to run must be present at the location you specify, on the Oracle Management Service (OMS) host (on all the OMS hosts in case of a multi-OMS environment), or on all the Management Agent hosts selected for upgrade. They can reside in a shared, NFS-mounted location accessible by the Management Agent hosts selected for upgrade.

If the script you want to run is present only on the OMS host, and not on the Management Agent hosts selected for upgrade, then select **Script on OMS Host**.

Note:

- You can specify only one pre-upgrade script and one post-upgrade script per session.
 - Only shell scripts (`.sh`) and batch (`.bat`) scripts are supported. You should run only shell scripts while upgrading Management Agents installed on Unix platforms, and only batch scripts while upgrading Management Agents installed on Microsoft Windows platforms.
 - If you want to upgrade a Management Agent installed on a Unix platform and a Management Agent installed on a Microsoft Windows platform in the same session, ensure that you do not specify a pre-upgrade or a post-upgrade script. If you want to specify a pre-upgrade or a post-upgrade script for upgrading these Management Agents, upgrade the Management Agents installed on different platforms in different sessions.
-
-

5. (Optional) For **Additional Parameters**, enter the additional options you want to use for the upgrade.

For example, specify `-ignorePrereqs` to skip running the prerequisite checks and directly perform the Management Agent upgrade. If you want to specify multiple additional parameters, separate them using a space.

Refer to [Section 6.2.4.1](#) for a list of parameters you can specify.

6. For **Stage Location**, accept the default stage location, or enter a custom location. The stage location is used to store temporary Management Agent upgrade files.

For example, `/tmp/software/oracle/EMStage`.

Ensure that the Management Agent install user has write permissions on the custom location you enter. The custom location you enter can be a shared, NFS-mounted location.

If the stage location you specify and the agent base directory of the Management Agent you want to upgrade are present on the same disk, then ensure that the disk has at least 3 GB of free space. If they are present on different disks, ensure that the stage directory has at least 2.1 GB of free space, and the agent base directory has at least 750 MB of free space.

7. Click **Submit**.

Once you click **Submit**, a Management Agent upgrade job is created, which is sent to the Enterprise Manager job system. You are automatically taken to the Agent Upgrade Status page for the job, which displays the details of the job steps.

To view a summary of all the submitted Management Agent upgrade jobs, or search for and view a particular set of Management Agent upgrade jobs, use the Agent Upgrade Results page of the Agent Upgrade Console. To access this page, from the **Setup** menu, select **Manage Cloud Control**, then select **Upgrade Agents**. Click **Agent Upgrade Results**.

To revisit the Agent Upgrade Status page for a Management Agent upgrade job, click the name of the job on the Agent Upgrade Results page.

If you encounter an error during the Management Agent upgrade process, or if the Management Agent upgrade fails, refer to [Section 6.2.7](#).

8. If the `root.sh` step was skipped, or if this step failed, log in to the Management Agent host as the `root` user, navigate to `$(AGENT_BASE_DIR)/agent_13.1.0.0.0/` and run the `root.sh` script on the host manually.

After `root.sh` is run, you can clean up your old Management Agents, as described in [Section 6.2.6.3](#).

6.2.4.1 Additional Parameters for 13c Management Agent Upgrade

[Table 6–2](#) describes the additional parameters you can use while upgrading 13c Management Agents using Agent Upgrade Console, or EM CLI. You can enter more than one parameter, using a whitespace as a separator.

Table 6–2 List of Additional Parameters for 13c Management Agent Upgrade

Parameter	Description
<code>-ignorePrereqs</code>	Skips running the prerequisite checks. Specify this parameter when you have already verified the prerequisites, and only want to perform the rest of the upgrade process.
<code>-debug</code>	Logs debug messages useful for debugging and resolving errors.

6.2.5 Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using EM CLI

To upgrade your Management Agents to 13c Release 1 or higher using EM CLI, follow these steps:

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

```
$(ORACLE_HOME)/bin/emcli login -username=<user_name>
```

For example,

```
/u01/software/em13c/oraclehome/hin/emcli login -username=<user_name>
```

Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

```
$(ORACLE_HOME)/bin/emcli sync
```

For example,

```
/u01/software/em13c/oraclehome/bin/emcli sync
```

3. Run the `get_upgradable_agents` verb to obtain a list of the Management Agents that can be upgraded:

```
$<ORACLE_HOME>/bin/emcli get_upgradable_agents
    [-agents]
    [-platforms]
    [-versions]
    [-groups]
    [-output_file]
```

Note that the parameters mentioned in [] are optional.

For example,

```
/u01/software/em13c/oraclehome/bin/emcli get_upgradable_agents
-agents="abc%,xyz.domain.com:1243" -platforms="Linux x86,Microsoft
Windows x64 (64-bit)" -versions="13.1.0.0.0" -output_
file="/scratch/agents_file.txt"
```

Use the `-output_file` option to copy the list of upgradable Management Agents into a file. This file can be used later as an input parameter for the `upgrade_agents` verb.

To view more information on the syntax and the usage of the `get_upgradable_agents` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli/help get_upgradable_agents
```

4. Run the `upgrade_agents` verb to upgrade your Management Agents:

```
$<ORACLE_HOME>/bin/emcli upgrade_agents
    -agents | -input_file="agents_file:<absolute_location>" |
-input_file="response_file:<absolute_location>"
    [-validate_only]
    [-pre_script_loc]
    [-pre_script_on_oms]
    [-post_script_loc]
    [-post_script_on_oms]
    [-job_name]
    [-override_credential]
    [-additional_parameters]
    [-stage_location]
```

Note that the parameters mentioned in [] are optional.

Ensure that you specify all the Management Agents that you want to upgrade by using either `-agents`, or `-input_file="agents_file:<file_name>"`, or by specifying agents in a response file, and then using `-input_file="response_file:<absolute_location>"`.

For example,

```
/u01/software/em13c/oraclehome/bin/emcli upgrade_agents
-agents="abc%,xyz.domain.com:1243" -input_file="agents_
file:/scratch/agents_file.txt" -input_file="response_
file:/scratch/agent.rsp" -stage_location=/tmp
```

The parameters that you specify with the verb override the parameters that you specify in the response file.

To view more information on the syntax and the usage of the `upgrade_agents` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli help upgrade_agents
```

If you encounter an error during the Management Agent upgrade process, or if the Management Agent upgrade fails, refer to [Section 6.2.7](#).

5. To view the status of the submitted Management Agent upgrade jobs, run the `get_agent_upgrade_status` verb:

```
$<ORACLE_HOME>/bin/emcli get_agent_upgrade_status
    [-agent]
    [-job_name]
    [-status]
```

Note that the parameters mentioned in [] are optional.

For example,

```
/u01/software/em13c/oraclehome/bin/emcli get_agent_upgrade_status
-status="Running" will display all the Management Agent upgrade jobs that are
in progress.
```

You can view the detailed job step status of a particular Management Agent that was part of a particular upgrade job by using the `get_agent_upgrade_status` verb with the `-agent` and the `-job_name` options.

For example,

```
/u01/software/em13c/oraclehome/bin/emcli get_agent_upgrade_status
-agent=abc.example.com:1243 -job_name=UPGRADE_AGT_13603
```

If a particular Management Agent upgrade job failed, check the inputs and run the `upgrade_agents` verb again. If you want to specify a custom job name (using the `-job_name` parameter) while retrying the verb, ensure that you provide a unique job name, and not the name of the job that failed. For Management Agent upgrade troubleshooting tips, see [Section 6.2.7](#).

To view more information on the syntax and the usage of the `get_agent_upgrade_status` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli/help get_agent_upgrade_status
```

6. If the `root.sh` step was skipped, or if this step failed, log in to the Management Agent host as the `root` user, navigate to `$<AGENT_BASE_DIR>/agent_13.1.0.0.0/` and run the `root.sh` script on the host manually.

After `root.sh` is run, you can clean up your old Management Agents, as described in [Section 6.2.6.3](#).

Note: For more information on how to use the EM CLI verbs mentioned in this section, refer to *Oracle Enterprise Manager Command Line Interface*.

6.2.6 After Upgrading Central Agents or Standalone Management Agents to 13c Release 1 Using the Agent Upgrade Console or EM CLI

This section describes the various tasks you can perform after upgrading your Management Agents. It consists of the following:

- [Verifying Your 13c Management Agent Upgrade](#)

- [Moving Central Agent Base Directory Outside Oracle Middleware Home \(After Upgrading 13c Central Agent\)](#)
- [Performing Postupgrade Cleanup of Old Management Agents](#)
- [Viewing 13c Management Agent Upgrade Cleanup Jobs](#)

6.2.6.1 Verifying Your 13c Management Agent Upgrade

This section describes how to verify the 13c Management Agent upgrade. It consists of the following sections:

- [Verifying 13c Management Agent Upgrade Using the Enterprise Manager Console](#)
- [Verifying 13c Management Agent Upgrade Using EM CLI](#)

6.2.6.1.1 Verifying 13c Management Agent Upgrade Using the Enterprise Manager Console

After you upgrade your Management Agents, follow these methods to verify the upgrade using the Enterprise Manager console:

- From the **Setup** menu, select **Manage Cloud Control**, then select **Upgrade Agents**. Click **Agent Upgrade Results**. Verify that the job you created to upgrade the Management Agents succeeded.
- From the **Setup** menu, select **Manage Cloud Control**, then select **Agents**. Click the name of a Management Agent that you want to verify the upgrade for, and verify the Management Agent version. The Management Agent version after the upgrade must be the same as the OMS version.

Also, on the Agents page, verify that the Management Agent is up and running, is not blocked, and is not under blackout.

- From the **Setup** menu, select **Manage Cloud Control**, then select **Agents**. Click the name of the Management Agent that you want to verify the upgrade for. From the **Agent** menu, select **Configuration**, then select **Last Collected**. In the Configuration Properties tab, ensure that none of the configuration properties mention the old Management Agent home.

6.2.6.1.2 Verifying 13c Management Agent Upgrade Using EM CLI After you upgrade your Management Agents, follow these methods to verify the upgrade using EM CLI:

- Run the `get_agent_upgrade_status` verb to verify that the job you created to upgrade the Management Agents succeeded. This is described in detail in Step 5 of [Section 6.2.5](#).
- Run the `get_agent_properties` verb to verify the version of the Management Agent and its configuration properties after the upgrade:

```
$(ORACLE_HOME)/bin/emcli get_agent_properties -format=csv -agent_name=<agent_host_name>:<agent_port>
```

For example,

```
/u01/software/em13c/oraclehome/bin/emcli get_agent_properties
-format=csv -agent_name=abc.example.com:1872
```

- Run the `get_targets` verb to verify the status of the Management Agent (it should be up and running, and not be blocked, under blackout, etc.):

```
$(ORACLE_HOME)/bin/emcli get_targets -format="name:csv" -targets=<agent_host_name>:<agent_port>:oracle_emd -alerts
```

For example,

```
/u01/software/em13c/oraclehome/bin/emcli get_targets
-format="name:csv" -targets=abc.example.com:3872:oracle_emd -alerts
```

6.2.6.2 Moving Central Agent Base Directory Outside Oracle Middleware Home (After Upgrading 13c Central Agent)

After upgrading the central agent, if the agent base directory of the upgraded central agent resides within the Oracle Middleware home, and you want to move it outside the Oracle Middleware home, then see [Appendix C](#).

Important: Moving the agent base directory is recommended only for central agents (on all platforms, including Microsoft Windows), and not recommended for standalone Management Agents.

6.2.6.3 Performing Postupgrade Cleanup of Old Management Agents

After you upgrade your Management Agents to 13c Release 1 or higher, the old agent homes, old Oracle Home targets, and backup directories of the old Management Agents remain, and are not deleted automatically. To delete these post upgrade and free up disk space, you can clean up the old Management Agents using Agent Upgrade Console or EM CLI.

Important: Ensure that you perform clean up only on those Management Agents that were upgraded successfully. For information on verifying whether a Management Agent was upgraded successfully, see [Section 6.2.6.1](#).

This section describes the methods you can use to clean up 13.1.0.x Management Agents after upgrading them. It consists of the following:

- [Performing Postupgrade Cleanup of Old Management Agents Using the Agent Upgrade Console](#)
- [Performing Postupgrade Cleanup of Old Management Agents Using EM CLI](#)

6.2.6.3.1 Performing Postupgrade Cleanup of Old Management Agents Using the Agent Upgrade Console To clean up the old directories of your old Management Agents using the Clean Up Agents page of the Agent Upgrade Console, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Upgrade Agents**.
2. Click **Post Agent Upgrade Tasks**.
3. To change the default clean up job name, enter a unique value for **Job Name**.
A unique job name enables you to identify the clean up job, know details of its execution, and track its progress.
The job name can have a maximum length of 64 characters. It can consist of alphanumeric and special characters, and can begin with either of these.
4. Click **Add** to add Management Agents for clean up.
5. In the Agents for Clean Up window, search for the Management Agents you want to clean up, using the **Agent**, **Platform**, **Installed Version**, and **Group** fields.
6. Select the Management Agents you want to clean up. Click **OK**.
7. Click **Submit**.

6.2.6.3.2 Performing Postupgrade Cleanup of Old Management Agents Using EM CLI To clean up the old directories of your old Management Agents using EM CLI, follow these steps:

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS.

```
$<ORACLE_HOME>/bin/emcli login -username=<user_name>
```

For example,

```
/u01/software/em13c/oraclehome/bin/emcli login -username=sysman
```

Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

```
$<ORACLE_HOME>/bin/emcli sync
```

For example,

```
/u01/software/em13c/oraclehome/bin/emcli sync
```

3. Run the `get_signoff_agents` verb to obtain a list of the Management Agents for which clean up can be performed:

```
$<ORACLE_HOME>/bin/emcli get_signoff_agents
    [-agents]
    [-platforms]
    [-versions]
    [-groups]
    [-output_file]
```

Note that the parameters mentioned in [] are optional.

For example,

```
/u01/software/em13c/oraclehome/bin/emcli get_signoff_agents -output_
file="/scratch/signoff_agents_file.txt"
```

Use the `-output_file` option to copy the output of the `get_signoff_agents` verb into a file, which you can later use as an input parameter for the `signoff_agents` verb.

To view more information on the syntax and the usage of the `get_signoff_agents` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli help get_signoff_agents
```

4. Run the `signoff_agents` verb to clean up your Management Agents:

```
$<ORACLE_HOME>/bin/emcli/signoff_agents
    -agents | -input_file="agents_file:<absolute_location>" |
-input_file="response_file:<absolute_location>"
    [-job_name]
```

Note that the parameters mentioned in [] are optional.

Ensure that you specify all the Management Agents that you want to clean up by using either `-agents`, or `-input_file="agents_file:<file_name>"`, or by specifying agents in a response file, and then using `-input_file="response_file:<absolute_location>"`.

For example,

```
/u01/software/em13c/oraclehome/bin/emcli signoff_agents
-agents="abc%,xyz.domain.com:1243" -input_file="agents_
file:/scratch/signoff_agents_file.txt" -input_file="response_
file:/scratch/agent.rsp" -job_name=CLEAN_UP_12103
```

Use the `-input_file="agents_file:<absolute_location>"` option to specify a file containing the list of Management Agents that you want to clean up. Use the `-input_file="response_file:<absolute_location>"` option to specify a response file containing all the parameters that you want to use. A response file contains parameters in name value pairs, as shown:

```
agents=abc%,xyz%
job_name=CLEAN_UP_AGT_121030
```

The parameters that you specify with the verb override the parameters that you specify in the response file.

To view more information on the syntax and the usage of the `signoff_agents` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli help signoff_agents
```

Note: For more information on how to use the EM CLI verbs mentioned in this section, refer to *Oracle Enterprise Manager Command Line Interface*.

6.2.6.4 Viewing 13c Management Agent Upgrade Cleanup Jobs

You can use the Clean Up Agents page or EM CLI to delete the old agent homes, old Oracle Home targets, and backup directories of your old Management Agents, after upgrading them. Once you select the Management Agents you want to clean up and click **Submit** on the Clean Up Agents page, or run the `signoff_agents` EM CLI verb, a Management Agent clean up job is created, which is sent to the Enterprise Manager job system. You can use the Clean Up Agent Results page, or the `get_signoff_status` EM CLI verb to search for and view a particular set of Management Agent clean up jobs.

This section describes the methods you can use to view a particular set of Management Agent clean up jobs. It consists of the following:

- [Viewing 13c Management Agent Upgrade Cleanup Jobs Using the Agent Upgrade Console](#)
- [Viewing 13c Management Agent Upgrade Cleanup Jobs Using EM CLI](#)

6.2.6.4.1 Viewing 13c Management Agent Upgrade Cleanup Jobs Using the Agent Upgrade Console

To view a particular set of Management Agent clean up jobs using the Clean Up Agent Results page of the Agent Upgrade Console, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Upgrade Agents**.
2. Click **Post Agent Upgrade Tasks**.
3. Click **Clean Up Agent Results**.
4. Enter or select values for parameters that you want to use to search for Management Agent clean up jobs. You can search for these jobs using the job name, the Management Agents that were part of the clean up, and the status of the job.

5. For **Match**, select **All** or **Any** to search for results that match all the search parameters, or any of the search parameters, respectively.
6. Click **Search**.

6.2.6.4.2 Viewing 13c Management Agent Upgrade Cleanup Jobs Using EM CLI To view a particular set of Management Agent clean up jobs using EM CLI, follow these steps:

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

```
$<ORACLE_HOME>/bin/emcli login -username=<user_name>
```

For example,

```
/u01/software/em13c/oraclehome/bin/emcli login -username=sysman
```

Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

```
$<ORACLE_HOME>/bin/emcli sync
```

For example,

```
/u01/software/em13c/oraclehome/bin/emcli sync
```

3. Run the `get_signoff_status` verb to view a particular set of Management Agent clean up jobs:

```
$<ORACLE_HOME>/bin/emcli get_signoff_status  
[-agent]  
[-job_name]  
[-status]
```

Note that the parameters mentioned in [] are optional.

For example,

```
/u01/software/em13c/oraclehome/bin/emcli get_signoff_status  
-status="Success" displays the Management Agent clean up jobs that succeeded.
```

To view more information on the syntax and the usage of the `get_signoff_status` verb, run the following command:

```
$<ORACLE_HOME>/bin/emcli help get_signoff_status
```

Note: For more information on how to use the EM CLI verbs mentioned in this section, refer to *Oracle Enterprise Manager Command Line Interface*.

6.2.7 Troubleshooting 13c Management Agent Upgrade

Table 6–3 describes how to troubleshoot certain errors you may encounter while upgrading your Management Agents.

Table 6–3 Troubleshooting Oracle Management Agent Upgrade

Problem	Troubleshooting Tip
When you click Submit on the Upgrade Agents page, you encounter an error mentioning that <code>root.sh</code> could not be run for a Management Agent as the preferred privileged credentials for the Oracle Home of the Management Agent are not set.	<p>Do one of the following:</p> <ul style="list-style-type: none"> ■ Click OK to continue the upgrade. After the upgrade, log in to the Management Agent host as the <code>root</code> user, and run the <code>\$(AGENT_BASE_DIR)/agent_13.1.0.0.0/root.sh</code> script on the host. ■ Click Cancel to cancel the upgrade, then do the following: <ol style="list-style-type: none"> 1. Set the preferred privileged credentials for the Oracle Home target of the Management Agent. For information on how to do this, see <i>Oracle Enterprise Manager Cloud Control Administrator's Guide</i>. 2. Upgrade the Management Agent. <p>If you do not want to set the preferred privileged credentials for the Oracle Home target of the Management Agent, when the error message is displayed, click Cancel, then do the following:</p> <ol style="list-style-type: none"> 1. Select Override Privileged Credentials, then create a new credential by clicking the displayed icon. If the credential you create is not a root credential, select Sudo or PowerBroker for Run Privilege, and enter <code>root</code> for Run as. 2. Configure privilege delegation settings on the Management Agent host. 3. Upgrade the Management Agent. <p>If the <code>root.sh</code> job step fails after the upgrade, log in to the Management Agent host as the <code>root</code> user, and run the <code>\$(AGENT_BASE_DIR)/agent_13.1.0.0.0/root.sh</code> script manually.</p>

Table 6–3 (Cont.) Troubleshooting Oracle Management Agent Upgrade

Problem	Troubleshooting Tip
<p>When you click Submit on the Upgrade Agents page, you encounter an error mentioning that <code>root.sh</code> could not be run for a Management Agent as the privilege delegation settings for the Management Agent host are not set.</p>	<p>Do one of the following:</p> <ul style="list-style-type: none"> ■ When the error message is displayed, click OK to continue the upgrade. After the upgrade, log in to the Management Agent host as the <code>root</code> user, and run the <code>\$(AGENT_BASE_DIR)/agent_13.1.0.0.0/root.sh</code> script on the host. ■ When the error message is displayed, click Cancel to cancel the upgrade, then do the following: <ol style="list-style-type: none"> 1. Configure privilege delegation settings on the Management Agent host. For information on how to do this, see <i>Oracle Enterprise Manager Lifecycle Management Administrator's Guide</i>. 2. Upgrade the Management Agent. <p>If the <code>root.sh</code> job step fails after the upgrade, log in to the Management Agent host as the <code>root</code> user, and run the <code>\$(AGENT_BASE_DIR)/agent_13.1.0.0.0/root.sh</code> script manually.</p>
<p>When you click Submit on the Upgrade Agents page, you encounter an error mentioning that <code>root.sh</code> could not be run for a Management Agent as <code>Run as root</code> is not set for the Management Agent Oracle Home preferred privileged credential.</p>	<p>Do one of the following:</p> <ul style="list-style-type: none"> ■ Click OK to continue the upgrade. After the upgrade, log in to the Management Agent host as the <code>root</code> user, and run the <code>\$(AGENT_BASE_DIR)/agent_13.1.0.0.0/root.sh</code> script on the host. ■ Click Cancel to cancel the upgrade, then do the following: <ol style="list-style-type: none"> 1. Edit the preferred privileged credentials for the Oracle Home target of the Management Agent to ensure that the credential has <code>root</code> privileges. For information on how to do this, see <i>Oracle Enterprise Manager Lifecycle Management Administrator's Guide</i>. 2. Upgrade the Management Agent. <p>If the <code>root.sh</code> job step fails after the upgrade, log in to the Management Agent host as the <code>root</code> user, and run the <code>\$(AGENT_BASE_DIR)/agent_13.1.0.0.0/root.sh</code> script manually.</p>

Table 6–3 (Cont.) Troubleshooting Oracle Management Agent Upgrade

Problem	Troubleshooting Tip
When you click Submit on the Upgrade Agents page, the Upgrade Agents step fails.	<p>Diagnose the problem by following these steps:</p> <ol style="list-style-type: none"> 1. View the output logs of the failed Management Agent upgrade job steps. To view the output log of a Management Agent upgrade job step, on the Upgrade Agents page, click Agent Upgrade Results. Click the name of the Management Agent upgrade job, and select the required Management Agent. Click the name of the failed job step. 2. View the Management Agent deployment log available at the following location: <code>\$<AGENT_BASE_DIRECTORY>/agent_13.1.0.0/cfgtoollogs/agentDeploy/agentDeploy_<TIMESTAMP>.log</code> 3. View the plug-in upgrade configuration log available at the following location: <code>\$<AGENT_BASE_DIRECTORY>/backup_agtup/backup_<TIMESTAMP>/agtNew/install/logs/agentpluginDeploy_<TIMESTAMP>.log</code>
The Management Agent cannot be upgraded as the 32-bit Management Agent software for the host platform is not present in Software Library.	<p>You may encounter this error while upgrading Management Agents that run on the Oracle Enterprise Linux 4.x, Red Hat Enterprise Linux 4.x, and SUSE Linux Enterprise 10 64-bit platforms. If you encounter this error, click OK. Download and apply the latest 32-bit Management Agent software for these platforms, using the Self Update console, then upgrade the Management Agent.</p> <p>For information on using the Self Update console to download and apply the latest Management Agent software, refer to <i>Oracle Enterprise Manager Cloud Control Basic Installation Guide</i>.</p>
The links on the Agent Upgrade Status page or the Agent Upgrade Results page are not working.	<p>Diagnose the problem by viewing the following logs:</p> <ul style="list-style-type: none"> ■ <code>\$<OMS_INSTANCE_HOME>/user_projects/domains/EMGC_DOMAIN/servers/EMGC_OMS1/logs/*.out</code> ■ <code>\$<OMS_INSTANCE_HOME>/user_projects/domains/EMGC_DOMAIN/servers/EMGC_OMS1/logs/*.log</code>
A job step in the Management Agent upgrade process hangs or is executed multiple times.	<p>Diagnose the problem by viewing the following log: <code>\$<OMS_INSTANCE_HOME>/em/EMGC_OMS1/sysman/log/*.trc</code></p>
EM CLI log in or synchronization fails.	<p>Diagnose the problem by viewing the following log: <code>\$<OMS_INSTANCE_HOME>/em/<oms_name>/sysman/emcli</code></p>
The upgraded Management Agent is blocked.	<p>Raise an Oracle Support service request. Do not resynchronize the Management Agent.</p>

6.3 Creating an Agent Gold Image

To create an Agent Gold Image, use either of the following methods:

- [Creating an Agent Gold Image Using Gold Agent Images Home Page](#)
- [Creating an Agent Gold Image Using EM CLI](#)

6.3.1 Creating an Agent Gold Image Using Gold Agent Images Home Page

To create an Agent Gold Image, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Gold Agent Images**.
2. Click **Manage All Images**.
3. Click **Create**.
4. Specify the gold image name, a description (optional), and the platform of the source Management Agent that you want to use to create the Agent Gold Image versions. Ensure that you use only a standalone Management Agent as the source, and not a central agent.
5. Click **Submit**.

6.3.2 Creating an Agent Gold Image Using EM CLI

When you create an Agent Gold Image version using EM CLI, the Agent Gold Image gets automatically created.

To create an Agent Gold Image by creating an Agent Gold Image version using EM CLI, see [Section 6.4.2](#)

6.4 Creating an Agent Gold Image Version

To create an Agent Gold Image version, use either of the following methods:

- [Creating an Agent Gold Image Version Using the Gold Agent Images Home Page](#)
- [Creating an Agent Gold Image Version Using EM CLI](#)

6.4.1 Creating an Agent Gold Image Version Using the Gold Agent Images Home Page

To create an Agent Gold Image version, follow these steps:

Note: You cannot use unsecure Management Agents to create an Agent Gold Image version. Therefore, always use only secure Management Agents. Before creating an Agent Gold Image version, meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

If the configuration properties of the source Management Agent were changed for some reason in the emd.properties file, then before creating an agent gold image version using that source Management Agent, reload the configuration properties of that Management Agent. To do so, run the following command:

```
emctl reload agent
```

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Gold Agent Images**.
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions**.
4. Select the **Versions and Drafts** tab, then from the **Actions** menu, select **Create**.

5. Specify an image version name, and a description for the image version, if required.

When you create an image version and update a Management Agent with it, Enterprise Manager Cloud Control uses the image version name you provide here to create a subdirectory in the agent base directory for the Management Agent being updated.

For example, if the agent base directory of the Management Agent being updated is `/u01/software/em13c/agentbasedir`, and the agent home is `/u01/software/em13c/agentbasedir/agent_13.1.0.0.0`, and if you provide `OPB_BP1` as the image version name, then when you update the Management Agent with the image version, a new subdirectory `/u01/software/em13c/agentbasedir/GoldImage_OPB_BP1/agent_13.1.0.0.0` is created. The word limit for the image version name is 20 characters.

6. If you want to create the gold image version using a source Management Agent, for **Create image by**, select **Selecting a source agent**, then specify the source Management Agent that you want to use. In this case, you can also specify the following:
 - **Work Directory:** The working directory that must be used to create the Agent Gold Image. The default working directory is `$AGENT_INSTANCE_HOME/install`. Ensure that you have minimum 750MB space in this location.
 - **Configuration Properties:** The Management Agent configuration properties separated by a semicolon (;) that must be captured while creating the Agent Gold Image. The names of these properties can be found in the `$AGENT_INSTANCE_HOME/sysman/config/emd.properties` file.
 - **Exclude Files:** The list of files separated by ';' that must be excluded from the gold agent image version. For example, `agent_13.1.0.0.0/cfgtoollogs/agentDeploy/*;agent_13.1.0.0.0/oui/*`. Ensure that you provide only the relative path to the files and directories and not the absolute path.

However, if you want to create the gold image version by importing an existing gold image version, for **Create image by**, select **Importing an image**, then specify the location of the gold image version that you want to import. In order to be able to import an image, the image should already be staged. If you have not already staged the image for this purpose, then stage it as described in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Note: The image can be created from a test system and staged. Also, the stage location should be accessible from the OMS.

7. Click **OK**.

A job that creates the Agent Gold Image version is submitted to the Enterprise Manager job system. You can view the status of this job on the Gold Agent Image Activities page, in the Image Activities tab.

6.4.2 Creating an Agent Gold Image Version Using EM CLI

To create an Agent Gold Image version using EM CLI, follow these steps:

Note: You cannot use unsecure Management Agents to create an Agent Gold Image version. Therefore, always use only secure Management Agents. Before creating an Agent Gold Image version, meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

If the configuration properties of the source Management Agent were changed for some reason in the `emd.properties` file, then before creating an agent gold image version using that source Management Agent, reload the configuration properties of that Management Agent. To do so, run the following command:

```
emctl reload agent
```

1. Log in to EM CLI from the `/bin` directory present within the Oracle home of the OMS:

```
$(ORACLE_HOME)/bin/emcli login -username=<user_name>
```

Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

```
$(ORACLE_HOME)/bin/emcli sync
```

3. Run the `create_gold_agent_image` verb to create an Agent Gold Image using the specified source Management Agent or by importing an already created image from another Enterprise Management System:

```
$(ORACLE_HOME)/bin/emcli create_gold_agent_image
  -image_name="gold_image_name"
  -version_name="gold_image_version_name"
  -source_agent|-import_location="source_agent|import_location"
  [-gold_image_description="gold_image_description"]
  [-working_directory="working_directory_location"]
  [-config_properties= " agent_configuration_properties"]
  [-exclude_files= "list_of_files_directories_to_exclude"]
```

Note that the parameters mentioned in [] are optional.

[Table 6–4](#) lists and describes the parameters supported for creating an Agent Gold Image version using EM CLI.

Table 6–4 Supported Parameters for Creating an Agent Gold Image Version

Parameter	Description
-image_name	Agent Gold Image name to which the created Agent Gold Image must be added.
-version_name	Version name of the Agent Gold Image. When you create an image version and update a Management Agent with it, Enterprise Manager Cloud Control uses the image version name you provide here to create a subdirectory in the agent base directory for the Management Agent being updated. For example, if the agent base directory of the Management Agent being updated is /u01/software/em13c/agentbasedir, and the agent home is /u01/software/em13c/agentbasedir/agent_13.1.0.0.0, and if you provide OPB_BP1 as the image version name, then when you update the Management Agent with the image version, a new subdirectory /u01/software/em13c/agentbasedir/GoldImage_OPB_BP1/agent_13.1.0.0.0 is created. The word limit for the image version name is 20 characters.
-source_agent	Management Agent to be used as the source to create the Agent Gold Image. To view a list of the Management Agents that can be used as a source to create a gold image, run <code>emcli get_targets -target="oracle_emd"</code> .
-import_location	Location where the Agent Gold Image is staged for creating the gold agent image version. This location is accessible from all the OMS instances.
-gold_image_description	Description of the Agent Gold Image.
-working_directory	Working directory to be used to create the Agent Gold Image. The default working directory is \$AGENT_INSTANCE_HOME/install. Minimum free space required is 1 GB.
-config_properties	Management Agent configuration properties separated by \";\" that must be captured while creating the Agent Gold Image. For example, MaxThread;GracefulShutdown.
-exclude_files	List of files or directories separated by \";\" that must be excluded from the gold agent image version. For example, agent_13.1.0.0.0/cfgtoollogs/agentDeploy;agent_13.1.0.0.0/oui. Ensure that you provide only the relative path to the files and directories and not the absolute path.

Examples:

- The following example creates an Agent Gold Image OPC_AGI_DB_JUL_13, using `example.com:3872` as the source Management Agent, and adds the gold image version to the gold image OPC_DB_MONITORING:

```
$<ORACLE_HOME>/bin/emcli create_gold_agent_image -source_agent=example.com:3872 -version_name=OPC_AGI_DB_JUL_13 -image_name=OPC_DB_MONITORING
```

- The following example creates an Agent Gold Image OPC_AGI_DB_JUL_13, using `example.com:3872` as the source Management Agent, /tmp as the

working directory, and adds the gold image version to the gold image OPC_DB_MONITORING:

```
$<ORACLE_HOME>/bin/emcli create_gold_agent_image -source_
agent=example.com:3872 -version_name=OPC_AGI_DB_JUL_13 -image_name=OPC_DB_
MONITORING -working_directory=/tmp
```

- The following example creates an Agent Gold Image OPC_AGI_DB_JUL_13 using gold image software staged at import location /abc/stage:

```
$<ORACLE_HOME>/bin/emcli create_gold_agent_image -import_
location=/abc/stage -version_name=OPC_AGI_DB_JUL_13 -image_name=OPC_DB_
MONITORING
```

6.5 Setting a Particular Agent Gold Image Version as the Current Version

The up-to-date version of an Agent Gold Image that you want to use to standardize the Management Agents in your enterprise is termed as the *current version* of the Agent Gold Image.

When an Agent Gold Image version is created, it is marked as a draft version. Setting a draft version of an Agent Gold Image as the current version indicates that the gold image version is ready to be used to mass deploy or mass update Management Agents. Once an image is set to Active (Current), you cannot revert it to a draft or a restricted version.

To set a draft version of an Agent Gold Image as the current version, use either of the following methods:

- [Setting a Particular Agent Gold Image Version as the Current Version Using Gold Agent Images Home Page](#)
- [Setting a Particular Agent Gold Image Version as the Current Version Using EM CLI](#)

6.5.1 Setting a Particular Agent Gold Image Version as the Current Version Using Gold Agent Images Home Page

To set a draft version of an Agent Gold Image as the current version, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Gold Agent Images**.
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions**.
4. Select the **Versions and Drafts** tab. Select the gold image version that you want to set as the current version, then click **Set Current Version**.

A job that promotes the Agent Gold Image draft version to the current version is submitted to the Enterprise Manager job system. You can view the status of this job on the Gold Agent Image Activities page, in the Image Activities tab.

6.5.2 Setting a Particular Agent Gold Image Version as the Current Version Using EM CLI

To set a particular Agent Gold Image version as the current version using EM CLI, follow these steps:

1. Log in to EM CLI from the /bin directory present within the Oracle home of the OMS:

```
$<ORACLE_HOME>/bin/emcli login -username=<user_name>
```

Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

```
$<ORACLE_HOME>/bin/emcli sync
```

3. Run the `promote_gold_agent_image` verb to promote the Agent Gold Image version to the Current maturity level:

```
$<ORACLE_HOME>/bin/emcli promote_gold_agent_image
    -version_name="gold_image_version_name"
    -maturity="Current/Restricted/Draft"
```

The `-version_name` parameter defines the Agent Gold Image that you want to promote.

The `-maturity` parameter defines the gold image maturity level.

For example, to promote the Agent Gold Image `OPC_AGI_DB_JUL_13` to the Current maturity level, run the following:

```
$<ORACLE_HOME>/bin/emcli promote_gold_agent_image -version_name=OPC_AGI_DB_
JUL_13 -maturity=Current
```

6.6 Setting a Particular Agent Gold Image Version as the Restricted Version using Gold Agent Images Home Page

To set a draft or active version of a Agent Gold Image as the restricted version, use either of the following methods:

- [Setting a Particular Agent Gold Image Version as the Restricted Version Using Gold Agent Images Home Page](#)
- [Setting a Particular Agent Gold Image Version as the Restricted Version Using EM CLI](#)

6.6.1 Setting a Particular Agent Gold Image Version as the Restricted Version Using Gold Agent Images Home Page

To set a draft or active version of a Agent Gold Image as the restricted version, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Gold Agent Images**.
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions**.
4. Select the **Versions and Drafts** tab. Select the gold image version that you want to set as the restricted version, then click **Set Restricted Version**.

6.6.2 Setting a Particular Agent Gold Image Version as the Restricted Version Using EM CLI

To set a draft or active version of a Agent Gold Image version as the restricted version using EM CLI, follow these steps:

1. Log in to EM CLI from the /bin directory present within the OMS home:

```
$<OMS_HOME>/bin/emcli login -username=<user_name>
```

Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

```
$<OMS_HOME>/bin/emcli sync
```

3. Run the `promote_gold_agent_image` verb to promote the Agent Gold Image version to the Restricted maturity level:

```
$<OMS_HOME>/bin/emcli promote_gold_agent_image
    -version_name="gold_image_version_name"
    -maturity="Current/Restricted/Draft"
```

The `-version_name` parameter defines the Agent Gold Image version that you want to promote.

The `-maturity` parameter defines the gold image maturity level.

For example, to promote the Agent Gold Image `OPC_AGI_DB_JUL_13` to the Restricted maturity level, run the following:

```
$<OMS_HOME>/bin/emcli promote_gold_agent_image -version_name=OPC_AGI_DB_JUL_13
-maturity=Restricted
```

6.7 Subscribing Management Agents to an Agent Gold Image

To subscribe a set of Management Agents to an Agent Gold Image, use either of the following methods:

- [Subscribing Management Agents to an Agent Gold Image Using Gold Agent Images Home Page](#)
- [Subscribing Management Agents to an Agent Gold Image Using EM CLI](#)

WARNING: You cannot directly subscribe a Shared Agent (NFS Agent) to an Agent Gold Image. To subscribe to an Agent Gold Image, you must first convert the Shared Agent to a standalone Management Agent, and then subscribe to an Agent Gold Image.

Note: When you have to subscribe a set of related Management Agents to an Agent Gold Image, it is mandatory to subscribe all the related Agents. However, there is an option to override this in case if you want to subscribe only a selected few Agents to the Agent Gold Image. To achieve this, you have to set the parameter `ignoreRelatedCheck` to `true` in the `EM_GI_MASTER_INFO` table.

6.7.1 Subscribing Management Agents to an Agent Gold Image Using Gold Agent Images Home Page

Note:

You cannot install, update, or upgrade a Shared Agent (NFS Agent) using an Agent Gold Image.

You cannot subscribe the following Management Agents to an Agent Gold Image:

- Central Agent.
- Already subscribed Management Agents.
- Shared Agents (NFS Agents).
- Unsecure Management Agents.
- Management Agents on platforms that are different from the platforms on which the Agent Gold Image is available.

The platform is identified by the Oracle home collection, so make sure the Oracle home target is discovered and collected. To do so, On the Home page of the Management Agent, in the Summary section, click **Oracle Home and Patch Details**, and on the following page, click **Refresh Configuration**.

To subscribe a set of Management Agents to an Agent Gold Image, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Gold Agent Images**.
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions**.
4. Select the **Subscriptions** tab. Click **Subscribe**.
5. Search for and select the required Management Agents, then click **Select**.

6.7.2 Subscribing Management Agents to an Agent Gold Image Using EM CLI

To subscribe a Management Agent to an Agent Gold Image using EM CLI, follow these steps:

Note: You cannot subscribe the following Management Agents to an Agent Gold Image:

- Central Agent.
- Already subscribed Management Agents.
- Shared Agents (NFS Agents).
- Unsecure Management Agents.
- Management Agents on platforms that are different from the platforms on which the Agent Gold Image is available.

The platform is identified by the Oracle home collection, so make sure the Oracle home target is discovered and collected. To do so, On the Home page of the Management Agent, in the Summary section, click **Oracle Home and Patch Details**, and on the following page, click **Refresh Configuration**.

1. Log in to EM CLI from the /bin directory present within the Oracle home of the OMS:

```
$<ORACLE_HOME>/bin/emcli login -username=<user_name>
```

Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

```
$<ORACLE_HOME>/bin/emcli sync
```

3. Run the `subscribe_agents` verb to subscribe the specified Management Agent to a specific Agent Gold Image:

```
$<ORACLE_HOME>/bin/emcli subscribe_agents
  -image_name="Image Name"
  [-agents="agent_name_pattern"]
  [-groups="group_name"]
```

Note that the parameters mentioned in [] are optional.

The `-image_name` parameter subscribes the Management Agents to the specified Agent Gold Image.

The `-agents` parameter subscribes only the Management Agents that match the specified name pattern.

The `-groups` parameter subscribes only the Management Agents that belong to the specified groups.

Examples:

- The following example subscribes the Management Agents that match the name pattern `abc%` or `xyz.domain.com:1243` to the Agent Gold Image `OPC_AGT_ADC_POD`:

```
$<ORACLE_HOME>/bin/emcli subscribe_agents -image_name="OPC_AGT_ADC_POD"
  -agents="abc%,xyz.domain.com:1243"
```

- The following example subscribes all the Management Agents to the Agent Gold Image OPC_AGT_ADC_POD:

```
$<ORACLE_HOME>/bin/emcli subscribe_agents -image_name="OPC_AGT_ADC_POD"
```

- The following example subscribes all the Management Agents that belong to the group GROUP1 or GRP2 to the Agent Gold Image OPC_AGT_ADC_POD:

```
$<ORACLE_HOME>/bin/emcli subscribe_agents -image_name="OPC_AGT_ADC_POD"
-groups="GROUP1,GRP2"
```

6.8 Updating Standalone Management Agents Using an Agent Gold Image Version

Important: Before updating standalone Management Agents using an Agent Gold Image, ensure that the standalone Management Agents subscribe to the gold image. For information on how to subscribe standalone Management Agents to an Agent Gold Image, see [Section 6.7](#).

You cannot update a central agent with an Agent Gold Image. A central agent is a Management Agent that is installed by default with every OMS installation.

Note: You cannot install, update, or upgrade a Shared Agent (NFS Agent) using an Agent Gold Image. For information about Shared Agents, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Note: To view a visual demonstration of how you update Oracle Management Agents using Agent Gold Images, access the following URL and click **Begin Video**.

```
https://apexapps.oracle.com/pls/apex/f?p=44785:24:0:::24:P24
_CONTENT_ID,P24_PREV_PAGE:12796,1
```

To update your standalone Management Agents using an Agent Gold Image version, use either of the following methods:

- [Updating Standalone Management Agents Using an Agent Gold Image Version](#)
- [Updating Management Agents Using Agent Gold Image Version Using EM CLI](#)

6.8.1 Updating Standalone Management Agents Using Agent Gold Image Version Using Gold Agent Images Home Page

To update your Management Agents using an Agent Gold Image version, follow these steps:

Note: Before updating a standalone Management Agent using an Agent Gold Image version, meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

Note: When you have to update a set of related Management Agents to an Agent Gold Image, it is mandatory to update all the related agents. However, there is an option to override this in case if you want to update only a selected few Agents to the Agent Gold Image. To achieve this, you have to set the parameter `closureRelated` to `false` in the `EM_GI_MASTER_INFO` table.

1. From the **Setup** menu, select **Manage Cloud Control**, then select **Gold Agent Images**.
2. Click the name of the required Agent Gold Image.
3. Click **Manage Image Versions and Subscriptions**.
4. Select the **Subscriptions** tab. Select the Management Agents that you want to update, select **Update**, then select **To Current Version**, or **To Restricted Version**.
5. Accept the default job name for the Management Agent update job. You can change this, if required.

If you have not included certain Management Agents in the previous step and want to include them in the update operation now, select **Add**, then specify the additional Management Agents.

If there is any change to the `sbin` directory, particularly for a complete agent upgrade or when there is an `sbin`-specific patch, after updating the Management Agent, the preferred privileged credentials of the Management Agent host are used for running the `root.sh` script on the Management Agent.

If these credentials are not already set, then click **Override Preferred Credentials** and enter the credentials you want to use instead.

Click **Next**.

6. By default, Image Version Pre Staged is not selected, in this case provide a stage location that is local to the destination host. However, if you select the **Image version Pre Staged**, provide a shared, NFS-mounted stage location that is accessible by all the Management Agents.

Also, specify a method for Management Agent deployment. If you select the default option **Push**, the OMS transfers the Management Agent software to all the hosts that are selected for the update operation. However, if you want the Management Agent present on each destination host to retrieve the Management Agent software from the OMS instead, select **Pull**.
7. In the Additional Inputs section, specify any scripts that you want to run before the update operation and after the update operation. Ensure that you select **Script on OMS Host** if the script exists on the OMS host. Also, specify any additional parameters that you want to use for the update operation. [Table 6–2](#) gives a list of additional parameters used for upgrade.
8. In the Schedule section, specify values for the following:

- **Batch Size:** A Management Agent update activity runs in a way that the Management Agents are updated in batches. The batch size represents the number of Management Agents present in a batch.
- **Job Frequency:** The time (in minutes) after which the application checks whether the current batch is complete or not.
- **Success Rate:** The percentage of the total number of Management Agents (that is, the Management Agents that are a part of the current update batch and the Management Agents that were a part of the previous update batches) that must have been updated once a batch is complete, before the next batch is allowed to begin.

For example, if there are 1000 Agents deployed in your enterprise and the batch size is set to 100, the batch success rate is set to 90, and the Agents are updated in batches of 100. In this case, once a batch is complete, the application moves to the next batch only if 90 per cent of the total number of Management Agents are updated successfully.

- **Start:** The time when you want to start the update operation, and the time when you want the update operation to end. By default, the time set is **Immediately**. In this context, it is the OMS time that is considered.
 - **Duration:** The duration until which you want the update operation to run.
9. In the Notify section, specify the email addresses to which you want the notifications about the update job progress to be sent.
 10. In the Shell Profile section, select Update Shell Profile, and specify the location of your shell profile, if you want your shell profile to be updated with the new Management Agent Oracle home location.
By default, this is not selected, and is optional.
 11. In the Cleanup options section, select:
 - **Pre-Cleanup** to clean up the old or inactive agent homes prior to updating the Management Agents.
 - **Post-Cleanup** to clean up the old or inactive agent homes after updating the Management Agents.

Note: If the cleanup operation is not performed at this point, it can be done at a later time using the Agent Upgrade Console. For more information, see [Section 6.2.6.3](#).

A job that updates the Management Agents is submitted to the Enterprise Manager job system. You can view the status of this job on the Gold Agent Image Activities page, in the Update Activities tab.

12. Click Update.

A job that updates the Management Agents is submitted to the Enterprise Manager job system. You can view the status of this job on the Gold Agent Image Activities page, in the Update Activities tab.

6.8.2 Updating Management Agents Using Agent Gold Image Version Using EM CLI

To update Management Agents using an Agent Gold Image version, using EM CLI, follow these steps:

Note: Before updating a standalone Management Agent using an Agent Gold Image version, meet the hardware requirements as described in the hardware requirements chapter of the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

1. Log in to EM CLI from the /bin directory present within the Oracle home of the OMS:

```
$<ORACLE_HOME>/bin/emcli login -username=<user_name>
```

Once you run this command, EM CLI will prompt you for a password. Enter the password for the user name you specified.

2. Synchronize EM CLI:

```
$<ORACLE_HOME>/bin/emcli sync
```

3. Run the `get_updatable_agents` verb to display the Management Agents that can be updated using a particular Agent Gold Image version or Agent Gold Image:

```
$<ORACLE_HOME>/bin/emcli get_updatable_agents
    -version_name | -image_name
    [-agents="Full Agent Name"]
    [-versions="List of Versions"]
    [-groups="List of group names"]
    [-output_file="Location of the output file"]
```

Note that the parameters mentioned in [] are optional.

Note: It is mandatory to specify the `-version_name` parameter or the `-image_name` parameter. If you specify both, a union of the outputs (when each of these parameters is specified individually) is displayed.

Note: To view a list of Management Agents that cannot be updated, run the `get_not_updatable_agents` verb:

```
emcli get_not_updatable_agents
    [-version_name | -image_name]
```

The parameters mentioned in [] are optional.

[Table 6–5](#) lists and describes the supporting parameters for displaying the Management Agents that can be updated using a particular Management Agent image version.

Table 6–5 Supported Parameters for Displaying Management Agents That Can Be Updated

Parameter	Description
-version_name	Specify this option to display the Management Agents that can be updated using the specified Agent Gold Image version.
-image_name	Specify this option to display the Management Agents that can be updated using the specified Agent Gold Image.
-versions	Specify this option to display the Management Agents that can be updated, and are of the specified versions.
-agents	Specify this option to display the Management Agents that can be updated, and whose name matches the specified name pattern.
-groups	Specify this option to display the Management Agents that can be updated, and are a part of those groups whose name matches the specified name pattern.
-output_file	Specify this option to add the displayed list of Management Agents that can be updated to an output file.

Examples:

- The following example lists the Management Agents that can be updated using the latest Agent Gold Image OPC_AGT_ADC_POD:

```
<ORACLE_HOME>/bin/emcli get_updatable_agents -image_name="OPC_AGT_ADC_POD"
```

- The following example lists the Management Agents that can be updated using the Agent Gold Image version OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli get_updatable_agents -version_name="OPC_AGT_ADC_POD_JUNE"
```

- The following example lists the Management Agents that are of version 12.1.0.1.0 or 12.1.0.2.0, and can be updated using the Agent Gold Image version OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli get_updatable_agents -version_name="OPC_AGT_ADC_POD_JUNE" -versions="12.1.0.1.0,12.1.0.2.0"
```

- The following example lists the Management Agents that belong to GROUP1 or GRP2, and can be updated using the Agent Gold Image version OPC_AGT_ADC_POD_JUNE:

```
<ORACLE_HOME>/bin/emcli get_updatable_agents -version_name="OPC_AGT_ADC_POD_JUNE" -groups="GROUP1,GRP2"
```

- The following example lists the Management Agents that can be updated using the Agent Gold Image OPC_AGT_ADC_POD_JUNE, and adds the list to the output file /scratch/agents_file.txt:

```
<ORACLE_HOME>/bin/emcli get_updatable_agents -image_name="OPC_AGT_ADC_POD_JUNE" -output_file="/scratch/agents_file.txt"
```

4. Run the `update_agents` verbs to prepare the environment for updating your Management Agents and to submit the Management Agent update job:

```
<ORACLE_HOME>/bin/emcli update_agents
```

```

-version_name | -image_name
-agents="agent_names" | -input_file="agents_file:input_file_location"
[-pre_script_loc="location_of_pre_script"]
[-pre_script_on_oms]
[-post_script_loc="location_of_post_script"]
[-post_script_on_oms]
[-op_name="custom_operation_name"]
[-override_credential="named_credential"]
[-additional_parameters]
[-stage_location="custom_stage_location"]
[-is_staged="true|false"]
[-stage_action="push|pull"]
[-batch_size]
[-start_time]
[-end_time]
[-frequency]<
[-success_rate]
[-runPrecleanup]
{-runPostcleanup}
[-email]
[-update_profile]
[-profile_path]

```

Note that the parameters mentioned in [] are optional.

Note: It is mandatory to specify the `-version_name` parameter or the `-image_name` parameter. Also, it is mandatory to specify the `-agents` parameter or the `-input_file` parameter. If you specify both `-agents` and `-input_file`, a union of the outputs (when each of these parameters is specified individually) is displayed.

All parameters can be passed in a response file, using the `-input_file` parameter. For example, `-input_file="response_file:/scratch/response_file.txt"`.

In the response file, each parameter must be specified on a new line, and in name value pairs. For example, `op_name=UPDATE_AGT_121020`

If the same parameter is passed both on the command line and in the response file, the value of the command line parameter is given precedence.

Table 6–6 lists and describes the supporting parameters for updating Management Agents using an Agent Gold Image version.

Table 6–6 Supported Parameters for Updating Management Agents Using Agent Gold Image Version

Parameter	Description
<code>-version_name</code>	Agent Gold Image version to which the Management Agents should be updated.
<code>-image_name</code>	Agent Gold Image to which the Management Agents should be updated.
<code>-agents</code>	Names of all the Management Agents that should be updated.
<code>-input_file</code>	Absolute path to the file that lists the Management Agents to be updated.

Table 6–6 (Cont.) Supported Parameters for Updating Management Agents Using Agent Gold Image Version

Parameter	Description
-pre_script_loc	Absolute path to a script that should be run before updating the Management Agents.
-pre_script_on_oms	Indicates that the pre-script is present on the OMS host.
-post_script_loc	Absolute path to a script that should be run after updating the Management Agents.
-post_script_on_oms	Indicates that the post-script is present on the OMS host.
-op_name	Custom operation name for the Management Agent update.
-override_credential	Overrides the preferred credentials with different named credentials. Typically, the preferred credentials of the Oracle home of the Management Agent are used to run root.sh on certain Management Agents after the update. But passing this option overrides those preferred credentials.
-additional_parameters	Additional parameters to be passed for the Management Agent update.
-stage_location	Custom stage location for the Management Agent update. Minimum free space required is 1 GB if image is not already staged. Ensure that this location is accessible from all the Management Agents being updated if image is prestaged.
-is_staged	Set to 'true' if you have already staged the Agent Gold Image.
-stage_action	Set to 'pull' if you want the Management Agents to be updated to pull the Agent Gold Image. Typically, If the Agent Gold Image has not already been staged, by default the Agent Gold Image is pushed to the Management Agents to be updated. Setting to 'pull' pulls the Agent Gold Image instead.
-batch_size	Number of Management Agents present in an update batch. Default value is 100.
-start_time	Start time for the update job. Specify in \" yyyy-mm-dd hh:mm:ss\" format.
-end_time	End time for the update job. Specify in \" yyyy-mm-dd hh:mm:ss\" format.
-frequency	Time (in minutes) after which the application should check whether or not the current batch is complete, and should schedule the next batch for update. Default value is.
-success_rate	Percentage of the total number of Management Agents that must have been successfully updated in previous batches, before the next batch is allowed to begin. Default value is 90.
-runPrecleanup	Cleans up the old agent homes before updating the Management Agents.
-runPostcleanup	Cleans up the old agent homes after updating the Management Agents.

Table 6–6 (Cont.) Supported Parameters for Updating Management Agents Using Agent Gold Image Version

Parameter	Description
-email	Email IDs separated by a comma (,) to which notifications should be sent once the batch completes.
-update_profile	Indicates that a profile is set with agent Oracle home.
-profile_path	Absolute path to user profiles separated by a comma (,) if the update profile option is selected.

Examples:

- The following example updates `xyz.domain.com:1243` using the latest Agent Gold Image in the series `OPC_AGT_ADC_POD`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_series="OPC_AGT_ADC_POD"
-agents="xyz.domain.com:1243"
```
- The following example updates `xyz.domain.com:1243` using the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_
JUNE" -agents="xyz.domain.com:1243"
```
- The following example updates all the Management Agents present in the input file `/scratch/agents_file.txt` using the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_
JUNE" -input_file="agents_file:/scratch/agents_file.txt"
```
- The following example runs `/scratch/pre_script`, then updates `xyz.domain.com:1243` using the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_
JUNE" -agents="xyz.domain.com:1243" -pre_script_loc="/scratch/pre_script"
```
- The following example updates `xyz.domain.com:1243` using the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`, then runs `/scratch/post_script`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_
JUNE" -agents="xyz.domain.com:1243" -post_script_loc="/scratch/post_script"
```
- The following example updates `xyz.domain.com:1243` (creates an update job `UPDATE_JOB123`) using the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_
JUNE" -agents="xyz.domain.com:1243" -op_name="UPDATE_JOB123"
```
- The following example updates `xyz.domain.com:1243` using the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`, and uses `NAMED_CRED123` to run `root.sh` after the update:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_
JUNE" -agents="xyz.domain.com:1243" -override_credential="NAMED_CRED123"
```
- The following example updates `xyz.domain.com:1243` using the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`, passing two additional parameters:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_name="OPC_AGT_ADC_POD_
```

```
JUNE" -agents="xyz.domain.com:1243" -additional_parameters="-ignorePrereqs
-newParameter"
```

- The following example updates `xyz.domain.com:1243` using the latest Agent Gold Image in the series `OPC_AGT_ADC_POD`, passing two additional parameters:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_series="OPC_AGT_ADC_POD"
-agents="xyz.domain.com:1243" -additional_parameters="-ignorePrereqs
-newParameter"
```

- The following example updates `xyz.domain.com:1243` using the latest Agent Gold Image in the series `OPC_AGT_ADC_POD`, without staging the gold image:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_series="OPC_AGT_ADC_POD"
-agents="xyz.domain.com:1243" -is_staged="true"
```

- The following example updates `xyz.domain.com:1243` using the latest Agent Gold Image in the series `OPC_AGT_ADC_POD`, and the gold image is pulled by `xyz.domain.com:1243`:

```
<ORACLE_HOME>/bin/emcli update_agents -gold_image_series="OPC_AGT_ADC_POD"
-agents="xyz.domain.com:1243" -stage_action="pull"
```

- The following example runs the Management Agent update with maximum of 150 Management Agents getting updated in each batch:

```
<ORACLE_HOME>/bin/emcli update_agents -image_name="OPC_AGT_ADC_POD"
-agents="xyz.domain.com:1243" -batch_size=150
```

- The following example runs the Management Agent update with maximum of 150 Management Agents getting updated in each batch:

Note: The next batch gets scheduled only if 80% of the Management Agents are successfully updated in the previous batches.

```
<ORACLE_HOME>/bin/emcli update_agents -image_name="OPC_AGT_ADC_POD"
-agents="xyz.domain.com:1243" -batch_size=150 success_rate=80
```

- The following example schedules the agent update job starting at May 7, 10:00:00 AM and ending at May 8, 10:00:00 AM:

```
<ORACLE_HOME>/bin/emcli update_agents -image_name="OPC_AGT_ADC_POD"
-agents="xyz.domain.com:1243" -start_time="2014-05-07 10:00:00" -end_
time="2014-05-08 10:00:00"
```

5. Run the `get_agent_update_status` verb to displays the update results of the Management Agent:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status
-version_name | -op_name
[-agent="agent_name_pattern"]
[-severity="ERROR|WARNING"]
[-severity_id="severity_id"]
```

```
[-status="PendingUpdateInProgress|Updatable|NotUpdatable|NotExecuted|Success|In
progress|Failed"]
```

Note that the parameters mentioned in [] are optional.

Note: It is mandatory to specify the `-op_name` parameter or the `-version_name` parameter. If you have specified `-severity` or `-severity_id`, ensure that you do not specify `-version_name` or `-status`.

Table 6–7 lists and describes the supporting parameters for displaying the update status of the Management Agent.

Table 6–7 Supported Parameters for Displaying Update Status of the Management Agent

Parameter	Description
<code>-version_name</code>	Displays the details of the update operation submitted for the specified Agent Gold Image version name.
<code>-op_name</code>	Displays the details of the specified update operation.
<code>-agent</code>	Displays the details of the operations submitted for Management Agents that have the specified name pattern.
<code>-status</code>	Displays the details of the update operations that have the specified status.
<code>-severity</code>	Displays the details of the update operations that have the specified severity level.
<code>-severity_id</code>	Displays the details of the update operations that have the specified severity ID

Examples:

- The following example displays the details of the update operations submitted for the Agent Gold Image version `OPC_AGT_ADC_POD_JUNE`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -version_name="OPC_AGT_ADC_POD_JUNE"
```

- The following example displays the details of the update operations submitted for the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`, for the Management Agent `xyz.domain.com:1243`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -version_name="OPC_AGT_ADC_POD_JUNE" -agent="xyz.domain.com:1243"
```

- The following example displays the details of the update operations submitted for the Agent Gold Image `OPC_AGT_ADC_POD_JUNE`, for the Management Agent `xyz.domain.com:1243`, that have their status as `Failed`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -version_name="OPC_AGT_ADC_POD_JUNE" -agent="xyz.domain.com:1243" -status="Failed"
```

- The following example displays the details of the update operation `UPDATE_JOB123`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
```

- The following example displays the details of the update operation `UPDATE_JOB123`, for the Management Agent `xyz.domain.com:1243`:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123" -agent="xyz.domain.com:1243"
```

- The following example displays the details of the update operation UPDATE_JOB123, for Management Agents having the status Failed:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-status="Failed"
```

- The following example displays the details of the update operation UPDATE_JOB123 for the Management Agent xyz.domain.com:1243, having the status Failed:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-status="Failed" -agent="xyz.domain.com:1243"
```

- The following example displays the Management Agents of the update operation UPDATE_JOB123, for which severity is ERROR:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-severity="ERROR"
```

- The following example displays the Management Agents of the update operation UPDATE_JOB123, for which severity is WARNING, and severity ID is ROOT_RUN_CHECK:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-severity="WARNING" -severity_id="ROOT_RUN_CHECK"
```

- The following example displays the Management Agents of the update operation UPDATE_JOB123, for which severity ID is ROOT_RUN_CHECK:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-severity_id="ROOT_RUN_CHECK"
```

- The following example displays the details of the update operation UPDATE_JOB123 for the Management Agent xyz.domain.com:1243, with severity as ERROR:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-severity="ERROR" -agent="xyz.domain.com:1243"
```

- The following example displays the details of the update operation UPDATE_JOB123 for the Management Agent xyz.domain.com:1243, with severity ID as ROOT_RUN_CHECK:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-severity_id="ROOT_RUN_CHECK" -agent="xyz.domain.com:1243"
```

- The following example displays the details of the update operation UPDATE_JOB123 for the Management Agent xyz.domain.com:1243, with severity as WARNING and severity ID as ROOT_RUN_CHECK:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-severity="WARNING" -severity_id="ROOT_RUN_CHECK"
-agent="xyz.domain.com:1243"
```

- The following example displays the Management Agents of the update operation UPDATE_JOB123, for which severity is ERROR:

```
<ORACLE_HOME>/bin/emcli get_agent_update_status -op_name="UPDATE_JOB123"
-severity="ERROR"
```

6.9 Upgrading Hybrid Cloud Gateway Agents and Hybrid Cloud Agents

Enterprise Manager Cloud Control provides you with a single pane of glass for monitoring and managing both your on-premise and Oracle Cloud deployments, all from the same management console. By deploying Hybrid Cloud Agents onto the Oracle Cloud virtual hosts serving your Oracle Cloud services, you are able to manage Oracle Cloud targets just as you would any other.

For more information on Hybrid Cloud Management and for instructions to enable the feature, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

If you have already enabled Hybrid Cloud Management, and want to upgrade your Hybrid Cloud Gateway Agents and the Hybrid Cloud Agents, then see [Section 6.2](#). The procedure to upgrade a Hybrid Cloud Gateway Agent or a Hybrid Cloud Agent is the same as the procedure to upgrade any normal, standalone Management Agent in an on-premise Enterprise Manager environment.

Upgrading or Redeploying JVMD Agents

This chapter describes how to upgrade or redeploy Java Virtual Machine Diagnostics (JVMD) Agents. To obtain the latest JVMD features and use them to monitor the JVMs deployed in your enterprise, Oracle recommends that you upgrade your JVMD Agents to the latest available version.

The following topics are covered in this chapter:

- [Upgrading or Redeploying JVMD Agents](#)
- [Verifying JVMD Agent Upgrade or Redeployment](#)

Note: For information about deploying JVMD Agents with basic and advanced options, see the following guides:

- *Oracle Enterprise Manager Cloud Control Basic Installation Guide*
 - *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*
-
-

7.1 Upgrading or Redeploying JVMD Agents

Enterprise Manager Cloud Control provides a user interface and a perl script that enable you to upgrade and redeploy JVMD Agents, which are simple web applications (.war files). The user interface and the perl script enable you to simplify the process of upgrading or redeploying JVMD Agents, and upgrade or redeploy multiple JVMD Agents in one go. Alternatively, you can choose to use the WebLogic Administration console to download and deploy the latest JVMD Agent version.

Note: Certain enterprise management tasks (such as configuring a custom certificate for OMS Oracle HTTP Server uploads, configuring a load balancer for multiple OMSes, etc.) introduce changes in the OMS configuration. These tasks may require you to re-secure the deployed Management Agents. If you re-secure the Management Agents deployed in your enterprise, ensure that you redeploy the deployed JVMD Agents, as described in this section.

You can upgrade or redeploy JVMD Agents using the following methods:

- [Upgrading or Redeploying JVMD Agents Using the Setup Page](#)
- [Upgrading or Redeploying JVMD Agents Manually Using deploy_jvmdagent.pl](#)

- [Upgrading or Redeploying JVM D Agents Manually Using the WebLogic Administration Console](#)

Note: You can upgrade a JVM D Agent deployed on a particular Managed Server only if the available JVM D Agent binaries are of a different version than the deployed JVM D Agent version.

For example, if a 12.1.0.8 JVM D Agent is deployed on a Managed Server, and the 13.1.0.0, or any other version of the JVM D Agent binaries is available, then you can upgrade the deployed 12.1.0.8 JVM D Agent. However, if the 12.1.0.8 version of the JVM D Agent binaries is the only version available, and no other version of the binaries is available, then you cannot upgrade the 12.1.0.8 JVM D Agent deployed on the Managed Server.

7.1.1 Upgrading or Redeploying JVM D Agents Using the Setup Page

To upgrade or redeploy JVM D Agents on monitored WebLogic domains using the Setup page, follow these steps:

1. From the **Setup** menu, select **Middleware Management**, then select **Setup**.
2. On the Setup page, click **Manage JVM D Agents**.
3. For **Operation**, select **Upgrade**.

Note: Alternatively, to reach this point, you can click the upgrade icon displayed beside **JVM D Agents Count**, on the Setup page. Note that this icon is displayed only if a software version different from the current version of the JVM D Agent software is available.

If you select **Expand All** from the **View** menu, you can view the target name, target type, target host, target status, and so on of all the Managed Servers on which JVM D Agents are deployed.

Select the JVM D Agents you want to upgrade or redeploy. Click **Next**.

4. On the Target Credentials page, for each WebLogic domain, specify a value for **Oracle EM Agent Target Host Credentials** and **Oracle WebLogic Domain Credentials** (corresponding to the Admin server target), and then click **Apply**.

Note: In case host and domain preferred credentials are already set for the Admin server target, they are automatically applied to the domain, and it is not required to click **Apply**.

Oracle EM Agent Target Host Credentials are the login credentials for the host on which the Management Agent, that is used to discover the WebLogic domain's Admin Server, is running. Oracle WebLogic Domain Credentials are the credentials for the Administration Server of the selected WebLogic domain.

To set the preferred credentials for a WebLogic domain's Admin server (that is, the preferred EM Agent target host credentials and the preferred Oracle WebLogic Domain credentials), from the **Setup** menu, select **Security**, then select **Preferred Credentials**. Select the **Oracle Admin Server** target type, then click **Manage Preferred Credentials**. In the Target Preferred Credentials section, set the

preferred host credentials and the preferred WebLogic administrator credentials for the required WebLogic Admin server.

Click **Next**.

5. On the JVM D Agents Configurations page (in the JVM D Agent Configuration section), do the following:

If you want to upgrade or redeploy JVM D Agents on Oracle Cloud targets, select **Configure Hybrid Cloud Mode**, and specify the **Hybrid Cloud Proxy Host** and **Hybrid Cloud Proxy Port** that is configured in Oracle Cloud. When you select **Configure Hybrid Cloud Mode**, the value for **Available JVM D Engine** is automatically set to **Other**, as the JVM D Agent connects to the proxy host, which in turn connects to the JVM D Engine.

If you have not selected **Configure Hybrid Cloud Mode**, then for each WebLogic domain, a default JVM D Engine is selected for each domain. If necessary, to change the Engine selected for a domain, select a new Engine from list of **Available JVM D Engine(s)** and click **Apply**. All the JVM D Agents deployed on Managed Servers of the selected WebLogic domain will report to this JVM D Engine. Alternatively, you can select **Other** to connect to a load balancer in case of multiple engines and manually specify the engine host, port, and protocol details.

In Enterprise Manager Cloud Control 13c, you can deploy multiple JVM D Agents that connect to JVM D Engines using HTTP or HTTPS. Hence, both the HTTP and HTTPS URLs for a JVM D Engine are displayed in the **Available JVM D Engines** list. However, if you have configured a load balancer in your setup, JVM D Agents can connect to the load balancer using HTTP or HTTPS, but cannot connect to the individual JVM D Engines using HTTPS. Hence, if you have configured a load balancer for your setup, only the HTTP and HTTPS URLs for the load balancer, and the HTTP URLs for the individual JVM D Engines are displayed in the **Available JVM D Engines** list.

If the **WebLogic Home** and **Middleware Home** fields are displayed in this section, specify values for them. The **WebLogic Home** and **Middleware Home** fields are displayed if their values could not be obtained internally.

Also, if the WebLogic Administration Server is behind a firewall or on a virtual host, the application may not be able to connect to it using the default information. In this case, you may need to provide additional information in the Advanced Domain Configuration section. For example, if the WebLogic Administration Server is on a virtual host, and the application cannot connect to it using the default host value, you must provide the virtual host IP address for **Administration server host**.

Note: Under **Advanced Domain Configuration**, you can specify java args that would be used in the java processes used to deploy JVM D agent. For example, some of the java args that may be required are:

- Dweblogic.security.SSL.enableJSSE=true
 - Dweblogic.security.SSL.protocolVersion=TLS1
 - Dweblogic.security.SSL.trustedCAKeyStore=<path to cacert>
-

Click **Next**.

6. On the Review page, review all the information, then click **Upgrade**.

When you click **Upgrade**, the Diagnostic Agents Deployment Status page appears, which you can use to monitor the progress of the submitted job.

If you encounter any errors during the upgrade or redeployment, see *Oracle Enterprise Manager Cloud Control Advanced Installation Guide*.

7.1.2 Upgrading or Redeploying JVM D Agents Manually Using `deploy_jvmdagent.pl`

You can upgrade or redeploy JVM D Agents manually, using the `deploy_jvmdagent.pl` script. You can run this script only in silent mode, that is, you must specify all the input details using a properties file.

To upgrade or redeploy JVM D Agents manually using `deploy_jvmdagent.pl`, follow these steps:

1. Ensure that the latest version of `oramagent.war` has been downloaded.

For information on how to download `oramagent.war`, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

2. Navigate to the following location in the Oracle home of the OMS:

```
<ORACLE_HOME>/plugins/oracle.sysman.emas.oms.plugin_
13.1.1.0.0/archives/jvmd/deployment_scripts/agent/jvmd/
```

For example,

```
/u01/software/em13c/oraclehome/plugins/oracle.sysman.emas.oms.plugin_
13.1.1.0.0/archives/jvmd/deployment_scripts/agent/jvmd/
```

3. View the `README.txt` file for information on how to use the `deploy_jvmdagent.pl` script.
4. Specify all the inputs in a properties file, then use the following command:

```
perl deploy_jvmdagent.pl [-appserver <server_type>] [-file <name_of_
properties_file>]
```

For example, `perl deploy_jvmdagent.pl -appserver WLS -file wls_upgrade.properties`.

Using `deploy_jvmdagent.pl`, you can upgrade or redeploy only those JVM D Agents that are deployed on WebLogic Server and GlassFish, and not the JVM D Agents that are deployed on other application servers. The `-appserver` parameter specifies the application server on which the JVM D Agent (that you want to upgrade or redeploy) is deployed. If you are upgrading or redeploying a JVM D Agent that is deployed on a WebLogic Managed Server, specify `WLS` for `-appserver`. If you are upgrading or redeploying a JVM D Agent that is deployed on a GlassFish server, specify `GF` for `-appserver`. If you do not specify the `-appserver` parameter, it is assigned the value `WLS` by default.

The `-file` parameter specifies the name of the properties file containing the upgrade or deployment inputs. If you do not specify this parameter, and have specified `WLS` for `-appserver`, `deploy_jvmdagent.pl` searches for a properties file named `weblogic_deploy.properties` in the folder containing the script. If you do not specify the `-file` parameter, and have specified `GF` for `-appserver`, `deploy_jvmdagent.pl` looks for a properties file named `glassfish_deploy.properties` in the folder containing the script. To learn how to specify the input details in a properties file, view the sample properties files `sample_weblogic_deploy.properties` or `sample_glassfish_deploy.properties`.

7.1.3 Upgrading or Redeploying JVMD Agents Manually Using the WebLogic Administration Console

You can choose to use the WebLogic Administration console to manually download and deploy the required JVMD Agent version.

7.2 Verifying JVMD Agent Upgrade or Redeployment

After upgrading or redeploying your JVMD agents, verify the deployment of their new versions, as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

Postupgrade Tasks After Upgrading to Enterprise Manager Cloud Control 13c Release 1

This chapter describes the postinstallation tasks you must perform. In particular, this part covers the following:

- [Redoing the Custom Configurations](#)
- [Reconfiguring Oracle WebLogic Server with Custom Certificates](#)
- [Restarting the Management Agent After Upgrading an Additional OMS](#)
- [Tracking the Status of Deferred Data Migration Jobs](#)
- [Upgrading Oracle Exalogic System Targets](#)
- [\(Optional\) Deleting the Old OMS Home](#)
- [Deleting Unwanted Central Agents of 10g or 11g Release](#)
- [Migrating the SYSMAN Schema to a Database Configured with CDB and PDB](#)
- [Managing JVM Targets That Continue to Be Associated with the Old OMS](#)
- [Enabling Upgrade of Job Types That Were Skipped Before the Upgrade of the Enterprise Manager System](#)

8.1 Redoing the Custom Configurations

Upgrade to 13c Release 1 is an out-of-place upgrade, and therefore, any custom configuration done on the earlier release of the Enterprise Manager system and any customization done on the WebLogic Server, which is configured with the earlier release of the Enterprise Manager system, are not carried over by the upgrade process. You will have to redo the customization on the upgraded system.

8.2 Reconfiguring Oracle WebLogic Server with Custom Certificates

Note: This section is applicable only for Oracle WebLogic Server custom certificates, and not applicable for Enterprise Manager Console certificates. The Enterprise Manager Console certificates are automatically copied over during upgrade.

If custom certificates were configured for Oracle WebLogic Servers (admin server as well as managed servers), then after upgrading to 13c Release 1, the custom certificates are not carried over. Instead, the Oracle WebLogic Servers are configured with Demo Certificates. Therefore, after upgrading, make sure you reconfigure the Oracle WebLogic Servers with custom certificates. To do so, follow these steps:

1. Run the following command on all the OMS instances. For information on the command and the options you can pass, see the *Oracle Enterprise Manager Cloud Control Security Guide*.

```
$(ORACLE_HOME)/bin/emctl secure wls <options>
```

2. Stop all the OMS instances:

```
$(ORACLE_HOME)/bin/emctl stop oms -all
```

3. Start all the OMS instances:

```
$(ORACLE_HOME)/bin/emctl start oms
```

8.3 Restarting the Management Agent After Upgrading an Additional OMS

After upgrading the first OMS, Oracle strongly recommends that you immediately upgrade the central agent on that host as described in [Section 6.2](#).

However, if you did not upgrade the central agent on that host, and instead proceeded with the upgrade of an additional OMS to 13c Release 1, then verify the version of that upgraded additional OMS on the Managed Services page. To do so, from the **Setup** menu, select **Manage Cloud Control**, then select **Management Services**. Verify the OMS version.

If it still shows the older version and not the upgraded version, then restart the Management Agent on the additional OMS host.

8.4 Tracking the Status of Deferred Data Migration Jobs

This section describes the following:

- [About Deferred Data Migration Jobs](#)
- [Tracking the Status of Deferred Data Migration Jobs](#)

8.4.1 About Deferred Data Migration Jobs

Deferred Data Migration is a post-upgrade activity to migrate the format of the data stored in an earlier release of Enterprise Manager to the format compatible with the upgraded Enterprise Manager system. The migration activity is essentially a job in Enterprise Manager that is submitted when the Oracle Management Repository gets upgraded and is scheduled to run in the background when the upgraded Enterprise Manager system starts functioning.

The format of the data stored in Enterprise Manager Cloud Control is different from the format in which the data was stored in any earlier release of Enterprise Manager.

When you upgrade from an earlier release of Enterprise Manager to Enterprise Manager Cloud Control, the data format gets automatically converted or migrated to the format that is compatible with Enterprise Manager Cloud Control.

However, the time taken to migrate the data format depends on the volume of data available in your earlier release of Enterprise Manager. Therefore, if you have a large

amount of data, then it takes longer to migrate, and as a result, the upgrade process takes more time to complete. Unfortunately, until the upgrade process completes, your existing Enterprise Manager system might be unavailable, particularly when you use a 1-System upgrade approach (either on the local host or on a different, remote host).

Considering this, Oracle has fine-tuned its upgrade process to migrate the data format in two distinct phases.

In the first phase, when the Enterprise Manager system is shut down and upgraded, the most critical data relevant to the functioning of Enterprise Manager Cloud Control is migrated within a short time so that the new system can start functioning without much downtime. At this point, only some historical data is unavailable, but you can start monitoring the targets in the upgraded Enterprise Manager system, and see new alerts generated by the upgraded Oracle Management Agent.

In the second phase, after the upgraded Enterprise Manager system starts functioning, the remaining data is migrated.

The data whose format is migrated in the second phase, after Enterprise Manager Cloud Control starts functioning, is called the *Deferred Data*, and this process of migrating from old to new format is called the *Deferred Data Migration*.

Note: Canceling or stopping of a running DDMP job is not recommended.

WARNING: Do not shut down or restart the OMS or the Management Repository while DDMP jobs are running.

8.4.2 Tracking the Status of Deferred Data Migration Jobs

After upgrade, check the status of the deferred data migration jobs. Ensure that the FLAT Association build task in particular is completed successfully.

To track the status of deferred data migration jobs, follow these steps:

1. In Cloud Control, from the **Setup** menu, select **Manage Cloud Control** and then, click **Post Upgrade Tasks**.
2. On the Post Upgrade Tasks page, click the **Deferred Data Migration** tab.
The tab provides a list of data migration jobs with their status, start date and time, and end date and time.
3. In this tab, you can do the following:
 - To start a data migration job for a component, select that component and click **Start**. By default, the job starts immediately. You cannot change this behavior.
 - To rerun a failed job, click the status icon to reach the Job Run page. On the Job Run page, click **Edit**. On the Edit <JobName> Job page, click **Submit** to rerun the job.
 - To hide or unhide the table columns, from the **View** list, select an appropriate option.
 - To detach the table from the screen, click **Detach**.

8.5 Upgrading Oracle Exalogic System Targets

Ensure that you upgrade your Oracle Exalogic System targets.

1. To do so, from the **Enterprise** menu, select **Job**, then select **Library**.
2. On the Job Library page, select the job name **UPGRADE EXALOGIC SYSTEMS TO FUSION MIDDLEWARE 12.1.0.3.0 MODEL**, and click **Submit**.

For the job to run successfully and upgrade the Oracle Exalogic System targets, you should have already upgraded the Management Agents, which are monitoring these targets, to the following supported release so that they contain 12.1.0.3 or later versions of the Oracle Fusion Middleware Plug-in.

- If you upgraded from Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5), and if you had not performed this step when you upgraded to 12c Release 5 (12.1.0.5), then perform this step now in 13c Release 1. Ensure that the Management Agent in this case is either 13c Release 1, 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3).
- If you upgraded from Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), and if you had not performed this step when you upgraded to 12c Release 4 (12.1.0.4), then perform this step now in 13c Release 1. Ensure that the Management Agent in this case is either 13c Release 1, 12c Release 4 (12.1.0.4), or 12c Release 3 (12.1.0.3).

If one or more such Management Agents are not upgraded yet to any of these supported releases, then the job fails and does not upgrade the Oracle Exalogic System targets. Under such circumstances, to resolve the issue, first upgrade those Management Agents, and then try submitting this job to upgrade the Oracle Exalogic System targets.

8.6 (Optional) Deleting the Old OMS Home

After upgrading your Enterprise Manager system completely (either a full release or an additional OMS), you can choose to delete your old OMS home. For instructions, see [Appendix D](#).

8.7 Deleting Unwanted Central Agents of 10g or 11g Release

After upgrading from 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5), you should ideally delete the old central agent, which was not switched over. However, if you did not delete the unwanted central agent at that point for some reason, and if you upgraded from 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5) to 13c Release 1, then you might continue to see the old, unwanted 10g or 11g central agent in *Activation Pending* state in the 13c Release 1 Enterprise Manager Cloud Control Console.

If you do see such unwanted central agents in *Activation Pending* state, then delete by following these steps:

1. Identify the unwanted central agents to be deleted by running the following query as SYSMAN user in the upgraded Management Repository. The query reports central agents and the targets monitored by them, but make note of only the central agent names. Deleting the central agents anyway deletes the targets monitored by them.

```
SELECT ag.target_name agent_name, t.target_name target_name, t.target_
type target_type FROM sysman.mgmt_targets ag, sysman.em_current_
```

```
availability eca, sysman.PRE_UPGC_AGT_STAT_MGMT puasm, sysman.mgmt_
targets t WHERE ag.target_guid = eca.target_guid AND eca.current_status
= 4 AND eca.current_sub_status = 1 AND ag.target_type='oracle_emd' AND
puasm.target_guid = ag.target_guid AND puasm.UPGRADE_STATUS != 'IGNORE_
UPGRADE' AND ag.emd_url NOT IN (SELECT emd_url FROM sysman.mgmt_targets
WHERE target_type='oracle_emrep') AND t.emd_url = ag.emd_url ORDER BY
ag.target_name, t.target_type, t.target_name
```

2. Delete the unwanted central agents:
 - a. On the upgraded OMS host, from the Oracle home of the OMS, log in to the EM CLI client. EM CLI Client is available by default with every OMS installation, so you need not install the client separately.

```
$<ORACLE_HOME>/bin/emcli login -username=SYSMAN
-password=<sysman-passwd>
```

- b. Synchronize EM CLI:

```
$<ORACLE_HOME>/bin/emcli sync
```

- c. Delete the unwanted central agents. Here, agentName is the name of the central agent you want to delete.

```
$<ORACLE_HOME>/bin/emcli delete_target -name=<agentName>
-type=oracle_emd -delete_monitored_targets
```

For example,

```
$/u01/software/oracle/middleware/oms/bin/emcli delete_target
-name=example.com:4567 -type=oracle_emd -delete_monitored_targets
```

3. Deleting the central agents also deletes the targets monitored by them. However, if you want to continue to monitor those targets, then install a new Management Agent of 13c release on the host and discover the targets all over again.

8.8 Migrating the SYSMAN Schema to a Database Configured with CDB and PDB

If you plan to migrate the SYSMAN schema to a database configured with CDB and PDB, then ensure that you meet the following requirements:

1. Upgrade the database to a non-CDB-based database. During the database upgrade process, ensure that the character set of the non-CDB-based database is the same as the CDB. Then, migrate the SYSMAN schema from the upgraded non-CDB-based database to a new PDB in the CDB.
2. Correct the connect descriptor with updated database details. To do so, follow these steps on each OMS instance:
 - a. Stop the OMS.

```
emctl stop oms
```

- b. Start the administration server on the first OMS. Skip this step when you are following these instructions on every other OMS in your environment.

```
emctl start oms -admin_only
```

- c. Modify the connect descriptor for the Management Repository:

```
emctl config oms -store_repos_details -repos_conndesc
"(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_
```

```
name>) (PORT=<port>)) (CONNECT_DATA=(SERVER=DEDICATED) (SERVICE_
NAME=<service_name>))) "
```

For example,

```
emctl config oms -store_repos_details -repos_conn_desc
"(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP) (HOST=dbhost.example.com) (PORT
=1522)) (CONNECT_DATA=(SERVER=DEDICATED) (SERVICE_
NAME=pdb2.example.com))) "
```

- d. Stop and start all the OMS instances.

```
emctl stop oms -all
```

```
emctl start oms
```

- e. Modify the monitoring configuration of the OMS and the Management Repository target.

```
emctl config emrep -conn_desc "<TNS_connect_descriptor>"
```

8.9 Managing JVM Targets That Continue to Be Associated with the Old OMS

If you have any JVM targets associated with the old OMS, then even after you refresh the WebLogic domain, on the WebLogic domain home page, you will continue to see the JVM target that was associated with the old OMS. This is an expected behavior.

Name	Type
GCDomain	Oracle WebLogic Domain
EMGC_ADMINSERVER	Oracle WebLogic Server
EMGC_ADMINMANAGER1	Oracle WebLogic Server
EMGC_JVMDMANAGER1	Oracle WebLogic Server
EMGC_OMS1	Oracle WebLogic Server
oracle.security.apm(11.1.1.3.0)	Oracle Authorization Policy Manager
EMGC_OMS3	Oracle WebLogic Server
oracle.security.apm(11.1.1.3.0)	Oracle Authorization Policy Manager
GCDomain_jvmpool	Java Virtual Machine Pool
SIP_jvm	Java Virtual Machine
EMGC_OMS1_jvm	Java Virtual Machine
EMGC_OMS2_jvm	Java Virtual Machine

You can choose to either retain it for viewing historical data or delete it. To delete it, right-click the orphaned JVM target, and select **Remove Target**.

8.10 Enabling Upgrade of Job Types That Were Skipped Before the Upgrade of the Enterprise Manager System

If you had selectively skipped or postponed the upgrade of certain job types as described in [Section 4.15](#), then after upgrading the Enterprise Manager system, make sure you clear the values you inserted into the MGMT_PARAMETERS table.

To do so, as a SYSMAN user, log in to the database that houses the Oracle Management Repository, and run the following query:

```
DELETE FROM MGMT_PARAMETERS WHERE parameter_name LIKE 'mgmt_job_skip_job_
type_upg%';
```

```
COMMIT;
```

In addition, as the SYSMAN user, create a SQLPlus session against the Oracle Management Repository and run the following:

WARNING: Do not include the job types `PropagateTarget` and `ExecLoaderCallbacks` to the list.

```
BEGIN
  FOR c IN (SELECT job_type_id
            FROM   MGMT_JOB_TYPE_MAX_VERSIONS
            WHERE  job_type IN ('<job type 1>', '<job type 2>', ...))
  LOOP
    MGMT_JOB_ENGINE.reschedule_on_new_jobtype_ver(c.job_type_id);
    COMMIT;
  END LOOP;
END;
```


Part III

Appendixes

This part contains the following appendixes:

- [Appendix A, "Editing the Response File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode"](#)
- [Appendix B, "Updating Server Load Balancer Configuration Settings"](#)
- [Appendix C, "Moving the Central Agent Base Directory Outside Oracle Middleware Home"](#)
- [Appendix D, "Deleting the Old OMS Home"](#)

Editing the Response File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode

This appendix describes the following:

- Parameters to Edit in the `upgrade.rsp` File for Upgrading the OMS and Management Agent in Silent Mode

A.1 Parameters to Edit in the `upgrade.rsp` File for Upgrading the OMS and Management Agent in Silent Mode

Table A–1 describes the parameters you must update in the `upgrade.rsp` response file for upgrading your Oracle Management Service (OMS and Oracle Management Repository (Management Repository) in silent mode.

Table A–1 Editing the Parameters of the `upgrade.rsp` File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
UNIX_GROUP_NAME	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	(Required only when central inventory does not exist) Enter the name of the UNIX group you belong to. For example, "dba".
INVENTORY_LOCATION	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	(Required only when central inventory does not exist and if the OMS you are upgrading was installed using the <code>invPtrLoc</code> argument) Enter the absolute path to the Central Inventory. For example, "/u01/software/oraInventory".
SECURITY_UPDATES_VIA_MYORACLESUPPORT	Applicable only to normal upgrade. Not applicable to software-only upgrade. Therefore, comment out this parameter for software-only upgrade.	Boolean	Yes	<ul style="list-style-type: none"> Enter <code>TRUE</code> if you want to download and install security updates. Then, enter the credentials for the following parameters in double quotes: <code>MYORACLESUPPORT_USERNAME</code> <code>MYORACLESUPPORT_PASSWORD</code> Enter <code>FALSE</code> if you do not want to download and install security updates:

Table A–1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
DECLINE_SECURITY_UPDATES	Applicable only to normal upgrade. Not applicable to software-only upgrade. Therefore, comment out this parameter for software-only upgrade.	Boolean	No	<ul style="list-style-type: none"> Enter TRUE if you want to decline the security updates. In this case, you should have entered FALSE for SECURITY_UPDATES_VIA_MYORACLESUPPORT. Enter FALSE if you do not want to decline the security updates. In this case, you should have entered TRUE for SECURITY_UPDATES_VIA_MYORACLESUPPORT.
INSTALL_UPDATES_SELECTION	Applicable only to normal upgrade. Not applicable to software-only upgrade. Therefore, comment out this parameter for software-only upgrade.	String	Yes	<p>By default, this parameter is set to "skip" indicating that the software updates will not be installed during installation.</p> <ul style="list-style-type: none"> If you want to install the software updates from My Oracle Support, then set this parameter to "download". Then, enter the credentials for the following parameters in double quotes: MYORACLESUPPORT_USERNAME_FOR_SOFTWAREUPDATES MYORACLESUPPORT_PASSWORD_FOR_SOFTWAREUPDATES If you want to install the software updates from a staged location, then set this parameter to "staged". Then, for the STAGE_LOCATION parameter, enter the absolute path, which leads to the Updates directory where the software updates are available, in double quotes. For this option, as a prerequisite, you must have already downloaded the software updates. For instructions, see <i>Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide</i>.
ORACLE_MIDDLEWARE_HOME_LOCATION	Applicable only to normal upgrade. Not applicable to software-only upgrade. Therefore, comment out this parameter for software-only upgrade.	String	Yes	<p>Upgrade to 13c Release 1 is an out-of-place upgrade, therefore you must enter a new middleware home where the installer can automatically install Oracle WebLogic Server 12c Release 1 (12.1.3.0) and Java Development Kit (JDK) 1.7.0_80. Ensure that the middleware location has <i>write</i> permission.</p> <p>For example, /u01/software/em13c/oraclehome.</p> <p>Note: Ensure that the Middleware home you enter here is used only for Enterprise Manager Cloud Control. Ensure that no other Oracle Fusion Middleware products or components are installed in the same Middleware home.</p> <p>Note: Ensure that the number of characters in the middleware home path does not exceed 70 characters for Unix platforms and 25 characters for Microsoft Windows platforms.</p> <p>For example, the middleware home path C:\Oracle\MW\EM containing only 15 characters is acceptable. However, C:\OracleSoftware\OracleMiddleware\OracleEnterpriseManager\OMS\newrelease\oms containing more than 25 characters is not acceptable for Microsoft Windows platforms.</p>

Table A–1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
ORACLE_INSTANCE_HOME_LOCATION	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	<p>By default, <code>gc_inst</code> is considered as the OMS Instance Base directory for storing all OMS-related configuration files, and by default, it is created outside the Middleware home.</p> <ul style="list-style-type: none"> ▪ To accept the default location and the directory name, leave the parameter blank. ▪ To have a custom location and a custom directory name, enter the absolute path to the custom location leading up to the custom directory name. <p>For example, <code>/u01/software/em13c/gc_inst</code>.</p> <p>Important: If you are installing on an NFS-mounted drive and creating the OMS instance base directory (<code>gc_inst</code>) on that NFS-mounted drive, then after you install, move the lock files from the NFS-mounted drive to a local file system location. Modify the lock file location in the <code>httpd.conf</code> file to map to a location on a local file system. For instructions, refer to Section 5.1.10.1.</p>
OLD_BASE_DIR	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	Enter the base directory of the OMS you want to upgrade. This is essentially the middleware home where the OMS home is present.
ORACLE_HOSTNAME	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
ONE_SYSTEM	Applicable to normal upgrade as well as software-only upgrade.	Boolean	No	By default, this parameter is set to <code>TRUE</code> .
AGENT_BASE_DIR	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
OLD_DATABASE_CONNECTION_DESCRIPTION	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
OLD_DATABASE_SYSMAN_PASSWORD	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
WLS_ADMIN_SERVER_USERNAME	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.

Table A–1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
WLS_ADMIN_SERVER_PASSWORD	Not applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
WLS_ADMIN_SERVER_CONFIRM_PASSWORD	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
NODE_MANAGER_PASSWORD	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
NODE_MANAGER_CONFIRM_PASSWORD	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
WLS_ADMIN_SERVER_PASSWORD	Applicable to normal upgrade as well as software-only upgrade.	String	Yes	Enter the password for the WebLogic user account.
JVM_DIAGNOSTICS_TABLESPACE_LOCATION	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
DATABASE_HOSTNAME	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
LISTENER_PORT	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
SERVICENAME_OR_SID	Not applicable to normal upgrade as well as software-only upgrade. Therefore, comment out this parameter.	String	Yes	Not applicable.
SYS_PASSWORD	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter for additional OMS upgrade.	String	Yes	Enter the SYS user account's password

Table A–1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
SYSMAN_PASSWORD	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter for additional OMS upgrade.	String	Yes	Enter the SYSMAN user account's password.
REPOSITORY_BACKUP	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter for additional OMS upgrade.	Boolean	No	As a prerequisite, you must back up the Management Repository before you start upgrading your Enterprise Manager system. If you have taken a backup, then set this parameter to <code>TRUE</code> . Otherwise, set it to <code>FALSE</code> .
DISABLE_DDMP_JOBS	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter for additional OMS upgrade.	Boolean	No	If you have to stop the Enterprise Manager system for postupgrade maintenance, then set this parameter to <code>TRUE</code> to disable the DDMP jobs. If you do not plan to stop the Enterprise Manager system for postupgrade maintenance, and hence do not want to disable the DDMP jobs, then set this parameter to <code>FALSE</code> .

Table A–1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
PLUGIN_SELECTION	Applicable to normal upgrade as well as software-only upgrade.	String List	Yes (A comma-separated list of plug-in names, where the plug-in names must be in double quotes)	<p>By default, all plug-ins deployed on the OMS are automatically upgraded when newer versions exist or migrated when newer versions do not exist. Also, new plug-ins are deployed when the plug-ins being upgraded have new dependencies or when there are any new default plug-ins introduced with a release.</p> <p>You might have a deprecated plug-in in your environment that can be upgraded to a plug-in version that is supported only in 13c Release 1 but not in any of the future releases. If such a deprecated plug-in exists, then evaluate your and decide whether or not you want to proceed with the upgrade of such plug-ins.</p> <p>If you want to install any of the other optional plug-ins, then enter the names of those plug-ins for this parameter.</p> <p>Again, if you list any deprecated plug-ins that will be supported only in 13c Release 1 but not in any of the future releases, then evaluate your selection and decide whether or not you want to proceed with the deployment.</p> <p>For example,</p> <p>If you want to install 13.1.1.0.0_oracle.sysman.empa_2000_0.opar and 13.1.1.0.0_oracle.sysman.vt_2000_0.opar, then enter the plug-in IDs in the following way:</p> <pre>PLUGIN_SELECTION={"oracle.sysman.empa", "oracle.sysman.vt"}</pre> <p>If you want to install any plug-in that is not available in the software kit, then follow these steps:</p> <ol style="list-style-type: none"> 1. Manually download the required plug-ins from the following location: http://www.oracle.com/technetwork/oem/extensions/index.html <p>In addition, if you want to download any partner or customer plug-ins, then download from the following location: https://apex.oracle.com/pls/apex/f?p=53891:1</p> <ol style="list-style-type: none"> 2. Invoke the installer with the following parameter, and pass the location where the plug-ins have been downloaded. <pre>./em13100_<platform>.bin PLUGIN_LOCATION=<absolute_path_to_plugin_software_location></pre> <p>If you want to enter the names of any deprecated plug-in that is supported only in 13c Release 1 but not in any of the future releases, then evaluate your choice and decide whether or not you want to proceed with the deployment of such plug-ins.</p>

Table A–1 (Cont.) Editing the Parameters of the upgrade.rsp File for Upgrading the OMS and Management Repository in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
CONFIGURE_SHARED_LOCATION_BIP	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter for software-only upgrade.	Boolean	No	<p>If you are upgrading an OMS that already has Oracle BI Publisher installed and configured in a shared location, then set this parameter to <code>FALSE</code>.</p> <p>However, if you are upgrading an OMS that does not already have Oracle BI Publisher installed, or if you are upgrading an OMS that has Oracle BI Publisher installed but not configured in a shared location, then set this parameter to <code>TRUE</code>, and configure a shared location for Oracle BI Publisher.</p> <p>The shared storage location will act as a common location for storing the report catalog and associated management information for the first OMS you are installing now and also for the additional OMS you plan to install in the future.</p> <p>Identify a shared location that you can use for Oracle BI Publisher. If you do not have an existing shared location, create a new one and ensure that it is visible on the host where you are installing the first OMS and also on other hosts where you plan to install additional OMS instances.</p> <p>At upgrade time, for the installation to be successful, you can reserve approximately 400 MB of hard disk space for the shared directory. However, Oracle recommends that you scale it to at least 10 GB eventually, and ensure that it can be extended further in the future because the space utilization increases over a period of time as you install additional plug-ins and create more reports.</p>
CLUSTER_LOCATION	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter for software-only upgrade.	String	Yes	<p>Set this only if the <code>CONFIGURE_SHARED_LOCATION_BIP</code> parameter is set to <code>TRUE</code>.</p> <p>Specify the path leading up to the <code>/cluster</code> directory on the shared storage location where Oracle BI Publisher scheduler storage can be maintained for Oracle BI Publisher to operate in a high-availability environment. For example, <code>/u01/software/examplehost/BIP/cluster</code>.</p>
CONFIG_LOCATION	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter for software-only upgrade.	String	Yes	<p>Set this only if the <code>CONFIGURE_SHARED_LOCATION_BIP</code> parameter is set to <code>TRUE</code>.</p> <p>Specify the path leading up to the <code>/config</code> directory on the shared storage location where Oracle BI Publisher repository and configuration files can be stored. For example, <code>/u01/software/examplehost/BIP/config</code>.</p>
ENABLE_BI_PUBLISHER	Applicable to normal upgrade as well as software-only upgrade. Not applicable to additional OMS upgrade. Therefore, comment out this parameter for software-only upgrade.	Boolean	No	<p>Enable or disable the installed and configured Oracle BI Publisher. Enabling Oracle BI Publisher starts the software and keeps it ready for use within the Enterprise Manager system. Disabling Oracle BI Publisher leaves the software as it is without starting it.</p> <p>To enable Oracle BI Publisher, set this parameter to <code>TRUE</code>. To disable, set this parameter to <code>FALSE</code>.</p>

Updating Server Load Balancer Configuration Settings

This appendix describes the following:

- [Updating Server Load Balancer Configuration Settings](#)

B.1 Updating Server Load Balancer Configuration Settings

If you have a Server Load Balancer (SLB) configured, make the changes described in [Table B-1](#) to your monitors.

Note: The HTTPS and HTTP ports you must associated with can be found by running the following command from the Oracle home of the OMS:

```
$<ORACLE_HOME>/bin/emctl status oms -details
```

Table B-1 SLB-Specific Configuration Changes to SLB Monitors

Monitor Name	Configuration					Associate With
	Type	Interval	Timeout	Send String	Receive String	
mon_emcc_secure_upload<https_port>	https	60	181	GET /empbs/upload	Http Receiver Servlet active!	HostA:<https_upload_port> HostB:<https_upload_port>
mon_emcc_unsecure_agent_reg<http_port> (optional)	http	60	181	GET /empbs/genwallet	GenWallet Servlet activated	HostA:<http_upload_port> HostB:<http_upload_port>
mon_emcc_secure_console<https_console_port>	https	5	16	GET /em/consoleStatus.jsp	Enterprise Manager Console is UP	HostA:<https_upload_port> HostB:<https_upload_port>
mon_emcc_unsecure_console<http_console_port> (optional)	http	5	16	GET /em/consoleStatus.jsp	Enterprise Manager Console is UP	HostA:<http_upload_port> HostB:<http_upload_port>

Note: Some Load Balancers require <CR><LF> characters to be added explicitly to the Send String using literal "\r\n". This is vendor-specific. Refer to your SLB documentation for details.

Moving the Central Agent Base Directory Outside Oracle Middleware Home

This appendix describes the following:

- [Overview of Moving the Central Agent Base Directory Outside Oracle Middleware Home](#)
- [Moving the Central Agent Base Directory Outside Oracle Middleware Home](#)

C.1 Overview of Moving the Central Agent Base Directory Outside Oracle Middleware Home

In Enterprise Manager Cloud Control 12c Release 1 (12.1.0.1) and 12c Release 2 (12.1.0.2), by default the agent base directory of the central agent is maintained inside the Oracle Middleware Home (middleware home). Central agent is the Oracle Management Agent that is deployed by default with the first Oracle Management Service.

However, in Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3) or higher, Oracle strongly recommends that you maintain the agent base directory outside the middleware home, although you can choose to maintain it inside the middleware home. Each 13c upgrade is an out-of-place upgrade that results in a new middleware home created for the upgraded release. By maintaining the agent base directory outside the middleware home, you do not have any dependency on the previous release's middleware home, and therefore, you can conveniently delete the previous releases's middleware home when it is not needed.

Therefore, when you install a new 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), 12c Release 5 (12.1.0.5), or 13 Release 1 OMS, you will see the agent base directory created outside the middleware home by default (unless you chose to maintain it inside the middleware home). Similarly, when you upgrade from a newly installed 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4), or 12c Release 5 (12.1.0.5) OMS to 13c Release 1, you will see the agent base directory upgraded outside the middleware home by default (unless you chose to maintain it inside the middleware home in the previous releases).

However, when you upgrade from 12c Release 1 (12.1.0.1) to 12c Release 2 (12.1.0.2) or 12c Release 3 (12.1.0.3), and then upgrade to 12c Release 4 (12.1.0.4) or 12c Release 5 (12.1.0.5), you will continue to see the agent base directory inside the middleware home (unless you had already migrated it outside the middleware home). You can choose to migrate the agent base directory to a location outside the middleware if you want.

Note that moving the agent base directory of a central agent outside the Oracle Middleware home is a one-time activity. Once the agent base directory of a central

agent is moved outside the middleware home, it remains at the same location even after subsequent upgrades.

If a central agent was upgraded to 12.1.0.2 (from 12.1.0.1) or 12.1.0.3 (from 12.1.0.1 or 12.1.0.2), and you want to move the agent base directory of the central agent outside the Oracle Middleware home, then follow the instructions outlined in the My Oracle Support note 1520010.1.

If you want to move the agent base directory of a 12.1.0.5 or 12.1.0.4 central agent (which was initially of version 12.1.0.1, then upgraded to 12.1.0.2, 12.1.0.3, and then again upgraded to 12.1.0.4 or 12.1.0.5, respectively) to a location outside the middleware home, follow these steps:

Important: Moving the agent base directory is recommended only for central agents (on all platforms, including Microsoft Windows), and not recommended for standalone Management Agents.

C.2 Moving the Central Agent Base Directory Outside Oracle Middleware Home

To move the central agent base directory outside Oracle Middleware Home, follow these steps:

1. Run the following script:

```
<AGENT_HOME>/perl/bin/perl <AGENT_HOME>/sysman/install/create_plugin_list.pl  
-instancehome <AGENT_INSTANCE_HOME>
```

Here, <AGENT_HOME> represents the current central agent Oracle home, and <AGENT_INSTANCE_HOME> represents the current central agent instance home.

2. Run the following script:

```
<AGENT_HOME>/perl/bin/perl <AGENT_HOME>/sysman/install/AgentMigrate.pl  
-instanceHome <AGENT_INSTANCE_HOME> -newAgentBaseDir <AGENT_BASE_DIRECTORY>
```

Here, <AGENT_HOME> represents the current central agent Oracle home, <AGENT_INSTANCE_HOME> represents the new central agent instance home, and <AGENT_BASE_DIRECTORY> represents the location to which you want to migrate the central agent base directory.

To verify whether the migration was successful, switch to the Cloud Control console and perform these steps:

1. From the **Targets** menu, select **All Targets**. Select the central agent target. On the Management Agent home page, in the Summary section, verify the Oracle home path and the agent state directory path. Ensure that both these paths point to the new locations.
2. Access the home pages of the targets monitored by the central agent. Check the status of these targets. Ensure that they are up and running.

Deleting the Old OMS Home

Central agent is the Oracle Management Agent (Management Agent) that is deployed by default with the first Oracle Management Service (OMS). In Enterprise Manager Cloud Control 12c Release 1 (12.1.0.1) and 12c Release 2 (12.1.0.2), by default the agent base directory of the central agent was maintained inside the Oracle Middleware Home (middleware home). However, in Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3) or higher, Oracle strongly recommended that you maintain the agent base directory outside the middleware home, although you could choose to maintain it inside the middleware home. While upgrading from 12c Release 1 (12.1.0.1) or 12c Release 2 (12.1.0.2) to 12c Release 3 (12.1.0.3) or higher, you had the option of migrating the agent base directory to a location outside the middleware as described in [Appendix C](#). If you had already migrated the central agent, then you can directly remove the old OMS home. Otherwise, you must first migrate the central agent and then remove the old OMS home.

This appendix describes how you can remove the old OMS home under both these circumstances. In particular, it covers the following:

- [Deleting the Old OMS Home When the Central Agent Is Still Present in the Old Middleware Home](#)
- [Deleting the Old OMS Home When the Central Agent Is Migrated to a Location Outside the Old Middleware Home](#)

D.1 Deleting the Old OMS Home When the Central Agent Is Still Present in the Old Middleware Home

If you have not already migrated the central agent to a location outside the old middleware home, then you must first migrate the central agent and then remove the old OMS, or in other words the old middleware home. To do so, follow these steps:

1. Migrate the central agent to a location outside the old middleware home.
 - a. Create a list of plug-ins.

```
<AGENT_HOME>/perl/bin/perl <AGENT_HOME>/sysman/install/create_
plugin_list.pl -instancehome <AGENT_INSTANCE_HOME>
```

Here, <AGENT_HOME> represents the current central agent Oracle home, and <AGENT_INSTANCE_HOME> represents the current central agent instance home.

- b. Convert the central agent to a standalone agent.

```
<AGENT_HOME>/perl/bin/perl <AGENT_
HOME>/sysman/install/AgentMigrate.pl -instanceHome <AGENT_INSTANCE_
HOME> -newAgentBaseDir <AGENT_BASE_DIRECTORY>
```

Here, <AGENT_HOME> represents the current central agent Oracle home, <AGENT_INSTANCE_HOME> represents the new central agent instance home, and <AGENT_BASE_DIRECTORY> represents the location to which you want to migrate the central agent base directory.

2. Remove the old OMS home, or in other words the old middleware home.

- a. Detach the old OMS home.

```
<OLD_OMS_HOME>/oui/bin/runInstaller -detachHome -force -allDepHomes
-silent ORACLE_HOME=<OLD_OMS_HOME> -waitForCompletion -invPtrLoc
<OMS_HOME>/oraInst.loc
```

- b. Detach the Oracle common directory.

```
<OLD_OMS_HOME>/oui/bin/runInstaller -detachHome -force -allDepHomes
-silent ORACLE_HOME=<OLD_MW_HOME>/oracle_common -waitForCompletion
-invPtrLoc <OLD_MW_HOME>/oraInst.loc
```

- c. Check whether any processes are running from the old middleware home.

```
ps -ef | grep <OLD_MW_HOME>
```

- d. If no processes are running, delete the old OMS home.

```
rm -rf <OLD_OMS_HOME>
```

D.2 Deleting the Old OMS Home When the Central Agent Is Migrated to a Location Outside the Old Middleware Home

If you have already migrated the central agent to a location outside the old middleware home, then you can directly remove the old OMS, or in other words the old middleware home. To do so, follow these steps:

1. Detach the old OMS home.

```
<OLD_OMS_HOME>/oms/oui/bin/runInstaller -detachHome -force -allDepHomes
-silent ORACLE_HOME=<OLD_OMS_HOME> -waitForCompletion -invPtrLoc <OMS_
HOME>/oraInst.loc
```

2. Detach the Oracle common directory.

```
<OLD_OMS_HOME>/oui/bin/runInstaller -detachHome -force -allDepHomes
-silent ORACLE_HOME=<OLD_MW_HOME>/oracle_common -waitForCompletion
-invPtrLoc <OLD_MW_HOME>/oraInst.loc
```

3. Check whether any processes are running from the old middleware home.

```
ps -ef | grep <OLD_MW_HOME>
```

4. If no processes are running, delete the old OMS home.

```
rm -rf <OLD_OMS_HOME>
```

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