Oracle® Enterprise Manager

Cloud Control Upgrade Guide

12*c* Release 5 (12.1.0.5)

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Oracle Enterprise Manager Cloud Control Upgrade Guide, 12c Release 5 (12.1.0.5)

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Preface

Oracle Enterprise Manager Cloud Control Upgrade Guide describes how you can upgrade the following to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5):

- Enterprise Manager Cloud Control 12*c* Release 4 (12.1.0.4)

- Enterprise Manager Cloud Control 12*c* Release 3 (12.1.0.3)

- Enterprise Manager Cloud Control 12*c* Release 2 (12.1.0.2)

- Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1)

- Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5)

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

Audience

Oracle Enterprise Manager Cloud Control Upgrade Guide is meant for system administrators who want to upgrade an existing 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), 12*c* Release 2 (12.1.0.2), 11*g* Release 1 (11.1.0.1), or 10*g* Release 5 (10.2.0.5) Enterprise Manager system.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

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.
italic	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.

What's New in This Book Revision

In addition updating the books for an incremental software release or a patch set release, Oracle revises its books regularly to incorporate bug fixes and value-added feedback from customers, product managers, support teams, and other key stakeholders. Every time a book is revised, the revision number of the book is increased by one and then published on Oracle Technology Network (OTN).

This chapter lists the changes incorporated in the latest revision (E22625-44) and all the previous revisions of *Oracle Enterprise Manager Cloud Control Upgrade Guide* (this book) published for 12*c* Release 5 (12.1.0.5). Note that the latest revision (E22625-44) is the current revision published on OTN for 12*c* Release 5 (12.1.0.5), and the latest revision always contains all the changes incorporated in its previous revisions.

In particular, this chapter covers the following:

- Changes Incorporated in the Latest Revision (Published)
- Changes Incorporated in the Previous Revisions (Archived)

Changes Incorporated in the Latest Revision (Published)

The following are the changes incorporated in the latest revision (E22625-44) that is published on OTN.

Part, Chapter, or Section	Change Description
Section 3.13 of Chapter 3 Section 13.6.13 of Chapter 13	Removed the following sections because the statements mentioned in these sections were not true, and that the customization are indeed carried over after upgrade.
	Section 3.13 Redoing Customization on Deployment Procedures After Upgrading an Enterprise Manager System
	Section 13.6.13 Redoing the Customization on Deployment Procedures

Changes Incorporated in the Previous Revisions (Archived)

The following sections describe the changes incorporated in the previous revisions. These revisions have been archived, and therefore are not currently available on OTN.

Changes Incorporated in E22624-43

Part, Chapter, or Section	Change Description
Section 4.1	Corrected the incorrect command `show_operation_list` to `show_operations_list`.
Preface	Corrected the note about upgrading 12*c* Release 1 (12.1.0.1).
Chapter 3	Removed the section on redoing customization related to Oracle WebLogic Server.

Changes Incorporated in E22624-42

Part, Chapter, or Section	Change Description
Preface, Chapter 4	Fixed typographic errors.
Section 13.13.2	Updated the lead-in paragraph of the section to clarify what type of central agents must be deleted and why they should be deleted.

Changes Incorporated in E22624-41

Part, Chapter, or Section	Change Description
Chapter 4	Updated the prerequisites.

Part I

Introduction to Upgrading an Enterprise Manager System

This part introduces you to the upgrade approaches offered by Oracle for upgrading your Enterprise Manager system, and describes some key facts you must know before you upgrade your Enterprise Manager system.

In particular, this part covers the following:

- Chapter 1, "What's New in This Product Release"

- Chapter 2, "Overview of the Upgrade Approaches Offered for Upgrading an Enterprise Manager System"

- Chapter 3, "Things to Know About Upgrading an Enterprise Manager System"

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 12*c* Release 5 (12.1.0.5). Review the information available in these URLs, and understand why you must upgrade to 12*c* Release 5 (12.1.0.5).

Table 1–1   What's New in 12c Release 5 (12.1.0.5)

What's New Topic	Reference URL
What's New in 12*c* Release 5 (12.1.0.5)?	*Oracle Enterprise Manager Cloud Control Introduction Guide* http://docs.oracle.com/cd/E24628_01/doc.121/e25353/toc.htm
What's New in 12*c* Release 5 (12.1.0.5) Installation Process, Agent Deployment Process, and Upgrade Process?	*Published Documents on Oracle Technology Network* http://www.oracle.com/technetwork/oem/install-upgrade/index.html
What Are the Key Known Issues in 12*c* Release 5 (12.1.0.5)?	*Oracle Enterprise Manager Cloud Control Release Notes* http://docs.oracle.com/cd/E24628_01/nav/relnotes.htm
Are My Bugs Fixed in 12*c* Release 5 (12.1.0.5)?	If you noticed a few bugs in the previous release, and if you want to know whether those bugs have been fixed in 12*c* Release 5 (12.1.0.5), then raise a Service Request with Oracle Support.

2

Overview of the Upgrade Approaches Offered for Upgrading an Enterprise Manager System

Enterprise Manager has had many releases in the past, but Enterprise Manager Cloud Control is the latest release that has significant changes over all its earlier releases. Unlike the earlier releases that were called Enterprise Manager *Grid* Control, this release is called Enterprise Manager *Cloud* Control.

Enterprise Manager Cloud Control offers a variety of new features and enhancements, including improved user interface, stability, reliability, and performance. In addition, Enterprise Manager Cloud Control offers seamless access to *My Oracle Support* from within its console for managing service requests, deploying patches, and reviewing knowledge base articles.

This chapter describes how you can upgrade your existing, earlier releases of Enterprise Manager Grid Control or Enterprise Manager Cloud Control to 12*c* Release 5 (12.1.0.5).

Oracle understands that with the option of deploying Enterprise Manager across the enterprise and in any number of permutations, upgrading your entire environment becomes a very complex activity, particularly when it involves updating of software and configurations in different levels (tiers) located in different hosts. In addition, there are challenges of upgrading the environment with *near-zero* downtime or minimal monitoring loss.

Considering these challenges, Oracle provides upgrade options that offer the flexibility to select the approach that best suits your requirement. The upgrade options also aim at simplifying the entire upgrade operation with the intent of making it seamless and error-free.

This chapter provides an overview of the different upgrade approaches that are offered, the utilities to be used for each approach, and the overall process to be followed for each approach for upgrading your existing Enterprise Manager system. In particular, this chapter covers the following:

- Upgrading Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4) to 12c Release 5 (12.1.0.5)

- Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

2.1 Upgrading Enterprise Manager Cloud Control 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), 12*c* Release 4 (12.1.0.4) to 12*c* Release 5 (12.1.0.5)

This section describes the following:

- Overview of the Upgrade Approaches Offered for Upgrading Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4) to 12c Release 5 (12.1.0.5)

- Overview of the Upgrade Utilities Offered for Upgrading Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4) to 12c Release 5 (12.1.0.5)

- Overview of the 1-System Upgrade Approach Offered for Upgrading Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4) to 12c Release 5 (12.1.0.5)

Note:

- If you have Oracle Management Service 12*c* Release 1 (12.1.0.1) [with or without Bundle Patch 1], then first upgrade it to either 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), or 12*c* Release 4 (12.1.0.4), and then upgrade to 12*c* Release 5 (12.1.0.5).

  For instructions to upgrade to 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), or 12*c* Release 4 (12.1.0.4), refer to the *Oracle Enterprise Manager Cloud Control Upgrade Guide* for the respective release, available in the Enterprise Manager documentation library:

  http://docs.oracle.com/cd/E24628_01/index.htm

- The Oracle Management Agent releases that are supported for Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5) are 12*c* Release 5 (12.1.0.5), 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), and 12*c* Release 2 (12.1.0.2). If you have any earlier releases of Oracle Management Agent, then before upgrading the Oracle Management Service to 12*c* Release 5 (12.1.0.5), make sure you upgrade your Oracle Management Agent to either 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) using the *Agent Upgrade Console* present within the Enterprise Manager Cloud Control Console.

Note: For information on the releases Enterprise Manager Cloud Control has had so far, refer to *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

2.1.1 Overview of the Upgrade Approaches Offered for Upgrading Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4) to 12c Release 5 (12.1.0.5)

Oracle offers only 1-system upgrade approach for upgrading 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), 12*c* Release 4 (12.1.0.4) to 12*c* Release 5 (12.1.0.5). 2-system upgrade approach is NOT supported.

The 1-system upgrade approach upgrades your Enterprise Manager Cloud Control on the same host—upgrades Oracle Management Service (OMS) on the same host and Oracle Management Repository (Management Repository) in the existing database. Since the upgrade happens on the same host, there is a reasonable downtime involved.

In this upgrade approach, the Enterprise Manager system may be either a single instance or multi-OMS implementation (required by larger enterprises). In either case, the new OMS will be upgrading the original OMS on the same host, but only one system, the new or the original, can be active at any point.

> **Note:** The installer does NOT upgrade your existing Management Agents. After upgrading the OMS, you must upgrade the Management Agent separately using the *Agent Upgrade Console. Agent Upgrade Console* is a GUI-rich console that you see in the Enterprise Manager Cloud Control Console after you upgrade the OMS. For more information, refer to Section 2.1.2.2.

Table 2–1 describes the compatibility between OMS and Management Agents across 12c releases.

Table 2–1   Compatibility Between OMS and Management Agents Across 12c Releases

	Oracle Management Agent 12c Release 1 (12.1.0.1) + Bundle Patch 1 *(Refers to agents and their plug-ins patched or upgraded to, or installed with Bundle Patch 1)*	Oracle Management Agent 12c Release 2 (12.1.0.2)	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 Service 12c Release 1 (12.1.0.1) + Bundle Patch 1	Yes *(includes Management Agents with and without Bundle Patch 1)*	No	No	No	No
Oracle Management Service 12c Release 2 (12.1.0.2)	Yes *(includes Management Agents with and without Bundle Patch 1)*	Yes	No	No	No
Oracle Management Service 12c Release 3 (12.1.0.3)	Yes *(Only Management Agents released in January 2012 [with Bundle Patch 1])*	Yes	Yes	No	No
Oracle Management Service 12c Release 4 (12.1.0.4)	No	Yes	Yes	Yes	No
Oracle Management Service 12c Release 5 (12.1.0.5)	No	Yes	Yes	Yes	Yes

2.1.2 Overview of the Upgrade Utilities Offered for Upgrading Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4) to 12c Release 5 (12.1.0.5)

This section describes the utilities to be used for upgrading 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), 12*c* Release 4 (12.1.0.4) to 12*c* Release 5 (12.1.0.5). In particular, this section describes the following:

- Overview of the Enterprise Manager Cloud Control Installation Wizard

- Overview of the Agent Upgrade Console

2.1.2.1 Overview of the Enterprise Manager Cloud Control Installation Wizard

The Enterprise Manager Cloud Control Installation Wizard is the primary user interface that enables you to select the 1-system upgrade approach, and upgrade your existing OMS and Management Repository.

The following diagram clearly illustrates the features it offers.
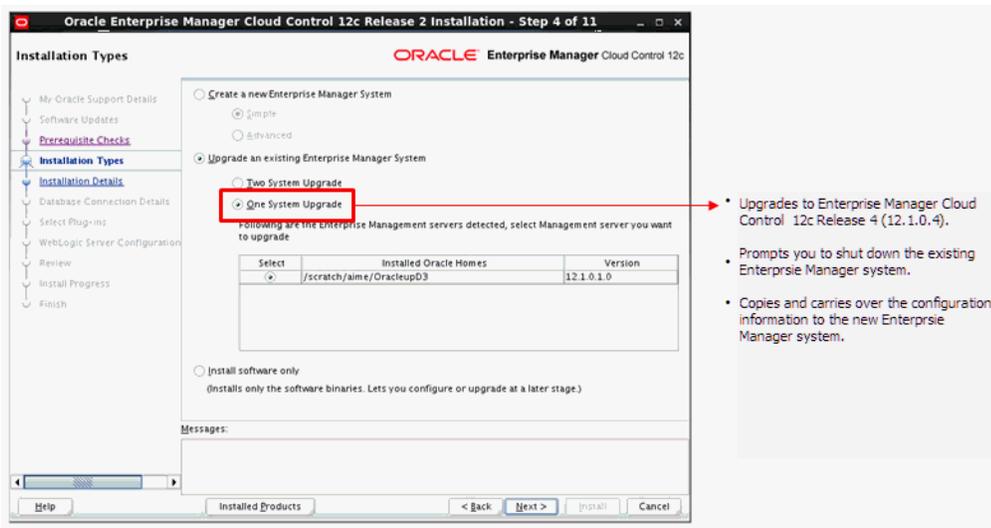
2.1.2.2 Overview of the Agent Upgrade Console

The Agent Upgrade Console is a graphical user interface built into Enterprise Manager Cloud Control 12*c*. The console enables you to upgrade one or more Oracle Management Agents. To access the Agent Upgrade Console, from the **Setup** menu, click **Manage Cloud Control,** then select **Upgrade Agents.**

> **Note:** The Agent Upgrade Console was available with Enterprise Manager Cloud Control 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3) and 12*c* Release 2 (12.1.0.2). However, the console available with Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) upgrades only the Management Agent releases mentioned in this section.
>
> If you have any Oracle Management Agents of 12*c* Release 1 (12.1.0.1), then before upgrading the Oracle Management Service, make sure you upgrade those Oracle Management Agents to either 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) using the *Agent Upgrade Console.* After that, you can upgrade to 12*c* Release 5 (12.1.0.5).

> **Note:** All OMS instances must be upgraded in a multi-OMS environment, before you can use the Agent Upgrade Console to upgrade your Management Agents.
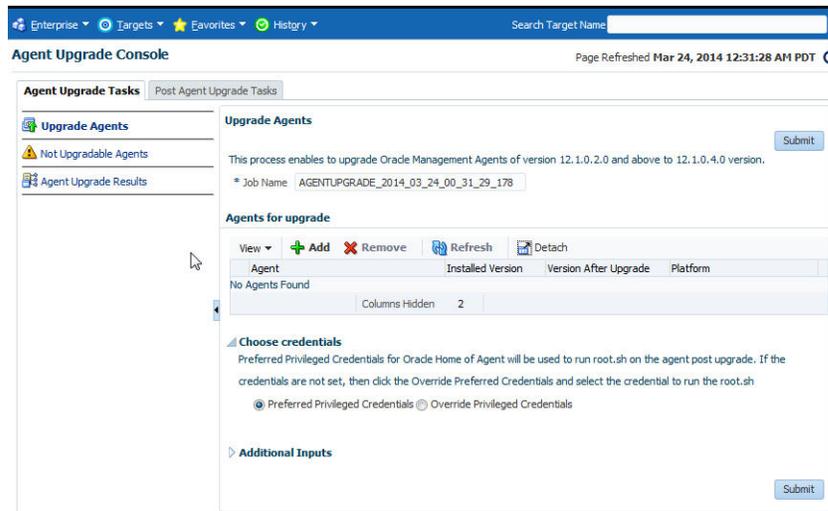
2.1.3 Overview of the 1-System Upgrade Approach Offered for Upgrading Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4) to 12c Release 5 (12.1.0.5)

The following illustration describes the high-level flow or sequence of steps you must perform when you choose to upgrade 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3) or 12*c* Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5) using the 1-system upgrade approach:

> **Note:** Oracle Management Service 12*c* communicates only with
> Oracle Management Agent 12*c* (12.1.0.5, 12.1.0.4, 12.1.0.3, 12.1.0.2).
> Therefore, unlike the earlier releases, you must first upgrade the OMS
> and the Management Repository, and then upgrade the Management
> Agents using the *Agent Upgrade Console*. *Agent Upgrade Console* is a
> GUI-rich console that you see in the Enterprise Manager Cloud
> Control Console after you upgrade the OMS. For more information,
> refer to

When you upgrade the OMS and the Management Repository using the installer, the
installer does the following by default:

- Installs the following components in the Middleware home location you enter in
  the installer:

  - Java Development Kit (JDK) 1.6.0.43.0 and Oracle WebLogic Server 11*g*
    Release 1 (10.3.6) if they are not already available in the Middleware home you
    specify.

  - Oracle Management Service 12 c Release 5 (12.1.0.5).

  - Oracle JRF 11*g* Release (11.1.1.7.0), which includes `oracle_common` directory.

  - Oracle Web Tier 11*g* Release (11.1.1.7.0), which includes `Oracle_WT` directory.

  - Oracle BI Publisher 11g (11.1.1.7.0), which includes `Oracle_BI1` directory.

    > **Note:** Although Oracle BI Publisher 11g (11.1.1.7) is installed by
    > default, it is not configured. To configure it post installation or
    > upgrade an earlier version, follow the instructions in *Oracle Enterprise
    > Manager Cloud Control Administrator's Guide*.

  - Upgrades or carries over the already deployed plug-ins:

    * Upgrades the deployed plug-ins if newer versions are available in the
      Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5) software.

    * Carries over the deployed plug-ins without upgrading them in the
      following cases:

      (a) If newer versions are not available in the Enterprise Manager Cloud
      Control 12*c* Release 5 (12.1.0.5) software.

      (b) If the deployed plug-ins are already of the higher or same version as
      the ones in the Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5)
      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.

- Creates a new Oracle WebLogic domain and Node Manager with the same
  Administration Server configuration details (same Administration Server, same
  port, and so on).

- Creates an Oracle Management Service Instance Base directory `(gc_inst)` for
  storing all configuration details related to Oracle Management Service 12*c*, outside
  the middleware home.

> For example, if the Middleware home is `/u01/app/Oracle/Middleware/`, then the instance base location is `/u01/app/Oracle/gc_inst`.

- Upgrades the Management Repository in the existing certified database.

- Runs the following configuration assistants to configure the installed or upgraded components:

  - Stopping APM Engines

  - Stop Admin Server

  - Plugins Prerequisites Check

  - Repository Upgrade

  - MDS Schema Configuration

  - OMS Configuration

  - Plugins Deployment and Configuration

  - Start Oracle Management Service

  - Oracle Configuration Manager Repeater Configuration

> **Note:** The installer does NOT upgrade your existing Management Agent that was installed with the OMS. You must upgrade it (and all other Management Agents) using the *Agent Upgrade Console.* For more information, see Section 2.1.2.2.

2.2 Upgrading Enterprise Manager Cloud Control 10*g* Release 5 (10.2.0.5), 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5)

This section provides an overview of the upgrade approaches, clearly differentiates the three upgrade approaches, and describes the utilities to be used and the overall process to be followed for upgrading 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5).

In particular, this section covers the following:

- Overview of the Upgrade Approaches Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

- Differences Between the Upgrade Approaches Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

- Overview of the Upgrade Utilities Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

- Overview of the 1-System, 2-System, and 1-System on a Different Host Upgrade Processes Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

> **Note:** For instructions to upgrade from 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5), see Part III.

2.2.1 Overview of the Upgrade Approaches Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

Oracle offers the following upgrade approaches for upgrading 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5):

- **1-System Upgrade Approach:** This approach enables you to upgrade to Enterprise Manager Cloud Control on the same host where your earlier release of Enterprise Manager is running. This approach also upgrades the Oracle Management Repository (Management Repository) in the existing database. Since the upgrade happens on the same host, there is a reasonable downtime involved.

  This approach refers to upgrading an Enterprise Manager system on the same host as the old one, and having only one Enterprise Manager system existing at any point. To learn about upgrading a multi-OMS environment, see Section 12.6.

- **2-System Upgrade Approach:** This approach enables you to install Enterprise Manager Cloud Control on a host that is different from the host where your existing Enterprise Manager system is running.

  This approach does not upgrade the Management Repository in the existing database, but upgrades the one in the backed up database, thus enabling two Enterprise Manager systems to exist. Since a new Enterprise Manager system coexists with the old one, there is *no* or *near zero* downtime involved.

- **1-System Upgrade Approach on a Different Host:** This approach enables you to install Enterprise Manager Cloud Control on a host different from where the existing Enterprise Manager is running.

  This approach is similar to the 2-System upgrade approach, but unlike the 2-System upgrade approach, this approach upgrades the Management Repository in the existing database itself. Since only one Enterprise Manager system exists at any point, there is a reasonable downtime involved.

2.2.2 Differences Between the Upgrade Approaches Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

Table 2–2 lists the differences between the three upgrade approaches that are offered for upgrading 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5). Understand the differences and select the approach that best suits your requirement.

Table 2–2   Differences Between the Upgrade Approaches

1-System Upgrade Approach	2-System Upgrade Approach	1-System Upgrade Approach on Different Host
Involves predeployment and switch over of Management Agents prior to upgrading the OMS and the Management Repository, unlike the traditional approach that focussed on upgrading only the OMS and the Management Repository.	Resembles fresh installation.	Has the same impact as 1-system upgrade approach, but with a different host for Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5).

Table 2–2   (Cont.) Differences Between the Upgrade Approaches

1-System Upgrade Approach	2-System Upgrade Approach	1-System Upgrade Approach on Different Host
Requires a reasonable downtime.	Requires minimum or zero downtime.	Requires a reasonable downtime.
(Essentially, the downtime lasts from the time you start switching over the Management Agents till the time you upgrade the OMS.)		*(Essentially, the downtime lasts from the time you start switching over the Management Agents till the time you install the OMS.)*
Upgrades to Enterprise Manager Cloud Control on the same host where your earlier release of Enterprise Manager is running.	Installs Enterprise Manager Cloud Control on a host that is different from the host where your existing Enterprise Manager system is running.	Installs Enterprise Manager Cloud Control on a host different from where the existing Enterprise Manager is running, but upgrades the Management Repository in the existing database itself.
Does not require an additional hardware resource because it upgrades on the same host.	Requires an additional hardware resource because it installs on a different host.	Requires an additional hardware resource because it installs on a different host.
Existing Enterprise Manager system must be shut down so that the configuration information can be copied and carried over to the upgraded Enterprise Manager system.	Existing Enterprise Manager system can continue to run until you switch over all your earlier releases of Management Agents to the newly upgraded environment.	Existing Enterprise Manager system must be shut down so that the configuration information can be copied and carried over to the new system.
Management Agents must be deployed and configured *before* upgrading the OMS and the Management Repository.	Management Agents can be deployed and configured *before* or *after* upgrading the OMS and the Management Repository.	Management Agents must be deployed and configured *before* upgrading the OMS and the Management Repository.
Management Agents can be deployed and configured in an incremental or phased manner, that is, in groups.	Management Agents can be deployed and configured in an incremental or phased manner, that is, in groups.	Management Agents can be deployed in an incremental or phased manner, that is, in groups.
Management Agents must be switched over *before* upgrading the OMS and the Management Repository.	Management Agents must be switched over *after* upgrading the OMS and the Management Repository.	Management Agents must be switched over *before* upgrading the OMS and the Management Repository.
Upgrades the Management Repository in the existing, certified database.	Upgrades the Management Repository in the backed up database. Therefore, as a prerequisite, you are required to back up your existing Oracle Database.	Upgrades the Management Repository in the existing, certified database.

Table 2–2   (Cont.) Differences Between the Upgrade Approaches

1-System Upgrade Approach	2-System Upgrade Approach	1-System Upgrade Approach on Different Host
Requires no changes to the ports and firewall settings. The upgraded Management Agents and the OMS use the same ports used earlier.	Requires some changes to the ports and firewall settings. The upgraded Management Agents use the same ports used earlier. However, the Management Agent and the OMS installed on the remote host might use new ports.	Requires some changes to the ports and firewall settings. The upgraded Management Agents use the same ports used earlier. However, the Management Agent and the OMS installed on the remote host might use new ports.
	In a multi-OMS environment, if you have a Server Load Balancer (SLB), then you can either open up new ports for the new Management Agent and the OMS in the same SLB, or configure a completely new SLB for them.	In a multi-OMS environment, if you have a Server Load Balancer (SLB), then you can either open up new ports for the new Management Agent and the OMS in the same SLB, or configure a completely new SLB for them.
	For more information, see Section 3.6.	For more information, see Section 3.6.
All deployment procedures must be finished before the upgrade is started. Otherwise, the scheduled procedures will be canceled, and you will have to re-create them.	All deployment procedures must be finished before the upgrade is started. Otherwise, the scheduled procedures will be canceled, and you will have to re-create them.	All deployment procedures must be finished before the upgrade is started. Otherwise, the scheduled procedures will be canceled, and you will have to re-create them.
Running jobs will be aborted at the start of the downtime.	Running jobs will continue to run on the existing Enterprise Manager system after the start of the backup. In Enterprise Manager Cloud Control, these jobs will appear to be aborted or failed.	Running jobs will be aborted at the start of the downtime.
Scheduled jobs will run after the downtime is over if their grace period allows them. Otherwise, they will be skipped.	Scheduled jobs will run on the existing Enterprise Manager system from the time of the backup until the point where the Management Agent for that target is migrated to Enterprise Manager Cloud Control. Once the Management Agent is migrated, the jobs will run in Enterprise Manager Cloud Control.	Scheduled jobs will run after the downtime is over if their grace period allows them. Otherwise, they will be skipped.
Repeating jobs will run at their next scheduled time after the downtime. If repeating jobs fall within the downtime, they may be skipped.	Repeating jobs will continue to run according to their schedule in the existing Enterprise Manage system. Once the Management Agent is migrated, subsequent runs will be in Enterprise Manager Cloud Control.	Repeating jobs will run at their next scheduled time after the downtime. If repeating jobs fall within the downtime, they may be skipped.

> **Note:** Jobs run either in the existing Enterprise Manager system or in Enterprise Manager Cloud Control, and not on both systems. The true status of a job must be viewed only on the system where it actually ran. For more information, see Appendix D. Also, job executions with multiple targets will not run on either system unless all Management Agents for all targets are migrated at the same time.

2.2.3 Overview of the Upgrade Utilities Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

This section describes the utilities to be used for upgrading 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5). These utilities enable you to select one of the upgrade approaches, orchestrate the entire upgrade operation seamlessly, and also track the post-upgrade activities.

In particular, this section describes the following:

- Overview of the Preupgrade Console
- Overview of the Enterprise Manager Cloud Control Installation Wizard
- Overview of the Postupgrade Console

2.2.3.1 Overview of the Preupgrade Console

The *Preupgrade Console* acts as the primary user interface and is the starting point for upgrading your 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5).

The *Preupgrade Console* enables you to select an appropriate upgrade approach, predeploy the Oracle Management Agent 12*c* software, and switch over the earlier releases of Management Agents to the newly predeployed Management Agents.

> **Note:** Oracle Management Service 12*c* communicates only with Oracle Management Agent 12*c* (12.1.0.5, 12.1.0.4, 12.1.0.3, 12.1.0.2). Therefore, unlike the earlier releases, you must first upgrade the Management Agents in your system before upgrading your existing OMS. Hence, the *Preupgrade Console* acts as a starting point to the upgrade process.

To access the *Preupgrade Console*, do the following:

- *(Optional)* Apply the latest PSU patches on your OMS as described in the My Oracle Support note 822485.1. To access My Oracle Support, access the following URL:

  https://support.oracle.com/

> **Note:** For 10g Release 5 (10.2.0.5), make sure you have at least PSU 3 (9282397) or later applied. For 11g Release 1 (11.1.0.1), make sure you have at least PSU 1 (10065631) or later applied.

- *(Mandatory)* Apply the preupgrade console patch on all your OMS instances. For information about the patch you need to download and apply for your platform, access the following URL:

  http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html

  After downloading the patch, follow the instructions outlined in the ReadMe, which is provided with the patch. Ensure that you use the latest release of OPatch to apply the patch.

  After applying the patch, log in to Enterprise Manager Grid Control with super administrator privileges, click the **Deployments** tab, then click **Enterprise Manager 12c Upgrade Console**.

IMPORTANT:

- You must apply the preupgrade console patch on all the OMS instances.

- You will have to shut down your OMS to apply the patch, and as a result, your Enterprise Manager system will be down until you complete the patching operation. In addition, you must apply the patch on all your OMS instances, and therefore, the downtime can be more.

- Despite applying the patch, in the Enterprise Manager Grid Control console, in the **Deployments** tab, if you do not see the hyperlink **Enterprise Manager 12c Upgrade Console**, then do the following:

  1. Move the jsp_servlet directory out of the following location:

     $<OMS_INSTANCE_BASE>/user_user_
     projects/domains/GCDomain/generated_
     classes

     Here, <OMS_INSTANCE_BASE> is the OMS Instance Base Directory, which is gc_inst by default, outside the middleware home. For example, if the middleware home is /u01/app/Oracle/Middleware/, then the instance base location is /u01/app/Oracle/gc_inst.

  2. Stop the OMS from the OMS home:

     $<OMS_HOME>/bin/emctl stop oms

  3. Restart the OMS from the OMS home:

     $<OMS_HOME>/bin/emctl start oms

The following diagram clearly illustrates the features it offers.

Identifying Host and Port for New
Enterprise Manager System

Managing Software

Preupgrade Tasks

Identifying problematic, valid, and invalid
Management Agents

Checking Upgradability Status of
Management Agent

Checking Upgradability Status of
Targets

Upgrade Tasks

Upgrading Enterprise Manager with
1-System Upgrade Approach

Upgrading Enterprise Manager with
2- System Upgrade Approach

Upgrading Enterprise Manager with
1-System Upgrade Approach on a
Different Host

Tracking and Troubleshooting Tasks

Checking Agent Upgrade Status

Tracking Status of Accrued and Deferred Data
Migration Jobs

Generating Diff Reports

Identifying Inactive Targets

Deploying and Configuring Oracle
Management Agent 12c

Generating Health Reports for
Deployed Management Agents

Verifying and Signing Off Health Reports

Switching Management Agents

Note: The supported earlier releases for upgrade include: Oracle Management Agent 10g Release 2 (10.2.x.x.x), Oracle Management Agent 11g Release 1 (11.1.0.1), Oracle Management Service 10g Release 5 (10.2.0.5), and Oracle Management Service 11g Release 1 (11.1.0.1).

2.2.3.2 Overview of the Enterprise Manager Cloud Control Installation Wizard

The Enterprise Manager Cloud Control Installation Wizard is the primary user interface that enables you to select the type of upgrade approach you want to perform, and upgrade your existing OMS and Management Repository.

The following diagram clearly illustrates the features it offers.

Two System Upgrade

- Installs Oracle Management Service 12c Release 5 (12.1.0.5)
- Allows the existing Enterprise Manager system to run in parallel
- Allows you to decommission the existing Enterprise Manager system after all the Management Agents are switched over to the new Enterprise Manager system
- Allows you to switch over the Management Agents in an increment or phased manner, so the minimum or zero downtime is experienced
- Ensures highly available environment

Installation Types

ORACLE Enterprise Manager Cloud Control 12c

- My Oracle Support Details
- Software Updates
- Oracle Inventory
- Prerequisite Checks
- Installation Types
- Installation Details
- Database Connection Details
- Select Plug-ins
- WebLogic Server Configuration
- Enterprise Manager Configu
- Review
- Install Progress
- Finish

○ Create a new Enterprise Manager System
  ◉ Simple
  ○ Advanced
◉ Upgrade an existing Enterprise Manager System
  ◉ Two System Upgrade
  ○ One System Upgrade
○ Install software only
(Installs only the software binaries. Lets you configure or upgrade at a later stage.)

Messages:

Help   Installed Products   < Back   Next >   Install   Cancel

One System Upgrade

- Upgrades Oracle Management Service to 12c Release 5 (12.1.0.5)
- Prompts you to shut down the existing Enterprise Manager system.
- Copies and carries over the configuration information to the new Enterprise Manager system.

2.2.3.3 Overview of the Postupgrade Console

The Postupgrade Console is the primary user interface for tracking all post-upgrade activities, including accrued data migration jobs and deferred data migration jobs. In addition, you can generate diff reports and view a list of targets that are currently inactive in the upgraded Enterprise Manager system.

The following diagram clearly illustrates the features it offers.

Deferred Data Migration Jobs

Tracks the post-upgrade activity that migrates the format of the data stored in the existing Enterprise Manager system to the format compatible with Enterprise Manager Cloud Control.

Accrued Data Migration Jobs

Tracks the post-upgrade activity that migrates the accrued data stored in the old Management Repository to the upgraded Management Repository.

Diff Reports

Provides information about the configuration or setup-related changes that were manually made to the earlier release of Enterprise Manager while it was being upgraded

Targets with Pending Activation

Provides a list of targets that are inactive in Enterprise Manager Cloud Control.

Sign Off

Enables you to sign off the Accrued Data Migration Process for each of the Management Agents.

> **Note:** For more information about these jobs, refer to Section 13.7, Section 13.8, Section 13.9, Section 13.10, and Section 13.11.

2.2.4 Overview of the 1-System, 2-System, and 1-System on a Different Host Upgrade Processes Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

This section describes the high-level flow or sequence of steps to be followed for each of the upgrade approaches. In particular, this section describes the following:

- Overview of the 1-System Upgrade Process Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

- Overview of the 2-System Upgrade Process Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

- Overview of the 1-System on a Different Host Upgrade Process Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

2.2.4.1 Overview of the 1-System Upgrade Process Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

The following illustration describes the high-level flow or sequence of steps you must perform when you choose to upgrade using the 1-system upgrade approach:
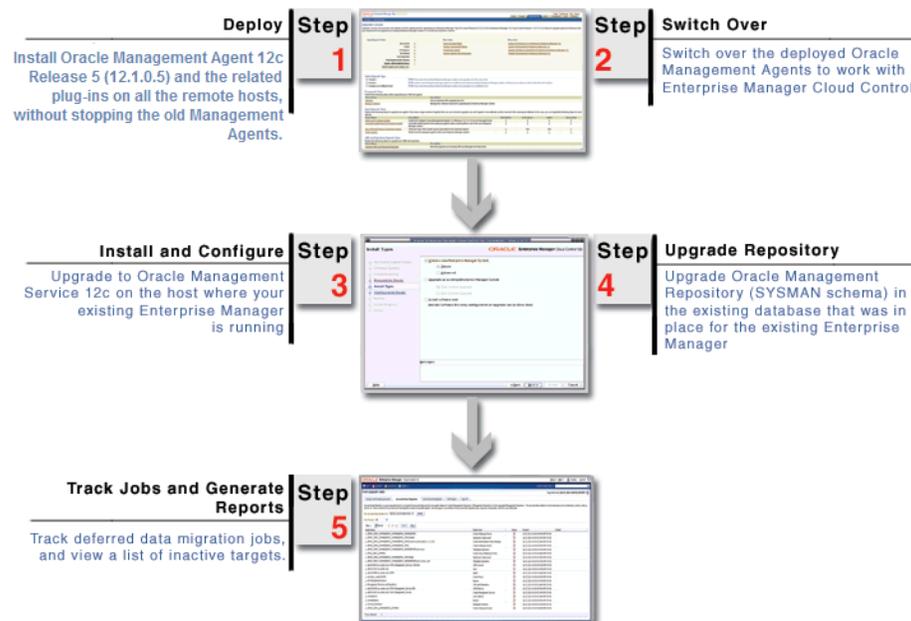
Using the *Preupgrade Console*, you can deploy the Oracle Management Agent 12*c* software and switch over the old Management Agents to the newly deployed Management Agents. You will notice that *Deploy* and *Switch Over* are two different operations, although they deal with installing and upgrading Management Agents.

Note: As a best practice, Oracle recommends you to complete the *Deploy* operation well before you start the *Switch Over* operation.

While the *Deploy* operation involves copying of software binaries of the Management Agent and configuring them on the hosts, the *Switch Over* operation involves stopping the old Management Agents and starting the new Management Agents to work with Enterprise Manager Cloud Control.

The two operations are separated and treated as different entities to ensure that your existing Enterprise Manager system is not shut down or disturbed in any way while the software binaries are copied and configured on the hosts. Once the software binaries are copied and configured, you can switch them over with much less time because the time taken is only for stopping the old Management Agents and starting the new Management Agents.

Once you have switched over the Management Agents, you can upgrade the OMS and the Management Repository.

> **Note:** As a best practice, Oracle also recommends you to upgrade all the OMS instances immediately after you complete the *Switch Over* operation. Note that the downtime in 1-system upgrade approach essentially lasts from the time you switch over the Management Agent till the time you upgrade all your OMS instances. So the more you delay your upgrade operation, the more the downtime. During this downtime, none of the targets are monitored and no monitoring data is uploaded to the OMS instances.

When you upgrade to Enterprise Manager Cloud Control on the host using the installer, the installer does the following by default:

- Installs the following components in the Middleware home location you enter in the installer:

  - Oracle Management Service 12*c.*

  - Oracle WebLogic Server 11*g* Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0 (JDK).

    > **Note:** Oracle WebLogic Server 11*g* Release 1 (10.3.6) and JDK 1.6.0.43.0 are installed only if you do not specify the use of existing installations. Oracle strongly recommends using the 12*c* installation process to install the JDK and Oracle WebLogic Server for use with Enterprise Manager 12*c*.
    >
    > If they already exist (supported version or higher version), then the installer detects them and displays the Middleware home where they are installed. In this case, you only need to validate the path to this Middleware home.

  - Oracle JRF 11*g* Release (11.1.1.7.0), which includes the `oracle_common` directory, and Oracle Web Tier 11*g* Release (11.1.1.7.0), which includes the `Oracle_WT` directory.

  - Oracle BI Publisher 11g (11.1.1.7.0), which includes the `Oracle_BI1` directory.

> **Note:** Although Oracle BI Publisher 11g (11.1.1.7) is installed by default, it is not configured. To configure it post installation, follow the instructions in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

- Plug-ins:
  * Oracle Database Management Plug-In
  * Oracle Fusion Middleware Management Plug-In
  * Oracle My Oracle Support Management Plug-In
  * Oracle Exadata Management Plug-In
  * Oracle Cloud Framework Plug-In
  * Other plug-ins you installed while predeploying Oracle Management Agent 12*c* using the *Preupgrade Console* (that is, if these plug-ins are available in the software kit)

- Creates or reuses the Oracle WebLogic domain, the Admin Server, the Node Manager, and the Managed Server, depending on the earlier release of the Enterprise Manager system from which you are upgrading.

  - If you are upgrading from Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5), then by default, the following are created:

    * An Oracle WebLogic domain called `GCDomain` is automatically created during the configuration of Enterprise Manager Cloud Control. For this WebLogic Domain, a default user account, `weblogic`, is used as the administrative user. You can choose to change this, if you want, in the installer.

    * A Node Manager user account called `nodemanager` is automatically created during the configuration of Enterprise Manager Cloud Control. A Node Manager enables you to start, shut down, or restart an Oracle WebLogic Server instance remotely, and is recommended for applications with high availability requirements.

  - If you are upgrading from Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1), then a new Oracle WebLogic domain and Node Manager are created with the same Admin Server configuration (same Admin Server, same port, and so on).

- Creates the OMS instance base directory (`gc_inst`) outside the middleware home, and stores all configuration information related to the OMS.

  For example, if the Middleware home is `/u01/app/Oracle/Middleware/`, then the instance base location is `/u01/app/Oracle/gc_inst`.

- Upgrades the Management Repository in the existing certified database.

- For information about the configuration assistants that run to configure the installed or upgraded components, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

> **Note:** The installer does NOT upgrade your existing Management Agent because it is predeployed by the *Preupgrade Console*.

2.2.4.2 Overview of the 2-System Upgrade Process Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

The following illustration describes the high-level flow or sequence of steps you must perform when you choose to upgrade using the 2-System upgrade approach:
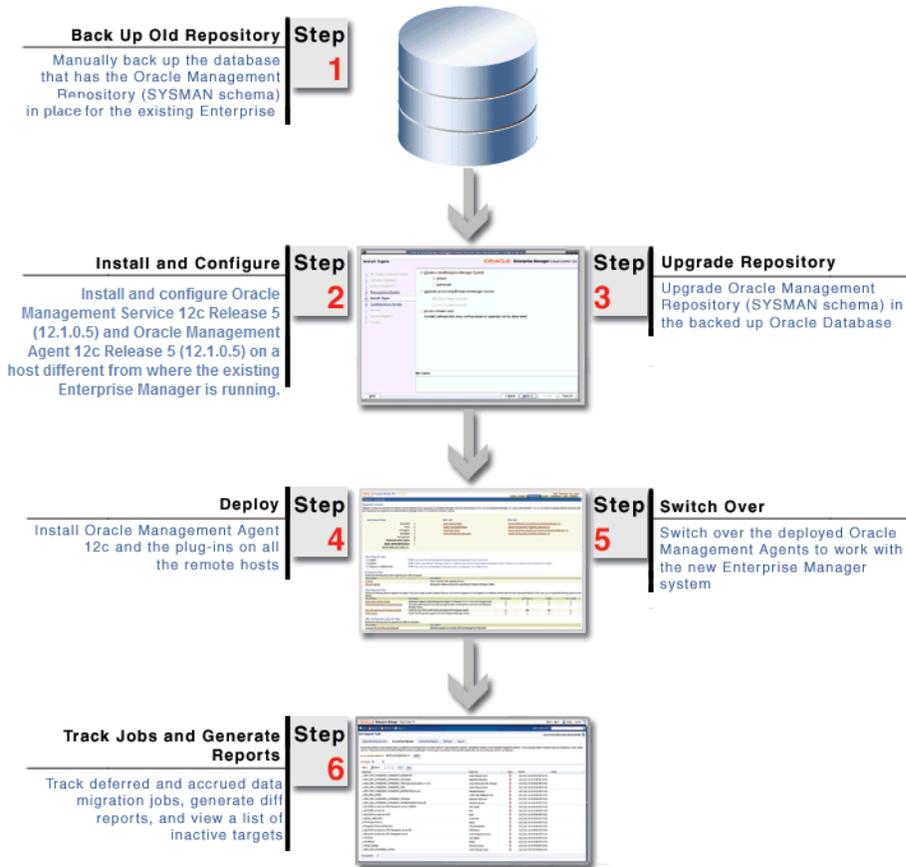
When you install and configure Enterprise Manager Cloud Control on the target host using the installer, the installer does the following by default:

■ Installs the following components in the Middleware home location you enter in the installer:

  – Java Development Kit (JDK) 1.6.0.43.0

  – Oracle WebLogic Server 11*g* Release 1 (10.3.6)

  – Oracle Management Service 12*c*

  – Oracle JRF 11*g* Release (11.1.1.7.0), which includes `oracle_common` directory

  – Oracle Web Tier 11*g* Release (11.1.1.7.0), which includes `Oracle_WT` directory

  – Oracle BI Publisher 11*g* (11.1.1.7.0), which includes `Oracle_BI1` directory.

Note: Although Oracle BI Publisher 11g (11.1.1.7) is installed by default, it is not configured. To configure it post installation, follow the instructions in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

- – Oracle Management Plug-Ins

    * Oracle Database Management Plug-In

    * Oracle Fusion Middleware Management Plug-In

    * Oracle My Oracle Support Management Plug-In

    * Oracle Exadata Management Plug-In

    * Oracle Cloud Framework Plug-In

    * Other plug-ins you installed while predeploying Oracle Management Agent 12*c* using the *Preupgrade Console* (that is, if these plug-ins are available in the software kit)

Note: Oracle WebLogic Server 11*g* Release 1 (10.3.6) and JDK 1.6.0.43.0 are installed only if you do not specify the use of existing installations. Oracle strongly recommends using the 12*c* installation process to install the JDK and Oracle WebLogic Server for use with Enterprise Manager 12*c*.

If they already exist (supported version or higher version), then the installer detects them and displays the Middleware home where they are installed. In this case, you only need to validate the path to this Middleware home.

- Installs Oracle Management Agent 12*c* in the agent base directory you specify (outside the Middleware home).

- Creates an Oracle WebLogic domain called `GCDomain`. For this WebLogic Domain, a default user account, `weblogic`, is used as the administrative user. You can choose to change this, if you want, in the installer.

- Creates a Node Manager user account called `nodemanager`. A Node Manager enables you to start, shut down, or restart an Oracle WebLogic Server instance remotely, and is recommended for applications with high availability requirements.

- Configures an OMS Instance Base location `(gc_inst)` for storing all configuration details related to Oracle Management Service 12*c*, outside the middleware home.

    For example, if the Middleware home is `/u01/app/Oracle/Middleware/`, then the instance base location is `/u01/app/Oracle/gc_inst`.

- For information about the configuration assistants that run to configure the installed or upgraded components, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

- Secures the OMS by generating a password internally. This password is generated by the OMS Configuration Assistant, and the password expires in 30 days from the time it is generated.

    If the OMS Configuration Assistant or the Plugins Deployment and Configuration Assistant fails, then ensure that you resolve the issue within the 30-day period. Otherwise, you will face an error in securing the Management Agent while running the Agent Configuration Assistant.

    If you are unable to resolve the issue within the 30-day period, run the following command from the Management Agent home:

```
$<AGENT_HOME>/sysman/install/agentDeploy.sh OMS_HOST=<oms_host_name>
EM_UPLOAD_PORT=<oms_upload_https_port> AGENT_REGISTRATION_
PASSWORD=<agent_reg_password>
```

2.2.4.3 Overview of the 1-System on a Different Host Upgrade Process Offered for Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5), 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

The following illustration describes the high-level flow or sequence of steps you must perform when you choose to upgrade using the 1-system upgrade approach on a different host:
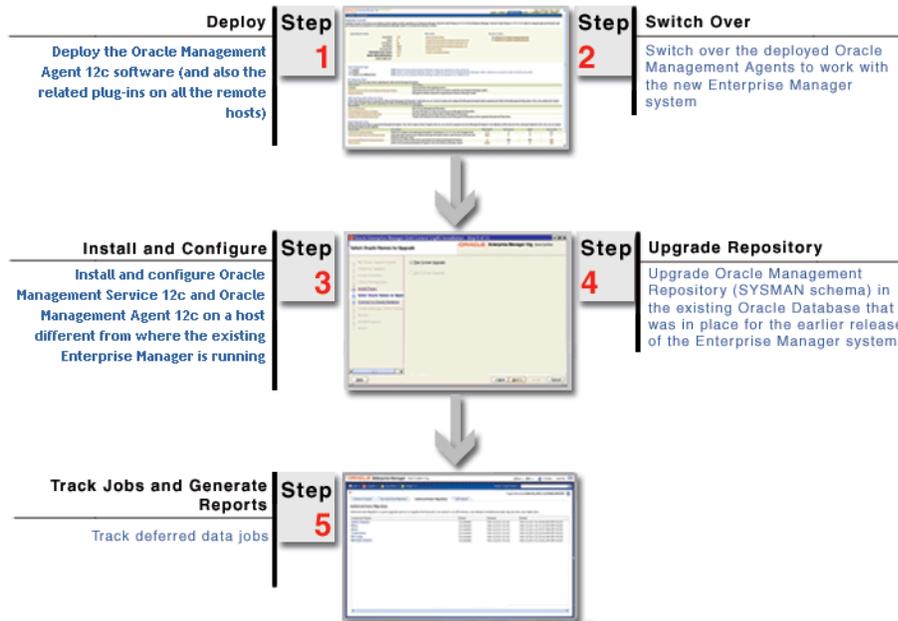
As you can see in the illustration, this approach is a combination of 1-system upgrade approach and 2-System upgrade approach. Much like 1-system upgrade approach, you start the upgrade process by predeploying and switching over the Management Agents. Then, like the 2-System upgrade approach, you install Enterprise Manager Cloud Control on a remote host. However, the difference is, you upgrade the same Management Repository that you have been using for the earlier release of the Enterprise Manager, and then decommission the earlier release. This way, only one Enterprise Manager system exists at a given time.

You install the software binaries of Enterprise Manager Cloud Control on the remote host, then upgrade the existing Management Repository, and then, configure the software binaries to complete the installation.

While installing the software binaries, the installer does the following:

- Creates Oracle homes and install the following components in the Middleware home location:
  - Java Development Kit (JDK) 1.6.0.43.0
  - Oracle WebLogic Server 11*g* Release 1 (10.3.6)
  - Oracle Management Service 12*c*
  - Oracle JRF 11*g* Release (11.1.1.7.0), which includes `oracle_common` directory

- Oracle Web Tier 11*g* Release (11.1.1.7.0), which includes `Oracle_WT` directory

- Oracle BI Publisher 11g (11.1.1.7.0), which includes `Oracle_BI1` directory.

> **Note:** Although Oracle BI Publisher 11g (11.1.1.7) is installed by default, it is not configured. To configure it post installation, follow the instructions in *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

- Oracle Management Plug-Ins

  * Oracle Database Management Plug-In

  * Oracle Fusion Middleware Management Plug-In

  * Oracle My Oracle Support Management Plug-In

  * Oracle Exadata Management Plug-In

  * Oracle Cloud Framework Plug-In

  * Other plug-ins you installed while predeploying Oracle Management Agent 12*c* using the Preupgrade Console (that is, if these plug-ins are available in the software kit)

- Installs Oracle Management Agent 12*c* in the agent base directory you specify (outside the Middleware home).

While configuring the software binaries, the installer does the following:

- Creates an Oracle WebLogic domain called `GCDomain`. For this WebLogic Domain, a default user account, `weblogic`, is used as the administrative user. You can choose to change this, if you want, in the installer.

- Creates a Node Manager user account called `nodemanager`. A Node Manager enables you to start, shut down, or restart an Oracle WebLogic Server instance remotely, and is recommended for applications with high availability requirements.

- Configures an Oracle Management Service Instance Base location (`gc_inst`) for storing all configuration details related to Oracle Management Service 12*c*, outside the middleware home.

  For example, if the Middleware home is `/u01/app/Oracle/Middleware/`, then the instance base location is `/u01/app/Oracle/gc_inst`.

- For information about the configuration assistants that run to configure the installed or upgraded components, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

3

Things to Know About Upgrading an Enterprise Manager System

Before you use the upgrade approaches to upgrade to Enterprise Manager Cloud Control, keep these points in mind:

- Supported OMS Environments for Upgrading an Enterprise Manager System
- Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading an Enterprise Manager System
- Platforms Supported for Upgrading an Enterprise Manager System
- Upgrade Scope Offered for Upgrading an Enterprise Manager System
- Modified or Customized Data After Repository Backup That Are Not Migrated Via ADMP
- Ports Used by an Upgraded Enterprise Manager System
- Upgrading Plug-Ins While Upgrading an Enterprise Manager System
- Status of Oracle Software Library After Upgrading an Enterprise Manager System
- Connectors in an Upgraded an Enterprise Manager System
- Updating the PDP Configuration File After Upgrading an Enterprise Manager System
- Notification, Alerts, Jobs, Deployment Procedure Runs, Metrics, EM CLI Clients, and Oracle Exadata Targets in an Upgraded an Enterprise Manager System
- Custom Certificates Configured for OMS and Management Agent Are Reused in an Upgraded Enterprise Manager System
- XML DB Feature in the Database After Upgrading an Enterprise Manager System
- Manually Restarting the OMS and the Management Agent After Upgrading an Enterprise Manager System
- Enabling Force Logging When Oracle Data Guard Is Configured with the Standby Database for an Upgraded Enterprise Manager System

3.1 Supported OMS Environments for Upgrading an Enterprise Manager System

You can upgrade any of the following 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.

3.2 Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading an Enterprise Manager System

Table 3–1 lists the supported upgrade paths, and the upgrade approach supported for each upgrade path.

Table 3–1   Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading an Enterprise Manager System

Upgrade From	Upgrade To	Supported Upgrade Approach
12*c* Release 4 (12.1.0.4)	12*c* Release 5 (12.1.0.5)	1-System Upgrade
12*c* Release 3 Plug-in Upgrade 1 (12.1.0.3) *(12c Release 3 (12.1.0.3) software with plug-ins released in October 2013)*	12*c* Release 5 (12.1.0.5)	1-System Upgrade
12*c* Release 3 (12.1.0.3)	12*c* Release 5 (12.1.0.5)	1-System Upgrade
12*c* Release 2 Plug-in Update 1 (12.1.0.2) *(12c Release 2 (12.1.0.2) software with plug-ins released in February 2013)*	12*c* Release 5 (12.1.0.5)	1-System Upgrade
12*c* Release 2 (12.1.0.2)	12*c* Release 5 (12.1.0.5)	1-System Upgrade
12*c* Release 1 (12.1.0.1) patched with Bundle Patch 1	First upgrade to either 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), or 12c Release 4 (12.1.0.4), and then upgrade to 12c Release 5 (12.1.0.5).	N/A
12*c* Release 1 (12.1.0.1) containing Bundle Patch 1 *(included by default)*	First upgrade to either 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), or 12c Release 4 (12.1.0.4) and then upgrade to 12c Release 5 (12.1.0.5).	N/A
12c Release 1 (12.1.0.1) *(base release)*	First upgrade to either 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), or 12c Release 4 (12.1.0.4), and then upgrade to 12c Release 5 (12.1.0.5).	N/A
11*g* Release 1 (11.1.0.1)	12*c* Release 5 (12.1.0.5)	- 1-System Upgrade - 2-System Upgrade - 1-System Upgrade on a Different Host

Table 3–1 (Cont.) Supported Upgrade Paths and Supported Upgrade Approaches for Upgrading an Enterprise Manager System

Upgrade From	Upgrade To	Supported Upgrade Approach
10*g* Release 5 (10.2.0.5)	12*c* Release 5 (12.1.0.5)	■ 1-System Upgrade ■ 2-System Upgrade ■ 1-System Upgrade on a Different Host
10*g* Release 4 (10.2.0.4) or lower	First upgrade to 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1), then upgrade to 12*c* Release 5 (12.1.0.5)	N/A
10*g* Release 1 (10.1)	First upgrade to 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1), then upgrade to 12*c* Release 5 (12.1.0.5)	N/A

3.3 Platforms Supported for Upgrading an Enterprise Manager System

The following platforms are supported for upgrading an Enterprise Manager system:

■ 1-System upgrade, understandably, must always be done on the same platform as the earlier release of the Enterprise Manager system because you are upgrading on the same host.

■ 2-System upgrade and 1-System upgrade on a different host are possible on the same platform as the earlier release of the Enterprise Manager system, or any platform that is supported for Enterprise Manager Cloud Control 12*c*. For information on the certified platforms, see the Enterprise Manager certification matrix as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

3.4 Upgrade Scope Offered for Upgrading an Enterprise Manager System

The following are some facts about the upgrade approaches:

■ You can choose to use either 1-System, 2-System, or 1-System upgrade approach on a different host. However, regardless of the approach you choose, the upgrade operation is always an out-of-place upgrade where you see new Oracle homes of Oracle Management Service (OMS) and Oracle Management Agent (Management Agent).

As a best practice, back up your old and new homes regularly.

■ For upgrading an additional OMS, always choose to use only 1-System upgrade approach.

■ 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://www.oracle.com/technetwork/indexes/documentation/index.html

■ Oracle Management Service 12*c* can communicate only with the following versions of Oracle Management Agent 12*c:*

Table 3–2   Compatibility Between OMS and Management Agents Across 12c Releases

	Oracle Management Agent 12c Release 1 (12.1.0.1) + Bundle Patch 1 *(Refers to agents and their plug-ins patched or upgraded to, or installed with Bundle Patch 1)*	Oracle Management Agent 12c Release 2 (12.1.0.2)	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 Service 12c Release 1 (12.1.0.1) + Bundle Patch 1	Yes *(includes Management Agents with and without Bundle Patch 1)*	No	No	No	No
Oracle Management Service 12c Release 2 (12.1.0.2)	Yes *(includes Management Agents with and without Bundle Patch 1)*	Yes	No	No	No
Oracle Management Service 12c Release 3 (12.1.0.3)	Yes *(Only Management Agents released in January 2012 [with Bundle Patch 1])*	Yes	Yes	No	No
Oracle Management Service 12c Release 4 (12.1.0.4)	No	Yes	Yes	Yes	No
Oracle Management Service 12c Release 5 (12.1.0.5)	No	Yes	Yes	Yes	Yes

- You can upgrade any Management Agent on any platform as long as the Oracle Management Agent 12*c* software for that platform is available.

- The Enterprise Manager Cloud Control Installation Wizard installs Java Development Kit (JDK) 1.6.0.43.0 and Oracle WebLogic Server 11*g* Release 1 (10.3.6) if they do not exist in your environment.

- If Oracle WebLogic Server 11*g* Release 1 (10.3.6) does not exist, then Oracle recommends you to allow the installation wizard to install it for you. However, if you want to manually install it, then ensure that you install it using JDK 1.6.0.43.0 (64-bit version for 64-bit platforms and 32-bit version for 32-bit platforms).

  - Download JDK 1.6.0.43.0 for your platform from the platform vendor's Web site.

    For example, download SUN JDK 1.6.0.43.0 for Linux platforms from the following Oracle Web site URL:

    http://www.oracle.com/technetwork/java/javase/downloads/index.html

  - If you already have JDK, then verify its version by navigating to the `<JDK_Location>/bin` directory and running the following command:

    `"./java -fullversion"`

To verify whether it is a 32-bit or a 64-bit JDK, run the following command:

`"file *"`

- JROCKIT is not supported.

- If you want to manually install Oracle WebLogic Server 11*g* Release 1 (10.3.6) on Linux 64-bit platforms, first install the 64-bit JDK for your platform, and then download and use the `wls1036_generic.jar` file to install Oracle WebLogic Server.

  For example,

  `<JDK home>/bin/java -d64 -jar <absolute_path _to_wls1036_ generic.jar>`

- If you want to manually install Oracle WebLogic Server 11*g* Release 1 (10.3.6) on Linux 32-bit platforms, then download and use either the `wls1036_ linux32.bin` file or the `wls1036_generic.jar` file.

  For example,

  `<JDK home>/bin/java  -jar <absolute_path _to_wls1036_generic.jar>`

- You must follow the instructions outlined in the *Oracle Fusion Middleware Installation Guide for Oracle WebLogic Server* to install Oracle WebLogic Server. The guide is available in the Fusion Middleware documentation library available at:

  http://www.oracle.com/technetwork/middleware/weblogic/documentation /index.html

- You must ensure that the Oracle WebLogic Server installation is a typical installation, and even if you choose to perform a custom installation, ensure that components chosen for custom installation are the same as the ones associated with a typical installation.

- You must ensure that the user installing the WebLogic Server is the same as the one installing Enterprise Manager Cloud Control.

- After installing Oracle WebLogic Server, as a postinstall step, apply the patches 14482558, 13349651, and 16080294 on it. Without these patches, the additional OMS installation will fail. However, these patches are required only if you are manually installing the Oracle WebLogic Server.

  For instructions to apply these patches, see the following URL:

  http://docs.oracle.com/cd/E14759_ 01/doc.32/e14143/intro.htm#CHDCAJFC

  For more information on Oracle WebLogic Server downloads and demos, access the following URL:

  http://www.oracle.com/technology/products/weblogic/index.html

- You must ensure that the Oracle WebLogic Server 11*g* Release 1 (10.3.6) installed by the Enterprise Manager Cloud Control Installation Wizard or by you 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.

3.5 Modified or Customized Data After Repository Backup That Are Not Migrated Via ADMP

After upgrading from 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release X (12.1.0.X) using the 2-system upgrade approach, a post-upgrade activity called *Accrued Data Migration* is run to migrate all accrued data stored in the old Management Repository to the upgraded Management Repository. The accrued data relates to functional areas such as blackouts, alerts, events, metrics, and so on. For more information on *Accrued Data Migration*, see Section 13.8.1.

However, this *Accrued Data Migration* process does not migrate any of the following changes if they were done after the Management Repository was backed up. If you want these changes in the upgraded Enterprise Manager system, you must manually redo these changes after upgrade.

- Security data (new users created, passwords changed)

- Jobs created, deleted, or submitted

- Customized deployment procedures

- Patches

- Targets added or deleted

- Reports created, modified, or deleted

- Software Library configuration changes

- Templates created, modified, or deleted

- User-defined metrics

3.6 Ports Used by an Upgraded Enterprise Manager System

When you upgrade your 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, the following ports are assigned:

- For 2-System upgrade approach, new ports that you accept or specify in the installer are assigned to all the core components.

- For 1-System upgrade approach, the following is the behavior:

    - If you are upgrading 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2), then the ports used by all the core components of the earlier release are carried over.

    - If you are upgrading 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1), then the ports used by the following core components of the earlier release are carried over. For the rest of the core components, new ports that you accept or specify in the installer are assigned.

        * Enterprise Manager Upload HTTP Port

        * Enterprise Manager Upload HTTP SSL Port

        * Enterprise Manager Central Console HTTP Port

        * Enterprise Manager Central Console HTTP SSL Port

        * Oracle Management Agent

■ For 1-System upgrade approach on a different host, new ports that you pass in a response file while configuring the OMS are assigned to all the core components.

> **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*.

3.7 Upgrading Plug-Ins While Upgrading an Enterprise Manager System

This section describes the following:

■ Upgrading Plug-Ins While Upgrading Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)

■ Upgrading Plug-Ins While Upgrading Enterprise Manager Cloud Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

3.7.1 Upgrading Plug-Ins While Upgrading Enterprise Manager Cloud Control 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), 12*c* Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5)

This section describes how plug-ins are upgraded while upgrading Oracle Management Agents and Oracle Management Service of 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5).

In particular, this section describes the following:

■ Upgrading Plug-Ins While Upgrading Oracle Management Agent 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)

■ Upgrading Plug-Ins While Upgrading Oracle Management Service 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)

3.7.1.1 Upgrading Plug-Ins While Upgrading Oracle Management Agent 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), 12*c* Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)

While upgrading Oracle Management Agents 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5) using the Agent Upgrade Console, all plug-ins of the earlier release are upgraded by default. No manual effort is required.

3.7.1.2 Upgrading Plug-Ins While Upgrading Oracle Management Service 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), 12*c* Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)

While upgrading Oracle Management Service 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), 12c Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5) 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.

In addition, the installation wizard provides a Select Plug-ins screen that enables selection of the optional plug-ins you want to deploy in addition to the plug-ins that will automatically be upgraded, migrated, or deployed.

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

1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):

   http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html

2. Expand the section that lists the software binaries and plug-ins for your upgrade path.

3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.

4. Invoke the installer with the following option, and pass the location where the plug-ins you want to install are available:

   For UNIX Platforms:

   ```
   ./runInstaller -pluginLocation <absolute_path_to_plugin_software_
   location>
   ```

   For Microsoft Windows Platforms:

   ```
   setup.exe -pluginLocation <absolute_path_to_plugin_software_location>
   ```

3.7.2 Upgrading Plug-Ins While Upgrading Enterprise Manager Cloud Control 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5)

To identify the plug-ins required for upgrade, in the *Preupgrade Console*, in the Preupgrade Steps section, click **Manage Software**. On the Manage Software page, view the plug-ins that are required for upgrading your system.

The plug-ins listed on the Manage Software page are based on the targets monitored by the old Management Agents in your existing system, and also based on the new plug-in requirement Enterprise Manager Cloud Control has. You need only the plug-ins listed on this page to successfully upgrade your existing system.

This section describes how you can download and install the required plug-ins while upgrading Oracle Management Agents 10*g* Release 5 (10.2.0.5), 11*g* Release 1 (11.1.0.1), and Oracle Management Service 10*g* Release 5 (10.2.0.5), 11*g* Release 1 (11.1.0.1).

In particular, this section covers the following:

- Installing Plug-Ins While Upgrading Oracle Management Agent 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

- Installing Plug-Ins While Upgrading Oracle Management Service 10g Release 5 (10.2.0.5) and 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

3.7.2.1 Installing Plug-Ins While Upgrading Oracle Management Agent 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5)

To install the required plug-ins while upgrading the Management Agents, follow these steps:

1. Access the following URL:

   `http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html`

2. Download the Management Agent software to an accessible location. Do NOT extract the contents of the software ZIP file. The Management Agent software is platform-specific, so ensure that you copy the software for the platform on which you want to install.

3. Download all the required plug-ins to the same location. Plug-ins are generic, so they are common for all platforms.

   Ensure that you download all the plug-ins listed as required plug-ins on the Manage Software page, whether or not you want to monitor a target with them. You may feel that a few plug-ins are not required because you do not have targets to be monitored by them, but those plug-ins may be required for upgrading your system. Therefore, download all the plug-ins listed on the Manage Software page. Ensure that you download these plug-ins before backing up the database that contains the Management Repository.

   > **Note:** You can also download these plug-ins from the `<software_kit>/plugins` directory, but Oracle recommends you to download them from OTN so that you always procure the latest plug-ins and the plug-ins for all platforms.

   > **Note:** To identify what plug-ins are required, in the *Preupgrade Console*, in the Preupgrade Steps section, from the table, click **Manage Software**. On the Manage Software page, in the Plug-In Software section, see the required plug-ins.

4. In the *Preupgrade Console*, on the Manage Software page (Preupgrade Steps section), in the Provide Software Location section, enter the absolute path to the directory where the plug-in is present, and click **Validate** to register that location with the Management Repository.

   > **See:** For information about registering and validating the plug-in location, see Section 10.4.

3.7.2.2 Installing Plug-Ins While Upgrading Oracle Management Service 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

To install the required plug-ins while upgrading the OMS, invoke the Enterprise Manager Cloud Control Installation Wizard, and proceed to the Select Plug-ins screen. The screen lists all the required plug-ins you registered via the *Preupgrade Console* while upgrading the Management Agents. The mandatory ones are selected by default.

> **Note:** If you had missed registering some required plug-ins, then the wizard prompts you to visit the *Preupgrade Console* to register them before proceeding with the upgrade.

Ensure that the software for the plug-ins listed on this screen are available in the Enterprise Manager Cloud Control software kit (DVD or downloaded software). If the software for the required plug-ins are not available, then do the following:

1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):

   http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrad e-console-502238.html

2. Expand the section that lists the software binaries and plug-ins for your upgrade path.

3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.

4. Invoke the installer with the following option, and pass the location where the plug-ins you want to install are available:

   For UNIX Platforms:

   ```
   ./runInstaller -pluginLocation <absolute_path_to_plugin_software_
   location>
   ```

   For Microsoft Windows Platforms:

   ```
   setup.exe -pluginLocation <absolute_path_to_plugin_software_location>
   ```

3.8 Status of Oracle Software Library After Upgrading an Enterprise Manager System

(This section is applicable only if Software Library was configured in the earlier release of Enterprise Manager)

The following is the status of Oracle Software Library (Software Library) after the Enterprise Manager is upgraded:

- For 1-System upgrade approach, the Software Library is functional the moment the Enterprise Manager is upgraded. No manual effort is required to make it functional.

- For 2-System upgrade approach, the Software Library is functional only when it is reconfigured after the Enterprise Manager is upgraded.

   To understand the 2-System upgrade approach workflow and to know when you must reconfigure the Software Library, see Section 9.2. For information about reconfiguring the Software Library, see Section 13.4.

- For 1-System upgrade approach on a different host, the Software Library is functional the moment the Enterprise Manager is upgraded. This is however true only when all the files in the Software Library file system location configured for the old Enterprise Manager system is accessible for read/write from the new host. If not, the upgrade fails.

3.9 Connectors in an Upgraded an Enterprise Manager System

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.

3.10 Updating the PDP Configuration File After Upgrading an Enterprise Manager System

Enterprise Manager supports Privilege Delegation Providers (PDP) such as SUDO and PowerBroker that enable administrators to restrict certain users from running certain commands. If you have such restrictive PDP configuration setting, then you must ideally enter the location of nmosudo in your configuration file. Management Agent uses nmosudo to run *Trusted Jobs* in Enterprise Manager.

In Enterprise Manager Cloud Control 12*c* Release 1 (12.1.0.1) [with or without Bundle Patch 1], nmosudo was located in the agent instance directory. For example, `/u01/oracle/agent/agent_inst/bin/nmosudo`.

In Enterprise Manager Cloud Control 12*c* Release 2 (12.1.0.2) or higher, this location has changed. Now, nmosudo is present in the sbin directory, which is in the agent base directory. For example, `/u01/oracle/agent/sbin/nmosudo`.

Therefore, when you install or upgrade 12*c* Release 1 (12.1.0.1) [with or without Bundle Patch 1] to 12*c* Release 2 (12.1.0.2) or higher, you must modify the PDP configuration files to update the new location of nmosudo.

For example, if you use SUDO as your PDP, the configuration file for sudo is typically `/etc/sudoers`. In this file, update the following entry with the new location to nmosudo.

```
sudouser ALL : oracle /eminstall/basedir/sbin/nmosudo *
```

3.11 Notification, Alerts, Jobs, Deployment Procedure Runs, Metrics, EM CLI Clients, and Oracle Exadata Targets in an Upgraded an Enterprise Manager System

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Note: This section is applicable only for upgrade from Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1) to 12*c* Release X (12.1.0.X).

You can ignore this section if you are upgrading within the 12c release, for example, from 12*c* Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12c Release 4 (12.1.0.4) to 12*c* Release 5 (12.1.0.5).

This section describes some of the critical changes in Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5) that you might see when you upgrade from Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1).

In particular, this section describes the following:

■   Notification in an Upgraded an Enterprise Manager System

- Alerts in an Upgraded an Enterprise Manager System

- Jobs in an Upgraded Enterprise Manager System

- Deployment Procedures in an Upgraded Enterprise Manager System

- Metrics Renamed in an Upgraded Enterprise Manager System

- Upgrading EM CLI Clients After Upgrading an Enterprise Manager System

- Upgrading Oracle Exadata Targets After Upgrading an Enterprise Manager System

3.11.1 Notification in an Upgraded an Enterprise Manager System

During upgrade, the out-of-box rule sets are re-registered, and as a result, you will lose e-mail subscriptions made to them. Therefore, before starting the upgrade process, Oracle strongly recommends that you make a copy (using the *Create Like* action) of the out-of-box rule sets.

After upgrade, all notification rules and alerts will continue to work in Enterprise Manager Cloud Control. However, note that they have been enhanced and subsumed into a larger and newer concept—*Notification Rules* are now called *Incident Rulesets*, and *Alerts* are now called *Events* in Enterprise Manager Cloud Control.

For information about *Incident Rulesets* and how they map to notification rules, and for information about *Events* and how they map to alerts, see Appendix B.

3.11.2 Alerts in an Upgraded an Enterprise Manager System

During upgrade, the alerts from the earlier release are migrated as *Events* in Enterprise Manager Cloud Control in the following manner. For 1-System upgrade approach, the alerts are migrated while upgrading the Management Repository. For 2-System upgrade approach, the alerts are migrated while backing up the Management Repository to the remote host.

This section covers the following:

- Alerts Migrated in an Upgraded Enterprise Manager System

- Incidents and Events Created for Different Types of Open Alerts in an Upgraded Enterprise Manager System

- Incidents and Events Created for Different Types of Closed Alerts in an Upgraded Enterprise Manager System

3.11.2.1 Alerts Migrated in an Upgraded Enterprise Manager System

The following are the ways in which the alerts are migrated:

- All open alerts are migrated.

  Table 3–3 shows how and when incidents and events are created for different types of open alerts.

- All alerts that were closed 180 days prior to upgrading or backing up the Management Repository are migrated as part of the Deferred Data Migration Process. This period of 180 days can be changed by the administrator.

  Table 3–4 shows how and when incidents and events are created for different types of closed alerts. Also note that if a closed alert had an associated ticket, then that information is not captured as part of the event migration.

■ All open statefull alerts, and open stateless alerts created within 7 days prior to upgrading or backing up the Management Repository are migrated.

Note: In case of 2-System upgrade approach, if an alert is created in the earlier release of the Enterprise Manager system after the Management Repository is backed up, then that open alert is migrated as part of the Accrued Data Migration Process (see Table 3–3). In addition, all availability records are also migrated as part of the Accrued Data Migration Process.

3.11.2.2 Incidents and Events Created for Different Types of Open Alerts in an Upgraded Enterprise Manager System

Table 3–3 shows how and when incidents and events are created for different types of open alerts.

Table 3–3   Incidents and Events Created for Different Types of Open Alerts

Open Alert Type	Incident Created	Event Created
Critical Alert	Yes	Yes
Warning Alert	No	Yes
Critical Alert with Ticket	Yes	Yes (with Ticket)
Warning Alert with Ticket	Yes	Yes (with Ticket)
Warning Alert with Notification Pending	Yes	Yes
Warning Alert without Notification Pending	No	Yes
Critical Alert with Acknowledgement	Yes	Yes
Warning Alert with Acknowledgement	Yes	Yes

3.11.2.3 Incidents and Events Created for Different Types of Closed Alerts in an Upgraded Enterprise Manager System

Table 3–4 shows how and when incidents and events are created for different types of closed alerts. Also note that if a closed alert had an associated ticket, then that information is not captured as part of the event migration.

Table 3–4   Incidents and Events Created for Different Types of Closed Alerts

Closed Alert Type	Incident Created	Event Created
Critical Alert	No	Yes
Warning Alert	No	Yes
Critical Alert with Ticket	No	Yes (without Ticket)
Warning Alert with Ticket	No	Yes (without Ticket)
Warning Alert with Notification Pending	No	Yes
Warning Alert without Notification Pending	No	Yes
Critical Alert with Acknowledgement	No	Yes
Warning Alert with Acknowledgement	No	Yes

3.11.3 Jobs in an Upgraded Enterprise Manager System

For 1-System upgrade approach, jobs can run more or less as expected. During the downtime, jobs do not run, and any job that is running during the downtime is aborted or failed. In addition, all the scheduled jobs continue as they were planned.

For 2-System upgrade approach, there are some restrictions and caveats on how jobs run. Firstly, since a Management Agent is monitored only by one particular Enterprise Manager system at any point, jobs can run only in the system that monitors the Management Agent. Until a Management Agent is migrated, all jobs against targets monitored by that Management Agent are run in the old Enterprise Manager system. This also means that only one Enterprise Manager system has the *true* status of a job because the Management Agent communicates only with one of the systems at a given time, so only that Enterprise Manager system knows what the actual status is.

- If a Management Agent is not migrated, then a future job appears as a scheduled job in the old Enterprise Manager system, but appears as a suspended job on the Management Agent unavailable in Enterprise Manager Cloud Control.

- A job running in the old Enterprise Manager system at the time of the backup either aborts or fails in Enterprise Manager Cloud Control. Once the Management Agent is migrated, a future job appears as a suspended job on the Management Agent unavailable in the old Enterprise Manager system, but appears as a scheduled job in Enterprise Manager Cloud Control. If the Management Agent is subsequently removed from the old Enterprise Manager system, then that job is removed as well.

  If the backup of the old Enterprise Manager system did not require a downtime, then the jobs running at the time of the backup continue to run. (If the backup required a downtime, then the job may abort due to the downtime.) Such jobs appear as aborted, failed, or skipped jobs in Enterprise Manager Cloud Control.

- Repeating jobs continue to run in the old Enterprise Manager system according to their schedule. In Enterprise Manager Cloud Control, such jobs appear to be aborted, failed, or skipped. Once the Management Agent is migrated, such jobs start to run in Enterprise Manager Cloud Control. In the old Enterprise Manager system, such jobs are suspended on the Management Agent unavailable.

- Jobs submitted in the old Enterprise Manager system after the backup do NOT appear in Enterprise Manager Cloud Control. Jobs submitted in Enterprise Manager Cloud Control do NOT appear in the old Enterprise Manager system. Usually, jobs are created only in the system that is currently monitoring the target.

  - Jobs created in the old Enterprise Manager system before the Management Agent or its targets is migrated run in the old Enterprise Manager system as expected.

  - Repeating jobs run until the Management Agent is migrated at which point they are stuck as suspended jobs on the Management Agent unavailable.

  - If jobs are created in the old Enterprise Manager system after the target is migrated, then they never run; they remain stuck as suspended jobs on the Management Agent unavailable. So do not create a job in the old Enterprise Manager system after the Management Agent is migrated.

  - Jobs created in Enterprise Manager Cloud Control on targets for which the Management Agent has already been migrated behave normally and run as expected.

  - Jobs can be created in Enterprise Manager Cloud Control before the Management Agent for its target is migrated, but they will be in suspended

mode on Management Agent unavailable until the Management Agent is migrated.

This is particularly useful when a new job is created in the old Enterprise Manager system and a copy of it is desired in Enterprise Manager Cloud Control for use after the target is migrated. Usually, this will be a repeating job.

* If the Management Agent is migrated before the scheduled time of the job, then the job runs in Enterprise Manager Cloud Control.

* If the Management Agent is migrated after the scheduled time of the job, then the job is skipped. This is to prevent a case where the job runs on both the systems.

* If the job has a repeating schedule, then the times before the migration are skipped, while the times after the migration are run.

* A job with an immediate schedule does not run in Enterprise Manager Cloud Control and is eventually skipped. So do not create an immediate job on a target that is not migrated.

- For jobs with multiple executions, one job per target, some targets may be suspended, while others run.

Consider a job against two databases, *dbA* monitored by Management Agent *A*, and *dB* monitored by Management Agent *B*. If only Management Agent *B* is migrated, then the execution for *dbA* is suspended, while the execution for *dB* runs when it reaches its scheduled time. If this is a repeating job, then the execution for *dbA* is skipped. Once the Management Agent *A* is migrated, then both executions are run as usual.

This behavior is important for jobs with many targets, such as those submitted to a group. Those executions for targets monitored by the old Enterprise Manager system run in the old Enterprise Manager system, while those for targets monitored by Enterprise Manager Cloud Control run in Enterprise Manager Cloud Control. The corresponding executions on the other systems are suspended or skipped.

- For jobs on multiple targets, one job for many targets, the jobs can neither run in the old Enterprise Manager system nor in Enterprise Manager Cloud Control unless the Management Agents for all the targets are migrated at one time. To determine the correct set of Management Agents to migrate at one time to address this, run the SQL queries described in Appendix D.

The alternative is to migrate the Management Agents independently, and then, once the last Management Agent is migrated, the job may run if the grace period allows it to run or if the scheduled time was after the last agent migration.

3.11.4 Deployment Procedures in an Upgraded Enterprise Manager System

After upgrading the entire Enterprise Manager system, none of the 10*g* Release 5 (10.2.0.5) or 11*g* Release 1(11.1.0.1) deployment procedure runs will be available in the upgraded Enterprise Manager. If you want to reference any of the old runtime data, then you must use the following EM CLI verb to export all of the runtime data as an XML file.

```
get_instance_data_xml
```

3.11.5 Metrics Renamed in an Upgraded Enterprise Manager System

Some metrics related to the Oracle Fusion Middleware targets have been renamed in Enterprise Manager Cloud Control. In addition, a few have been introduced. The following are the targets for which the metrics have undergone some changes. For information about the metric changes, see Appendix C.

- Oracle SOA Infrastructure

- Oracle SOA Composite

- Oracle Service Bus

- Oracle WebLogic Server

- JBoss Application Server

- Siebel Enterprise

- Siebel Server

3.11.6 Upgrading EM CLI Clients After Upgrading an Enterprise Manager System

You must upgrade all *existing* EM CLI clients of the earlier release to 12*c* Release 1 so that they can work with Enterprise Manager Cloud Control. This means, you must discard the old one and set up a new one.

For information about setting up a new EM CLI client, see the *Enterprise Manager Command Line Interface Download* page within the Cloud Control console. To access that page, in Cloud Control, from the **Setup** menu, select **My Preferences**, then select **Command Line Interface**.

3.11.7 Upgrading Oracle Exadata Targets After Upgrading an Enterprise Manager System

Oracle Exadata targets on your existing Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1) are not upgraded by default. You must manually discover them in Enterprise Manager Cloud Control. As a result, you will lose all historical data related to these targets.

3.12 Custom Certificates Configured for OMS and Management Agent Are Reused in an Upgraded Enterprise Manager System

When you upgrade to 12*c* Release 5 (12.1.0.5), 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.

3.13 XML DB Feature in the Database After Upgrading an Enterprise Manager System

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.

3.14 Manually Restarting the OMS and the Management Agent After Upgrading an Enterprise Manager System

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.

3.15 Enabling Force Logging When Oracle Data Guard Is Configured with the Standby Database for an Upgraded Enterprise Manager System

If you have Oracle Data Guard configured with your standby database, 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.

Part II

Upgrading Enterprise Manager Cloud Control 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), 12c Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5)

This part describes how you can upgrade Enterprise Manager Cloud Control 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), 12*c* Release 2 (12.1.0.2) to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5).

This part covers the following chapters:

- Chapter 4, "Getting Started with Upgrading Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)"

- Chapter 5, "Upgrading Oracle Management Service and Oracle Management Repository 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)"

- Chapter 6, "Upgrading Oracle Management Agents"

- Chapter 7, "Upgrading or Redeploying JVMD"

- Chapter 8, "Upgrading or Redeploying ADP"

4

Getting Started with Upgrading Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)

This chapter describes the high-level process for upgrading your Enterprise Manager 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5).

In particular, this chapter covers the following:

- Upgrading Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5) in a Single-OMS or Multi-OMS Non-HA Environment

- Upgrading Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5) in an HA Environment (Primary and Standby Sites)

Note:

- If you have Oracle Management Service 12*c* Release 1 (12.1.0.1) [with or without Bundle Patch 1], then first upgrade it to either 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), or 12*c* Release 4 (12.1.0.4), and then upgrade to 12*c* Release 5 (12.1.0.5).

  For instructions to upgrade to 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), or 12*c* Release 4 (12.1.0.4) refer to the *Oracle Enterprise Manager Cloud Control Upgrade Guide* for the respective release, available in the Enterprise Manager documentation library:

  http://docs.oracle.com/cd/E24628_01/index.htm

- The Oracle Management Agent releases that are supported for Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5) are 12*c* Release 5 (12.1.0.5), 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), and 12*c* Release 2 (12.1.0.2). If you have any earlier releases of Oracle Management Agent, then before upgrading the Oracle Management Service to 12*c* Release 5 (12.1.0.5), make sure you upgrade your Oracle Management Agent to either 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) using the *Agent Upgrade Console* present within the Enterprise Manager Cloud Control Console. For instructions, refer to Oracle Enterprise Manager Cloud Control Upgrade Guide.

- If you want to take any additional preparatory steps for a successful upgrade, see My Oracle Support note 1682332.1.

- If you want to see a list of known issues before starting the upgrade process, then see My Oracle Support note 2022505.1.

WARNING: **Do not upgrade 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) while it is undergoing a 2-system upgrade from its earlier release (10.2.0.5 or 11.1.0.1). Wait until the upgrade completes fully because there might be some standalone Management Agents in status pending state while the upgrade is in progress.**

4.1 Upgrading Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5) in a Single-OMS or Multi-OMS Non-HA Environment

Table 4–1 describes the steps for upgrading your Enterprise Manager to 12*c* Release 4 (12.1.0.4) in a single-OMS or multi-OMS non-HA (or non-high availability) environment.

If you want to see a list of known issues before starting the upgrade process, then see My Oracle Support note 2022505.1.

Table 4–1 Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure
Step 1	**Prepare Yourself**	
(a)	Learn about the 1-System upgrade approach.	Section 2.1
(b)	Review the important facts you need to know before you begin.	Chapter 3
Step 2	**Upgrade Oracle Management Service and Oracle Management Repository**	

Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure
(a)	Meet the following prerequisites:	

- Meet the Oracle Management Service-related prerequisites described in the chapter on installing Enterprise Manager Cloud Control, in the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

- Upgrade to 12*c* Release 5 (12.1.0.5) is an out-of-place upgrade, therefore make sure your host meets the hardware requirements specific to 12*c* Release 5 (12.1.0.5) as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*. Here, *host* refers to the host on which your current Enterprise Manager, which you want to upgrade, is running.

- Ensure that you are upgrading only on the supported platforms as listed in Section 3.3.

- If you want to upgrade your database, which houses the Management Repository, to 12*c* Release 1(12.1.0.2), then make sure you upgrade the database ONLY after you upgrade the Enterprise Manager system.

- Ensure that the ports used by Enterprise Manager 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.

- Back up the OMS (the middleware home and the inventory), the Management Repository, and the 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*.

- Make a copy (using the Create Like action) of the out-of-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-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.**

- Ensure that the contents of the following directory across OMS hosts are the same. If the number of plug-ins and/or their revisions are different across OMS hosts, then ensure that you copy them over from one `pluginextract_with_rev` directory to another to make them consistent.

  `<OMS_HOME>/sysman/install/pluginextract_with_rev`

  For example, on the first OMS host, `OMS_Host1`, you may have the following plug-ins and revisions:

  oracle.sysman.emfa 12.1.0.1.0 and 12.1.0.2.0; oracle.sysman.bda 12.1.0.1.0, 12.1.0.2.0, and 12.1.0.3.0; and oracle.em.sidb 12.1.0.1.0 and 12.1.0.2.0.

  On the additional OMS host, OMS_Host2, you may have the following plug-ins: oracle.sysman.emfa 12.1.0.1.0 and 12.1.0.2.0; oracle.sysman.bda 12.1.0.3.0; and oracle.em.sehc 12.1.0.1.0.

  In this case, ensure that you copy oracle.sysman.bda 12.1.0.1.0 and 12.1.0.2.0, and oracle.em.sidb 12.1.0.1.0 and 12.1.0.2.0 from the first OMS host to the additional OMS host, and ensure that you copy oracle.em.sehc 12.1.0.1.0 from the additional OMS host to the first OMS host. This way, the plug-ins and their revisions in both OMS hosts will be consistent.

- If you have done any of the following customization to the OMS, then ensure that you remove all of them before starting the upgrade process. Once the upgrade is complete, you can redo the customization.

  - Configuring additional data source parameters in Weblogic.

***Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5
(12.1.0.5) in a Single-OMS Non-HA Environment***

Step No.	Step	Procedure
(b)	If you have Oracle BI Publisher installed on the Enterprise Manager Cloud Control 12*c* installation that you are upgrading, then do one of the following: ■ If you are upgrading from Enterprise Manager Cloud Control 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. As part of the upgrade to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5), Oracle BI Publisher 11.1.1.7.0 with the latest bundle patches is automatically installed in the middleware home. However, although Oracle BI Publisher is installed by default, it is not configured or upgraded from the earlier version by default. Therefore, after upgrading to 12*c* Release 5 (12.1.0.5), you must manually configure Oracle BI Publisher. This configuration step also migrates all the reports from the old BI Publisher home to the new one. For instructions, see Step 4 (f).	
(c)	Check for any outstanding database service instance creation requests. If there are any requests in progress, 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.	

(d)	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_mview_logs where log_owner='<EM_REPOS_USER>`
	
	 For example,
	
	 `select master , log_table  from all_mview_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`	

Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure

(e)	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:
	
	■ 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';`
	
	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.
	
	To disable the triggers, run the following query:
	
	`SQL> alter trigger <trigger_name> disable;`
	
	For example,
	
	`SQL> alter trigger EXPFIL_ALTEREXPTAB_MAINT disable;`	

Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure

(f)	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 to the help you set up or configure an archive location for archiving the audit data from the Management Repository to a file system after the retention period. Standardize this on all sites.	

Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure
(g)	**(CRITICAL MANDATORY STEP)** Apply the following patches on the database. You can access My Oracle Support and search for these patches. For instructions, see the ReadMe file associated with the patch. **If you do not apply these patches, you will run into upgrade failures that cannot be corrected.** **For Oracle Database 11 Release 1 (11.1.0.7)** ■ On Unix platforms, apply patch 17082366 *(Patch Set Update 17)*. Then apply patch 9577583 and patch 8405205. ■ On Microsoft Windows (32 bit and 64 bit) platforms, apply patch 17363760 *(Patch 54)*. **For Oracle Database 11g Release 2 (11.2.0.1)** ■ On Unix platforms, apply patch 12419378 *(Patch Set Update 6)*. ■ On Microsoft Windows (64 bit) platforms, apply patch 13423278 *(Patch 16)*. **For Oracle Database 11g Release 2 (11.2.0.2)** ■ On Unix platforms, apply patch 11061801 and patch 9748749. ■ On Microsoft Windows (32 bit) platforms, apply patch 11061801 and patch 12429530. ■ On Microsoft Windows (64-bit) platforms, apply patch 11061801 and patch 12429531. **For Oracle Database 11g Release 2 (11.2.0.3), 10g Release 2 (10.2.0.5)** On Unix as well as Microsoft Windows platforms, apply the patch 11061801. **For Oracle Database 11g Release 2 (11.2.0.4) and 12c Release 1 (12.1.0.2)** No patches required for these releases. **Note:** Oracle also recommends that you apply patch 13496395. For information on what database releases you can apply the patch, see the ReadMe that is packaged with the patch.	

(h)	**[IN CASE OF MULTI-OMS UPGRADE, PERFORM THIS STEP ONLY FOR THE FIRST OMS UPGRADE]**
	
	Copy the emkey from the existing OMS to the existing Management Repository. To do so, run the following command on the old OMS home you are trying to upgrade:
	
	`$<OMS_HOME>/bin/emctl config emkey -copy_to_repos [-sysman_pwd <sysman_pwd>]`
	
	To verify whether the emkey is copied, run the following command:
	
	`$<OMS_HOME>/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".`	

Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure

(i)	If you have changed the default, out-of-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 all the OMS instances:
	
	`$<OMS_HOME>/bin/emctl set property -name 'JAVA_EM_MEM_ARGS' -value '<java_memory_arguments>'`
	
	For example,
	
	`$<OMS_HOME>/bin/emctl set property -name 'JAVA_EM_MEM_ARGS' -value '-Xms256m -Xmx1740m'`
	
	2. Restart all the OMS instances:
	
	`$<OMS_HOME>/bin/emctl stop oms -all`
	
	`$<OMS_HOME>/bin/emctl start oms`	

Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure

(j)	Selectively skip 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 job types `PropagateTarget` and `ExecLoaderCallbacks`.
	
	   `INSERT INTO MGMT_PARAMETERS(parameter_name, parameter_value) VALUES ('mgmt_job_skip_job_type_upg.1', 'PropagateTarget');`
	
	   `INSERT INTO MGMT_PARAMETERS(parameter_name, parameter_value) VALUES ('mgmt_job_skip_job_type_upg.2', 'ExecLoaderCallbacks');`
	
	   `COMMIT;`
	
	3. Exclude the other job types you identified in the first step.
	
	   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>');`	

Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure

(k)	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 copying the software binaries as described in Section 5.3.1 or Section 5.4.1.
	
	1. As a prerequisite, stop the JVMD and ADP engines explicitly:
	
	    ■ To stop them in silent mode, run the following commands:
	
	    `$<OMS_HOME>/bin/emctl extended oms jvmd stop -all`
	
	    `$<OMS_HOME>/bin/emctl extended oms adp stop -all`
	
	    ■ To stop them in graphical mode, access the weblogic console, and stop the JVMD and ADP weblogic managed servers manually.
	
	2. Now shut down the OMS you are about to upgrade and also the other OMS instances that connect to it:
	
	    `$<OMS_HOME>/bin/emctl stop oms -all`	

(l)	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.**	

Table 4–1   (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure
(m)	Upgrade the OMS and the Management Repository. You can choose to upgrade in graphical or silent mode. You can also choose to install the software binaries at one point and upgrade them later in graphical or silent mode. If you see an error message stating that you have not copied the emkey, then follow these steps: **1.** Copy the emkey from the old OMS to the old Management Repository. To do so, run the following command from the old OMS home you are trying to upgrade: `$<OMS_HOME>/bin/emctl config emkey -copy_to_repos_from_file -repos_conndesc '"<conndesc>"' -repos_user <username> [-repos_pwd <pwd>] -emkey_file <OMS_HOME>/sysman/config/emkey.ora` For example, `/u01/software/oracle/middleware/oms/bin/emctl config emkey -copy_to_repos_from_file -repos_conndesc '"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost.mydomain.com)(PORT=1521)))(CONNECT_DATA=(SID=emrepos12)))"' -repos_user sysman -emkey_file /u01/software/oracle/middleware/oms/sysman/config/emkey.ora`  **Note:** Here, the Management Repository details are the details of the existing Management Repository you are trying to upgrade. And `<OMS_HOME>` is the OMS home you are trying to upgrade. **2.** Try upgrading the OMS and the Management Repository again. **IMPORTANT:** Upgrade the Management Agent that was installed with the old OMS (that is, central agent) immediately after upgrading the old OMS. To upgrade this Management Agent, use the Agent Upgrade Console.	Section 5.1, Section 5.2, Section 5.3, or Section 5.4
Step 3	**Upgrade Oracle Management Agent**	
(a)	Review the important facts you need to know before you begin upgrading the Management Agents.	Section 6.2
(b)	Meet the prerequisites.	Section 6.3
(c)	Ensure that you restart the Management Agent that you shut down in Step 2 (l).	
(d)	Upgrade the Management Agents. **IMPORTANT:** Upgrade the Management Agent that was installed with the old OMS (that is, central agent) immediately after upgrading the old OMS. To upgrade this Management Agent, use the Agent Upgrade Console.	Section 6.4
Step 4	**Perform Postupgrade Task**	
(a)	Perform postupgrade tasks.	Section 13.6.1
(b)	Reconfigure Oracle WebLogic Server with custom certificates	Section 13.6.14
(c)	Track the status of deferred data migration jobs.	Section 13.7.2
(d)	Delete unwanted central agents	Section 13.13.2

Table 4–1 (Cont.) Upgrading Enterprise Manager Cloud Control to 12c Release 5 (12.1.0.5) in a Single-OMS Non-HA Environment

Step No.	Step	Procedure
(e)	Upgrade Application Dependency and Performance (ADP) engines and JVM Diagnostics (JVMD) engines	Chapter 7
(f)	As part of the upgrade to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5), Oracle BI Publisher 11.1.1.7.0 with the latest patch set is automatically installed. Therefore, do not perform a software-only install of any version of Oracle BI Publisher in the middleware home that contains Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5). However, although Oracle BI Publisher is installed by default, it is not configured or upgraded from the earlier version by default. ■ If you did not have Oracle BI Publisher in your earlier release, then configure the newly installed one. ■ If you already had Oracle BI Publisher in your earlier release, then upgrade the earlier version using the `configureBIP -upgrade` command. As part of the upgrade, all reports from the old Oracle BI Publisher are migrated to the upgraded one.	For configuring the newly installed Oracle BI Publisher, see *Oracle Enterprise Manager Advanced Installation and Configuration Guide*. For upgrading Oracle BI Publisher and migrating the reports, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.
(g)	Delete old OMS home	Section 13.15

4.2 Upgrading Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5) in an HA Environment (Primary and Standby Sites)

This section describes how you can upgrade your primary as well as standby Enterprise Manager sites to 12*c* Release 5 (12.1.0.5) in an HA (or high availability) environment. In particular, this section covers the following:

■ Upgrading Primary and Standby OMS Instances When the Standby OMS Is Created Using Storage Replication

■ Upgrading Primary and Standby OMS Instances When the Standby OMS Is Created Using Standby WebLogic Domain

4.2.1 Upgrading Primary and Standby OMS Instances When the Standby OMS Is Created Using Storage Replication

Table 4–2 describes the steps for upgrading your primary and standby OMS instances when the standby OMS is created using Storage Replication.

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

Table 4–2   Upgrading Primary and Standby OMS Instances When the Standby OMS Is Created Using Storage Replication

Step No.	Step	Procedure
Step 1	**Upgrade the Primary OMS**	
	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.	Section 4.1
Step 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.	

4.2.2 Upgrading Primary and Standby OMS Instances When the Standby OMS Is Created Using Standby WebLogic Domain

Table 4–3 describes the steps for upgrading your primary and standby OMS instances when the standby OMS is created using Standby WebLogic Domain.

Table 4–3   Upgrading Primary and Standby OMS Instances When the Standby OMS Is Created Using Standby WebLogic Domain

Step No.	Step	Procedure
Step 1	**Remove the Standby OMS**	
(a)	Remove all additional standby OMS instances.	To remove all additional standby OMS instances, see the section on removing additional standby OMS instances in *Oracle Enterprise Manager Advanced Installation and Configuration Guide.*
(b)	Remove the first standby OMS.	To remove the first standby OMS, see the section on removing the first standby OMS in *Oracle Enterprise Manager Advanced Installation and Configuration Guide.*
Step 2	**Upgrade the Primary OMS**	
	Upgrade the primary Enterprise Manager site, both OMS and Management Agents.	Section 4.1
Step 3	**Redeploy the Standby OMS**	

Table 4–3   (Cont.) Upgrading Primary and Standby OMS Instances When the Standby OMS Is Created Using Standby WebLogic Domain

Step No.	Step	Procedure
	Re-create the standby OMS environment using Standby WebLogic Domain.	To re-create the standby OMS environment using Standby WebLogic Domain, see the chapter on disaster recovery in *Oracle Enterprise Manager Cloud Control Administrator's Guide.*

5

Upgrading Oracle Management Service and Oracle Management Repository 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5)

This chapter describes the different ways of upgrading your Oracle Management Service and Oracle Management Repository of 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2). 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 of 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5) in Graphical Mode

- Upgrading the OMS and the Management Repository of 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5) in Silent Mode

- Installing Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Using the Software-Only Method in Graphical Mode

- Installing Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Using the Software-Only Method in Silent Mode

Note:

- If you have Oracle Management Service 12*c* Release 1 (12.1.0.1) [with or without Bundle Patch 1], then first upgrade it to either 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), or 12*c* Release 4 (12.1.0.4), and then upgrade to 12*c* Release 5 (12.1.0.5).

  For instructions to upgrade to 12*c* Release 2 (12.1.0.2), 12*c* Release 3 (12.1.0.3), or 12*c* Release 4 (12.1.0.4), refer to the *Oracle Enterprise Manager Cloud Control Upgrade Guide* for the respective release, available in the Enterprise Manager documentation library:

  http://docs.oracle.com/cd/E24628_01/index.htm

- The Oracle Management Agent releases that are supported for Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) are 12c Release 5 (12.1.0.5), 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), and 12c Release 2 (12.1.0.2). If you have any earlier releases of Oracle Management Agent, then before upgrading the Oracle Management Service to 12c Release 5 (12.1.0.5), make sure you upgrade your Oracle Management Agent to either 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) using the Agent Upgrade Console present within the Enterprise Manager Cloud Control Console. For instructions, refer to Oracle Enterprise Manager Cloud Control Upgrade Guide.

- 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.

- If you want to take additional preparatory steps for a successful upgrade, then see My Oracle Support note 1682332.1.

- If you want to see a list of known issues before starting the upgrade process, then see My Oracle Support note 2022505.1.

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 12c 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 of 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5) in Graphical Mode

To upgrade your Oracle Management Service and Oracle Management Repository of 12c Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) in graphical mode, follow these steps.

If you want to see a list of known issues before starting the upgrade process, then see My Oracle Support note 2022505.1.

WARNING: **Do not upgrade Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) while it is undergoing a 2-system upgrade from its earlier release (10.2.0.5 or 11.1.0.1). Wait until the upgrade completes fully because there might be some standalone Management Agents in status pending state while the upgrade is in progress.**

Note: While upgrading, you might see an error message stating that some Management Agents are still in *Activation Pending* state, or that the Deferred Data Migration Process (DDMP) or Accrued Data Migration Process (ADMP) is not complete. This indicates that the Enterprise Manager system is still undergoing a 2-system upgrade from its earlier release to 12c Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2).

To resolve this issue, wait until the DDMP and ADMP jobs are complete, and all Management Agents are switched over from the earlier release to 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2). Then upgrade to 12c Release 5 (12.1.0.5).

If you are sure you do not want to switch over some Management Agents from the earlier release to 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2), then delete such unwanted Management Agents as described in Section 5.1.3, before you start the upgrade process.

Note: After upgrading, you can choose to delete the old OMS home if you do not want it. For instructions, see Appendix K.

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:

  ```
  <OMS_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 < emkey file>
  ```

- If your OMS is not configured with a service name, then run the following command:

  ```
  <OMS_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 <emkey file>
  ```

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 home and verify if the output displays the Admin Server details.

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

You should see a similar output:

```
Oracle Enterprise Manager Cloud Control 12c
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
.
.
.
```

---

1. 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.

```
<Software_Location>/runInstaller [-invPtrLoc <absolute_path_to_
oraInst.loc>]
```

In this command, `<Software_Location>` refers to the location where you have extracted the software kit.

Note:

- For information about the additional, advanced options you can pass while invoking the installer, refer to .

- To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe`.

- When you invoke `runInstaller` or `setup.exe`, if the Enterprise Manager Cloud Control Installation Wizard does not appear, then it is possible that you do not have access to the `/stage` directory.

  There is a classpath variable that the installation wizard computes for OPatch as `../stage/Components/`, and when the TEMP variable is set to `/tmp`, the installation wizard tries to look for the opatch JAR file in the `/tmp/../stage` directory, which is equivalent to `/stage`. However, if you do not have the permission on `/stage`, then the installation wizard can hang. Under such circumstances, verify if you have access to the `/stage` directory. If you do not have access to it, then set the TEMP variable to a location where the install user has access, and then relaunch the installation wizard.

- 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,

  `./runInstaller -skipJDKValidation`

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

---

2. (Optional) On the My Oracle Support Details screen, enter your *My Oracle Support* credentials to enable Oracle Configuration Manager. If you do not want to enable Oracle Configuration Manager now, go to Step (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*.

Note: Beginning with Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3), My Oracle Support accesses support.oracle.com directly. This means that you must provide network access to this URL, or grant proxy access to it from any client that will access My Oracle Support.

---

3. Click **Next**.

4. On the Software Updates screen, apply the latest software updates, including the latest PSU patches.

   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. Click **Next**.

6. 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.

   The installation wizard runs the prerequisite checks automatically when you come to this screen. It checks for the required operating system patches, operating system packages, and so on.

   The status of the prerequisite check can be either **Warning**, **Failed**, or **Succeeded**.

   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.

7. Click **Next**.

   > **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*.

8. On the Installation Types screen, select **Upgrade an Existing Enterprise Manager System**, then select **One System Upgrade**. Then, select the OMS home you want to upgrade.

9. Click **Next**.

10. On the Installation Details screen, do the following:

    a. Enter or validate the Middleware home.

> **Note:**
>
> - Upgrade to 12c Release 5 (12.1.0.5) is an out-of-place upgrade, therefore you must do one of the following:
>
>   - Enter a new middleware home where the installer can automatically install Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0 for you.
>
>   - Enter a new middleware home where you have preinstalled Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0. However, make sure this is a new middleware home meant for the Enterprise Manager system you are installing now, and not the middleware home you were using earlier for the previous release of Enterprise Manager system.
>
> - If you have Oracle WebLogic Server and JDK already installed, then ensure that they are of the supported releases—Oracle WebLogic Server 11g Release 1 (10.3.6) and JDK 1.6.0.43.0. In this case, the installer detects them and displays the Middleware home where they are installed. Validate the path to this Middleware home. The installer detects and displays only those Middleware homes where Enterprise Manager is not already configured.
>
> - 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.

     b. 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.

11. Click **Next**.

12. On the Database Connection Details screen, do the following:

- 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.

13. Click **Next**.

> **Note:** If you encounter a Provisioning Archive Framework (PAF) prerequisite check error, then exit the installer, stop all the running and scheduled deployment procedures in your existing Enterprise Manager system, invoke the installer all over again, and retry the upgrade process.
>
> To identify all running and scheduled deployment procedures, run the following query, and note down the GUID of the deployment procedures.
>
> ```
> SELECT i.instance_guid FROM SYSMAN.MGMT_PAF_STATES s,
> SYSMAN.MGMT_PAF_INSTANCES i, SYSMAN.MGMT_PAF_PROCEDURES p
> WHERE p.procedure_guid = i.procedure_guid AND s.instance_
> guid = i.instance_guid AND s.state_type = 0 AND s.status in
> (0,1)
> ```
>
> To stop the running or scheduled deployment procedures, run the following query, and pass the GUID you noted down from the output of the preceding command:
>
> ```
> emcli stop_instance -instance=<instance id from sql query>
> ```

> **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*.

14. On the Plug-In Upgrade screen, review the plug-ins that will be automatically:

- 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.

> **IMPORTANT:** Before you proceed to the next screen, stop all the associated OMS instances.
>
> **$<OMS_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. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):

     http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html

  2. Expand the section that lists the software binaries and plug-ins for your upgrade path.

  3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.

  4. Invoke the installer with the following option, and pass the location where the plug-ins you want to install are available:

     For UNIX Platforms:

     ```
     ./runInstaller -pluginLocation
     <absolute_path_to_plugin_software_
     location>
     ```

     For Microsoft Windows Platforms:

     ```
     setup.exe -pluginLocation <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.

---

15. Click **Next**.

16. 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.

> **Note:** If you want to install some plug-ins that are not listed on this screen, then follow these steps:
>
> 1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
>
>   http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html
>
> 2. Expand the section that lists the software binaries and plug-ins for your upgrade path.
>
> 3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.
>
> 4. Invoke the installer with the following option, and pass the location where the plug-ins you want to install are available:
>
>   For UNIX Platforms:
>
>    ```
>    ./runInstaller -pluginLocation <absolute_path_to_plugin_
>    software_location>
>    ```
>
>   For Microsoft Windows Platforms:
>
>    ```
>    setup.exe -pluginLocation <absolute_path_to_plugin_
>    software_location>
>    ```

17. Click **Next**.

18. 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:

    - 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 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2), 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.

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

      For example, if the 12.1.0.4 middleware home was /u01/app/Oracle/Middleware, and the 12.1.0.4 OMS instance base directory

was `/u01/app/Oracle/gc_inst`, then while upgrading to 12.1.0.5, if you entered the middle ware home as `/u01/app/Oracle/Middleware12104`, then enter the OMS instance base directory as `/u01/app/Oracle/gc_inst12104`. As a result, the directory name is unique and so is the directory location.

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 5.1.4.

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

---

19. Click **Next**.

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

    a. If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.

    b. After you verify the details, if you are satisfied, click **Install** to begin the upgrade.

21. 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 accidently 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 OMS home to rerun the Configuration Assistant in silent mode:

  ```
  $<OMS_HOME>/oui/bin/runConfig.sh ORACLE_HOME=<absolute_
  path_to_OMS_home> 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
  ```

- If the upgrade fails because you did not apply the required database patches as described in Step 2 (d) of Section 4.1, then see My Oracle Support note 1568107.1 to verify the error in the log file, and to resolve the issue and proceed further.

---

22. 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.

23. 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.

24. If you have additional OMS instances, then start upgrading each of them following Step (1) to Step (23) as outlined in Section 5.1 (this section.)

25. 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: 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 the My Oracle Support note 1520010.1.

---

26. After upgrading the Enterprise Manager system completely, if some central agents appear in *Activation Pending* state in the Enterprise Manager Cloud Control

Console, then delete them by following these steps outlined in Section 13.13.2.

Note: After upgrading, you can choose to delete the old OMS home if you do not want it. For instructions, see Appendix K.

Caution: 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.

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.**

5.1.1 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:

- *(Applicable only for when you upgrade 10.2.0.5)*, When you upgrade 10*g* Release 5 (10.2.0.5), a new WebLogic domain named `GCDomain` is created by default. If you want to override this with a custom name, then invoke the installer 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:

  `./runInstaller WLS_DOMAIN_NAME=EMDomain`

- 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 `EM_STAGE_DIR` option, and enter a unique custom location.

  For example,

  `./runInstaller EM_STAGE_DIR=/home/john/software/oracle/pafdir`

- 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 plug-ins from the following URL, and store them in an accessible location.

2. Invoke the installer with the following option, and pass the location where the plug-ins you want to install are available:

```
./runInstaller -pluginLocation <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 b_startAgent 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:

```
./runInstaller START_OMS=true b_startAgent=false
```

To understand the limitations involved with this advanced option, see Section 5.1.2.

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

When you use START_OMS and b_startAgent 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 b_startAgent=false	1. Start the OMS: $<OMS_HOME>/bin/emctl start oms 2. Secure the Management Agent: $<AGENT_HOME>/bin/emctl secure agent 3. Start the Management Agent: $<AGENT_HOME>/bin/emctl start agent 4. Add the targets: $<AGENT_HOME>/bin/emctl config agent addinternaltargets 5. Upload the targets: $<AGENT_HOME>/bin/emctl upload agent 6. Manually configure the EM CLI tool in the $<OMS_HOME>/bin directory. To do so, refer to the *Oracle Enterprise Manager Command Line Interface Guide.*
START_OMS=true b_startAgent=false	Start the Management Agent: $<AGENT_HOME>/bin/emctl start agent

Table 5–1 (Cont.) Advanced Options and Workarounds

Advanced Option	Workaround

`START_OMS=false`
 	
`b_startAgent=true`
	1. Start the OMS:
	
	   `$<OMS_HOME>/bin/emctl start oms`
	
	2. Secure the Management Agent:
	
	   `$<AGENT_HOME>/bin/emctl secure agent`
	
	3. Add the targets:
	
	   `$<AGENT_HOME>/bin/emctl config agent`
	   `addinternaltargets`
	
	4. Upload the targets:
	
	   `$<AGENT_HOME>/bin/emctl upload agent`
	
	5. Manually configure the EM CLI tool in the $<OMS_HOME>/bin directory. To do so, refer to the *Oracle Enterprise Manager Command Line Interface Guide*.

5.1.3 Deleting Unwanted Standalone Management Agents Before Upgrading from 12.1.0.4, 12.1.0.3, 12.1.0.2 to 12.1.0.5

While upgrading, you might see an error message stating that some Management Agents are still in *Activation Pending* state, or that the Deferred Data Migration Process (DDMP) or Accrued Data Migration Process (ADMP) is not complete. This indicates that the Enterprise Manager system is still undergoing a 2-system upgrade from its earlier release (10.2.0.5 or 11.1.0.1) to 12c Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2).

To resolve this issue, wait until the DDMP and ADMP jobs are complete, and all Management Agents are switched over from the earlier release to 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2). Then upgrade to 12c Release 5 (12.1.0.5).

If you are sure you do not want to switch over some Management Agents from the earlier release to 12c Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2), then delete such unwanted Management Agents before you start the upgrade process.

To delete these unwanted Management Agents, follow these steps:

1. Identify the unwanted Management Agents by running the following query as SYSMAN user in the Management Repository you are about to upgrade (12.1.0.4. 12.1.0.3, or 12.1.0.2 repository):

   ```
   select mt.target_name from sysman.mgmt_targets mt, sysman.em_current_
   availability eca, sysman.PRE_UPGC_AGT_STAT_MGMT puasm where mt.target_
   guid = eca.target_guid and eca.current_status = 4 and eca.current_sub_
   status = 1 and mt.target_type='oracle_emd'and puasm.target_guid =
   mt.target_guid and puasm.UPGRADE_STATUS != 'IGNORE_UPGRADE' and mt.emd_
   url not in (select emd_url from PRE_UPGC_TGT_SW where target_
   type='oracle_emrep') and mt.emd_url not in (select emd_url from mgmt_
   targets where target_name in(select value from mgmt_oms_parameters
   where name = 'HOST_NAME')) and mt.emd_url not in (select distinct emd_
   url from mgmt_targets where target_name like 'EnterpriseManager%home'
   or target_name like '%GCD omain_EMGC_OMS%')
   ```

2. Delete the unwanted Management Agents:

    a. On the upgraded OMS host, from the OMS home, 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.

```
$<OMS_HOME>/bin/emcli login -username=SYSMAN
-password=<sysman-passwd>
```

    b. Synchronize EM CLI:

```
$<OMS_HOME>/bin/emcli sync
```

    c. Delete the unwanted Management Agents. Here, `agentName` is the name of the Management Agent you want to delete.

```
$<OMS_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. Proceed with the upgrade to 12*c* Release 5 (12.1.0.5).

Note: If, for some reason, you are unable to delete the unwanted Management Agents, then turn off the sanity check that checks for Managements Agents with *Activation Pending* state. This enables you to proceed with the upgrade process without encountering any such warning. To turn off the sanity check, run the following query on your 12c Release 4 (12.1.0.4), 12*c* Release 1 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) Management Repository.

```
MERGE INTO PRE_UPGC_MASTER_INFO DEST
   USING dual
     ON (DEST.property_name =  'ignore_upg_pending_activation_
check')
   WHEN MATCHED THEN
     UPDATE SET DEST.property_value = 'TRUE'
   WHEN NOT MATCHED THEN
     INSERT (property_name, property_value) VALUES( 'ignore_upg_
pending_ activation_check', 'TRUE' );
```

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

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. 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:

```
<OMS_HOME>/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>/config/OHS/ohs<#>/httpd.conf
```

For example,

```
/u01/Oracle/Middleware/gc_inst/WebTierIH1/config/OHS/ohs1/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 uo1/em/ohs_locks
</IfModule>
....
<IfModule mpm_worker_module>
StartServers 2
MaxClients 150
MinSpareThreads 25
MaxSpareThreads 75
ThreadsPerChild 25
MaxRequestsPerChild 0
AcceptMutex fcntl
LockFile uo1/em/ohs_locks
</IfModule>
```

For example, if you want to specify the location path `uo1/em/ohs_locks` where where `/u01/em` is a location on your local file system, then make sure the directory `ohs_locks` already exists. If it does not exit, 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:

```
uo1/em/ohs_locks/http_lock
```

4. Save the changes.

5. Restart the OMS:

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

5.2 Upgrading the OMS and the Management Repository of 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) to 12c Release 5 (12.1.0.5) in Silent Mode

To upgrade your Oracle Management Service and Oracle Management Repository of 12c Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) in silent mode, follow these steps.

If you want to see a list of known issues before starting the upgrade process, then see My Oracle Support note 2022505.1.

WARNING: Do not upgrade Enterprise Manager Cloud Control 12c
Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2)
while it is undergoing a 2-system upgrade from its earlier release
(10.2.0.5 or 11.1.0.1). Wait until the upgrade completes fully because
there might be some standalone Management Agents in status
pending state while the upgrade is in progress.

Note: While upgrading, you might see an error message stating that
some Management Agents are still in *Activation Pending* state, or that
the Deferred Data Migration Process (DDMP) or Accrued Data
Migration Process (ADMP) is not complete. This indicates that the
Enterprise Manager system is still undergoing a 2-system upgrade
from its earlier release to 12c Release 4 (12.1.0.4), 12*c* Release 3
(12.1.0.3), or 12*c* Release 2 (12.1.0.2).

To resolve this issue, wait until the DDMP and ADMP jobs are
complete, and all Management Agents are switched over from the
earlier release to 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12*c*
Release 2 (12.1.0.2). Then upgrade to 12c Release 5 (12.1.0.5).

If you are sure you do not want to switch over some Management
Agents from the earlier release to 12c Release 4 (12.1.0.4), 12c Release 3
(12.1.0.3), or 12*c* Release 2 (12.1.0.2), then delete such unwanted
Management Agents as described in Section 5.1.3, before you start the
upgrade process.

Note: After upgrading, you can choose to delete the old OMS home
if you do not want it. For instructions, see Appendix K.

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:

  ```
  <OMS_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 < emkey file>
  ```

- If your OMS is not configured with a service name, then run the
  following command:

  ```
  <OMS_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 <emkey file>
  ```

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 home and verify if the output
> displays the Admin Server details.
>
> ```
> $<OMS_HOME>/bin/emctl status oms -details
> ```
>
> You should see a similar output:
>
> ```
> Oracle Enterprise Manager Cloud Control 12c
> 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
> .
> .
> .
> ```

---

1. Copy the following response file to an accessible location on your local host:

   ```
   <Software_Location>/response/upgrade.rsp
   ```

   In this command, `<Software_Location>` refers to the location where you have
   extracted the software kit (DVD, or downloaded software).

2. Edit the response file and enter appropriate values for the variables described in
   Appendix A.

3. Invoke the installer:

   ```
   ./runInstaller -silent -responseFile <absolute_path>/upgrade.rsp
   ```

Note:

- To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe`.

- For information about the additional, advanced options you can pass while invoking the installer, refer to Section 5.2.1.

- 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,

  `./runInstaller -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*.

---

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

5. 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: 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 the My Oracle Support note 1520010.1.

---

6. After upgrading the Enterprise Manager system completely, if some central agents appear in *Activation Pending* state in the Enterprise Manager Cloud Control Console, then delete them by following these steps outlined in Section 13.13.2.

Note:

- After upgrading, you can choose to delete the old OMS home if you do not want it. For instructions, see Appendix K.

- 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
  ```

- If the upgrade fails because you did not apply the required database patches as described in Step 2 (d) of Section 4.1, then see My Oracle Support note 1568107.1 to verify the error in the log file, and to resolve the issue and proceed further.

Caution: *(Applicable only for 12.1.0.X to 12.1.0.5 Upgrade)* 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 see the JVM target that was associated with the old OMS. This is an expected behavior.

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.**

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

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

- *(Applicable only for 2-system upgrade from 10.2.0.5 or 11.1.0.1)* If you are upgrading on a host that has multiple host names (for example, virtual host), then pass the fully qualified host name using the ORACLE_HOSTNAME argument while invoking the installer.

  For example:

  ```
  ./runInstaller ORACLE_HOSTNAME=example.com -silent -responseFile
  <absolute_path>/upgrade.rsp
  ```

- 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 b_startAgent 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:

```
./runInstaller START_OMS=true b_startAgent=false -silent -responseFile
<absolute_path>/upgrade.rsp
```

To understand the limitations involved with this advanced option, see Section 5.1.2.

5.3 Installing Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Using the Software-Only Method in Graphical Mode

This section describes how you can install only the software binaries of Enterprise Manager 12*c* Cloud Control in graphical mode at one point, and upgrade them 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 12c Release 5 (12.1.0.5) Software Binaries Now in Graphical Mode

■   Running the allroot.sh Script

■   Configuring the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries in Graphical Mode

---

WARNING: **Do not upgrade Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) while it is undergoing a 2-system upgrade from its earlier release (10.2.0.5 or 11.1.0.1). Wait until the upgrade completes fully because there might be some standalone Management Agents in status pending state while the upgrade is in progress.**

Note: While upgrading, you might see an error message stating that some Management Agents are still in *Activation Pending* state, or that the Deferred Data Migration Process (DDMP) or Accrued Data Migration Process (ADMP) is not complete. This indicates that the Enterprise Manager system is still undergoing a 2-system upgrade from its earlier release to 12c Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2).

To resolve this issue, wait until the DDMP and ADMP jobs are complete, and all Management Agents are switched over from the earlier release to 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2). Then upgrade to 12c Release 5 (12.1.0.5).

If you are sure you do not want to switch over some Management Agents from the earlier release to 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2), then delete such unwanted Management Agents as described in Section 5.1.3, before you start the upgrade process.

Note: After upgrading, you can choose to delete the old OMS home if you do not want it. For instructions, see Appendix K.

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:

```
<OMS_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 < emkey file>
```

- If your OMS is not configured with a service name, then run the following command:

```
<OMS_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 <emkey file>
```

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 home and verify if the output displays the Admin Server details.
>
> `$<OMS_HOME>/bin/emctl status oms -details`
>
> You should see a similar output:
>
> ```
> Oracle Enterprise Manager Cloud Control 12c
> 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 12c Release 5 (12.1.0.5) Software Binaries Now in Graphical Mode

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

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

   `<Software_Location>/runInstaller [-invPtrLoc <absolute_path_to_ oraInst.loc>]`

   > **Note:**
   >
   > - In this command, `<Software_Location>` refers to the location where you have extracted the software kit.
   >
   > - To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe`.
   >
   > - `-invPtrLoc` is not supported on Microsoft Windows.

> **Note:** When you invoke `runInstaller` or `setup.exe`, if the Enterprise Manager Cloud Control Installation Wizard does not appear, then it is possible that you do not have access to the `/stage` directory.
>
> There is a classpath variable that the installation wizard computes for OPatch as `../stage/Components/`, and when the TEMP variable is set to `/tmp`, the installation wizard tries to look for the opatch JAR file in the `/tmp/../stage` directory, which is equivalent to `/stage`. However, if you do not have the permission on `/stage`, then the installation wizard can hang. Under such circumstances, verify if you have access to the `/stage` directory. If you do not have access to it, then set the TEMP variable to a location where the install user has access, and then relaunch the installation wizard.

> **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,
>
> `./runInstaller -skipJDKValidation`

2. (Optional) On the My Oracle Support Details screen, enter your *My Oracle Support* credentials to enable Oracle Configuration Manager. If you do not want to enable Oracle Configuration Manager now, go to Step (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*.

   > **Note:** Beginning with Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3), My Oracle Support accesses support.oracle.com directly. This means that you must provide network access to this URL, or grant proxy access to it from any client that will access My Oracle Support.

3. Click **Next**.

4. On the Software Updates screen, apply the latest software updates, including the latest PSU patches.

   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. Click **Next**.

6. 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.

The installation wizard runs the prerequisite checks automatically when you come to this screen. It checks for the required operating system patches, operating system packages, and so on.

The status of the prerequisite check can be either **Warning**, **Failed**, or **Succeeded**.

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.

7. Click **Next**.

> **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*.

---

8. On the Installation Types screen, select **Install software only**.

9. Click **Next**.

10. On the Installation Details screen, do the following:

    a. Enter or validate the Middleware home.

> **Note:**
>
> - Upgrade to 12c Release 5 (12.1.0.5) is an out-of-place upgrade, therefore you must do one of the following:
>
>> - Enter a new middleware home where the installer can automatically install Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0 for you.
>>
>> - Enter a new middleware home where you have preinstalled Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0. However, make sure this is a new middleware home meant for the Enterprise Manager system you are installing now, and not the middleware home you were using earlier for the previous release of Enterprise Manager system.
>
> - If you have Oracle WebLogic Server and JDK already preinstalled, then ensure that they are of the supported releases—Oracle WebLogic Server 11g Release 1 (10.3.6) and JDK 1.6.0.43.0. In this case, the installer detects them and displays the Middleware home where they are installed. Validate the path to this Middleware home. The installer detects and displays only those Middleware homes where Enterprise Manager is not already configured.
>
> - 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.

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

> **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).

    c. 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.

11. Click **Next**.

12. 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.

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

14. 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.

15. Deinstall the Management Agent and delete the agent base directory you created in Step 10 (b). 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. The Agent Upgrade Console performs an out-of-place upgrade, and creates a new agent home in the existing agent base directory for every Management Agent that is upgraded.

For example, in Step 10 (b), you might have provided `/software/oracle/agent12105` as the agent base directory. However, the old agent base directory might be `/software/oracle/middleware/agent_base/`, and the old agent home might be `/software/oracle/middleware/agent_base/core/12.1.0.4`. In this case, the Agent Upgrade Console that upgrades the Management Agent does not use the agent base directory `/software/oracle/agent12105` created in Step 10 (b). Instead, it creates a new agent home `/software/oracle/middleware/agent_base/core/12.1.0.5` in the existing agent base directory `/software/oracle/middleware/agent_base/`. Since the agent base directory you provided in Step 10 (b) is no longer required, you can deinstall the Management Agent and manually delete the agent base directory.

16. 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 OMS home:

```
$<OMS_HOME>/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 12c Release 5 (12.1.0.5) Software Binaries in Graphical Mode

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

1. Invoke the installation wizard by running the following script:

```
$<MIDDLEWARE_HOME>/oms/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.

2. On the Install Types screen, do the following:

   a. Select **Upgrade an Existing Enterprise Manager System**, and then, select **One System Upgrade**.

   b. Select the OMS home you want to upgrade.

3. Click **Next**.

4. On the Database Connection Details screen, do the following:

   - 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 Oracle Management Repository (Management Repository). 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.

   > **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. Click **Next**.

> **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. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
>
>   http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html
>
> 3. Expand the section that lists the software binaries and plug-ins for your upgrade path.
>
> 4. From the **Download Plug-ins** section, manually download the same plug-in version and the same or higher plug-in update as shown in the missing plug-ins error message. Store the plug-ins in an accessible location, and ensure that the location is meant only for these missing plug-ins.
>
> 5. Invoke the `ConfigureGC.sh` script in the following way to install the downloaded plug-ins:
>
>   `<OMS_HOME>/sysman/install/ConfigureGC.sh -pluginLocation <absolute_path_to_plugin_sw>`
>
>   **Proceed to the next step only after you have installed these missing plug-ins.**

6. On the Plug-In Upgrade screen, review the plug-ins that will be automatically:

   - 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:** Before you proceed to the next screen, stop all the associated OMS instances.
   >
   > **$<OMS_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. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):

     http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html

  2. Expand the section that lists the software binaries and plug-ins for your upgrade path.

  3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.

  4. Invoke the installer with the following option, and pass the location where the plug-ins you downloaded are available:

     ```
     $<MIDDLEWARE_
     HOME>/oms/sysman/install/ConfigureGC.s
     h -pluginLocation <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.

---

7. Click **Next**.

8. 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.

> **Note:** If you want to install any additional plug-ins that are not listed on this screen, then follow these steps:
>
> 1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
>
>   http://www.oracle.com/technetwork/oem/grid-control/downlo ads/oem-upgrade-console-502238.html
>
> 2. Expand the section that lists the software binaries and plug-ins for your upgrade path.
>
> 3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.
>
> 4. Invoke the installer with the following option, and pass the location where the plug-ins you downloaded are available:
>
>   `$<MIDDLEWARE_HOME>/oms/sysman/install/ConfigureGC.sh -pluginLocation <absolute_path_to_plugin_software_ location>`

9. Click **Next**.

10. 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:

    - 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 4 (12.1.0.4), 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.

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

    For example, if the 12.1.0.4 middleware home was `/u01/app/Oracle/Middleware`, and the 12.1.0.4 OMS instance base directory was `/u01/app/Oracle/gc_inst`, then while upgrading to 12.1.0.5, if you entered the middle ware home as `/u01/app/Oracle/Middleware12105`, then enter the OMS instance base directory as `/u01/app/Oracle/gc_inst12105`. As a result, the directory name is unique and so is the directory location.

> **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 5.1.4.

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

11. Click **Next**.

12. 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.

13. 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 OMS home to rerun the Configuration Assistant in silent mode:
>
>   ```
>   $<OMS_HOME>/oui/bin/runConfig.sh ORACLE_HOME=<absolute_
>   path_to_OMS_home> 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
>   ```
>
> - If the upgrade fails because you did not apply the required database patches as described in Step 2 (d) of Section 4.1, then see My Oracle Support note 1568107.1 to verify the error in the log file, and to resolve the issue and proceed further.

14. 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.

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

16. 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:** 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 the My Oracle Support note 1520010.1.

17. After upgrading the Enterprise Manager system completely, if some central agents appear in *Activation Pending* state in the Enterprise Manager Cloud Control Console, then delete them by following these steps outlined in Section 13.13.2.

> **Note:** After upgrading, you can choose to delete the old OMS home if you do not want it. For instructions, see Appendix K.

> **Caution:** 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 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_ADPMANAGER1	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
BIP_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.**

5.3.3.1 Advanced Script Options Supported for Software-Only Upgrade to Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5)

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:

  ```
  $<MIDDLEWARE_HOME>/oms/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 `b_startAgent` 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:

  ```
  $<MIDDLEWARE_HOME>/oms/sysman/install/ConfigureGC.sh START_OMS=true b_
  startAgent=false
  ```

  To understand the limitations involved with this advanced option, see Section 5.1.2.

5.4 Installing Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Using the Software-Only Method in Silent Mode

This section explains how you can install only the software binaries of Enterprise Manager 12*c* Cloud Control in silent mode at one point, and upgrade them 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 12c Release 5 (12.1.0.5) Software Binaries in Silent Mode

- Running the allroot.sh Script

- Configuring the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries in Silent Mode

> **WARNING:** Do not upgrade Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12c Release 2 (12.1.0.2) while it is undergoing a 2-system upgrade from its earlier release (10.2.0.5 or 11.1.0.1). Wait until the upgrade completes fully because there might be some standalone Management Agents in status pending state while the upgrade is in progress.

> **Note:** While upgrading, you might see an error message stating that some Management Agents are still in *Activation Pending* state, or that the Deferred Data Migration Process (DDMP) or Accrued Data Migration Process (ADMP) is not complete. This indicates that the Enterprise Manager system is still undergoing a 2-system upgrade from its earlier release to 12c Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2).
>
> To resolve this issue, wait until the DDMP and ADMP jobs are complete, and all Management Agents are switched over from the earlier release to 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2). Then upgrade to 12c Release 5 (12.1.0.5).
>
> If you are sure you do not want to switch over some Management Agents from the earlier release to 12c Release 4 (12.1.0.4), 12c Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2), then delete such unwanted Management Agents as described in Section 5.1.3, before you start the upgrade process.

> **Note:** After upgrading, you can choose to delete the old OMS home if you do not want it. For instructions, see Appendix K.

> **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:
>
>   ```
>   <OMS_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 < emkey file>
>   ```
>
> - If your OMS is not configured with a service name, then run the following command:
>
>   ```
>   <OMS_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 <emkey file>
>   ```
>
> 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 home and verify if the output displays the Admin Server details.
>
> ```
> $<OMS_HOME>/bin/emctl status oms -details
> ```
>
> You should see a similar output:
>
> ```
> Oracle Enterprise Manager Cloud Control 12c
> 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 12c Release 5 (12.1.0.5) Software Binaries in Silent Mode

To install the software binaries of Enterprise Manager 12*c* Cloud Control, follow these steps:

1. Copy the following response file to an accessible location on your local host:

```
<Software_Location>/response/software_only.rsp
```

In this command, `<Software_Location>` refers to the location where you have extracted the software kit.

2. Edit the response file and enter appropriate values for the variables described in Table 5–2.

3. Invoke the installer:

```
./runInstaller -silent -responseFile <absolute_path>/software_only.rsp
[-invPtrLoc <absolute_path_to_oraInst.loc>]
```

Note:

- To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe`.

- For information about the additional, advanced options you can pass while invoking the installer, refer to Section 5.2.1.

- 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,

  ```
  ./runInstaller -skipJDKValidation
  ```

---

4. 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. The Agent Upgrade Console performs an out-of-place upgrade, and creates a new agent home in the existing agent base directory for every Management Agent that is upgraded.

   For example, in the response file, you might have provided `/software/oracle/agent12105` as the agent base directory. However, the old agent base directory might be `/software/oracle/middleware/agent_base/`, and the old agent home might be `/software/oracle/middleware/agent_base/core/12.1.0.4`. In this case, the Agent Upgrade Console that upgrades the Management Agent does not use the agent base directory `/software/oracle/agent12105` created using the response file. Instead, it creates a new agent home `/software/oracle/middleware/agent_base/core/12.1.0.5` in the existing agent base directory `/software/oracle/middleware/agent_base/`. Since the agent base directory you provided in Step 10 (b) is no longer required, you can deinstall the Management Agent and manually delete the agent base directory.

5. 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 5.4.1).

5.4.1.1 Editing the software_only.rsp Response File for Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries in Silent Mode

Table 5–2 describes what variables you must edit and how you must edit them in the `software_only.rsp` response file for installing the software binaries of Enterprise Manager Cloud Control.

Table 5–2   Editing the software_only.rsp Response File for Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries in Silent Mode

Parameter	Data Type	Double Quotes Required for Values?	Description
UNIX_GROUP_ NAME	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	String	Yes	*(Required only when central inventory does not exist)* Enter the absolute path to the Central Inventory. For example, `"/scratch/oracle/oraInventory"`.

SECURITY_ UPDATES_VIA_ MYORACLESUPP ORT	Boolean	Yes	■ Enter `TRUE` if you want to download and install security updates. Then, enter the credentials for the following variables in double quotes:
			
			`MYORACLESUPPORT_USERNAME`
			
			`MYORACLESUPPORT_PASSWORD`
			
			■ Enter `FALSE` if you do not want to download and install security updates:

DECLINE_ SECURITY_ UPDATES	Boolean	No	■ 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`.

Table 5–2 (Cont.) Editing the software_only.rsp Response File for Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries in Silent

Parameter	Data Type	Double Quotes Required for Values?	Description
INSTALL_ UPDATES_ SELECTION	String	Yes	By default, this variable is set to `"skip"` indicating that the software updates will not be installed during installation.

- If you want to install the software updates from My Oracle Support, then set this variable to `"download"`. Then, enter the credentials for the following variables 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 variable to `"staged"`. Then, for the `STAGE_LOCATION` variable, 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 *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Table 5–2   (Cont.) Editing the software_only.rsp Response File for Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries in Silent

Parameter	Data Type	Double Quotes Required for Values?	Description
ORACLE_ MIDDLEWARE_ HOME_ LOCATION	String	Yes	Upgrade to 12c Release 5 (12.1.0.5) is an out-of-place upgrade, therefore you must do one of the following:
			■ Enter a new middleware home where the installer can automatically install Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0 for you.
			■ Enter a new middleware home where you have preinstalled Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0. However, make sure this is a new middleware home meant for the Enterprise Manager system you are installing now, and not the middleware home you were using earlier for the previous release of Enterprise Manager system.
			Ensure that the middleware location has *write* permission to create the Oracle homes for OMS and Management Agent.
			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.
AGENT_BASE_ DIR	String	Yes	Enter the absolute path to the agent base directory, a location outside the Oracle Middleware home where the Management Agent can be installed.
			For example, `"u01/app/Oracle/agent"`. Ensure that this location is empty and has write permission. Also ensure that it is always maintained outside the Oracle Middleware home.
ORACLE_ HOSTNAME *(Applicable only for 2-system upgrade of 10.2.0.5 or 11.1.0.1)*	String	Yes	By default, the fully qualified name of the host on which you have invoked the installer, is considered.
			■ To accept the default value, leave it blank.
			■ To install with a different host name, then enter another host name.
FROM_ LOCATION	Not Applicable	Not Applicable	Ignore this parameter.
DEINSTALL_LIST	Not Applicable	Not Applicable	Ignore this parameter.

Table 5–2   (Cont.) Editing the software_only.rsp Response File for Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries in Silent

Parameter	Data Type	Double Quotes Required for Values?	Description
REMOVE_HOMES	Not Applicable	Not Applicable	Ignore this parameter.

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 OMS home:

```
$<OMS_HOME>/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 12c Release 5 (12.1.0.5) Software Binaries in Silent Mode

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

1. Copy the following response file to an accessible location on the host where you copied the software binaries of Enterprise Manager Cloud Control:

   ```
   <Software_Location>/response/upgrade.rsp
   ```

   In this command, `<Software_Location>` refers to the location where you have extracted the software kit.

2. Edit the response file and enter appropriate values for the variables described in Appendix A.

3. Configure the software binaries by invoking the `ConfigureGC.sh` script passing the response you edited in the previous step:

   ```
   $<MIDDLEWARE_HOME>/oms/sysman/install/ConfigureGC.sh -silent
   -responseFile <absolute_path>/upgrade.rsp [-invPtrLoc <absolute_path_
   to_oraInst.loc>]
   ```

> **Note:**
>
> - While installing the software binaries as described in Section 5.4.1, 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.
>
> - 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. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
>
>   http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html
>
> 3. Expand the section that lists the software binaries and plug-ins for your upgrade path.
>
> 4. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.
>
> 5. Invoke the `ConfigureGC.sh` script in the following way to install the downloaded plug-ins:
>
>   `<OMS_HOME>/sysman/install/ConfigureGC.sh -pluginLocation <absolute_path_to_plugin_sw>`

4. If you have additional OMS instances, then start upgrading each of them by following steps outlined in this section (Section 5.4.3).

5. 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:** 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 the My Oracle Support note 1520010.1.

6. After upgrading the Enterprise Manager system completely, if some central agents appear in *Activation Pending* state in the Enterprise Manager Cloud Control Console, then delete them by following these steps outlined in Section 13.13.2.

Note:

- After upgrading, you can choose to delete the old OMS home if you do not want it. For instructions, see Appendix K.

- 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
  ```

- If the upgrade fails because you did not apply the required database patches as described in Step 2 (d) of Section 4.1, then see My Oracle Support note 1568107.1 to verify the error in the log file, and to resolve the issue and proceed further.

Caution: *(Applicable only for 12.1.0.X to 12.1.0.5 Upgrade)* 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 see the JVM target that was associated with the old OMS. This is an expected behavior.

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.**

6

Upgrading Oracle Management Agents

This chapter describes how you can upgrade your Enterprise Manager Cloud Control 12*c* Oracle Management Agents (Management Agents). This chapter contains the following sections:

- Overview of 12c Management Agent Upgrade
- Before You Begin Upgrading 12c Management Agents
- Prerequisites for Upgrading 12c Management Agents
- Upgrading 12c Management Agents
- After Upgrading 12c Management Agents
- Troubleshooting 12c Management Agent Upgrade

6.1 Overview of 12c Management Agent Upgrade

If you are using Enterprise Manager Cloud Control 12*c* Release 4 (12.1.0.5) to manage your enterprise, Oracle strongly recommends that you upgrade all your Oracle Management Agents (Management Agents) to 12.1.0.5.

To upgrade your 12*c* Management Agents, you can either use the Upgrade Agents page of Agent Upgrade Console (which is part of the Enterprise Manager Cloud Control console), or use EM CLI. The Upgrade Agents page 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).

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 12*c* Management Agents, view the Management Agents that cannot be upgraded, and view the summary of Management Agent upgrade jobs. You can use the Post Agent Upgrade Tasks tab to clean up the old directories of upgraded 12*c* Management Agents, and view a summary of the Management Agent clean up jobs. To access the Agent Upgrade Console, from the **Setup** menu, select **Manage Cloud Control,** then select **Upgrade Agents.**

Figure 6–1 shows the Agent Upgrade Console.

Figure 6–1   Agent Upgrade Console
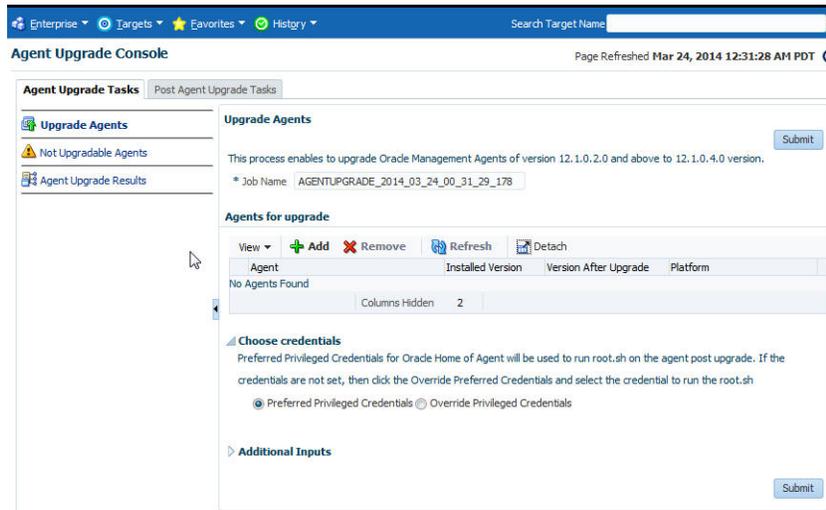
Upgrading a Management Agent modifies its installation base directory structure. The following is an example of the installation base directory structure of a 12*c* Release 4 (12.1.0.4) Management Agent, when it is upgraded to 12*c* Release 5 (12.1.0.5):

Before Upgrade

```
<agent_base_directory>
     |_____sbin
     |_____core
          |_____12.1.0.4.0
     |_____plugins
     |_____agent_inst
     |_____agentimage.properties
     .
     .
     .
```

After Upgrade

```
<agent_base_directory>
     |_____sbin
     |_____backup_agtup
     |_____core
          |_____12.1.0.4.0
          |_____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 12.1.0.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 Before You Begin Upgrading 12c Management Agents

Before you upgrade your 12*c* Management Agents, you must be aware of the following:

- If your Oracle Management Service (OMS) is of version 12c Release 5 (12.1.0.5), you can use the Agent Upgrade Console or EM CLI to upgrade only 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), 12*c* Release 4 (12.1.0.4) Management Agents, and not 12c Release 1 (12.1.0.1) Management Agents.

  For information about the Management Agent versions that are supported on a 12.1.0.5 OMS, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide.*

- 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 12*c* Release 5 (12.1.0.5). Ensure that you upgrade the central agent installed on the OMS host immediately after upgrading the old OMS to 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>/core/12.1.0.5.0/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 12*c* Release 4 (12.1.0.5), 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

■ See the Management Agent upgrade checklist present in the My Oracle Support note 1569883.1.

■ 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 12*c* Release 5 (12.1.0.5) 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.

6.3 Prerequisites for Upgrading 12c Management Agents

Before you upgrade your 12*c* Management Agents, 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 OMS collections are run on all the Management Agents that you want to upgrade.

  If OMS 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 Section 6.4.3.

  To run OMS collections on a 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 target of target type `oracle_home`
that is present in `<EMSTATE>/sysman/emd/targets.xml`

- 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>`

- If the temporary directory (that is, 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 temporary directory has at least 2.1 GB
  of free space, and the agent base directory has at least 750 MB of free space.

6.4 Upgrading 12c Management Agents

This section describes the actions involved in upgrading Management Agents. It
consists of the following:

- Upgrading 12c Management Agents

- Additional Parameters for 12c Management Agent Upgrade

- Viewing 12c Management Agents That Cannot Be Upgraded

- Performing Postupgrade Clean Up of Old Management Agents

- Viewing 12c Management Agent Upgrade Clean Up Jobs

6.4.1 Upgrading 12c Management Agents

This section describes the methods you can use to upgrade 12.1.0.x Management
Agents. It consists of the following:

- Upgrading 12c Management Agents using Agent Upgrade Console

- Upgrading 12c Management Agents using EM CLI

6.4.1.1 Upgrading 12c Management Agents using Agent Upgrade Console

To upgrade 12.1.0.x Management Agents using 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 cannot upgrade your 12*c* Release 2 (12.1.0.2) Management Agents to 12*c* Release 3 (12.1.0.3) or 12c Release 4 (12.1.0.4). You can only upgrade your 12*c* Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), and 12*c* Release 4 (12.1.0.4) Management Agents to 12*c* Release 5 (12.1.0.5).
   >
   > - 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 6.4.2 for a list of parameters you can specify.

6. For **Stage Location,** accept the default stage location, or enter a custom location.

   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.

   > **Note:** Ensure that the Management Agent host user has write permission in the custom location.

   The stage location is used to store temporary Management Agent upgrade files.

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 6.6.

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>/core/12.1.0.5.0/` 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 6.4.4.

6.4.1.2 Upgrading 12c Management Agents using EM CLI

To upgrade 12.1.0.x Management Agents 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>
   ```

   For example, `/scratch/aime/Oracle/MW/oms/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:

   ```
   $<OMS_HOME>/bin/emcli sync
   ```

3. Run the `get_upgradable_agents` verb to obtain a list of the Management Agents that can be upgraded:

   ```
   $<OMS_HOME>/bin/emcli get_upgradable_agents
                         [-agents]
                         [-platforms]
                         [-versions]
                         [-groups]
                         [-output_file]
   ```

   Note that the parameters mentioned in `[ ]` are optional.

   For example, `$<OMS_HOME>/bin/emcli get_upgradable_agents -agents="abc%,xyz.domain.com:1243" -platforms="Linux x86,Microsoft Windows x64 (64-bit)" -versions="12.1.0.4.0" -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:

   ```
   $<OMS_HOME>/bin/emcli/help get_upgradable_agents
   ```

4. Run the `upgrade_agents` verb to upgrade your Management Agents:

   ```
   $<OMS_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, `$<OMS_HOME>/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`

Use the `-input_file="agents_file:<absolute_location>"` option to specify a file containing the list of Management Agents that you want to upgrade. Use the `-input_file="response_file:<absolute_location>"` option to specify a response file containing all the upgrade parameters that you want to use. A response file contains parameters in name value pairs, as shown:

```
job_name=UPGRADE_AGENT
additional_parameters="-ignorePrereqs START_PRIORITY_LEVEL=98"
```

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:

```
$<OMS_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 6.6.

5. To view the status of the submitted Management Agent upgrade jobs, run the `get_agent_upgrade_status` verb:

```
$<OMS_HOME>/bin emcli get_agent_upgrade_status
                     [-agent]
                     [-job_name]
                     [-status]
```

Note that the parameters mentioned in `[ ]` are optional.

For example, `$<OMS_HOME>/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, `$<OMS_HOME>/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 6.6.

To view more information on the syntax and the usage of the `get_agent_upgrade_status` verb, run the following command:

```
$<OMS_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>/core/12.1.0.5.0/` 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 6.4.4.

> **Note:** For more information on how to use the EM CLI verbs mentioned in this section, refer to *Oracle Enterprise Manager Command Line Interface.*

6.4.2 Additional Parameters for 12c Management Agent Upgrade

Table 6–1 describes the additional parameters you can use while upgrading 12*c* Management Agents using Agent Upgrade Console, or EM CLI. You can enter more than one parameter, using a whitespace as a separator.

Table 6–1   List of Additional Parameters for 12c Management Agent Upgrade

Parameter	Description
-ignorePrereqs	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.
-debug	Logs debug messages useful for debugging and resolving errors.
START_PRIORITY_LEVEL (For Unix based hosts only)	Use this parameter to specify the priority level of the Management Agent service when the host is started. This parameter accepts values between `0` and `99`. However, Oracle recommends that you provide a value between `91` and `99` for this parameter.
	For example, `START_PRIORITY_LEVEL=95`
	If you do not include this parameter, it defaults to `98`.
	Important: If you had specified a value for this parameter while installing the Management Agent that you have selected for upgrade, ensure that you specify the same value while upgrading the Management Agent.
SHUT_PRIORITY_LEVEL (For Unix based hosts only)	Use this parameter to specify the priority level of the Management Agent service when the host is shut down. This parameter accepts values between `0` and `99`.
	For example, `SHUT_PRIORITY_LEVEL=25`
	If you do not include this parameter, it defaults to `19`.
	Important: If you had specified a value for this parameter while installing the Management Agent that you have selected for upgrade, ensure that you specify the same value while upgrading the Management Agent.

6.4.3 Viewing 12c Management Agents That Cannot Be Upgraded

You may not be able to upgrade certain 12*c* Management Agents using the Agent Upgrade Console or EM CLI. Table 6–2 describes the reasons for this.

Table 6–2   Why Some Management Agents Cannot Be Upgraded

Reason	Description and Recommended Action
Latest Agent Software Missing	The latest Management Agent software of the OMS version is not available in Oracle Software Library.
	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.
	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 *Oracle Enterprise Manager Cloud Control Basic Installation Guide.*
Agent Unsecured	The Management Agent is not secure.
	To upgrade a Management Agent which is not secure, you need to first secure the Management Agent, then use the Upgrade Agents page.
	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.**
	You can also run the following command to secure the Management Agent:
	`<EMSTATE>/bin/emctl secure agent`
	`<EMSTATE>` refers to the Management Agent instance directory, that is, `<AGENT_BASE_DIRECTORY>/agent_inst`
Oracle Home Property Missing	The Oracle Home property for the Management Agent is missing.
	This property is required to obtain the platform of the Management Agent that you want to upgrade. For upgrading *Shared Agents,* this property plays a key role in maintaining the relationship between the *Shared Agent* and the *Master Agent.* It is also required for certain essential Management Agent lifecycle operations, such as patching.
	To upgrade a Management Agent for which the Oracle Home property is missing, first run OMS collections on the Management Agent. To run OMS collections on a Management Agent, 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 target of target type `oracle_home` that is present in `<EMSTATE>/sysman/emd/targets.xml`

Table 6–2 (Cont.) Why Some Management Agents Cannot Be Upgraded

Reason	Description and Recommended Action
Agent Unreachable	The Management Agent is not reachable, that is, the Oracle Management Service (OMS) cannot communicate with the Management Agent.
	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.
	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.
Agent Pending Activation	The Management Agent version is not 12*c* Release 2 (12.1.0.2) or later.
	You cannot upgrade 10*g,* 11*g,* or 12*c* 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.
	For information on deinstalling Management Agents, refer to *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.* For information on installing fresh Management Agents, refer to *Oracle Enterprise Manager Cloud Control Basic Installation Guide.*

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.**

6.4.4 Performing Postupgrade Clean Up of Old Management Agents

When you upgrade your 12.1.0.x Management Agents, 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 6.5.1.

This section describes the methods you can use to clean up 12.1.0.x Management Agents after upgrading them. It consists of the following:

- Performing Postupgrade Clean Up of Old Management Agents Using Agent Upgrade Console
- Performing Postupgrade Clean Up of Old Management Agents Using EM CLI

6.4.4.1 Performing Postupgrade Clean Up of Old Management Agents Using 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.**

6.4.4.2 Performing Postupgrade Clean Up 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 OMS home:

   ```
   $<OMS_HOME>/bin/emcli login -username=<user_name>
   ```

   For example, `/scratch/aime/Oracle/MW/oms/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:

   ```
   $<OMS_HOME>/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:

```
$<OMS_HOME>/bin/emcli get_signoff_agents
                       [-agents]
                       [-platforms]
                       [-versions]
                       [-groups]
                       [-output_file]
```

Note that the parameters mentioned in [ ] are optional.

For example, $<OMS_HOME>/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:

```
$<OMS_HOME>/bin/emcli help get_signoff_agents
```

4. Run the signoff_agents verb to clean up your Management Agents:

```
$<OMS_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, $<OMS_HOME>/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_121050
```

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:

```
$<OMS_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.*

6.4.5 Viewing 12c Management Agent Upgrade Clean Up 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 12c Management Agent Upgrade Clean Up Jobs Using Agent Upgrade Console
- Viewing 12c Management Agent Upgrade Clean Up Jobs Using EM CLI

6.4.5.1 Viewing 12c Management Agent Upgrade Clean Up Jobs Using 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.**

6.4.5.2 Viewing 12c Management Agent Upgrade Clean Up 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 OMS home:

   ```
   $<OMS_HOME>/bin/emcli login -username=<user_name>
   ```

   For example, `/scratch/aime/Oracle/MW/oms/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:

   ```
   $<OMS_HOME>/bin/emcli sync
   ```

3. Run the `get_signoff_status` verb to view a particular set of Management Agent clean up jobs:

   ```
   $<OMS_HOME>/bin/emcli get_signoff_status
   ```

```
[-agent]
[-job_name]
[-status]
```

Note that the parameters mentioned in [ ] are optional.

For example, `$<OMS_HOME>/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:

`$<OMS_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.*

6.5 After Upgrading 12c Management Agents

This section describes the various tasks you can perform after upgrading your Management Agents. It consists of the following:

- Verifying 12c Management Agent Upgrade
- Moving Central Agent Base Directory Outside Oracle Middleware Home (After Upgrading 12c Central Agent)

6.5.1 Verifying 12c Management Agent Upgrade

This section describes how to verify the 12*c* Management Agent upgrade. It consists of the following sections:

- Verifying 12c Management Agent Upgrade Using the Enterprise Manager Console
- Verifying 12c Management Agent Upgrade Using EM CLI

6.5.1.1 Verifying 12c 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.

6.5.1.2 Verifying 12c 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 6.4.1.2.

- Run the `get_agent_properties` verb to verify the version of the Management Agent and its configuration properties after the upgrade:

  ```
  $<OMS_HOME>/bin/emcli get_agent_properties -format=csv -agent_name=<agent_host_
  name>:<agent_port>
  ```

  For example, `$<OMS_HOME>/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.):

  ```
  $<OMS_HOME>/bin/emcli get_targets -format="name:csv" -targets=<agent_host_
  name>:<agent_port>:oracle_emd -alerts
  ```

  For example, `$<OMS_HOME>/bin/emcli get_targets -format="name:csv" -targets=abc.example.com:3872:oracle_emd -alerts`

6.5.2 Moving Central Agent Base Directory Outside Oracle Middleware Home (After Upgrading 12c 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 G.

Important:

- Moving the agent base directory is recommended only for the central agent, and not for the other Management Agents.

- Moving the agent base directory is not supported on a host that is running on Microsoft Windows.

6.6 Troubleshooting 12c 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 `root.sh` could not be run for a Management Agent as the preferred privileged credentials for the Oracle Home of the Management Agent are not set.	Do one of the following:
	
	■ Click **OK** to continue the upgrade. After the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_ DIR>/core/12.1.0.5.0/root.sh` script on the host.
	
	■ Click **Cancel** to cancel the upgrade, then do the following:
	
	    1. Set the preferred privileged credentials for the Oracle Home target of the Management Agent.
	
	        For information on how to do this, see *Oracle Enterprise Manager Cloud Control Administrator's Guide.*
	
	    2. Upgrade the Management Agent.
	
	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:
	
	    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 *root* for **Run as.**
	
	    2. Configure privilege delegation settings on the Management Agent host.
	
	    3. Upgrade the Management Agent.
	
	If the `root.sh` job step fails after the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_ DIR>/core/12.1.0.5.0/root.sh` script manually.

Table 6–3   (Cont.) Troubleshooting Oracle Management Agent Upgrade

Problem	Troubleshooting Tip

When you click **Submit** on the Upgrade Agents page, you encounter an error mentioning that `root.sh` could not be run for a Management Agent as the privilege delegation settings for the Management Agent host are not set.	Do one of the following:
	
	■ When the error message is displayed, click **OK** to continue the upgrade. After the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/core/12.1.0.5.0/root.sh` script on the host.
	
	■ When the error message is displayed, click **Cancel** to cancel the upgrade, then do the following:
	
	    1. Configure privilege delegation settings on the Management Agent host.
	
	    For information on how to do this, see *Oracle Enterprise Manager Lifecycle Management Administrator's Guide.*
	
	    2. Upgrade the Management Agent.
	
	If the `root.sh` job step fails after the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/core/12.1.0.5.0/root.sh` script manually.

When you click **Submit** on the Upgrade Agents page, you encounter an error mentioning that `root.sh` could not be run for a Management Agent as *Run as root* is not set for the Management Agent Oracle Home preferred privileged credential.	Do one of the following:
	
	■ Click **OK** to continue the upgrade. After the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/core/12.1.0.5.0/root.sh` script on the host.
	
	■ Click **Cancel** to cancel the upgrade, then do the following:
	
	    1. Edit the preferred privileged credentials for the Oracle Home target of the Management Agent to ensure that the credential has *root* privileges. For information on how to do this, see *Oracle Enterprise Manager Lifecycle Management Administrator's Guide.*
	
	    2. Upgrade the Management Agent.
	
	If the `root.sh` job step fails after the upgrade, log in to the Management Agent host as the *root* user, and run the `$<AGENT_BASE_DIR>/core/12.1.0.5.0/root.sh` script manually.

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.	Diagnose the problem by following these steps:
	
	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:
	
	`$<AGENT_BASE_ DIRECTORY>/core/12.1.0.5.0/cfgtoollogs/agent Deploy/agentDeploy_<TIMESTAMP>.log`
	
	3. View the plug-in upgrade configuration log available at the following location:
	
	`$<AGENT_BASE_DIRECTORY>/backup_agtup/backup_ <TIMESTAMP>/agtNew/install/logs/agentplugind eploy_<TIMESTAMP>.log`

The Management Agent cannot be upgraded as the 32-bit Management Agent software for the host platform is not present in Software Library.	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. For information on using the Self Update console to download and apply the latest Management Agent software, refer to *Oracle Enterprise Manager Cloud Control Basic Installation Guide.*
The links on the Agent Upgrade Status page or the Agent Upgrade Results page are not working.	Diagnose the problem by viewing the following logs: ■ `$<OMS_INSTANCE_HOME>/user_ projects/domains/EMGC_DOMAIN/servers/EMGC_ OMS1/logs/*.out` ■ `$<OMS_INSTANCE_HOME>/user_ projects/domains/EMGC_DOMAIN/servers/EMGC_ OMS1/logs/*.log`
A job step in the Management Agent upgrade process hangs or is executed multiple times.	Diagnose the problem by viewing the following log: `$<OMS_INSTANCE_HOME>/em/EMGC_ OMS1/sysman/log/*.trc`
EM CLI log in or synchronization fails.	Diagnose the problem by viewing the following log: `$<NEW_AGENT_ORACLE_HOME>/EMGC_ OMS1/sysman/emcli/setup/.emcli/*.log`
The upgraded Management Agent is blocked.	Raise an Oracle Support service request. Do not resynchronize the Management Agent.

For additional Management Agent troubleshooting tips, see the My Oracle Support note 1569883.1.

7

Upgrading or Redeploying JVMD

This chapter describes how to upgrade or redeploy Java Virtual Machine Diagnostics (JVMD), and consists of the following sections:

- About JVMD Upgrade Recommendations
- About JVMD Upgrade Workflow
- Upgrading or Redeploying JVMD Engine
- Upgrading or Redeploying JVMD Agents
- Verifying JVMD Upgrade or Redeployment

> **Note:** For information about deploying JVMD Engines and 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 About JVMD Upgrade Recommendations

To obtain the latest JVMD features and use them to monitor the JVMs deployed in your enterprise, Oracle recommends that you upgrade your JVMD Engines and Agents to the latest available version. When you upgrade the Enterprise Manager for Oracle Fusion Middleware plug-in to version 12.1.0.6, the deployed JVMD Engines are not upgraded automatically. You must upgrade them using the methods described in this chapter.

All configurations wherein the JVMD Agent is of the same, or of a lower version than the JVMD Engine (that it reports to), are supported. For example, if a particular JVMD Engine is of version 12.1.0.6, JVMD Agents of version 12.1.0.6 and lower can report to this JVMD Engine. However, Oracle recommends that you upgrade the JVMD Agents in your enterprise to version 12.1.0.6 or higher.

When you upgrade your JVMD Engines, note that you can only upgrade the JVMD Engines that are deployed on OMS hosts, and not the ones deployed on remote hosts. To obtain the latest version of JVMD Engine on a remote host, remove the existing version, and deploy a new JVMD Engine of the latest version.

7.2 About JVMD Upgrade Workflow

To upgrade the JVMD application deployed in your enterprise, follow this process:

1. Manually shut down all the JVMD Engines.

   To manually shut down a JVMD Engine, from the **Setup** menu, select **Middleware Management,** then select **Application Performance Management.** Click the name of the JVMD Engine that you want to shut down. On the JVMD Engine target home page, click **Shut Down.**

2. Upgrade the JVMD Engines to the latest version.

   For information on how to upgrade your JVMD Engines, see Section 7.3.1.

3. Upgrade the JVMD Agents to the latest version.

   For information on how to upgrade your JVMD Agents, see Section 7.4.

7.3 Upgrading or Redeploying JVMD Engine

This section describes the methods to upgrade or redeploy JVMD Engines. It consists of the following:

- Upgrading JVMD Engine
- Redeploying JVMD Engine

7.3.1 Upgrading JVMD Engine

This section describes the methods to upgrade JVMD Engine. It consists of the following:

- Upgrading JVMD Engine Using the Application Performance Management Page
- Upgrading JVMD Engine Manually Using ApmEngineSetup.pl

7.3.1.1 Upgrading JVMD Engine Using the Application Performance Management Page

To upgrade JVMD Engine deployed on a Managed Server using the Application Performance Management page, follow these steps:

1. From the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.

2. On the Application Performance Management page, click the upgrade icon displayed beside **JVM Diagnostics Engines.**

   > **Note:** The upgrade icon is displayed only if a software version different from the current deployed version of the JVMD Engine software is available.

3. On the Upgrade JVMD Engines page, select the JVMD Engine you want to upgrade.

4. Specify a value for **Host Credentials.** These credentials are the host credentials of the host on which the JVMD Engine you selected is deployed. Click **Apply.** The Apply button is located above the Host Credentials section, to the right. You may need to scroll to the right to see it.

5. On the Upgrade JVMD Engines page, select all the JVMD engines you want to upgrade, and then specify and apply values for **Host Credentials,** for each one of them.

6. Specify a value for **Admin WebLogic Credentials.** These credentials are the credentials for the Administration Server of the Enterprise Manager WebLogic domain.

7. Click **Upgrade.**

   If you encounter any errors during the upgrade, see *Oracle Enterprise Manager Cloud Control Advanced Installation Guide.*

7.3.1.2 Upgrading JVMD Engine Manually Using ApmEngineSetup.pl

You can upgrade JVMD Engine manually, using the `ApmEngineSetup.pl` script. You can run this script in the following ways:

- In interactive mode, where you are prompted for input details in an interactive manner

- In silent mode, where you specify all the input details using a properties file

To upgrade JVMD Engine manually using the `ApmEngineSetup.pl` script, follow these steps:

1. Navigate to the following location on the OMS host:

   ```
   $<MIDDLEWARE_HOME>/plugins/oracle.sysman.emas.oms.plugin_
   12.1.0.8.0/archives/jvmd/deployment_scripts/engine/
   ```

2. View the `README.txt` file, for information on using the `ApmEngineSetup.pl` script.

3. Run the `ApmEngineSetup.pl` script.

   If you want to run the `ApmEngineSetup.pl` script in interactive mode, such that you are prompted for the input details, use the following command:

   ```
   perl ApmEngineSetup.pl
   ```

   Ensure that you specify the operation as `upgrade,` and the Engine Type as `JVMD`.

   If you want to run the `ApmEngineSetup.pl` script in silent mode, specify all the input details in a properties file, then use the following command:

   ```
   perl ApmEngineSetup.pl -silent -file <properties_file_name> -password
   <password>
   ```

   `<properties_file_name>` is the name of the properties file where the JVMD Engine and operation details are provided. `<password>` is the WebLogic console password.

   To learn how to specify the input details in a properties file, view the sample properties file `SAMPLE_engine.properties`.

7.3.2 Redeploying JVMD Engine

> **Note:** The process of redeploying a JVMD Engine is identical to the process of upgrading a JVMD Engine, except that no upgrade icon is displayed beside **JVM Diagnostics Engines** on the Application Performance Management page. You will have to select the JVMD Engines that you want to redeploy, then click **Redeploy** to access the Redeploy JVMD Engines page.

To redeploy JVMD Engine deployed on a Managed Server, follow these steps:

1. From the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.

2. If you want to redeploy a single JVMD Engine, on the Application Performance Management page, select the JVMD Engine you want to redeploy, then click **Redeploy.**

   If you want to redeploy more than one JVMD Engine, on the Application Performance Management page, select the **JVM Diagnostics Engines** node, then click **Redeploy.**

3. On the Redeploy JVMD Engines page, select the JVMD Engines you want to redeploy.

4. For each JVMD Engine you have chosen to redeploy, specify a value for **Host Credentials.** These credentials are the host credentials of the host on which the JVMD Engine you selected is deployed. Click **Apply.** The Apply button is located above the Host Credentials section, to the right. You may need to scroll to the right to see it.

5. Specify a value for **Admin WebLogic Credentials.** These credentials are the credentials for the Administration Server of the Enterprise Manager WebLogic domain.

6. Click **Redeploy.**

   If you encounter any errors during the redeployment, see *Oracle Enterprise Manager Cloud Control Advanced Installation Guide.*

7.4 Upgrading or Redeploying JVMD Agents

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.

You can upgrade or redeploy JVMD Agents using the following methods:

- Upgrading or Redeploying JVMD Agents Using the Application Performance Management Page

- Upgrading or Redeploying JVMD Agents Manually Using deploy_jvmdagent.pl

- Upgrading or Redeploying JVMD Agents Manually Using the WebLogic Administration Console

> **Note:** You can upgrade a JVMD Agent deployed on a particular Managed Server only if the available JVMD Agent binaries are of a different version than the deployed JVMD Agent version.
>
> For example, if a 12.1.0.6 JVMD Agent is deployed on a Managed Server, and the 12.1.0.8, or any other version of the JVMD Agent binaries is available, then you can upgrade the deployed 12.1.0.6 JVMD Agent. However, if the 12.1.0.6 version of the JVMD Agent binaries is the only version available, and no other version of the binaries is available, then you cannot upgrade the 12.1.0.6 JVMD Agent deployed on the Managed Server.

7.4.1 Upgrading or Redeploying JVMD Agents Using the Application Performance Management Page

To upgrade or redeploy JVMD Agents on monitored WebLogic domains using the Application Performance Management page, follow these steps:

1. From the **Setup** menu, select **Middleware Management,** then select **Application Performance Management.**

2. On the Application Performance Management page, under the Application Performance Management Agents section, click **Manage Diagnostics Agents.**

3. For **Operation,** select **Upgrade.**

   > **Note:** Alternatively, to reach this point, you can click the upgrade icon displayed beside **JVMD Agents Count,** on the Application Performance Management page. Note that this icon is displayed only if a software version different from the current version of the JVMD 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, platform, and so on of all the Managed Servers on which JVMD Agents are deployed.

   Select the JVMD Agents you want to upgrade or redeploy. Click **Next.**

4. On the Target Credentials page, for each WebLogic domain, specify a value for **Oracle WebLogic Administration Server Host Credentials** and **Oracle WebLogic Domain Credentials,** then click **Apply** (to see, scroll right).

   Oracle WebLogic Administration Server Host Credentials are the host credentials for the host on which the Management Agent that is monitoring the selected WebLogic domain is running. Oracle WebLogic Domain Credentials are the credentials for the Administration Server of the selected WebLogic domain.

   Click **Next.**

5. On the JVMD Agents Configurations page, for each WebLogic domain, the previously chosen JVMD Engine is automatically applied. However, it is possible to change it. To do so, select a JVMD Engine from **Available JVMD Engines,** and then click **Apply.**

   All the JVMD Agents deployed on Managed Servers of the selected WebLogic domain will report to this JVMD Engine. Alternatively, you can select **Other** to connect to a load balancer in case of multiple engines.

If the **WebLogic Home** and **Middleware Home** fields are displayed under the Additional Configuration section, specify values for them. The **WebLogic Home** and **Middleware Home** fields are displayed if their values could not be obtained internally.

Also, sometimes when 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 host value. In this case, you may need to provide some additional information in the Additional 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 may have to provide the virtual host IP address in the Additional Configuration section.

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.*

7.4.2 Upgrading or Redeploying JVMD Agents Manually Using deploy_jvmdagent.pl

You can upgrade or redeploy JVMD 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 JVMD Agents manually using `deploy_jvmdagent.pl`, follow these steps:

1. Ensure that the latest version of `javadiagnosticagent.ear` or `jamagent.war` has been downloaded.

   For information on how to download `javadiagnosticagent.ear` or `jamagent.war`, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*

2. Navigate to the following location on the OMS host:

   ```
   $<MIDDLEWARE_HOME>/plugins/oracle.sysman.emas.oms.plugin_
   12.1.0.8.0/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 JVMD Agents that are deployed on WebLogic Server and GlassFish, and not the JVMD Agents that are deployed on other application servers. The `-appserver` parameter specifies the application server on which the JVMD Agent (that you want to upgrade or redeploy) is deployed. If you are upgrading or redeploying a JVMD Agent that is deployed on a WebLogic Managed Server, specify `WLS` for `-appserver`. If you are upgrading or redeploying a JVMD 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`.

7.4.3 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.

7.5 Verifying JVMD Upgrade or Redeployment

After upgrading or redeploying your JVMD Engines or JVMD Agents, verify the deployment of their new versions, as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide.*

8

Upgrading or Redeploying ADP

This chapter describes how to upgrade or redeploy Application Dependency and Performance (ADP), and consists of the following sections:

- About ADP Upgrade Recommendations
- About ADP Upgrade Workflow
- Upgrading or Redeploying ADP Engine
- Upgrading or Redeploying ADP Agents
- After Upgrading or Redeploying ADP

> **Note:** For information about deploying ADP Engines and ADP 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*

8.1 About ADP Upgrade Recommendations

All configurations wherein the ADP Agent is of the same, or of a lower version than the ADP Engine (that it reports to), are supported. For example, if a particular ADP Engine is of version 12.1.0.8, ADP Agents of version 12.1.0.8, 12.1.0.7, 12.1.0.6, and so on can report to this ADP Engine.

However, Oracle recommends that you maintain the ADP Agents in your enterprise at the ADP Engine version level, or at one version below this version level. For example, if a particular ADP Engine in your enterprise is of version 12.1.0.8, Oracle recommends that you maintain the ADP Agents that report to this ADP Engine at version 12.1.0.8, or at version 12.1.0.7.

To obtain the latest ADP features, Oracle recommends that you upgrade your ADP Engines and Agents to the latest available version.

8.2 About ADP Upgrade Workflow

To upgrade the ADP application deployed in your enterprise, follow this process:

1. Manually shut down the ADP Engines that you want to upgrade.

   To manually shut down an ADP Engine, from the **Setup** menu, select **Middleware Management,** then select **Application Performance Management.** Click the name

of the ADP Engine that you want to shut down. On the ADP Engine target home page, click **Shut Down.**

2. Upgrade the ADP Engines to the latest version.

   For information on how to upgrade your ADP Engines, see Section 8.3.1.

3. Upgrade the ADP Agents to the latest version.

   For information on how to upgrade your ADP Agents, see Section 8.4.

8.3 Upgrading or Redeploying ADP Engine

This section describes the methods to upgrade or redeploy ADP Engines. It consists of the following:

- Upgrading ADP Engine
- Redeploying ADP Engine

8.3.1 Upgrading ADP Engine

This section describes the methods to upgrade ADP Engine. It consists of the following:

- Upgrading ADP Engine Using the Application Performance Management Page
- Upgrading ADP Engine Manually Using ApmEngineSetup.pl

Important:

- When you upgrade the Enterprise Manager for Oracle Fusion Middleware plug-in to version 12.1.0.8, the deployed ADP Engines are not upgraded automatically. You must upgrade them using the methods described in this section.

- You can only upgrade the ADP Engines that are deployed on OMS hosts, and not the ones deployed on remote hosts.

  To obtain the latest version of ADP Engine on a remote host, remove the existing version, and deploy a new ADP Engine of the latest version.

8.3.1.1 Upgrading ADP Engine Using the Application Performance Management Page

To upgrade ADP Engine deployed on a Managed Server using the Application Performance Management page, follow these steps:

1. From the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.

2. On the Application Performance Management page, click the upgrade icon displayed beside **ADP Engines.**

Note: The upgrade icon is displayed only if a software version different from the current deployed version of the ADP Engine software is available.

---

3. On the Upgrade ADP Engines page, select the ADP Engine you want to upgrade.

4. Specify a value for **Host Credentials.** These credentials are the host credentials of the host on which the ADP Engine you selected is deployed. Click **Apply.**

5. If you want to upgrade more than one ADP Engine, on the Upgrade ADP Engines page, select the ADP engines you want to upgrade, then specify and apply values for **Host Credentials,** for each one of them.

6. Specify a value for **Admin WebLogic Credentials.** These credentials are the credentials for the Administration Server of the Enterprise Manager WebLogic domain.

7. Click **Upgrade.**

   If you encounter any errors during the upgrade, see *Oracle Enterprise Manager Cloud Control Advanced Installation Guide.*

8.3.1.2 Upgrading ADP Engine Manually Using ApmEngineSetup.pl

You can upgrade ADP Engine manually, using the `ApmEngineSetup.pl` script. You can run this script in the following ways:

- In interactive mode, where you are prompted for input details in an interactive manner

- In silent mode, where you specify all the input details using a properties file

To upgrade ADP Engine manually using the `ApmEngineSetup.pl` script, follow these steps:

1. Navigate to the following location on the OMS host:

   `$<MIDDLEWARE_HOME>/plugins/oracle.sysman.emas.oms.plugin_`
   `12.1.0.8.0/archives/jvmd/deploymentScripts/engine/`

2. View the `README.txt` file, for information on using the `ApmEngineSetup.pl` script.

3. Run the `ApmEngineSetup.pl` script.

   If you want to run the `ApmEngineSetup.pl` script in interactive mode, such that you are prompted for the input details, use the following command:

   `perl ApmEngineSetup.pl`

   Ensure that you specify the operation as `upgrade,` and the Engine Type as `ADP`.

   If you want to run the `ApmEngineSetup.pl` script in silent mode, specify all the input details in a properties file, then use the following command:

   `perl ApmEngineSetup.pl -silent -file <properties_file_name> -password`
   `<password>`

   `<properties_file_name>` is the name of the properties file where the ADP Engine and operation details are provided. `<password>` is the WebLogic console password.

   To learn how to specify the input details in a properties file, view the sample properties file `SAMPLE_engine.properties`.

8.3.2 Redeploying ADP Engine

To redeploy ADP Engine deployed on a Managed Server, follow these steps:

> **Note:** You can redeploy an ADP Engine only if the current version of the ADP Engine binaries is the only version available in Oracle Software Library. If a higher, or a lower version of the binaries is available, you cannot redeploy the ADP Engine.
>
> For example, if the current version of an ADP Engine is 12.1.0.7, but the 12.1.0.6, 12.1.0.8, or any other version of the ADP Engine binaries is available in Oracle Software Library, then you cannot redeploy the ADP Engine. However, if only the 12.1.0.7 version of the ADP Engine binaries is available in Oracle Software Library, and no other version is available, then you can redeploy the 12.1.0.7 ADP Engine.

1. From the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.

2. If you want to redeploy a single ADP Engine, on the Application Performance Management page, select the ADP Engine you want to redeploy, then click **Redeploy.**

   If you want to redeploy more than one ADP Engine, on the Application Performance Management page, select the **ADP Engines** node, then click **Redeploy.**

3. On the Redeploy ADP Engines page, select the ADP Engines you want to redeploy.

4. For each ADP Engine you have chosen to redeploy, specify a value for **Host Credentials.** These credentials are the host credentials of the host on which the ADP Engine you selected is deployed. Click **Apply.**

5. Specify a value for **Admin WebLogic Credentials.** These credentials are the credentials for the Administration Server of the Enterprise Manager WebLogic domain.

6. Click **Redeploy.**

   If you encounter any errors during the redeployment, see *Oracle Enterprise Manager Cloud Control Advanced Installation Guide.*

8.4 Upgrading or Redeploying ADP Agents

This section describes the methods to upgrade or redeploy ADP Agents. It consists of the following:

- Upgrading or Redeploying ADP Agents Using the Application Performance Management Page

- Upgrading or Redeploying ADP Agents Manually Using deploy_adpagent.pl

> **Note:** You can redeploy an ADP Agent only if the current version of the Agent binaries is the only version available in Oracle Software Library. If a higher, or a lower version of the Agent binaries is available, you cannot redeploy the ADP Agent.
>
> For example, if the current version of an ADP Agent is 12.1.0.7, but the 12.1.0.6, 12.1.0.8, or any other version of the ADP Agent binaries is available in Oracle Software Library, then you cannot redeploy the ADP Agent. However, if only the 12.1.0.7 version of the ADP Agent binaries is available in Oracle Software Library, and no other version is available, then you can redeploy the 12.1.0.7 ADP Agent.

8.4.1 Upgrading or Redeploying ADP Agents Using the Application Performance Management Page

To upgrade or redeploy ADP Agents on monitored WebLogic domains using the Application Performance Management page, follow these steps:

1. From the **Setup** menu, select **Middleware Management,** then select **Application Performance Management.**

2. On the Application Performance Management page, under the Application Performance Management Agents section, click **Manage Diagnostics Agents.**

3. For **Operation,** select **Upgrade.**

   > **Note:** Alternatively, to reach this point, you can click the upgrade icon displayed beside **ADP Agents Count** on the Application Performance Management page. Note that this icon is displayed only if a software version different from the current version of the ADP 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, platform, and so on of all the Managed Servers on which ADP Agents are deployed.

   Select the ADP Agents you want to upgrade or redeploy. Click **Next.**

4. On the Target Credentials page, for each WebLogic domain, specify a value for **Oracle WebLogic Administration Server Host Credentials** and **Oracle WebLogic Domain Credentials,** then click **Apply.**

   Oracle WebLogic Administration Server Host Credentials are the host credentials for the host on which the Management Agent that is monitoring the selected WebLogic domain is running. Oracle WebLogic Domain Credentials are the credentials for the Administration Server of the selected WebLogic domain.

   Click **Next.**

5. On the ADP Agents Configurations page, for each WebLogic domain, select an ADP Engine for **Available ADP Engines,** then click **Apply.** All the ADP Agents deployed on the Managed Servers of the selected WebLogic domain will report to the selected ADP Engine.

   You can specify an alternate location for the ADP Agent software, which is used if the specified Administration Server Host Credentials do not have write permissions on the default location. To do this, under the Agent Directory section,

select **Edit the default ADP Agent Directory location if required,** then specify a value for **Agent Directory.**

If the **WebLogic Home** and **Middleware Home** fields are displayed under the Additional Configuration section, specify values for them. The **WebLogic Home** and **Middleware Home** fields are displayed if their values could not be obtained internally.

Also, sometimes when 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 host value. In this case, you may need to provide some additional information in the Additional 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 may have to provide the virtual host IP address in the Additional Configuration section.

Click **Next.**

6. On the Enterprise Manager OMS Credentials page, specify a value for **Oracle Enterprise Manager WebLogic Administration Server Host Credentials,** and **Oracle Enterprise Manager WebLogic Domain Credentials.**

Oracle Enterprise Manager WebLogic Administration Server Host Credentials are the host credentials of the OMS host. The Oracle Enterprise Manager WebLogic Domain Credentials are the domain credentials of the Enterprise Manager WebLogic domain.

Click **Next.**

7. 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.*

8.4.2 Upgrading or Redeploying ADP Agents Manually Using deploy_adpagent.pl

You can upgrade or redeploy ADP Agents manually, using the `deploy_adpagent.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 ADP Agents manually using `deploy_adpagent.pl`, follow these steps:

1. Navigate to the following location on the OMS host:

   ```
   $<MIDDLEWARE_HOME>/plugins/oracle.sysman.emas.oms.plugin_
   12.1.0.8.0/archives/jvmd/deploymentScripts/agent/adp/
   ```

2. View the `README.txt` file, for information on using the `deploy_adpagent.pl` script.

3. Specify all the inputs in a properties file, then use the following command:

   ```
   perl deploy_adpagent.pl <properties_file_name>
   ```

   If you do not pass the name of the properties file as a parameter while running `deploy_adpagent.pl`, `deploy_adpagent.pl` looks for a properties file named `adpagent.properties` in the folder containing the script. To learn how to specify the input details in a properties file, view the sample properties file `SAMPLE_adpagent.properties`.

8.5 After Upgrading or Redeploying ADP

After upgrading or redeploying your ADP Engines or ADP Agents, verify the deployment of their new versions, as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide.*

Part III

Upgrading Enterprise Manager Grid Control 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5)

This part describes how you can upgrade Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1) to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5).

This part covers the following chapters:

- Chapter 9, "Getting Started with Upgrading Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)"

- Chapter 10, "Meeting the Preupgrade Requirements for Upgrading Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)"

- Chapter 11, "Upgrading Oracle Management Agents 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)"

- Chapter 12, "Upgrading Oracle Management Service and Oracle Management Repository 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)"

- Chapter 13, "Performing Postupgrade Tasks After Upgrading to Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5)"

9

Getting Started with Upgrading Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

This chapter describes the high-level process for upgrading your Enterprise Manager Grid Control 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5) using different upgrade approaches. In particular, this chapter describes the following:

- Upgrading an Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 1-System Upgrade Approach

- Upgrading an Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 2-System Upgrade Approach

- Upgrading an Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 4 (12.1.0.5) with 1-System Upgrade Approach on a Different Host

9.1 Upgrading an Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 1-System Upgrade Approach

Table 9–1 describes the steps for upgrading your Enterprise Manager Grid Control 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5) with 1-system upgrade approach.

Table 9–1   Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
Step 1	**Prepare Yourself**	
(a)	Learn about the 1-System upgrade approach.	Section 2.2
(b)	Review the important facts you need to know before you begin.	Chapter 3
Step 2	**Perform Preupgrade Tasks**	
(a)	Apply the preupgrade console patch on all your OMS instances to get access to the *Preupgrade Console*.	Section 2.2.3.1

Table 9–1 (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
(b)	Manually download the following software, and stage them to an accessible location:	Section 3.7.2.1
	■ Oracle Management Agent 12*c*	
	■ All the required plug-ins	
(c)	Provide information about the location of the software you manually downloaded and staged in Step 2 (b)	Section 10.4
(d)	Analyze your environment to identify Oracle Management Agents (Management Agent) with valid and invalid inventory, check their upgradability status, and identify the problematic Management Agents. If a required software is missing, then repeat Step (b) and Step (c).	Section 10.6
(e)	Meet the prerequisites for upgrading the Management Agents as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.	
Step 3	**Upgrade Oracle Management Agent**	
(a)	Deploy and configure the software binaries of Oracle Management Agent 12*c*.	Section 11.1
(b)	Generate a health report and check the readiness of the predeployed Management Agents.	Section 11.2
(c)	Verify and sign off the health check report.	Section 11.3
(d)	Switch over the old Management Agents to the newly deployed ones so that they can communicate with the upgraded Enterprise Manager Cloud Control.	Section 11.4
	Note: If you have a large number of agents, then you can choose to upgrade one set of Oracle Management Agents in one attempt, and the next set in the subsequent attempt. In this case, you can repeat Step 3 (a) to Step 3 (d) for each attempt.	
Step 4	**Upgrade Oracle Management Service and Oracle Management Repository**	

Table 9–1   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
(a)	Meet the following prerequisites:	

- Meet the Oracle Management Service-related prerequisites described in the chapter on installing Enterprise Manager Cloud Control, in the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

- Upgrade to 12*c* Release 5 (12.1.0.5) is an out-of-place upgrade, therefore make sure your host meets the hardware requirements specific to 12*c* Release 5 (12.1.0.5) as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*. Here, *host* refers to the host on which your current Enterprise Manager, which you want to upgrade, is running.

- If you want to upgrade your database, which houses the Management Repository, to 12c Release 1(12.1.0.2), then make sure you upgrade the database ONLY after you upgrade the Enterprise Manager system.

- Meet the Management Agent-related prerequisites described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

- Ensure that you are upgrading only on the supported platforms as listed in Section 3.3.

- Ensure that the ports used by Enterprise Manager 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.

- Back up the OMS, the Management Repository, and the 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*.

Table 9–1   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
(b)	On the Management Repository, meet the following prerequisites:	

- Ensure that the `MGMT_CONNECTOR_CONFIG` table does not have any NULL rows. To verify this, run the following SQL query.

  ```
  select * from mgmt_cntr_config where connector_type_
  guid IS NULL and connector_guid IS null;
  ```

  Typically, the command must not return any rows. If it does return any rows, then run the following SQL query to clean the table:

  ```
  delete from mgmt_cntr_config where connector_guid IS
  NULL or connector_type_guid IS NULL;
  ```

  ```
  commit;
  ```

- Ensure that there are no custom-created materialized views in the Management Repository. To verify this, run the following SQL query. Typically, the command must not return any rows. If it does return any rows, then contact Oracle Support.

  ```
  select count(1) from ALL_MVIEW_LOGS where log_
  owner=<EM_REPOS_USER>
  ```

- Ensure that the tables 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_mview_logs where
  log_owner='<EM_REPOS_USER>
  ```

  For example,

  ```
  select master , log_table  from all_mview_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
  ```

Table 9–1   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
(c)	**(CRITICAL MANDATORY STEP)**	
	Apply the following patches on the database. You can access My Oracle Support and search for these patches. For instructions, see the ReadMe file associated with the patch. **If you do not apply these patches, you will run into upgrade failures that cannot be corrected.**	
	For Oracle Database 11 Release 1 (11.1.0.7)	
	■ On Unix platforms, apply patch 17082366 *(Patch Set Update 17).* Then apply patch 9577583 and patch 8405205.	
	■ On Microsoft Windows (32 bit and 64 bit) platforms, apply patch 17363760 *(Patch 54).*	
	For Oracle Database 11g Release 2 (11.2.0.1)	
	■ On Unix platforms, apply patch 12419378 *(Patch Set Update 6).*	
	■ On Microsoft Windows (64 bit) platforms, apply patch 13423278 *(Patch 16).*	
	For Oracle Database 11g Release 2 (11.2.0.2)	
	■ On Unix platforms, apply patch 11061801 and patch 9748749.	
	■ On Microsoft Windows (32 bit) platforms, apply patch 11061801 and patch 12429530.	
	■ On Microsoft Windows (64-bit) platforms, apply patch 11061801 and patch 12429531.	
	For Oracle Database 11g Release 2 (11.2.0.3), 10g Release 2 (10.2.0.5)	
	On Unix as well as Microsoft Windows platforms, apply the patch 11061801.	
	For Oracle Database 11g Release 2 (11.2.0.4) and 12c Release 1 (12.1.0.2)	
	No patches required for these releases.	
	Note: Oracle also recommends that you apply patch 13496395. For information on what database releases you can apply the patch, see the ReadMe that is packaged with the patch.	
(d)	Stop all running and scheduled deployment procedures in your existing Enterprise Manager system before upgrading the system.	
	To verify this, run the following query, and note down the GUID of the running or scheduled deployment procedures.	
	`SELECT i.instance_guid FROM SYSMAN.MGMT_PAF_STATES s, SYSMAN.MGMT_PAF_INSTANCES i, SYSMAN.MGMT_PAF_PROCEDURES p WHERE p.procedure_guid = i.procedure_guid AND s.instance_guid = i.instance_guid AND s.state_type = 0 AND s.status in (0,1)`	
	To stop the running or scheduled deployment procedures, run the following query, and pass the GUID you noted down from the output of the preceding command:	
	`emcli stop_instance -instance=<instance id from sql query>`	

Table 9–1   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
(e)	*(Only if you have Application Dependency and Performance (ADP) or JVM Diagnostics (JVMD) installed)*	

Perform the following steps before the upgrade:

1. Take an inventory of the JVMs and WebLogic domains being monitored by JVMD and/or ADP.

   To view a list of deployed JVMD Agents, run the following query:

   ```
   select * from jam_jvm;
   ```

   To view a list of the WebLogic domains being monitored by ADP, access the ADP home page. In the Enterprise Manager console, from the **Targets** menu, select **Middleware.** From the **Middleware Features** menu on the Middleware page, select **Application Dependency and Performance.**

2. Deinstall the JVMD and ADP applications from your inventory by logging into the WebLogic Administration Console for each monitored domain and removing the *jamagent* and *Acsera* application deployments (or by using the Oracle WebLogic Scripting Tool).

3. Take an inventory of the deployed ADP and JVMD Engines. Shut down all of your ADP and JVMD Engines using the WebLogic Administration Console or the Oracle WebLogic Scripting Tool (WLST).

   To view a list of deployed JVMD Engines, run the following query:

   ```
   select * from jam_managers;
   ```

   To view a list of deployed ADP Engines, run the following query:

   ```
   select * from ocamm_manager_configuration;
   ```

4. Remove all the ADP and JVMD managed servers from the GCDomain using the WebLogic Administration Console.

Perform the following steps after the upgrade:

1. Run the purge scripts for JVMD:

   (a) Navigate to the following location:

   ```
   <middleware_
   home>/plugins/oracle.sysman.emas.oms.plugin_
   12.1.0.8.0/archives/jvmd/
   ```

   (b) Extract the file `jvmd.zip`.

   (c) View `README.txt`.

   (d) Run the script `jvmd_monitoringupgrade11_12.sql`.

   (e) Run the script `jvmd_traceupgrade11_12.sql` if there are existing Thread Snapshots from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1).

2. Run the following upgrade script for a schema upgrade:

   ```
   <middleware_
   home>/plugins/oracle.sysman.emas.oms.plugin_
   12.1.0.8.0/sql/ias/12.1.0.3/camm_product/camm_schema_
   upgrade.sql
   ```

Table 9–1 (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
(f)	Copy the emkey from the existing OMS, either the Enterprise Manager 10g Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), to the existing Management Repository. To do so, run the following command on the old OMS home you are trying to upgrade. The following command is applicable for both releases.	

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

Note: When the following command is run on Enterprise Manager 11g Grid Control (11.1.0.1), you will be prompted for an admin password.

To verify whether the emkey is copied, run the following command:

```
<OMS_HOME>/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".
```

(g)	Stop the OMS you are about to upgrade and also the other OMS instances that connect to it.

- If you are upgrading from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), then first run this command:

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

- If you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5), then run this command:

```
$<OMS_HOME>/opmn/bin/opmnctl stopall
```

(h)	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.**

Table 9–1   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
(i)	Upgrade the OMS and the Management Repository. You can choose to upgrade in graphical or silent mode. You can also choose to install the software binaries at one point and upgrade them later in graphical or silent mode.	For single-OMS environment, see:
	If you see an error message stating that you have not copied the emkey, then do the following:	■ Section 12.1.1
	1. Copy the emkey from the old OMS to the old Management Repository. To do so, run the following command from the old OMS home you are trying to upgrade:	■ Section 12.2.1
		■ Section 12.3.1
	For 11g Release 1 (11.1.0.1)	■ Section 12.4.1
	`$<OMS_HOME>/bin/emctl config emkey -copy_to_repos_from_file -repos_conndesc '"<conndesc>"' -repos_user <username> [-repos_pwd <pwd>] -emkey_file <OMS_HOME>/sysman/config/emkey.ora`	For multi-OMS environment *(with additional OMS instances)*, see Section 12.6
	For example,	
	`/u01/software/oracle/middleware/oms11g/bin/emctl config emkey -copy_to_repos_from_file -repos_conndesc '"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost.mydomain.com)(PORT=1521)))(CONNECT_DATA=(SID=emrepos12)))"' -repos_user sysman -emkey_file /u01/software/oracle/middleware/oms11g/sysman/config/emkey.ora`	
	For 10g Release 5 (10.2.0.5)	
	`$<OMS_HOME>/bin/emctl config emkey -copy_to_repos [-sysman_pwd <sysman password>]`	
	Note: Here, the Management Repository details are the details of the existing Management Repository you are trying to upgrade. `<OMS_HOME>` is the OMS home you are trying to upgrade. When you upgrade from 11.1.0.1, you will be prompted for the Admin Server password.	
	2. Try upgrading the OMS and the Management Repository again.	
Step 5	**Perform Postupgrade Task**	
(a)	If you have a Server Load Balancer (SLB) configured, then modify the settings of your monitors.	Appendix E
(b)	Check agent upgrade status.	Section 13.5
(c)	Perform the general post-upgrade tasks.	Section 13.6
(d)	Track the status of deferred data migration jobs.	Section 13.7
(e)	Sign off agent migration process.	Section 13.11
(f)	Sign off the upgrade process and exit the upgrade mode.	Section 13.12

Table 9–1 (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach

Step No.	Step	Procedure
(g)	*(Only if you have Application Dependency and Performance (ADP) or JVM Diagnostics (JVMD) installed)*	
	1. If you have not deinstalled the JVMD and ADP applications from your inventory by logging into the WebLogic Administration Console for each monitored domain and removing the *jamagent* and *Acsera* application deployments, then do so now.	
	2. Delete all *ad4jTarget* targets:	
	(a) Navigate to the following location:	
	`<middleware_home>/plugins/oracle.sysman.emas.oms.plugin_12.1.0.8.0/archives/jvmd/`	
	(b) Extract the file `jvmd.zip`.	
	(c) Run the script `jvmd_targetupgrade11_12.sql`.	
	3. Delete all *OCAMM Manager* targets:	
	(a) Navigate to the following location:	
	`<middleware_home>/plugins/oracle.sysman.emas.oms.plugin_12.1.0.8.0/archives/ocamm/`	
	(b) Extract the file `ADPManager.zip`.	
	(c) Run the script `adp_targetupgrade11_12.sql`.	
	4. Deploy new JVMD and ADP managers.	
	5. Deploy new JVMD and ADP agents based on your inventory.	
(h)	Configure Oracle BI Publisher if required.	*Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*
(i)	Delete the old OMS home.	Section 13.15

9.2 Upgrading an Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 2-System Upgrade Approach

Table 9–2 describes the steps for upgrading your Enterprise Manager Grid Control 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5) with 2-system upgrade approach.

Table 9–2 Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
Step 1	**Prepare Yourself**	
(a)	Learn about the 2-System upgrade approach.	Section 2.2

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(b)	Review the important facts you need to know before you begin.	Chapter 3
Step 2	**Perform Preupgrade Tasks**	
(a)	Apply the preupgrade console patch on all your OMS instances to get access to the *Preupgrade Console*.	Section 2.2.3.1
(b)	Provide information about the host where you plan to upgrade your existing OMS.	Section 10.2
(c)	Manually download the following software, and stage them to an accessible location: ■ Oracle Management Agent 12*c* ■ All the required plug-ins	Section 3.7.2.1
(d)	Provide information about the location of the software you manually downloaded and staged in Step 2 (c)	Section 10.4
(e)	Analyze your environment to identify Oracle Management Agents (Management Agent) with valid and invalid inventory, check their upgradability status, and identify the problematic Management Agents. If a required software is missing, then repeat Step 2 (c) and Step 2 (d).	Section 10.6
(f)	Meet the prerequisites for upgrading the Management Agents as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.	
Step 3	**Upgrade Oracle Management Service and Oracle Management Repository** *Note: Optionally, you can choose to deploy and configure your Oracle Management Agents before upgrading the Oracle Management Service and Oracle Management Repository. In this case, perform Step 4 (a) before Step 3 (a) to Step 3 (o).*	
(a)	On the remote host where you plan to install Enterprise Manager Cloud Control, meet the following prerequisites: ■ Meet the Oracle Management Service-related prerequisites described in the chapter on installing Enterprise Manager Cloud Control, in the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*. ■ Make sure your host meets the hardware requirements specific to 12*c* Release 5 (12.1.0.5) as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*. ■ Meet the Management Agent-related prerequisites as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*. ■ Ensure that you are upgrading only on the supported platforms as listed in Section 3.3. ■ If you want to upgrade your database, which houses the Management Repository, to 12c Release 1(12.1.0.2), then make sure you upgrade the database ONLY after you upgrade the Enterprise Manager system. ■ Ensure that the ports used by Enterprise Manager 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.	

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(b)	Stop all running and scheduled deployment procedures in your existing Enterprise Manager system before upgrading the system.	

To verify this, run the following query, and note down the GUID of the running or scheduled deployment procedures.

```
SELECT i.instance_guid FROM SYSMAN.MGMT_PAF_STATES s,
SYSMAN.MGMT_PAF_INSTANCES i, SYSMAN.MGMT_PAF_PROCEDURES p
WHERE p.procedure_guid = i.procedure_guid AND s.instance_
guid = i.instance_guid AND s.state_type = 0 AND s.status in
(0,1)
```

To stop the running or scheduled deployment procedures, run the following query, and pass the GUID you noted down from the output of the preceding command:

```
emcli stop_instance -instance=<instance id from sql query>
```

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(c)	*(Only if you have Application Dependency and Performance (ADP) or JVM Diagnostics (JVMD) installed)*	

Perform the following steps before the upgrade:

1. Take an inventory of the JVMs and WebLogic domains being monitored by JVMD and/or ADP.

   To view a list of deployed JVMD Agents, run the following query:

   ```
   select * from jam_jvm;
   ```

   To view a list of the WebLogic domains being monitored by ADP, access the ADP home page. In the Enterprise Manager console, from the **Targets** menu, select **Middleware.** From the **Middleware Features** menu on the Middleware page, select **Application Dependency and Performance.**

2. Deinstall the JVMD and ADP applications from your inventory by logging into the WebLogic Administration Console for each monitored domain and removing the *jamagent* and *Acsera* application deployments (or by using the Oracle WebLogic Scripting Tool).

3. Take an inventory of the deployed ADP and JVMD Engines. Shut down all of your ADP and JVMD Engines using the WebLogic Administration Console or the Oracle WebLogic Scripting Tool (WLST).

   To view a list of deployed JVMD Engines, run the following query:

   ```
   select * from jam_managers;
   ```

   To view a list of deployed ADP Engines, run the following query:

   ```
   select * from ocamm_manager_configuration;
   ```

4. Remove all the ADP and JVMD managed servers from the GCDomain using the WebLogic Administration Console.

Perform the following steps after the upgrade:

1. Run the purge scripts for JVMD:

   (a) Navigate to the following location:

   ```
   <middleware_home>/plugins/oracle.sysman.emas.oms.plugin_
   12.1.0.8.0/archives/jvmd/
   ```

   (b) Extract the file jvmd.zip.

   (c) View README.txt.

   (d) Run the script jvmd_monitoringupgrade11_12.sql.

   (e) Run the script jvmd_traceupgrade11_12.sql if there are existing Thread Snapshots from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1).

2. Run the following upgrade script for a schema upgrade:

   ```
   <middleware_home>/plugins/oracle.sysman.emas.oms.plugin_
   12.1.0.8.0/sql/ias/12.1.0.3/camm_product/camm_schema_
   upgrade.sql
   ```

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(d)	Copy the emkey from the existing OMS, either the Enterprise Manager 10g Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), to the existing Management Repository before creating a backup of the Management Repository. To do so, run the following command on the old OMS home you are trying to upgrade. The following command is applicable for both releases.	

`$<OMS_HOME>/bin/emctl config emkey -copy_to_repos [-sysman_ pwd <sysman_pwd>]`

Note: When the following command is run on Enterprise Manager 11g Grid Control (11.1.0.1), you will be prompted for an admin password.

To verify whether the emkey is copied, run the following command:

`<OMS_HOME>/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".
```

(e)	*(Only if your old Enterprise Manager system has Oracle Software Library configured)*

If you have Oracle Software Library (Software Library) configured, then back up each of the configured Software Library directories to a location accessible from the remote host where you plan to install Enterprise Manager Cloud Control.

The location to which you back up the directories is required for reconfiguring the Software Library [as described in Step 5 (b)] once you install Enterprise Manager Cloud Control.

For example, if your Software Library was configured in `/programs/swlib` and `/software/swlib`, then create two separate archives, one for each configured directory. In this case, create `programs_swlib.zip` and `software_swlib.zip`, respectively.

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(f)	Clone (or back up) your existing database, which houses the Management Repository, using the RMAN utility, to a host that can be either a completely new host or the host where your existing OMS is running. Choose to clone (or back up) the repository on the host where your existing OMS is running only if you have sufficient space to accommodate it. Then, restore it and create a new database instance out of it so that the repository configured in it can be upgraded. *Note:* - Before cloning (or backing up) the database, ensure that you stop all the running and scheduled deployment procedures in your existing Enterprise Manager system as described in Step 3 (b). - Oracle recommends using the RMAN utility to clone (or back up) the database. - Ensure that the character set is not changed in the cloned (or backed up) Management Repository before it is upgraded. - If you clone (or back up) the database using DBCA, then ensure that you unlock all the user accounts, **except for MGMT_VIEW user,** before installing Enterprise Manager Cloud Control. *Do not clone (or back up) the repository using the DB cloning feature in the Enterprise Manager console. If you do, then you will not see the cloned database discovered in the Enterprise Manager console.* - Do not clone (or back up) while you are in the daylight saving window. - Oracle recommends that you unblock all blocked Management Agents before taking a clone (or backup) of the Management Repository. - Any Management Agent or target added to the existing Enterprise Manager system after cloning (or backing up) the Management Repository will not be upgraded and will need to be manually added to the upgraded Enterprise Manager system. To identify the targets that need to be manually added to the upgraded system, see the diff report as described in Section 13.9. **Do not make any configuration changes, for example, the metric thresholds, job definitions, templates, and so on, after you have cloned (or taken the backup). If you do, then those changes will not be carried over to the new Enterprise Manager system; only historical data will be migrated.**	

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(g)	On the cloned (or backed up) Management Repository, meet the following prerequisites:	

- Ensure that the MGMT_CONNECTOR_CONFIG table does not have any NULL rows. To verify this, run the following SQL query.

```
select * from mgmt_cntr_config where connector_type_guid
IS NULL and connector_guid IS null;
```

Typically, the command must not return any rows. If it does return any rows, then run the following SQL query to clean the table:

```
delete from mgmt_cntr_config where connector_guid IS
NULL or connector_type_guid IS NULL;
```

```
commit;
```

- Ensure that there are no custom-created materialized views in the Management Repository. To verify this, run the following SQL query. Typically, the command must not return any rows. If it does return any rows, then contact Oracle Support.

```
select count(1) from ALL_MVIEW_LOGS where log_owner=<EM_
REPOS_USER>
```

- Ensure that the tables 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_mview_logs where
log_owner='<EM_REPOS_USER>
```

For example,

```
select master , log_table  from all_mview_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
```

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(h)	**(CRITICAL MANDATORY STEP)**	

Apply the following patches on the database. You can access My Oracle Support and search for these patches. For instructions, see the ReadMe file associated with the patch. **If you do not apply these patches, you will run into upgrade failures that cannot be corrected.**

For Oracle Database 11 Release 1 (11.1.0.7)

- On Unix platforms, apply patch 17082366 *(Patch Set Update 17)*. Then apply patch 9577583 and patch 8405205.
- On Microsoft Windows (32 bit and 64 bit) platforms, apply patch 17363760 *(Patch 54)*.

For Oracle Database 11g Release 2 (11.2.0.1)

- On Unix platforms, apply patch 12419378 *(Patch Set Update 6)*.
- On Microsoft Windows (64 bit) platforms, apply patch 13423278 *(Patch 16)*.

For Oracle Database 11g Release 2 (11.2.0.2)

- On Unix platforms, apply patch 11061801 and patch 9748749.
- On Microsoft Windows (32 bit) platforms, apply patch 11061801 and patch 12429530.
- On Microsoft Windows (64-bit) platforms, apply patch 11061801 and patch 12429531.

For Oracle Database 11g Release 2 (11.2.0.3), 10g Release 2 (10.2.0.5)

On Unix as well as Microsoft Windows platforms, apply the patch 11061801.

For Oracle Database 11g Release 2 (11.2.0.4) and 12c Release 1 (12.1.0.2)

No patches required for these releases.

Note: Oracle also recommends that you apply patch 13496395. For information on what database releases you can apply the patch, see the ReadMe that is packaged with the patch.

| (i) | Ensure that the character set in the cloned (or backed up) Management Repository is the same as the one in the original Management Repository. | |

If they are different, you will see the following error:

```
ERROR emschema.wpxegn6m8wkg - ERROR:ORA-06502: PL/SQL:
numeric or value error: character to number conversion error
ORA-06512: at "SYSMAN.EM_CRYPTO", line 62
ORA-06512: at "SYSMAN.EM_CRYPTO", line 229
ORA-06512: at line 1
ORA-06512: at line 24
```

To verify if the character set is the same, run the following query on the Management Repository:

```
select * from nls_database_parameters where parameter like
'%CHARACTERSET'
```

If the character set is not the same, then make them identical.

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(j)	Remove the emkey from the old Management Repository by running the following command from the old OMS home, either Enterprise Manager 10g Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11g Grid Control Release 1 (11.1.0.1): `$<OMS_HOME>/bin/emctl config emkey -remove_from_repos [-sysman_pwd <pwd>]`	
(k)	Provide the date and time when the Management Repository was cloned (or backed up). *Note:* Any Management Agent or target added to the existing Enterprise Manager system after cloning (or backing up) the Management Repository will not be upgraded and will need to be manually added to the upgraded Enterprise Manager system. To identify the targets that need to be manually added to the upgraded system, see the diff report as described in .Section 13.9.	Section 10.7
(l)	If you have a Server Load Balancer (SLB) configured, then configure the settings of your monitors and keep the SLB ready.	Appendix E

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(m)	Install Enterprise Manager Cloud Control on the remote host and upgrade the Management Repository in the database you cloned (or backed up) in Step 3 (f). You can choose to install in graphical or silent mode. You can also choose to install the software binaries at one point and upgrade them later in graphical or silent mode. If you see an error message that states that you cannot upgrade your OMS because the host on which you are performing the 2-system upgrade does not match with the host name you have entered in the Preupgrade Console, go to the Preupgrade Console and provide the correct host name. *(Note: If you had chosen to deploy your Management Agents before upgrading the OMS, and if you see this error, fix the error in the Preupgrade Console, and then deploy your Management Agents again, before upgrading the OMS.)* If you see an error message stating that you have not copied the emkey, then do the following:	For single-OMS environment, see: ■ Section 12.1.2 ■ Section 12.2.2 ■ Section 12.3.2 ■ Section 12.4.2 For multi-OMS environment *(with additional OMS instances)*, see Section 12.6

For 11g Release 1 (11.1.0.1)

1. Copy the emkey from the old OMS to the cloned Management Repository, the one you cloned (or backed up) in Step 3 (f). To do so, run the following command from the old OMS home you are trying to upgrade:

   ```
   $<OMS_HOME>/bin/emctl config emkey -copy_to_repos_from_
   file -repos_conndesc '"<conndesc>"' -repos_user
   <username> [-repos_pwd <pwd>] -emkey_file <OMS_
   HOME>/sysman/config/emkey.ora
   ```

   For example,

   ```
   /u01/software/oracle/middleware/oms11g/bin/emctl config
   emkey -copy_to_repos_from_file -repos_conndesc
   '"(DESCRIPTION=(ADDRESS_
   LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=dbhost.mydomain.com)(P
   ORT=1521)))(CONNECT_DATA=(SID=emrepos12)))"'  -repos_
   user sysman -emkey_file
   /u01/software/oracle/middleware/oms11g/sysman/config/emk
   ey.ora
   ```

   Note: Here, the Management Repository details are the details of the cloned Management Repository, the one you cloned (or backed up) in Step 3 (f). `<OMS_HOME>` is the OMS home you are trying to upgrade. You will be prompted for the Admin Server password.

2. Try upgrading the OMS and the Management Repository again.

For 10g Release 5 (10.2.0.5)

1. Copy the emkey from the old OMS to the old Management Repository. To do so, run the following command from the old OMS home you are trying to upgrade:

   ```
   $<OMS_HOME>/bin/emctl config emkey -copy_to_repos
   [-sysman_pwd <sysman password>]
   ```

2. Clone (or back up) the Management Repository as described in Step 3 (f).

3. Meet the prerequisites on the cloned (or backed up) Management Repository as described in Step 3 (g).

4. Remove the emkey from the old Management Repository as described in Step 3 (j).

5. Try upgrading the OMS and the Management Repository again.

(Note: If you had chosen to deploy your Management Agents before upgrading the OMS, and if you see this error, then after running the previous command, make sure you deploy all the Management Agents again. However, after running the command, and before re-deploying the Management

Table 9–2   (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(n)	If your database domain name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), then the *Run Presync* step of the switchover operation might fail, and you will see the following error in the `emoms.trc` trace file. For example, a database domain name with a hyphen (-) can result in this issue. `ORA-20000: Found exception Error Message :ORA-02083: database name has illegal character '-' Error Number ;-2083` To avoid this issue, as a prerequisite, follow the instructions outlined in Section L.1. If the database domain name has an illegal character, such as a hyphen, then correct it.	Appendix L
(o)	Link the earlier release of the Management Repository with the upgraded Management Repository.	Section 13.2
Step 4	**Upgrade Oracle Management Agent**	
(a)	Deploy and configure the software binaries of Oracle Management Agent 12*c*. **Note: After deploying and configuring the Management Agents, do not make any configuration changes, for example, the metric thresholds, job definitions, templates, and so on, in the old Management Repository. If you do, then those changes will not be carried over when you switch over to the new Management Agents; the only way to transfer the changes is to reconfigure the new Management Agents. For information about reconfiguring them, see the note in Step (6) of Section 11.1.2.**	Section 11.1
(b)	Generate a health report and check the readiness of the predeployed Management Agents.	Section 11.2
(c)	Verify and sign off the health check report.	Section 11.3
(d)	Switch over the old Management Agents to the newly deployed ones so that they can communicate with the upgraded Enterprise Manager Cloud Control. *Note: If you have a large number of agents, then you can choose to upgrade one set of Oracle Management Agents in one attempt, and the next set in the subsequent attempt. In this case, you can repeat Step 4 (a) to Step 4 (d) for each attempt.*	Section 11.4
Step 5	**Perform Postupgrade Task**	
(a)	Verify the host on which you installed Enterprise Manager Cloud Control.	Section 13.1
(b)	*(Only if your old Enterprise Manager had Software Library configured)* Reconfigure the Software Library in Enterprise Manager Cloud Control so that it is independent of the Software Library configured for the old Enterprise Manager system.	Section 13.4
(c)	Secure the central agent [the Management Agent installed by default with the new OMS you installed as part of Step 3 (m)].	
(d)	Check the agent upgrade status.	Section 13.5
(e)	Perform the general post-upgrade tasks.	Section 13.6
(f)	Track the status of deferred data migration jobs.	Section 13.7
(g)	Track the status of accrued data migration jobs.	Section 13.8

Table 9–2 (Cont.) Upgrading Enterprise Manager Grid Control with 2-System Upgrade Approach

Step No.	Step	Procedure
(h)	Generate diff reports to identify all configuration or setup-related changes that were manually made to the earlier release of the Enterprise Manager system while it was being upgraded.	Section 13.9
(i)	View a list of targets that are currently inactive in the upgraded Enterprise Manager system.	Section 13.10
(j)	Sign off agent migration process.	Section 13.11
(k)	Sign off the upgrade process and exit the upgrade mode.	Section 13.12
(l)	Delete unwanted central agents.	Section 13.13.1
(m)	(Optional) Monitor the targets that were monitored by the deleted central agent.	Section 13.14

(n)	*(Only if you have Application Dependency and Performance (ADP) or JVM Diagnostics (JVMD) installed)*
	
	1. If you have not deinstalled the JVMD and ADP applications from your inventory by logging into the WebLogic Administration Console for each monitored domain and removing the *jamagenth* and *Acsera* application deployments, then do so now.
	
	2. Delete all *ad4jTarget* targets:
	(a) Navigate to the following location:
	`<middleware_home>/plugins/oracle.sysman.emas.oms.plugin_ 12.1.0.8.0/archives/jvmd/`
	(b) Extract the file `jvmd.zip`.
	(c) Run the script `jvmd_targetupgrade11_12.sql`.
	
	3. Delete all *OCAMM Manager* targets:
	(a) Navigate to the following location:
	`<middleware_home>/plugins/oracle.sysman.emas.oms.plugin_ 12.1.0.8.0/archives/ocamm/`
	(b) Extract the file `ADPManager.zip`.
	(c) Run the script `adp_targetupgrade11_12.sql`.
	
	4. Deploy new JVMD and ADP managers.
	
	5. Deploy new JVMD and ADP agents based on your inventory.	

(o)	Configure Oracle BI Publisher if required.	*Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*
(p)	Delete the old OMS home.	Section 13.15

9.3 Upgrading an Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 4 (12.1.0.5) with 1-System Upgrade Approach on a Different Host

Table 9–3 describes the steps for upgrading your Enterprise Manager Grid Control 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5) with 1-system upgrade approach on a different host.

Table 9–3   Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach on a Different Host

Step No.	Step	Procedure
Step 1	**Prepare Yourself**	
(a)	Learn about the 1-System upgrade approach on a different host.	Section 2.2
(b)	Review the important facts you need to know before you begin.	Chapter 3
Step 2	**Perform Preupgrade Tasks**	
(a)	Apply the preupgrade console patch on all your OMS instances to get access to the Preupgrade Console.	Section 2.2.3.1
(b)	Provide information about the host where you plan to upgrade your existing OMS.	Section 10.2
(c)	Manually download the following software, and stage them to an accessible location: ■ Oracle Management Agent 12*c* ■ All the required plug-ins	Section 3.7.2.1
(d)	Provide information about the location of the software you manually downloaded and staged in Step 2 (c).	Section 10.4
(e)	Analyze your environment to identify Oracle Management Agents (Management Agent) with valid and invalid inventory, check their upgradability status, and identify the problematic Management Agents. If a required software is missing, then repeat Step (c) and Step (d).	Section 10.6
(f)	Meet the prerequisites for upgrading the Management Agents as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.	
Step 3	**Upgrade Oracle Management Agent**	
(a)	Deploy and configure the software binaries of Oracle Management Agent 12*c*.	Section 11.1
(b)	Generate a health report and check the readiness of the predeployed Management Agents.	Section 11.2
(c)	Verify and sign off the health check report.	Section 11.3
(d)	Switch over the old Management Agents to the newly deployed ones so that they can communicate with the upgraded Enterprise Manager Cloud Control. *Note: If you have a large number of agents, then you can choose to upgrade one set of Oracle Management Agents in one attempt, and the next set in the subsequent attempt. In this case, you can repeat Step 3 (a) to Step 3 (d) for each attempt.*	Section 11.4
Step 4	**Upgrade Oracle Management Service and Oracle Management Repository**	

Table 9–3   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach on a Different Host

Step No.	Step	Procedure
(a)	On the remote host where you plan to install Enterprise Manager Cloud Control, meet the following prerequisites:	

- Meet the Oracle Management Service-related prerequisites described in the chapter on installing Enterprise Manager Cloud Control, in the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

- Make sure your host meets the hardware requirements specific to 12*c* Release 5 (12.1.0.5) as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

- Meet the Management Agent-related prerequisites as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

- If you want to upgrade your database, which houses the Management Repository, to 12c Release 1(12.1.0.2), then make sure you upgrade the database ONLY after you upgrade the Enterprise Manager system.

- Ensure that you are upgrading only on the supported platforms as listed in Section 3.3.

- Ensure that the ports used by Enterprise Manager 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.

- Back up the OMS, the Management Repository, and the 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*.

- Oracle recommends that you identify the deployment size (small, medium, or large) of your Enterprise Manager system, and fine-tune the database parameters as required for your deployment size. For instructions to identify the deployment size and set these database parameters, refer to the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

  While upgrading the OMS and the Management Repository using the Enterprise Manager Installation Wizard, the EM Prerequisite Kit is run automatically to verify if the database parameters are set as required for your deployment size. If they are not set to the desired values, then the EM Prerequisite Kit displays a warning against such prerequisite checks. There is a possibility that you might not notice these warnings, or you might notice them but choose to ignore them for a reason—this will increase the upgrade time exponentially. Therefore, Oracle recommends that you set these database parameters as required for your deployment size beforehand.

Table 9–3   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach on a Different Host

Step No.	Step	Procedure
(b)	On the Management Repository, meet the following prerequisites:	

■ Ensure that the MGMT_CONNECTOR_CONFIG table does not have any NULL rows. To verify this, run the following SQL query.

```
select * from mgmt_cntr_config where connector_type_
guid IS NULL and connector_guid IS null;
```

Typically, the command must not return any rows. If it does return any rows, then run the following SQL query to clean the table:

```
delete from mgmt_cntr_config where connector_guid IS
NULL or connector_type_guid IS NULL;
```

```
commit;
```

■ Ensure that there are no custom-created materialized views in the Management Repository. To verify this, run the following SQL query. Typically, the command must not return any rows. If it does return any rows, then contact Oracle Support.

```
select count(1) from ALL_MVIEW_LOGS where log_
owner=<EM_REPOS_USER>
```

■ Ensure that the tables 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_mview_logs where
log_owner='<EM_REPOS_USER>
```

For example,

```
select master , log_table  from all_mview_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
```

Table 9–3 (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach on a Different Host

Step No.	Step	Procedure
(c)	**(CRITICAL MANDATORY STEP)**	

Apply the following patches on the database. You can access My Oracle Support and search for these patches. For instructions, see the ReadMe file associated with the patch. **If you do not apply these patches, you will run into upgrade failures that cannot be corrected.**

For Oracle Database 11 Release 1 (11.1.0.7)

- On Unix platforms, apply patch 17082366 *(Patch Set Update 17)*. Then apply patch 9577583 and patch 8405205.

- On Microsoft Windows (32 bit and 64 bit) platforms, apply patch 17363760 *(Patch 54)*.

For Oracle Database 11g Release 2 (11.2.0.1)

- On Unix platforms, apply patch 12419378 *(Patch Set Update 6)*.

- On Microsoft Windows (64 bit) platforms, apply patch 13423278 *(Patch 16)*.

For Oracle Database 11g Release 2 (11.2.0.2)

- On Unix platforms, apply patch 11061801 and patch 9748749.

- On Microsoft Windows (32 bit) platforms, apply patch 11061801 and patch 12429530.

- On Microsoft Windows (64-bit) platforms, apply patch 11061801 and patch 12429531.

For Oracle Database 11g Release 2 (11.2.0.3), 10g Release 2 (10.2.0.5)

On Unix as well as Microsoft Windows platforms, apply the patch 11061801.

For Oracle Database 11g Release 2 (11.2.0.4) and 12c Release 1 (12.1.0.2)

No patches required for these releases.

Note: Oracle also recommends that you apply patch 13496395. For information on what database releases you can apply the patch, see the ReadMe that is packaged with the patch.

| (d) | Stop all running and scheduled deployment procedures in your existing Enterprise Manager system before upgrading the system. | |

To verify this, run the following query, and note down the GUID of the running or scheduled deployment procedures.

```
SELECT i.instance_guid FROM SYSMAN.MGMT_PAF_STATES s,
SYSMAN.MGMT_PAF_INSTANCES i, SYSMAN.MGMT_PAF_PROCEDURES p
WHERE p.procedure_guid = i.procedure_guid AND s.instance_
guid = i.instance_guid AND s.state_type = 0 AND s.status
in (0,1)
```

To stop the running or scheduled deployment procedures, run the following query, and pass the GUID you noted down from the output of the preceding command:

```
emcli stop_instance -instance=<instance id from sql query>
```

Table 9–3   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach on a Different Host

Step No.	Step	Procedure
(e)	*(Only if you have Application Dependency and Performance (ADP) or JVM Diagnostics (JVMD) installed)*	

Perform the following steps before the upgrade:

1. Take an inventory of the JVMs and WebLogic domains being monitored by JVMD and/or ADP.

    To view a list of deployed JVMD Agents, run the following query:

    ```
    select * from jam_jvm;
    ```

    To view a list of the WebLogic domains being monitored by ADP, access the ADP home page. In the Enterprise Manager console, from the **Targets** menu, select **Middleware.** From the **Middleware Features** menu on the Middleware page, select **Application Dependency and Performance.**

2. Deinstall the JVMD and ADP applications from your inventory by logging into the WebLogic Administration Console for each monitored domain and removing the *jamagent* and *Acsera* application deployments (or by using the Oracle WebLogic Scripting Tool).

3. Take an inventory of the deployed ADP and JVMD Engines. Shut down all of your ADP and JVMD Engines using the WebLogic Administration Console or the Oracle WebLogic Scripting Tool (WLST).

    To view a list of deployed JVMD Engines, run the following query:

    ```
    select * from jam_managers;
    ```

    To view a list of deployed ADP Engines, run the following query:

    ```
    select * from ocamm_manager_configuration;
    ```

4. Remove all the ADP and JVMD managed servers from the GCDomain using the WebLogic Administration Console.

Perform the following steps after the upgrade:

1. Run the purge scripts for JVMD:

    (a) Navigate to the following location:

    ```
    <middleware_
    home>/plugins/oracle.sysman.emas.oms.plugin_
    12.1.0.8.0/archives/jvmd/
    ```

    (b) Extract the file `jvmd.zip`.

    (c) View `README.txt`.

    (d) Run the script `jvmd_monitoringupgrade11_12.sql`.

    (e) Run the script `jvmd_traceupgrade11_12.sql` if there are existing Thread Snapshots from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1).

2. Run the following upgrade script for a schema upgrade:

    ```
    <middleware_
    home>/plugins/oracle.sysman.emas.oms.plugin_
    12.1.0.8.0/sql/ias/12.1.0.3/camm_product/camm_schema_
    upgrade.sql
    ```

Table 9–3   (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach on a Different Host

Step No.	Step	Procedure
(f)	Copy the emkey from the existing OMS, either the Enterprise Manager 10g Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), to the existing Management Repository. To do so, run the following command on the old OMS home you are trying to upgrade. The following commands are applicable for both releases.	
	`$<OMS_HOME>/bin/emctl config emkey -copy_to_repos` `[-sysman_pwd <sysman_pwd>]`	
	Note: When the following command is run on Enterprise Manager 11g Grid Control (11.1.0.1), you will be prompted for an admin password.	
	To verify whether the emkey is copied, run the following command:	
	`<OMS_HOME>/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".`	
(g)	If you have a Server Load Balancer (SLB) configured, then configure the settings of your monitors and keep the SLB ready.	Appendix E
(h)	If your old Enterprise Manager has Oracle Software Library (Software Library) configured on a shared, NFS-mounted drive, then ensure that the shared drive is accessible from the remote host where you plan to install Enterprise Manager Cloud Control.	
	However, if the Software Library is configured on the local file system where the existing, earlier release of Enterprise Manager is running, then copy the Software Library to the remote host where you plan to install Enterprise Manager Cloud Control, in the same directory path as the one maintained in the old Enterprise Manager system.	
(i)	Install Enterprise Manager Cloud Control on the remote host and upgrade the Management Repository in the existing database.	Section 12.5
Step 5	**Perform Postupgrade Task**	
(a)	Secure the central agent [the Management Agent installed by default with the new OMS you installed as part of Step 4 (i)].	
(b)	Check the agent upgrade status.	Section 13.5
(c)	Perform the general post-upgrade tasks.	Section 13.6
(d)	Track the status of deferred data migration jobs.	Section 13.7
(e)	Sign off agent migration process.	Section 13.11
(f)	Sign off the upgrade process and exit the upgrade mode	Section 13.12
(g)	Deleted unwanted central agents.	Section 13.13. 1
(h)	(Optional) Monitor the targets that were monitored by the deleted central agent.	Section 13.14

Table 9–3 (Cont.) Upgrading Enterprise Manager Grid Control with 1-System Upgrade Approach on a Different Host

Step No.	Step	Procedure
(i)	*(Only if you have Application Dependency and Performance (ADP) or JVM Diagnostics (JVMD) installed)*	
	1. If you have not deinstalled the JVMD and ADP applications from your inventory by logging into the WebLogic Administration Console for each monitored domain and removing the *jamagent* and *Acsera* application deployments, then do so now.	
	2. Delete all *ad4jTarget* targets:	
	(a) Navigate to the following location:	
	`<middleware_home>/plugins/oracle.sysman.emas.oms.plugin_12.1.0.8.0/archives/jvmd/`	
	(b) Extract the file `jvmd.zip`.	
	(c) Run the script `jvmd_targetupgrade11_12.sql`.	
	3. Delete all *OCAMM Manager* targets:	
	(a) Navigate to the following location:	
	`<middleware_home>/plugins/oracle.sysman.emas.oms.plugin_12.1.0.8.0/archives/ocamm/`	
	(b) Extract the file `ADPManager.zip`.	
	(c) Run the script `adp_targetupgrade11_12.sql`.	
	4. Deploy new JVMD and ADP managers.	
	5. Deploy new JVMD and ADP agents based on your inventory.	
(j)	Configure Oracle BI Publisher if required.	*Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*
(k)	(Optional) Delete the old OMS home.	Section 13.15

10

Meeting the Preupgrade Requirements for Upgrading Enterprise Manager Grid Control 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

This chapter describes the preupgrade requirements you must meet. In particular, this part covers the following:

- Applying the Preupgrade Console Patch
- Identifying a Host and Port for the New Enterprise Manager System
- Disabling the Auto-Runs of DDMP Jobs
- Managing and Validating the Location of the Management Agent Software and Its Associated Plug-ins
- Cloning (or Backing Up) Your Existing Database Before Upgrading an Enterprise Manager System
- Analyzing Your Environment Before Upgrading an Enterprise Manager System
- Providing Repository Backup Details for Upgrading an Enterprise Manager System

10.1 Applying the Preupgrade Console Patch

For instructions to apply the Preupgrade Console patch, see Section 2.2.3.1.

10.2 Identifying a Host and Port for the New Enterprise Manager System

> **Note:** Follow these instructions only if you are upgrading using the 2-System upgrade approach or the 1-System upgrade approach on a different host. Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

To identify and provide information about the host where you plan to install Enterprise Manager Cloud Control, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Select Upgrade Type section, select one of the following.

- To upgrade your Enterprise Manager system with "near zero" downtime (even if you manually install Management Agents), select **2-System**.

- To upgrade your Enterprise Manager system with downtime on a different host, select **1-System on a Different Host**.

Enterprise Manager Grid Control refreshes the page and displays a table with a list of tasks you need to perform for the upgrade approach you selected.

4. In the Preupgrade Steps section, from the table, click **Identify Host and Port for New Enterprise Manager System**.

5. On the Identify Host and Port for New Enterprise Manager System page, enter the following:

- The fully qualified name of the host where you plan to install Enterprise Manager Cloud Control. For example, `example.com`.

- The secure port and the unsecure upload port you plan to assign for that Enterprise Manager Cloud Control console. For example, `1768`.

  In case of a multi-OMS environment, if the host on which you plan to install Oracle Management Service 12*c* is managed by a Server Load Balancer (SLB), then select **Click if you wish to have Server Load Balancer (SLB) configured for your Oracle Management Service 12c Release 5 (12.1.0.5.0)**. Then, enter the fully qualified name, and then the secure and unsecure upload ports of the host where the SLB is running.

  Note:

  - For 2-System upgrade approach and 1-System upgrade approach on a different host, understandably, the host referred to here is any host other than the one where your existing OMS is running. In a Multi-OMS environment this means that a new virtual host name must be used and a new SLB configuration created for this virtual host name.

  - Ensure that you install Oracle Management Service 12*c* on the host entered here, and ensure that you use the same HTTPS and HTTP upload ports entered here. In the installation wizard, on the Port Configuration Details screen, enter the HTTPS upload port for the component **Enterprise Manager Upload Http SSL Port**, and the HTTP upload port for the component **Enterprise Manager Upload Http Port**.

    If you have already installed Oracle Management Service 12*c*, then retrieve the values from the `emgc.properties` file, which is available in the OMS home. For HTTPS upload port, look for the value assigned to the parameter `EM_UPLOAD_HTTPS_PORT`, and for HTTP upload port, look for the value assigned to the parameter `EM_UPLOAD_HTTP_PORT`.

  - Once you enter the secure and unsecure upload ports here, avoid changing them once the deployment starts.

  ---

6. In the Configure Postupgrade Tasks section, select one of the following options:

- **Disable automatic DDMP jobs,** if you want to prevent the DDMP jobs from running automatically. This option is applicable for 1-System upgrade approach as well as 1-System upgrade approach on a different host.

  If you want to run the DDMP jobs explicitly after upgrading to Enterprise Manager Cloud Control, perform Step (3) as described in Section 13.7.2—select each component and click **Start.**

  > **Note:** If you disable the DDMP jobs, the ADMP jobs are also disabled by default.

- **Disable automatic ADMP jobs,** if you want to prevent the ADMP jobs from running automatically. This option is applicable only for 1-System upgrade approach.

  If you want to run the DDMP jobs explicitly after upgrading to Enterprise Manager Cloud Control, perform Step (3) as described in Section 13.8.2.

7. Click **Save**.

   Enterprise Manager Grid Control saves the information you provided and returns to the Upgrade Console page that shows a list of tasks to perform for the upgrade approach you selected.

10.3 Disabling the Auto-Runs of DDMP Jobs

> **Note:** Follow these instructions only if you are upgrading using the 1-System upgrade approach. Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

By default, soon after the upgrade, Enterprise Manager Cloud Control automatically runs the deferred data migration process (DDMP) jobs. These jobs migrate historical data such as metrics, configuration, and so on from the format stored in the earlier release of Enterprise Manager to the format compatible with Enterprise Manager Cloud Control. For more information DDMP jobs, see Section 13.7.1.

Depending on the size of your Enterprise Manager system, these jobs consume a high amount of Management Repository resources and take longer time to complete. In particular, when you upgrade using the 1-System upgrade approach, you might face resource contention as all the Management Agents will be up and running soon after the upgrade.

For better control on these jobs, you may choose to disable the auto-run of these DDMP jobs. If you do so, you must run these jobs later explicitly from the Post Upgrade Tasks page within the Enterprise Manager Cloud Control console.

To disable the auto-run of DDMP jobs, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Select Upgrade Type section, select **1-System.**

Enterprise Manager Grid Control refreshes the page and displays a table with a list of tasks you need to perform for the upgrade approach you selected.

4. In the Preupgrade Steps section, from the table, click **Configure Postupgrade Tasks**.

5. On the Configure Postupgrade Tasks page, select **Disable automatic DDMP jobs.**

6. Click **Save**.

Enterprise Manager Grid Control saves the information you provided and returns to the Upgrade Console page that shows a list of tasks to perform for the upgrade approach you selected.

> **Note:** If you want to run the DDMP jobs explicitly after upgrading to Enterprise Manager Cloud Control, perform Step (3) as described in Section 13.7.2—select each component and click **Start.**

10.4 Managing and Validating the Location of the Management Agent Software and Its Associated Plug-ins

> **Note:** Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

To manage information about the location of the core Management Agent software and its associated plug-ins, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Select Upgrade Type section, select one of the following. For information about these upgrade approaches, see Chapter 2.

   - To upgrade your Enterprise Manager system with downtime (even if you manually install Management Agents), select **1-System**.

   - To upgrade your Enterprise Manager system with "near zero" downtime (even if you manually install Management Agents), select **2-System**.

   - To upgrade your Enterprise Manager system with downtime on a different host, select **1-System on a Different Host**.

   Enterprise Manager Grid Control refreshes the page and displays a table with a list of tasks you need to perform for the upgrade approach you selected.

4. In the Preupgrade Steps section, from the table, click **Manage Software**.

5. On the Manage Software page, in the Agent Upgradability and Target Upgradability pie charts, click the hyperlinks in the respective legends and identify the Management Agents and targets that can be upgraded, and that cannot be upgraded due to unavailability of the Management Agent software or the plug-in software.

6. In the Provide Software Location section, enter the absolute path to the directory where the core Management Agent software and the plug-in software are present for the required platforms.

For example, `/john/software/oracle/em/`.

And then, click **Validate** to register that location with the Enterprise Manager system.

Note:

- The absolute path you enter must be to a staging location that contains both the Management Agent software and the plug-in software.

  To download the Management Agent software and the plug-ins, follow these steps

  (a) Access the following URL:

  http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html

  (b) Download the Management Agent software to an accessible location. Do NOT extract the contents of the software ZIP file. The Management Agent software is platform-specific, so ensure that you copy the software for the platform on which you want to install.

  (c) Download all the required plug-ins to the same location. Plug-ins are generic, so they are common for all platforms.

  Ensure that you download all the plug-ins listed as required plug-ins on the Manage Software page, whether or not you want to monitor a target with them. You may feel that a few plug-ins are not required because you do not have targets to be monitored by them, but those plug-ins may be required for upgrading your system. Therefore, download all the plug-ins listed on the Manage Software page. Ensure that you download these plug-ins before backing up the database that contains the Management Repository.

- Ensure that the core Management Agent software and the plug-in software you provide have read permission, and ensure that the location in which they are present is accessible and has *read* and *write* permission.

- If you plan to install multiple Oracle Management Services (OMS instances), then ensure that the location you enter is writable and accessible to all the OMS instances.

- If you have a plug-in version deployed to the earlier release of Enterprise Manager that is not supported in Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5), then do NOT provide the software of the higher version of that plug-in even if its available for download. This ensures that the unsupported version is removed while upgrading to 12*c* Release 5 (12.1.0.5). After you upgrade, you can deploy the higher version directly from the Plug-In Manager.

- After registering the locations of the Management Agent software and the plug-in software, if you download some more plug-ins at a later stage in the same or a different location, then register the location of those recently downloaded plug-ins as well.

- The validation and registration process might take some time to complete, so after you click **Validate**, wait for some time for the process to end. Once the process ends, you should see a message confirming that the location has been successfully registered.

> **Note:** If you are deploying Oracle Management Agent 12*c* on platforms such as Red Hat Enterprise Linux 4.x, Oracle Linux 4.x, or SUSE Linux Enterprise 10, then ensure that you deploy only the 32-bit version of the Management Agent software. Do not deploy the 64-bit version because it is not supported on these platforms.
>
> However, despite using the 32-bit version, while validating the software on the Manage Software page, if you see an error stating that the 32-bit version is not supported, then follow these steps to resolve the issue:
>
> 1. Run the following SQL query in the old Management Repository as a sysman user. Ensure that the Management Repository is not already upgraded at this point.
>
>    ```
>    update PRE_UPGC_AGT_STAT_MGMT set PLATFORM_ID='46',
>    PLATFORM_NAME='Linux x86-64' where OS_VERSION like
>    '%Enterprise Linux%elease%4%' and PLATFORM_ID='226';
>    ```
>
>    ```
>    update PRE_UPGC_AGT_STAT_MGMT set PLATFORM_ID='46',
>    PLATFORM_NAME='Linux x86-64' where OS_VERSION like
>    '%SUSE%10%' and PLATFORM_ID='226';
>    ```
>
>    ```
>    commit;
>    ```
>
> 2. On the Manage Software page, enter the absolute path to the location where the 32-bit version of the Management Agent software is available, and click **Validate.**
>
> 3. In the Agent Upgradability pie chart, verify if the Management Agent appears as an upgradable target.

10.5 Cloning (or Backing Up) Your Existing Database Before Upgrading an Enterprise Manager System

If you are performing a 2-system upgrade, then make sure you clone (or back up) your existing database that houses the Management Repository. For instructions, refer to Step 3 (f) of Table 9–2 of Section 9.2.

> **Note:** If you want to recover the cloned or backed up Oracle Database 11g Release 1 (11.1.0.7) or 10g Release 2 (10.2.0.5) from Microsoft Windows 32-bit to Microsoft Windows 64-bit, then see Appendix J.

10.6 Analyzing Your Environment Before Upgrading an Enterprise Manager System

This chapter describes how you can analyze your existing Oracle Management Agents (Management Agent) and prepare yourself to upgrade them. In particular, this chapter covers the following:

- Identifying Oracle Management Agents with Valid Inventory
- Identifying Oracle Management Agents with Invalid Inventory
- Checking the Upgradability Status of Oracle Management Agents
- Checking the Upgradability Status of Targets

- [Identifying Problematic Oracle Management Agents](#)

- [Identifying Oracle Management Agents That Need to Be Reconfigured](#)

- [Identifying Oracle Management Agents That are Not Supported in Enterprise Manager 12c](#)

- [Identifying Oracle Management Agents That are Installed after Repository Backup](#)

- [Identifying Broken Targets](#)

> **Note:** Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

10.6.1 Identifying Oracle Management Agents with Valid Inventory

Every Oracle software product, including Oracle Management Agent (Management Agent) installed on a host is registered with the central inventory (*oraInventory*). Every Oracle software product has an entry in the inventory.xml file, which is present in the *oraInventory* directory. If a Management Agent is registered with the central inventory, then it is a Management Agent with valid inventory.

To identify Management Agents with valid inventory, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Agent Upgrade Status section, view the count displayed against **Agents with Valid Inventory**.

   To drill down and view more information about each of the Management Agents, click the count value.

   Enterprise Manager Grid Control displays the Upgrade Status page that provides information such as the platform on which the Management Agents are running; their versions; their old and new Oracle home locations; and their deployment, configuration, health check, and switch over status.

   > **Note:**
   >
   > - The count displayed here does not include the Management Agents with invalid inventory and the Management Agents that were installed after the count was determined.
   >
   > - To consider the Management Agents that have an invalid inventory, first resolve the issue with such Management Agents. Ensure that there are no such faulty Management Agents. For information on how to identify such Management Agents and resolve them, see Section 10.6.2. Once you have resolved the issue, click **Refresh Agents and Targets List**.
   >
   > - To consider the Management Agents that were installed after the count was determined, refresh the list by clicking Refresh Agents and Targets List.

10.6.2 Identifying Oracle Management Agents with Invalid Inventory

Every Oracle software product, including Management Agent installed on a host is registered with the central inventory (*oraInventory*). Every Oracle software product has an entry in the `inventory.xml` file, which is present in the *oraInventory* directory.

However, there may be circumstances when an entry for a Management Agent might be missing, incomplete, or corrupt, or the entry might be existing with an incorrect syntax. In addition, there is also a possibility that the host configuration was not refreshed and the latest configuration was not collected. If a Management Agent is not registered with the central inventory for such reasons, then it is a Management Agent with invalid inventory.

Management Agents with invalid inventory do not appear in the *Preupgrade Console*, and as a result, you will not be able to upgrade them until the issues are fixed.

To identify Management Agents with invalid inventory, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Agent Upgrade Status section, view the count displayed against **Agents with Invalid Inventory**.

   To drill down and view more information about each of the Management Agents, click the count value.

   > **Note:** To resolve this issue, follow these steps:
   >
   > 1. Check the entry for these Management Agents in the `inventory.xml` file.
   >
   >   The `inventory.xml` file is present in the *oraInventory* directory (central inventory). The location of the *oraInventory* directory is mentioned in the `oraInst.loc` file that you pass while invoking the installer in silent mode. Ensure that the entry is present with the correct syntax.
   >
   > 2. Refresh the host configuration in one of the following ways:
   >
   >   (a) Go to the home page of the host. Click the **Configuration** tab. On the Configuration page, click **Refresh**.
   >
   >   (b) Go to the Deployments page. In the Configuration section, click **Refresh Host Configuration**.
   >
   >   If Step 2 (a) or Step 2 (b) fail, then run the following command from the Management Agent home:
   >
   >   `$<AGENT_HOME>/bin/emctl control agent runCollection`
   >
   > 3. Refresh the agent list in the *Preupgrade Console*.
   >
   >   Go to the Preupgrade Console. In the Agent Upgrade Status section, click **Refresh Agents and Targets List**.

10.6.3 Checking the Upgradability Status of Oracle Management Agents

To check the upgradability status of the Management Agents, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Preupgrade Steps section, from the table, click **Manage Software**.

4. On the Manage Software page, view the Agent Upgradability pie chart. The pie chart graphically shows the following information:

   - **Completely Upgradable -** Number of Management Agents that can be fully upgraded because the Management Agent software and all the associated, target-specific management plug-in software are available.

   - **Missing Plug-Ins Software -** Number of Management Agents that can be partially upgraded because the Management Agent software and only a few of the associated, target-specific management plug-in software are available. Some management plug-in software are either missing or unsupported in the upgraded Enterprise Manager system.

   - **Missing Agent Software -** Number of Management Agents that cannot be upgraded because the Management Agent software is not available. The associated, target-specific management plug-in software might be available, but the core Management Agent software is not available.

   - **Not Supported -** Number of Management Agents that are not supported in the upgraded Enterprise Manager system because Oracle Management Agent 12*c* has not been released for a particular platform. The targets monitored by those Management Agents can no longer be monitored in the upgraded Enterprise Manager system.

10.6.4 Checking the Upgradability Status of Targets

To check the upgradability status of the targets, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, do one of the following:

   - In the Other Links section, click **Targets Upgradability Status**.

     On the Targets Upgradability Status page, use the search functionality to search and identify the targets that can either be monitored or not monitored in the upgraded Enterprise Manager system.

     For example, to list the targets that cannot be monitored in the upgraded Enterprise Manager system, from the **Upgrade Status** list, select **Not Upgradable**. Similarly, to list the target that can be monitored, select **Upgradable**.

   - In the Preupgrade Steps section, from the table, click **Manage Software**.

     On the Manage Software page, view the Target Upgradability pie chart. The pie chart graphically shows the following information:

     – **Upgradable** - Number of targets that can be monitored in the upgraded Enterprise Manager system because the Management Agent software and the associated, target-specific management plug-in software are available.

     – **Missing Agent/Plug-In Software** - Number of targets that cannot be monitored in the upgraded Enterprise Manager system because either the Management Agent software is missing or the associated management plug-in software is missing.

- **Not Supported** - Number of targets that cannot be monitored in the upgraded Enterprise Manager system because either Oracle Management Agent 12*c* has not been released for the platforms on which the targets are running, or the management plug-ins for those targets are not supported in the upgraded Enterprise Manager system.

- **Plug-In Software Not Certified -** Number of targets that cannot be monitored in the upgraded Enterprise Manager system because the management plug-ins for those targets are not certified.

10.6.5 Identifying Problematic Oracle Management Agents

There may be Management Agents that cannot be upgraded due to technical issues such as missing host target, association with multiple host targets, unreachable state, invalid inventory, and so on.

To identify such problematic Management Agents, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Other Links section, click **Problematic Agents**.

4. On the Problematic Agents page, view the Management Agents that cannot be upgraded.

   - To search for a particular Management Agent, enter the Management Agent name in the **Agent** field, and click **Search**.

   - To filter the Management Agents based on a particular technical reason, select one of the following reasons from the **Reason** list, and click **Search**:

     - **Missing Repository Inventory** - Lists the Management Agents that are not registered with the central inventory (*oraInventory*).

     - **Multiple Host Target -** Lists the Management Agents that are either associated with or monitoring more than one host.

     - **Agent Unreachable -** Lists the Management Agents that are down.

     - **Host Target Missing -** Lists the Management Agents whose hosts are not discovered and monitored in the Enterprise Manager Grid Control console. The Management Agents themselves may be monitored but their hosts may not be monitored for some reason.

     - **Central agent -** Lists the central agents (Management Agents installed with the first OMS) that cannot be upgraded for 2-system upgrade.

     - **All -** Lists all the Management Agents that have one or more issues listed in the **Reason** list.

10.6.6 Identifying Oracle Management Agents That Need to Be Reconfigured

You might have to reconfigure the Management Agents for one of the following reasons:

- If the OMS host and port with which you deployed a Management Agent do not match with the OMS host and port with which you deployed the other Management Agents.

- You have either deleted one or more targets monitored by this Management Agent, or added new targets to be monitored by this Management Agent. To resolve this issue, reconfigure this Management Agent so that the new configuration can take effect.

- The versions of the plug-ins you deployed with this Management Agent are different from the versions of the plug-ins you deployed with the other Management Agents. To resolve this issue, deploy this Management Agent again with the correct plug-in versions.

To identify the Management Agents that need to be reconfigured, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Other Links section, click **Agents Needing Reconfiguration**.

4. On the Agents Needing Reconfiguration page, view the Management Agents that need to be reconfigured. The table not only lists the Management Agents but also provides the following reasons for you to reconfigure them.

   - OMS Host and Port Mismatch

     Indicates that the OMS host and port with which you deployed the Management Agent do not match with the OMS host and port with which you deployed the other Management Agents. To resolve this issue, access the Identify Host and Port for New Enterprise Manager System page, correct the OMS host and port, and deploy this Management Agent again.

   - Targets Deleted or Added

     Indicates that you have either deleted one or more targets monitored by this Management Agent, or added new targets to be monitored by this Management Agent. To resolve this issue, reconfigure this Management Agent so that the new configuration can take effect.

   - Plug-In Version Mismatch

     Indicates that the versions of the plug-ins you deployed with this Management Agent are different from the versions of the plug-ins you deployed with the other Management Agents. To resolve this issue, deploy this Management Agent again with the correct plug-in versions.

10.6.7 Identifying Oracle Management Agents That are Not Supported in Enterprise Manager 12c

If the core agent software has not been released for the platforms on which the Management Agents run, then these Management Agents will not be supported in Enterprise Manager 12*c*. Technically, the target or target monitored by those agents can no longer be monitored in the upgraded Enterprise Manager system.

To identify the Management Agents that are not supported in Enterprise Manager 12*c*, follow these steps:

1. In Grid Control, click **Deployments.**

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console.**

3. On the Upgrade Console page, in the Other Links section, click **Agents Not Supported in Enterprise Manager 12c.**

4. On the Agents Not Supported in Enterprise Manager 12*c* page, view the Management Agents that are not supported in Enterprise Manager 12*c*.

10.6.8 Identifying Oracle Management Agents That are Installed after Repository Backup

When upgrading Management Agents to Enterprise Manager 12*c* using the 2-system approach, if agents are installed after Repository Back-Up, then these agents will not be able to migrate to Enterprise Manager 12*c* system. You will have to push these 12*c* Management Agents from the 12*c* system and rediscover these targets.

To identify the Management Agents that are not supported in Enterprise Manager 12*c*, follow these steps:

1. In Grid Control, click **Deployments.**

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console.**

3. On the Upgrade Console page, in the Other Links section, click **Agents Installed after Repository Back-Up.**

4. On the Agents Installed after Repository Back-Up page, view the Management Agents that are installed after Repository-Back-Up.

10.6.9 Identifying Broken Targets

A broken target indicates that the deployed Management Agent from the Enterprise Manager 12*c* system is not in a position to monitor the target that was monitored earlier by the old Management Agent.

To identify the broken targets, follow these steps:

1. In Grid Control, click **Deployments.**

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console.**

3. On the Upgrade Console page, in the Other Links section, click **Broken Targets.**

4. On the Broken Targets page, view the list of broken targets. The table not only lists the broken targets but also provides the reason for the broken target, the type of target, the name of the Agent, the name of the Plug-In, and the Platform.

10.7 Providing Repository Backup Details for Upgrading an Enterprise Manager System

> **Note:** Follow these instructions only if you are upgrading using the 2-System upgrade approach. Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

To provide information on when you backed up your Oracle Management Repository, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Select Upgrade Type section, select **2-System**. For information about these upgrade approaches, see Chapter 2.

   Enterprise Manager Grid Control refreshes the page and displays a table with a list of tasks you need to perform for the upgrade approach you selected.

4. In the OMS and Repository Upgrade Steps section, from the table, click **Provide Repository Backup Details**.

5. On the Provide Repository Backup Details page, provide the date and time when you backed up your Oracle Management Repository.

   > **Note:** Ensure that the backup time you enter is based on the time zone to which your existing Management Repository belongs.
   >
   > If you are noting down the backup time stamp from your clock in a time zone that is different from the time zone of the region where the Management Repository resides, then make sure you change the time stamp to the time zone to which the Management Repository belongs.
   >
   > For example, to convert the time stamp "1999-12-01 11:00:00" in the *America/Newyork* time zone to *America/LosAngeles* time zone, run the following query. The result of this query displays the time in 'America/LosAngeles' time zone.
   >
   > ```
   > SELECT FROM_TZ(CAST(TO_DATE('1999-12-01 11:00:00',
   > 'YYYY-MM-DD HH:MI:SS') AS TIMESTAMP), 'America/New_York') AT
   > TIME ZONE 'America/Los_Angeles' "West Coast Time" FROM DUAL;
   > ```

6. Click **Save**.

11

Upgrading Oracle Management Agents 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

This chapter describes how you can upgrade your Oracle Management Agents. In particular, this part covers the following:

- Deploying and Configuring Oracle Management Agents 12c Release 5 (12.1.0.5)
- Generating a Health Report of Deployed Oracle Management Agents 12c Release 5 (12.1.0.5)
- Verifying and Signing Off the Health Report of Deployed Oracle Management Agents 12c Release 5 (12.1.0.5)
- Switching Over to Oracle Management Agent 12c Release 5 (12.1.0.5)

11.1 Deploying and Configuring Oracle Management Agents 12c Release 5 (12.1.0.5)

This section covers the following:

- Before You Begin Deploying and Configuring Oracle Management Agents 12c Release 5 (12.1.0.5)
- Deploying and Configuring Oracle Management Agents 12c Release 5 (12.1.0.5)

11.1.1 Before You Begin Deploying and Configuring Oracle Management Agents 12c Release 5 (12.1.0.5)

Before you deploy and configure Oracle Management Agent, keep these point in mind:

- You cannot deploy and configure Oracle Management Agent 12*c* for problematic Management Agents. To identify the problematic Management Agents, see Section 10.6.5.
- You must deploy and configure Oracle Management Agent 12*c* only on existing Management Agents that are completely upgradable. To identify whether the Management Agents are completely upgradable, see Section 10.6.3.
- For 2-system upgrade, do NOT deploy Oracle Management Agent 12*c* on the remote OMS host because the Enterprise Manager installer will take care of installing it while installing Oracle Management Service 12*c*.

- For 1-system upgrade, use the Preupgrade Console to deploy Oracle Management Agent 12c for the central agent. Central agent is the Management Agent installed with the old OMS.

  However, for 2-system upgrade and 1-system upgrade on a different host, do NOT use the Preupgrade Console to deploy Oracle Management Agent 12c as the central agent on that remote host. Instead, use the Enterprise Manager Cloud Control Installation Wizard to install the Management Agent along with the OMS. In the Preupgrade Console, you will be able to select the central agents, but not proceed with the deployment and configuration job. When you try to submit the job, the selected central agents are validated and reported as problematic agents, which cannot be upgraded. If you want to continue monitoring the targets that were monitored by the central agent, then follow the instructions outlined in Section 13.14.

- You need the Management Agent credentials to deploy and configure the software binaries, and the root credentials to run the root.sh script. In this regard, the following use cases are supported:

  - **Use Case 1:** You have the agent as well as the root credentials. In this case, you can deploy and configure successfully.

  - **Use Case 2:** You have the agent user name and root user name, but not their passwords. However, you have SUDO or PowerBroker utility installed in your environment that can enable you to switch over to another user.

    In this case, you can still deploy and configure successfully. You can use SUDO or PowerBroker, depending on what is installed in your environment, to switch over to another user account that has the required privileges.

  - **Use Case 3:** You have the agent credentials, but not the root credentials, and you do not have SUDO or PowerBroker utility in your environment.

    In this case, you can still deploy and configure successfully. In the Deploy and Configure Agents Wizard, in the Agent Credentials section, enter the agent credentials as described in Step (10) and as shown in Figure 11–1.

Figure 11–1   Agent Credentials

Then, on the Optional Details page of the wizard, in the Root Credentials section as described in Step (16) and as shown in Figure 11–2, enter any dummy user name and password.

Figure 11–2   Root Credentials

> Proceed with the deployment and configuration. Note that the deployment will succeed, but the `root.sh` script will not run. One of the steps in the upgrade job will fail stating that the root password was incorrect and that the root script was not run. Ignore the error and proceed.
>
> After the deployment, contact the adminitrator who has the root credentials, and request him or her to manually run this `root.sh` script on each of the Management Agents.
>
> > **Note:**   The `root.sh` script can be run any time after the deployment, and not necessarily immediately after the deployment. Even if the script is not run, the upgrade process will not be affected in any way—the health check, sign-off, and switchover operations will work without any issues. However, Oracle strongly recommends that you run the script before using the Enterprise Manager Cloud Control. Otherwise, you will not be able to run jobs on the Management Agents and you will see `nmo` errors.

- To deploy and configure Oracle Management Agent 12*c*, the existing connectivity between the old Management Agent and the OMS is used; SSH is not used.

- For 2-system upgrade, if your old Management Agent was running in secure (or unsecure) mode before backing up the Management Repository, then ensure that it continues to run in the same mode while you deploy and configure the new Management Agent for it. Do not resecure the Management Agents after backing up the Management Repository. If you do so, the ping test might fail while performing the healthcheck because of a mismatch between the configuration stored in the repository and the actual configuration of the Management Agent. You will see a `KEY_MISMATCH` error in `gcagent.log`. For information on this error and to know how to secure the Management Agents without facing this issue, see Appendix I.

- For 2-system upgrade, after cloning the old Management Repository (or taking a backup), do not make any configuration changes to the Management Agent. If you do, then you must redeploy and reconfigure the Management Agents. Despite redeploying and reconfiguring the Management Agents if you see an error during the switchover process, then log out and log in to the Enterprise Manager Grid Control Console (old EM Console) and retry the switchover process.

11.1.2 Deploying and Configuring Oracle Management Agents 12c Release 5 (12.1.0.5)

To deploy Oracle Management Agent 12*c*, follow these steps:

> **Note:**   Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Select Upgrade Type section, select one of the following. For information about these upgrade approaches, see Chapter 2.

   ■ To upgrade your Enterprise Manager system with downtime (even if you manually install Management Agents), select **1-System**.

   ■ To upgrade your Enterprise Manager system with "near zero" downtime (even if you manually install Management Agents), select **2-System**.

   ■ To upgrade your Enterprise Manager system with downtime on a different host, select **1-System on a Different Host**.

   Enterprise Manager Grid Control refreshes the page and displays a table with a list of tasks you need to perform for the upgrade approach you selected.

4. In the Preupgrade Steps section, from the table, click **Deploy and Configure Agents**.

5. On the Deploy and Configure Agents page, for **Operation Name**, enter a unique name for the deployment operation you are about to perform. The custom name you enter can be any intuitive name, and need not necessarily be in the same format as the default name.

   For example, `Deploy_Agents_Phase1_2015_7_23`.

   > **Note:** The operation name you enter here is only a logical name and will be used for saving the details of the operation you are about to perform. After deploying the software binaries of Oracle Management Agent 12*c*, at a later point in time, if you want to check the health of the deployed Management Agents or switch over from old to newly deployed and configured Management Agents, then you can use the operation name to identify and track the Management Agents selected as part of this operation.

6. In the Select Operation Type section, select **Deploy Agent and Plug-In Software** and **Configure Agent and Plug-In Software**.

   > **Note:** If you had already deployed the software binaries of the Management Agent, then you can choose to only configure them now. In this case, select only **Configure Agent and Plug-In Software**.

7. In the Search Agents section, search and add the existing, old Management Agents for which you want to deploy the software. To understand how to search and add Management Agents, see Appendix H.

> **Note:**
>
> - If you had already deployed the software binaries of the Management Agent, and if you are only configuring them at this point, then search (or add) and select the Management Agents for which you had already manually deployed the software.
>
> - If you are adding a *Shared Agent*, then ensure that you add the *Master Agent* to which it communicates, and all the *Shared Agents* that communicate with this *Master Agent*.
>
> - For 2-system upgrade and 1-system upgrade on a different host, the central agents are listed for selection, but when you select and try to submit the deployment and configuration job, the selected central agents are validated and reported as problematic agents. Therefore, they cannot be deployed and configured, and as a result, cannot be switched over. If you want to continue monitoring the targets that were monitored by those central agents, then follow the instructions outlined in Section 13.14.
>
> - When you return to this screen to retry the deploy operation, you will see the Management Agents selected as part of the previous deploy operation. This is an expected behavior. You can choose to redeploy the software binaries for them, or remove them from the list and add a fresh set of Management Agents.

8. In the table that lists the Management Agents, enter an installation base directory and an instance home directory for each of the Management Agents.

> **Note:**
>
> - Ensure that the installation base directory you enter here is NOT inside the Middleware home.
>
> - Ensure that the installation base directory has at least 1 GB of free disk space.
>
> - If you had already deployed the software binaries of the Management Agent, and if you are only configuring them at this point, then enter the same installation base directory and the instance home directory where you had deployed the software binaries.
>
> - Ensure that the installing user owns the agent base directory. Ensure that the installing user or the root user owns all the parent directories. Ensure that the root user owns the root directory. And ensure that all of these directories have read and execute permissions for group and other users.
>
>   For example, if the agent base directory is `/scratch/OracleHomes/agent`, and if *oracle* is the installing user, then the `/scratch/OracleHomes/agent` directory must be owned by *oracle*, directories `scratch` and `OracleHomes` must be owned by either *oracle* or *root* user, and the root directory (`/`) must be owned by *root* user. And directories `/`, `scratch`, and `OracleHomes` have read and execute permissions.

Select these additional options if required:

- If you want the paths to the installation base directory and the instance home directory to be the same across Management Agents, then select **Use Same Paths for All Agents**, and enter the absolute path for installation base directory and instance home directory, just once, for the first Management Agent listed in the table. Enterprise Manager Grid Control will consider the same paths for other Management Agents listed in the table.

  > **Note:** You cannot select **Use Same Paths for All Agents** with the installation base directory mentioned for one Management Agent and the instance home directory mentioned for another Management Agent in the table. Only the paths specified for the first Management Agent will be considered as the same paths for other Management Agents in the table.

- If the agent base directory or the agent instance home directory specified by you already exists, and if you want to overwrite them, then select **Overwrite Any Existing Directories**. Typically, you will select this option when you choose to redeploy the software binaries in the same base directory.

- If you want to ignore any deployment and configuration-related prerequisite checks, then select **Ignore Deploy Prerequisites.** To ensure successful deployment, you must manually perform all the agent installation prerequisite checks, as described in *Oracle Enterprise Manager Cloud Control Basic Installation Guide,* before attempting an agent deployment with the **Ignore Deploy Prerequisites** option selected.

- If you want to clean up all the traces for failed deployments, then select **Cleanup Failed Deployments.** Note that this will clean up all the files, directories, and even log files for failed deployments. So select this option only if you are sure you want to lose all the data.

9. After you add the Management Agents, select each of them from the **Select** column.

10. In the Agent Credentials section, retain the default selection, that is, **Use Oracle Home Preferred Credentials**, so that the preferred credentials stored in the Management Repository can be used for this job.

    > **Note:** Ensure that the preferred credentials were registered with the Enterprise Manager system using the Enterprise Manager Command Line Interface (EM CLI). For more information, see Section F.

    You can optionally override these preferred credentials. To do so, select **Override Oracle Home Preferred Credentials** and enter one set of credentials that can be used for all Oracle homes.

    > **Note:** Ensure that you use the same credentials that you used for the existing, earlier release of the Management Agent

11. In the Run Privilege section, by default, **None** is selected assuming that the credentials you have provided in the previous step have the privileges to run this job.

However, if those credentials do not have the privileges to run this job, and if you want to switch over as another user for this purpose, then select either **SUDO** or **Power Broker**, depending on the authentication utility you want to use, and provide the user account name and profile.

12. *(Applicable Only for 2-System Upgrade)* In the OMS Host and Port section, validate the name and the secure port of the host where you plan to install Oracle Management Service 12*c*. To change the values, click **Edit**.

> **Note:** If you had already upgraded your existing OMS to Oracle Management Service 12*c*, then ensure that the port you enter here matches with the *Enterprise Manager Upload HTTP SSL Port* you selected or specified in the installer while upgrading the OMS.

---

13. Click **Next**.

14. On the Optional Details page, in the Pre-Deploy Options section, select **Run Pre-Command/Script** if you want to run any script before deploying the software binaries of the Management Agents.

Enter the absolute path to a location on the destination host where the script is available. The script can also be in a shared location, but you must have execute privileges on it to run the script.

> **Note:** By default, the credentials provided in Step (10) are used for running the script. And by default, **None** is selected assuming that the credentials have the privileges to run the script.
>
> However, if those credentials do not have the privileges to run the script, and if you want to switch over as another user for this purpose, then select either **SUDO** or **Power Broker**, depending on the authentication utility you want to use, and provide the user account name and profile.

---

15. In the Post-Config Options section, select **Run Post-Command/Script** if you want to run any script after configuring the deployed Management Agents.

Enter the absolute path to a location on the destination host where the script is available. The script can also be in a shared location, but you must have execute privileges on it to run the script.

> **Note:** By default, the credentials provided in Step (10) are used for running the script. And by default, **None** is selected assuming that the credentials have the privileges to run the script.
>
> However, if those credentials do not have the privileges to run the script, and if you want to switch over as another user for this purpose, then select either **SUDO** or **Power Broker**, depending on the authentication utility you want to use, and provide the user account name and profile.

---

16. *(Only for UNIX)* In the Root Credentials section, enter the credentials of a user account to run the `root.sh` script.

> **Note:** By default, **None** is selected assuming that the credentials have the privileges to run the script. However, if those credentials do not have the privileges to run the script, and if you want to switch over as another user for this purpose, then select either **SUDO** or **Power Broker**, depending on the authentication utility you have, and provide the user account name and profile.
>
> If you do not have root credentials, then enter the agent credentials. In this case, the root.sh script is not run, but the deployment succeeds. Ensure that you manually run this script after deployment. Otherwise, you will not be able to run jobs on the Management Agent.

17. Click **Submit**.

> **WARNING:** After deploying and configuring the Management Agents, do not make any configuration changes, for example, the metric thresholds, job definitions, templates, and so on. If you do, then those changes will not be carried over when you switch over to the new Enterprise Manager system; the only way to transfer the changes is to reconfigure the new Management Agents. To reconfigure them, see the note in Step (6).

> **Note:**
>
> - After you submit the operation, if you see the following error, then first run `root.sh` from the old Management Agent home, and then, resubmit this operation.
>
>   `ERROR: NMO not setuid-root (Unix-only)`
>
> - If you see the following error, then verify the credentials entered in Step (10).
>
>   `Local Authentication Failed...Attempt PAM authentication...PAM`
>   `failed . . .`
>
> - If the deployment operation fails at some point, you can choose to only reconfigure the Management Agents, and not copy the software binaries all over again. To only reconfigure the Management Agents, repeat the instructions outlined in this procedure, but for Step (6) ensure that you select only **Configure Agent and Plug-In Software**.
>
> - When the operation is in progress, if a Management Agent being deployed and configured becomes unavailable for some reason, you may see the status *Suspended on Event*. Once the Management Agent becomes available, the status automatically changes to show the current state. This is an expected behavior.
>
> - If the credentials entered in Step (10) are incorrect, then the step for running the `root.sh` script fails in the predeployment job, but the job as such shows that it is successful. In this case, manually run the `root.sh` script using the correct root credentials. Otherwise, the Management Agent will result in NMO errors.
>
> - In case you have issues, review the log files mentioned in Appendix M.

11.2 Generating a Health Report of Deployed Oracle Management Agents 12c Release 5 (12.1.0.5)

Before you switch over from your old, existing Management Agent to the newly deployed and configured Oracle Management Agent 12*c*, generate a report to check the health and the readiness of the deployed Management Agents so that any issues with the deployment can be identified beforehand.

For all the Management Agents to switch over successfully and function properly in the upgraded Enterprise Manager system, you must ensure that the Management Agents are in a position to contact the upgraded Oracle Management Service, monitor all the targets they monitored before, and collect all the metrics details they collected before. The health report helps in identifying any issues related to these requirements so that you can resolve them beforehand.

> **Note:** Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

> **Note:** You can generate health reports only for Management Agents that have been successfully deployed and configured.

To generate a health report of the deployed Management Agents and check their readiness, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Agent Upgrade Steps section, from the table, click **Generate Health Report of Deployed Agents**.

4. On the Generate Health Report for Deployed Agents page, in the Provide Inputs section, do the following:

    a. Enter a unique name for the deployment operation you are about to perform. The custom name you enter can be any intuitive name, and need not necessarily be in the same format as the default name.

        For example, `CheckHealth_Agents_Phase1_2015_7_23`.

        > **Note:** The operation name you enter here is only a logical name and will be used for saving the details of the operation you are about to perform. After checking the health of the deployed Management Agents, at a later point in time, if you want to switch over from old to newly deployed and configured Management Agents, then you can use the operation name to identify and track the Management Agents selected as part of this operation.

    b. If you want to perform the readiness check for the Management Agents you had previously deployed, then click the torch icon against **Load Agents from Previous Operations**, and select the operation you had submitted for deploying those Management Agents, click **Go**.

        Enterprise Manager Grid Control populates the table in the Search Agents section with a list of Management Agents that are associated with the operation you selected.

5. In the Search Agents section, search and add the Management Agents for which you want to perform the readiness check:

    ■ If you specified a readiness operation name as described in Step 4 (a), then search (or add) and select the existing, old Management Agents for which you have already deployed the software and for which you want to check the health now. To understand how to search and add Management Agents, see Appendix H.

    ■ If you selected a deployment operation as described in Step 4 (b), then review the Management Agents that are displayed based on the operation you selected.

6. After you add the Management Agents, select each of them from the **Select** column.

7. In the Agent Credentials section, retain the default selection, that is, **Use Oracle Home Preferred Credentials**, so that the preferred credentials stored in the Management Repository can be used for this job.

> **Note:** Ensure that the preferred credentials were registered with the Enterprise Manager system using the Enterprise Manager Command Line Interface (EM CLI). For more information, see Appendix F.

You can optionally override these preferred credentials. To do so, select **Override Oracle Home Preferred Credentials** and enter one set of credentials that can be used for all Oracle homes.

> **Note:** Ensure that you use the same credentials that you used for the existing, earlier release of the Management Agent

8. Click **Submit**.

> **Note:**
>
> - After you submit the operation, if you see the following error, then first run `root.sh` from the old Management Agent home, and then, resubmit this operation.
>
>   `ERROR: NMO not setuid-root (Unix-only)`
>
> - If you see the following error, then verify the credentials entered in Step (10).
>
>   `Local Authentication Failed...Attempt PAM authentication...PAM failed . . .`
>
> - When the operation is in progress, if a Management Agent for which you are performing a readiness check becomes unavailable for some reason, you may see the status *Suspended on Event*. Once the Management Agent becomes available, the status automatically changes to show the current state. This is an expected behavior.
>
> - If you were monitoring a SOA target in your earlier release of Enterprise Manager, then in the health report, you might see metric collection errors for the following metrics:
>
>   - Top SOA SQL Queries
>   - Dehydration Store Tables
>
>   At this stage, you can ignore these errors and proceed further. However, ensure that you provide the database credentials for this target as described in Section 13.6.
>
> - In case you have issues, review the log files mentioned in Appendix M.

11.3 Verifying and Signing Off the Health Report of Deployed Oracle Management Agents 12c Release 5 (12.1.0.5)

Before you switch over from your old, existing Management Agent to the newly deployed and configured Oracle Management Agent 12*c*, verify and sign off the health report of deployed Management Agents.

For all the Management Agents to switch over successfully and function properly in Enterprise Manager Cloud Control, you must ensure that the Management Agents are in a position to contact the upgraded Oracle Management Service (OMS), monitor all the targets they monitored before, and collect all the metrics details they collected before. The health report helps in identifying any issues related to these requirements so that you can resolve them beforehand.

> **Note:** Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

To verify and sign off the health report, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Agent Upgrade Steps section, from the table, click **Sign Off Health Report for Deployed Agents**.

4. On the Sign Off Health Report for Deployed Agents page, view the health and the readiness details for each of the Management Agents.

   - Verify the **Ping Test** column, which indicates whether or not the deployed Oracle Management Agent 12*c* will be able to contact the upgraded OMS.

Note:

For 1-System upgrade approach and 1-System upgrade approach on a different host, in the **Ping Test** column, you will see the value *N/A*.

For 2-System upgrade, you will see either *Passed* or *Failed*. The status *Passed* indicates that the ping test was successful, and the status *Failed* indicates that the test was unsuccessful. If you see the status *Failed* for any Management Agent, then do the following:

- Verify the OMS host name and OMS port entered in the Identify Host and Port for New Enterprise Manager System page.

  Alternatively, verify the REPOSITORY_URL parameter in the following file:

  `<Agent_Instance_Home>/sysman/config/emd.properties`

  For example,

  /u01/app/Oracle/agent/agent_
  inst/sysman/config/emd.properties

  If the OMS host name and port are correct, then check for errors in the following log file:

  `<Agent_Instance_Home>/sysman/log/gcagent.log`

  For example,

  /u01/app/Oracle/agent/agent_inst/sysman/log/gcagent.log

  Here, `<Agent_Instance_Home>` refers to the 12*c* agent instance directory as described in *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

- If any Management Agent is in unsecure mode, and if you have already upgraded the OMS, then run these commands on the upgraded OMS (12*c* OMS), generate the health check report again, and then switch over:

  ` $<OMS_HOME>/bin/emctl secure unlock -console`

  For example,

  /u01/app/Oracle/Middleware/oms/bin/emctl secure unlock -console

  `$<OMS_HOME>/bin/emctl secure unlock -upload`

  For example

  /u01/app/Oracle/Middleware/oms/bin/emctl secure unlock -upload

---

Caution: If your old Management Agent was running in secure (or unsecure) mode before backing up the Management Repository in case of the 2-System upgrade approach, then ensure that it continues to run in the same mode while you deploy and configure the new Management Agent for it. Otherwise, the ping test can fail due to a mismatch between the configuration stored in the repository and the actual configuration of the Management Agent.

- Verify the **Broken Targets** column, which indicates whether or not the deployed Oracle Management Agent 12*c* will be in a position to monitor all the targets that were monitored earlier by the old Management Agent. The numeric value you see in the column indicates the number of targets that cannot be monitored in the upgraded system.

  If you see any value other than 0, then view the detailed report (as described in the next step) to see a list of broken targets and the reasons why they are broken.

- Verify the **Failed Metrics** column, which indicates whether or not the deployed and configured Oracle Management Agent 12*c* will be able to collect all the metrics in the upgraded Enterprise Manager system. The numeric value you see in the column indicates the number of metrics that have an issue.

  If you see any value other than 0, then view the detailed report (as described in the next step) to see a list of failed metrics and the reasons for their failure.

- Verify the **Sign-Off User** column and the **User Verified** Column, which indicate whether or not the health report was signed off for a Management Agent. If you do not see any value in these columns, then formally sign off the report as described in Step (6).

5. If you want to view a detailed report, select the Management Agent for which you want to view a detailed report, and click **View Detailed Report**.

6. After checking the report, click **Verify and Sign Off Report** to sign off. Ensure that the Management Agent for which you viewed a detailed report is selected.

Note:

- After you submit the operation, if you see the following error, then first run `root.sh` from the old Management Agent home, and then, resubmit this operation.

  ```
  ERROR: NMO not setuid-root (Unix-only)
  ```

- If you see the following error, then verify the credentials entered in Step (10).

  ```
  Local Authentication Failed...Attempt PAM authentication...PAM
  failed . . .
  ```

- If you were monitoring a SOA target in your earlier release of Enterprise Manager, then in the health report, you might see metric collection errors for the following metrics:

  - Top SOA SQL Queries
  - Dehydration Store Tables

  At this stage, you can ignore these errors and proceed further.

11.4 Switching Over to Oracle Management Agent 12c Release 5 (12.1.0.5)

This section covers the following:

- Switching Over to Oracle Management Agent 12c Release 5 (12.1.0.5)

■ Troubleshooting Issues Related to Switching Over to Oracle Management Agent 12c Release 5 (12.1.0.5)

11.4.1 Switching Over to Oracle Management Agent 12c Release 5 (12.1.0.5)

To switch over the existing, earlier release of Oracle Management Agents (Management Agent) to the newly deployed Management Agents, so that they can communicate with Enterprise Manager Cloud Control, follow these steps:

> **Note:** Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

> **Note:**
>
> ■ If you are upgrading using the 2-system upgrade approach or the 1-system upgrade approach on a different host, then do NOT select the old central agent, that is, the Management Agent installed with the old OMS, for switchover.
>
> If you want to continue monitoring the targets that were monitored by the central agent, then follow the instructions outlined in Section 13.14.
>
> ■ If the agent configuration has changed after backup, then you must redeploy and reconfigure the Management Agents. If this is already done after the configuration changes, but you still see an error during the switchover process, then log out and log in to the Enterprise Manager Grid Control Console (old EM Console) and retry the switchover process.
>
> ■ Do not stop or cancel a switchover job and resubmit it immediately for the same set of Management Agents. If you are forced to do so, then first restart the database to make sure all lingering process are cleaned before a resubmission of the switchover operation.

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Agent Upgrade Steps section, from the table, click **Switch Agents**.

4. On the Switch Agents page, in the Provide Inputs section, do the following:

   a. Enter a unique name for the switchover operation you are about to perform. The custom name you enter can be any intuitive name, and need not necessarily be in the same format as the default name.

   For example, `Switch_Agents_Phase1_2015_7_23`

   > **Note:** The operation name you enter here is only a logical name and will be used for saving the details of the operation you are about to perform. After submitting this operation, if you want to track its status, then you can use the operation name.

b. If you want to switch over the Management Agents for which you had previously performed a readiness check, then click the torch icon against **Load Agents from Previous Operations**, and select the operation you had submitted for performing the readiness check for those Management Agents, click **Go**.

Enterprise Manager Grid Control populates the table in the Search Agents section with a list of Management Agents that are associated with the operation you selected.

5. In the Search Agents section, search and add the Management Agents you want to switch over:

- If you specified a switchover operation name as described in Step 4 (a), then search (or add) and select the deployed Management Agents that you want to switch over now. To understand how to search and add Management Agents, see Appendix H.

Note: If you are upgrading using the 2-system upgrade approach or the 1-system upgrade approach on a different host, then do NOT select the old central agent, that is, the Management Agent installed with the old OMS, for switchover. If you want to continue monitoring the targets that were monitored by the central agent, then follow the instructions outlined in Section 13.14.

- If you selected an operation name as described in Step 4 (b), then review the Management Agents that are displayed based on the operation you selected.

6. After you add the Management Agents, select each of them from the **Select** column.

7. In the Agent Credentials section, retain the default selection, that is, **Use Oracle Home Preferred Credentials**, so that the preferred credentials stored in the Management Repository can be used for this job.

Note: Ensure that the preferred credentials were registered with the Enterprise Manager system using the Enterprise Manager Command Line Interface (EM CLI). For more information, see Appendix F.

You can optionally override these preferred credentials. To do so, select **Override Oracle Home Preferred Credentials** and enter one set of credentials that can be used for all Oracle homes.

Note: Ensure that you use the same credentials that you used for the existing, earlier release of the Management Agent

---

8. Click **Submit**.

Note: If you have any issues with the switchover operation, then troubleshoot them as described in Section 11.4.2. In case of other issues, review the log files mentioned in Appendix M.

---

9. *(Applicable Only for 2-System Upgrade Approach and 1-System Upgrade Approach on a Different Host)* After the switchover, delete the central agents as described in Section 13.13.

   After deleting the central agents, if you want to continue monitoring the targets that were monitored by them, then follow the instructions outlined in Section 13.14.

11.4.2 Troubleshooting Issues Related to Switching Over to Oracle Management Agent 12c Release 5 (12.1.0.5)

The following are some common issues and workarounds related to the switchover operation:

- After you submit the operation, if you see the following error, then first run `root.sh` from the old Management Agent home, and then, resubmit this operation.

  ```
  ERROR: NMO not setuid-root (Unix-only)
  ```

- If you see the following error, then verify the credentials entered in Step (10) of Section 11.1.

  ```
  Local Authentication Failed...Attempt PAM authentication...PAM failed . . .
  ```

- If the *Run Presync* step of the switchover operation fails, then you will see the following error in the `emoms.trc` trace file. This is possible if your database domain name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate). For example, a database domain name with a hyphen (-) can result in this issue.

  ```
  ORA-20000: Found exception Error Message :ORA-02083: database name has illegal
  character '-' Error Number ;-2083
  ```
  To resolve this issue, follow the instructions outlined in Section L.2. If the database domain name has an illegal character, such as a hyphen, then correct it.

- When the operation is in progress, if a Management Agent being deployed and configured becomes unavailable for some reason, you may see the status *Suspended on Event*. Once the Management Agent becomes available, the status automatically changes to show the current state, and eventually gets switched over. This is an expected behavior.

- In the 2-System upgrade approach, all the old Management Agents you selected are switched over, and the upgraded Management Agents are started so that they can communicate with the upgraded OMS.

- In the 1-System upgrade approach, if you missed switching over any Management Agent and upgraded the OMS inadvertently, then you must manually switch over those Management Agents by first stopping the old Management Agents and then starting the new ones:

  (a) Stop the old Management Agent home:

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

  (b) Start the deployed Oracle Management Agent 12*c* from its instance home:

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

- Even after switching over a Management Agent, if the status shows that it is down, then manually start it:

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

- While switching over a deployed Management Agent to the new Enterprise Manager system, the switchover job might fail at the *uploadAgent* step. If the step fails with that error, then do the following:

  1. On the Management Agent host, run the following command:

     ```
     cat /dev/null > access_log
     ```

  2. From the Management Agent instance home, run the following command and verify if the upload operation succeeds. Repeat this command until the upload operation succeeds.

     ```
     $<AGENT_INSTANCE_HOME>/bin/emctl upload agent
     ```

  3. Once the upload operation succeeds, access the Preupgrade Console from your Enterprise Manager Grid Control console, and in the Agent Upgrade Steps section, click **Switch Agents.**

  4. On the Switch Agents page, select the Management Agent that had the error, and submit the switchover job again.

- In case of other issues, review the log files mentioned in Appendix M.

12

Upgrading Oracle Management Service and Oracle Management Repository 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

This chapter describes the different ways of upgrading Oracle Management Service (OMS) and Oracle Management Repository (Management Repository) of 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1). Select the one that best suits your requirement, and follow the instructions outlined in the respective section.

This chapter describes the following:

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) in Graphical Mode

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) in Silent Mode

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method in Graphical Mode

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method in Silent Mode

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 1-System Upgrade Approach on a Different Host

- Upgrading a Multi-OMS Environment of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

12.1 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) in Graphical Mode

This section describes how you can upgrade your existing OMS and Management Repository of 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5) in graphical mode using one of the upgrade approaches.

In particular, this section describes the following:

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 1-System Upgrade Approach in Graphical Mode

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 2-System Upgrade Approach in Graphical Mode

---

Note: You can find the OMS and Management Agent entries in the `/etc/oragchomelist` file for all UNIX platforms except HPUNIX, HPia64, Solaris Sparc. On HPUNIX, HPia64, Solaris Sparc platforms, the entries are present in `/var/opt/oracle/oragchomelist`.

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:

```
<OMS_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 < emkey file>
```

- If your OMS is not configured with a service name, then run the following command:

```
<OMS_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 <emkey file>
```

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.

12.1.1 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 1-System Upgrade Approach in Graphical Mode

---

Note: When you upgrade using the 1-System upgrade approach, the Enterprise Manager Cloud Control Installation Wizard neither installs a new Management Agent with the OMS it installs, nor upgrades the existing Management Agent. The Management Agent is predeployed using the *Preupgrade Console*. This is an expected behavior.

To upgrade your existing OMS and Management Repository with 1-System upgrade approach in graphical mode, follow these steps:

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

```
<Software_Location>/runInstaller
```

In this command, `<Software_Location>` refers to the location where you have extracted the software kit.

Note:

- For information about the additional, advanced options you can pass while invoking the installer, refer to Section 5.1.1.

- To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe.`

- When you invoke `runInstaller` or `setup.exe,` if the Enterprise Manager Cloud Control Installation Wizard does not appear, then it is possible that you do not have access to the `/stage` directory.

  There is a classpath variable that the installation wizard computes for OPatch as `../stage/Components/,` and when the TEMP variable is set to `/tmp,` the installation wizard tries to look for the opatch JAR file in the `/tmp/../stage` directory, which is equivalent to `/stage.` However, if you do not have the permission on `/stage,` then the installation wizard can hang. Under such circumstances, verify if you have access to the `/stage` directory. If you do not have access to it, then set the TEMP variable to a location where the install user has access, and then relaunch the installation wizard.

- 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,

  ```
  ./runInstaller -skipJDKValidation
  ```

---

2. (Optional) On the My Oracle Support Details screen, enter your *My Oracle Support* credentials to enable Oracle Configuration Manager. If you do not want to enable Oracle Configuration Manager now, go to Step (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*.

Note: Beginning with Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3), My Oracle Support accesses support.oracle.com directly. This means that you must provide network access to this URL, or grant proxy access to it from any client that will access My Oracle Support.

---

3. Click **Next**.

4. On the Software Updates screen, apply the latest software updates, including the latest PSU patches.

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. Click **Next**.

6. 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.

   The installation wizard runs the prerequisite checks automatically when you come to this screen. It checks for the required operating system patches, operating system packages, and so on.

   The status of the prerequisite check can be either **Warning**, **Failed**, or **Succeeded**.

   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.

7. Click **Next**.

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*.

---

8. On the Install Types screen, select **Upgrade an Existing Enterprise Manager System**, then select **One System Upgrade**. Then select the OMS home you want to upgrade.

9. Click **Next**.

10. On the Installation Details screen, do the following:

    a. Enter or validate the Middleware home.

Note:

- If you do not have Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0 installed, then enter the absolute path to a directory where you want the installer to install them. For example, /oracle/software/. Ensure that the directory you enter does not contain any files or subdirectories.

- If you have Oracle WebLogic Server and JDK already installed, then ensure that they are of the supported releases—Oracle WebLogic Server 11g Release 1 (10.3.6) and JDK 1.6.0.43.0. In this case, the installer detects them and displays the Middleware home where they are installed. Validate the path to this Middleware home. The installer detects and displays only those Middleware homes where Enterprise Manager is not already configured.

- If you want to install Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0 yourself, then follow the guidelines outlined in Chapter 3.

---

   b. 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.

11. Click **Next**.

12. On the Database Connection Details screen, do the following:

- 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 Oracle Management Repository (Management Repository). 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

---

   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*.

---

13. Click **Next**.

> **Note:** If you encounter a Provisioning Archive Framework (PAF)
> prerequisite check error, then exit the installer, stop all the running
> and scheduled deployment procedures in your existing Enterprise
> Manager system, invoke the installer all over again, and retry the
> upgrade process.
>
> To identify all running and scheduled deployment procedures, run the
> following query, and note down the GUID of the deployment
> procedures.
>
> ```
> SELECT i.instance_guid FROM SYSMAN.MGMT_PAF_STATES s,
> SYSMAN.MGMT_PAF_INSTANCES i, SYSMAN.MGMT_PAF_PROCEDURES p
> WHERE p.procedure_guid = i.procedure_guid AND s.instance_
> guid = i.instance_guid AND s.state_type = 0 AND s.status in
> (0,1)
> ```
>
> To stop the running or scheduled deployment procedures, run the
> following query, and pass the GUID you noted down from the output
> of the preceding command:
>
> ```
> emcli stop_instance -instance=<instance id from sql query>
> ```

---

14. 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 installed while upgrading the
    OMS.

> **Note:** The pre-selected rows might also include the plug-ins you installed while predeploying Oracle Management Agent 12*c* using the *Preupgrade Console*.
>
> However, if the pre-selected rows do not include the plug-ins you installed then, it means that those plug-ins are not available in the software kit (DVD, downloaded software).
>
> If you want to install the plug-ins that are not listed on this screen, then follow these steps:
>
> 1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
>
>   http://www.oracle.com/technetwork/oem/grid-control/downlo ads/oem-upgrade-console-502238.html
>
> 2. Expand the section that lists the software binaries and plug-ins for your upgrade path.
>
> 3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.
>
> 4. Invoke the installer with the following option, and pass the location where the plug-ins you downloaded are available:
>
>   ./runInstaller -pluginLocation <absolute_path_to_plugin_ software_location>
>
> You might have a plug-in version deployed to the earlier release of Enterprise Manager that is not supported in Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5). In this case, when you invoke the installer with -pluginLocation argument, make sure you do NOT provide the software of the higher version of the unsupported plug-in even if the higher version is available for download. This ensures that the unsupported version is removed while upgrading to 12c Release 5 (12.1.0.5). After you upgrade, you can deploy the higher version directly from the Plug-In Manager.

15. Click **Next**.

16. Provide WebLogic Server Configuration Details

- If you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5), then on the WebLogic Server Configuration Details screen, enter the credentials for the WebLogic Server user account and the Node Manager user account, and validate the path to the OMS instance base location.

  > **Note:**
  >
  > - Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.
  >
  > - 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 5.1.4.

By default, the WebLogic Domain name is `GCDomain`, and the Node Manager name is `nodemanager`. These are non-editable fields. The installer uses this information for creating Oracle WebLogic Domain and other associated components such as the admin server, the managed server, and the node manager. A Node Manager enables you to start, shut down, or restart an Oracle WebLogic Server instance remotely, and is recommended for applications with high availability requirements.

- If you are upgrading from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), then 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 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 5.1.4.

- If you are upgrading an additional OMS from 10g Release 5 (10.2.0.5) or from 11g Release 1 (11.1.0.1), 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.

Note:

- The password you enter in this screen is not validated by the installer, so make sure you enter the correct password.

- IIf 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 5.1.4.

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

---

17. Click **Next**.

18. On the Tablespace Location screen, validate the location where the data file (`mgmt_deepdive.dbf`) for JVM Diagnostics data tablespace can be stored. You can choose to edit it if you want. In that case, ensure that the path leads up to the file name. Enterprise Manager Cloud Control requires this data file to store monitoring data related to JVM Diagnostics and Application Dependency Performance (ADP).

> **Note:** This screen appears only if you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5).

19. Click **Next**.

20. Provide the port configuration details:

   - If you are upgrading from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), then you will NOT see the Port Configuration Details screen because the ports used by the old OMS will be reused by the upgraded OMS. Hence, go to Step (22).

   - If you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5), then on the Port Configuration Details screen, customize the ports to be used for various components.

   > **Note:**
   >
   > - By default, this screen lists the default ports for all the core components. However, if you are upgrading an additional OMS, then the screen does not list the Admin Server HTTP SSL port because you will reuse the Admin Server configured for the first OMS.
   >
   > - 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 -anp | 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
   > ```

21. Click **Next**.

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

    a. If you want to change the details, click **Back** repeatedly until you reach the screen where you want to make the changes.

    b. After you verify the details, if you are satisfied, click **Install** to begin the upgrade.

23. 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 the OMS Configuration Assistant fails with an exception, particularly when you are upgrading from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), then stop the AdminServer and try again. To stop the AdminServer, run the following command on each of the OMS hosts:
>
> ```
> $<OMS_HOME>/bin/emctl stop oms -all
> ```

> **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 accidently 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 OMS home to rerun the Configuration Assistant in silent mode:
>
> ```
> $<OMS_HOME>/oui/bin/runConfig.sh ORACLE_HOME=<absolute_path_
> to_OMS_home> 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.

24. 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.

25. 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.

> **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
> ```

12.1.2 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 2-System Upgrade Approach in Graphical Mode

> **Caution:** For 2-system upgrade approach, Oracle recommends that you use a clean, fresh host for installing Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5). Therefore, ensure that the host does not already have any Management Agent installed on it.
>
> If you attempt to install on a host that already has a Management Agent, then the new Management Agent installed as part of the 2-system upgrade process will not be able to register the same host again as a target. This is because the existing Management Agent would have already registered the host as a target in your old Management Repository, and when you clone this Management Repository and upgrade it as part of the 2-system upgrade process, the entry for this host will continue to exist, that is, even after the cloned Management Repository is upgraded. And as a result, when the new Management Agent attempts to upload data, it will not be able to register this host again.
>
> If you are forced to use a host that already has a Management Agent installed on it, then first deinstall the existing Management Agent, and clean up information related to it and the targets monitored by it, from the Management Repository. And then start the 2-system upgrade on that host. For instructions to deinstall and clean up the existing Management Agent, see the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*
>
> If you accidentally installed Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) on a host that already has a Management Agent on it, then follow the workaround provided in Section 13.1.

To upgrade your existing OMS and Management Repository with 2-System upgrade approach in graphical mode, follow these steps:

1. Invoke the Enterprise Manager Cloud Control Installation Wizard on the host where you plan to install Oracle Management Service 12*c*:

   ```
   <Software_Location>/runInstaller [ALLOW_ONLY_SECURE_ACCESS_TO_
   CONSOLE=FALSE LOCK_ORACLE_MANAGEMENT_SERVICE=FALSE]
   ```

   In this command, `<Software_Location>` refers to the location where you have downloaded the software kit.

Note:

- For information about the additional, advanced options you can pass while invoking the installer, refer to Section 5.1.1.

- To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe`.

- Ensure that the host on which you are invoking the installer matches with the host you entered in the *Preupgrade Console*.

  If you are invoking the installer on a different host, and if you choose to modify the host name in the *Preupgrade Console*, then follow these steps:

  1. Exit the installer.

  2. Discard the backed up database.

  3. Access the *Preupgrade Console*:

     (a) On the Identify Host and Port for New Enterprise Manager System page, change the host name. For instructions, see Section 10.2.

     (b) On the Deploy and Configure Agents page, reconfigure the Management Agents that have already been deployed. For instructions, see Section 11.1.

     Important: On the Deploy and Configure Agents page, in the Select Operation Type section, ensure that you deselect **Deploy Agent and Plug-In Software**.

  4. Take a fresh backup of the database now.

  5. Invoke the installer all over again, and retry the upgrade process.

Note: When you invoke `runInstaller` or `setup.exe`, if the Enterprise Manager Cloud Control Installation Wizard does not appear, then it is possible that you do not have access to the `/stage` directory.

There is a classpath variable that the installation wizard computes for OPatch as `../stage/Components/`, and when the TEMP variable is set to `/tmp`, the installation wizard tries to look for the opatch JAR file in the `/tmp/../stage` directory, which is equivalent to `/stage`. However, if you do not have the permission on `/stage`, then the installation wizard can hang. Under such circumstances, verify if you have access to the `/stage` directory. If you do not have access to it, then set the TEMP variable to a location where the install user has access, and then relaunch the installation wizard.

> **Note:** 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,
>
> ```
> ./runInstaller -skipJDKValidation
> ```

2. (Optional) On the My Oracle Support Details screen, enter your *My Oracle Support*
   credentials to enable Oracle Configuration Manager. If you do not want to enable
   Oracle Configuration Manager now, go to Step (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*.

   > **Note:** Beginning with Enterprise Manager Cloud Control 12c Release
   > 3 (12.1.0.3), My Oracle Support accesses support.oracle.com directly.
   > This means that you must provide network access to this URL, or
   > grant proxy access to it from any client that will access My Oracle
   > Support.

3. Click **Next**.

4. On the Software Updates screen, apply the latest software updates, including the
   latest PSU patches.

   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. Click **Next**.

   If Enterprise Manager Cloud Control is the first Oracle product you are installing
   on the host that is running on UNIX operating system, then the Oracle Inventory
   screen appears. For details, see step (6). Otherwise, the Check Prerequisites screen
   appears. For details, see step (8).

   If Enterprise Manager Cloud Control is the first Oracle product you are installing
   on the host that is running on Microsoft Windows operating system, then the
   Oracle Inventory screen does not appear. On Microsoft Windows, the following is
   the default inventory directory:

   ```
   <system drive>\Program Files\Oracle\Inventory
   ```

6. On the Oracle Inventory screen, do the following. You will see this screen only if
   this turns out to be your first ever installation of an Oracle product on the host.

   a. Enter the full path to a directory where the inventory files and directories can
      be placed.

> **Note:**
>
> If this is the first Oracle product on the host, then the default central inventory location is `<home directory>/oraInventory`. However, if you already have some Oracle products on the host, then the central inventory location can be found in the `oraInst.loc` file. The `oraInst.loc` file is located in the `/etc` directory for Linux and AIX, and in the `/var/opt/oracle` directory for Solaris, HP-UX, and Tru64.

    b. Select the appropriate operating system group name that will own the Oracle inventory directories. The group that you select must have *write* permissions on the Oracle Inventory directories.

7. Click **Next**.

8. 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.

The installation wizard runs the prerequisite checks automatically when you come to this screen. It checks for the required operating system patches, operating system packages, and so on.

The status of the prerequisite check can be either **Warning**, **Failed**, or **Succeeded**.

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.

9. Click **Next**.

> **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*.

10. On the Installation Types screen, select **Upgrade an Existing Enterprise Manager System**, then select **Two System Upgrade**.

11. Click **Next**.

12. On the Installation Details screen, do the following:

    a. Enter or validate the Middleware home where you want to install the OMS and other core components.

> **Note:**
>
> - If you have Oracle WebLogic Server and Java Development Kit already installed, then ensure that they are of the supported releases—Oracle WebLogic Server 11g Release 1 (10.3.6) and JDK 1.6.0.43.0. If you have the supported releases, the installer automatically detects them and displays the absolute path to the Middleware home where they are installed. In this case, validate the Middleware home. If the location is incorrect, then enter the path to the correct location. Ensure that the Middleware home you select or enter is a Middleware home that does not have any Oracle homes.
>
> - If you do not have Oracle WebLogic Server 11g Release 1 (10.3.6) and JDK 1.6.0.43.0, then the installer automatically installs them for you while installing the Enterprise Manager system. In this case, enter the absolute path to a directory where you want to have them installed. For example, `/oracle/software/`. Ensure that the directory you enter does not contain any files or subdirectories.
>
> - If you want to install Oracle WebLogic Server 11g Release 1 (10.3.6) and Java Development Kit 1.6 v24 yourself, then follow the guidelines outlined in Chapter 3.

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

    c. Validate the name of the host where you want to configure the OMS.

       The host name appears as a fully qualified name, or as a virtual host name if your host is configured with virtual machine. If the installation wizard was invoked with a value for ORACLE_HOSTNAME, then this field is prepopulated with that name.

       Accept the default host name, or enter a fully qualified domain name that is registered in DNS and is accessible from other network hosts. Oracle recommends that you use a fully qualified domain name.

> **Note:** 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.

13. On the Database Connection Details screen, enter the fully qualified name of the host where the backed up database resides, its listener port and its service name or system ID (SID), and the SYS and SYSMAN user account passwords.

> **Note:** Oracle Real Application Cluster (Oracle RAC) nodes are referred to by their virtual IP (vip) names. The `service_name` parameter is used instead of the system identifier (SID) in `connect_data` mode, and failover is turned on. For more information, refer to *Oracle Database Net Services Administrator's Guide*.

The installer uses this information to connect to the backed up database for upgrading the SYSMAN schema. SYSMAN schema holds most of the relational data used in managing Enterprise Manager Cloud Control.

> **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*.

14. Click **Next**.

Note:

- If you are connecting to an Oracle RAC database, and if you have entered the virtual IP address of one of its nodes, then the installation wizard prompts you with a Connection String dialog and requests you to update the connection string with information about the other nodes that are part of the cluster. Update the connection string and click **OK**. If you want to test the connection, click **Test Connection**.

- Oracle Real Application Cluster (Oracle RAC) nodes are referred to by their virtual IP (vip) names. The `service_name` parameter is used instead of the system identifier (SID) in `connect_data` mode, and failover is turned on. For more information, refer to *Oracle Database Net Services Administrator's Guide*.

- If you encounter a Provisioning Archive Framework (PAF) prerequisite check error, then do the following:

    - Exit the installer, run the following SQL command on the backed up database, invoke the installer all over again, and retry the upgrade process.

      ```
      UPDATE MGMT_PAF_STATES
      SET status = 6
      WHERE state_type = 0
      AND status IN (0, 1);
      ```

    - Exit the installer, discard the backed up database, stop all the running and scheduled deployment procedures in your existing Enterprise Manager system, take a fresh backup of the database now, invoke the installer all over again, and retry the upgrade process.

- If you encounter any validation error, then follow these steps:

    1. Exit the installer.

    2. Discard the backed up database.

    3. Resolve the issue in the *Preupgrade Console*.

    4. Take a fresh backup of the database now.

    5. Invoke the installer all over again, and retry the upgrade process.

- If you see a warning asking you to unlock the MGMT_VIEW user account and change the password, ignore it because the installer automatically unlocks it for you.

15. On the Select Plug-ins screen, select the optional plug-ins you want to install from the software kit (DVD, downloaded software) while installing the Enterprise Manager system.

    The pre-selected rows are mandatory plug-ins that will be installed by default. Select the optional ones you want to install or upgrade.

> **Note:** The pre-selected rows might also include the plug-ins you installed while predeploying Oracle Management Agent 12*c* using the *Preupgrade Console*.
>
> However, if the preselected rows do not include the plug-ins you installed then, it means that those plug-ins are not available in the software kit (DVD, downloaded software).
>
> If you want to install the plug-ins that are not listed on this screen, then follow these steps:
>
> 1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
>
>   http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html
>
> 2. Expand the section that lists the software binaries and plug-ins for your upgrade path.
>
> 3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.
>
> 4. Invoke the installer with the following option, and pass the location where the plug-ins you downloaded are available:
>
>   `./runInstaller -pluginLocation <absolute_path_to_plugin_software_location>`
>
> You might have a plug-in version deployed to the earlier release of Enterprise Manager that is not supported in Enterprise Manager Cloud Control 12*c* Release 5 (12.1.05). In this case, when you invoke the installer with `-pluginLocation` argument, make sure you do NOT provide the software of the higher version of the unsupported plug-in even if the higher version is available for download. This ensures that the unsupported version is removed while upgrading to 12*c* Release 5 (12.1.0.5). After you upgrade, you can deploy the higher version directly from the Plug-In Manager.

16. Click **Next**.

17. On the WebLogic Server Configuration Details screen, enter the credentials for the WebLogic Server user account and the Node Manager user account, and validate the path to the Oracle Management Service instance base location.

> **Note:**
>
> ■ Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.
>
> ■ 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 5.1.4.

By default, the WebLogic Domain name is `GCDomain`, and the Node Manager name is `nodemanager`. These are non-editable fields. The installer uses this information

for creating Oracle WebLogic Domain and other associated components such as the admin server, the managed server, and the node manager. A Node Manager enables you to start, shut down, or restart an Oracle WebLogic Server instance remotely, and is recommended for applications with high availability requirements.

18. Click **Next**.

> **WARNING:** Verify the value set to the **GLOBAL_NAMES** parameter on both the databases:
>
> - **If the GLOBAL_NAMES parameter is set to FALSE on both the databases, then ensure that you do not change this value until the upgrade is complete, and all the Management Agents are switched over.**
>
> - **If the GLOBAL_NAMES parameter is set to TRUE on even one of the databases, and if both the databases have the same value for the GLOBAL_NAME parameter, then change the value of the GLOBAL_NAME parameter set on the new, cloned database to a value that is different from the one set on the old database.**

---

19. On the Old Repository Details screen, validate the connect string and enter the SYSMAN password of the old Management Repository.

The details are used to connect to the old Management Repository, check for accrued data, and seamlessly transfer it to the upgraded Management Repository. Accrued data refers to the data that was uploaded to the old Management Repository from the time it was backed up till the time it was upgraded.

> **Note:** Typically, the connect string is prepopulated. However, if it is not prepopulated, then enter it in the following format:
>
> - With SID
>
>   ```
>   (DESCRIPTION=(ADDRESS_
>   LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_
>   name>)(PORT=<port>)))(CONNECT_DATA=(SID=<sid>)))
>   ```
>
> - With Service Name
>
>   ```
>   (DESCRIPTION=(ADDRESS_
>   LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_
>   name>)(PORT=<port>)))(CONNECT_DATA=(SERVICE_
>   NAME=<service_name>)))
>   ```

---

20. Click **Next**.

21. On the Tablespace Location screen, validate the location where the data file (`mgmt_deepdive.dbf`) for JVM Diagnostics data tablespace can be stored. You can choose to edit it if you want. In that case, ensure that the path leads up to the file name. Enterprise Manager Cloud Control requires this data file to store monitoring data related to JVM Diagnostics and Application Dependency Performance (ADP).

> **Note:** This screen appears only if you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5).

---

22. Click **Next**.

23. On the Port Configuration Details screen, customize the ports to be used for various components.

   ■ Ensure that the ports you enter for **Enterprise Manager Upload Http Port** and **Enterprise Manager Upload Http SSL Port** match with the unsecure and secure ports you entered in the *Preupgrade Console*.

   Note: If the ports mentioned in this screen are different from the ports you had entered in the *Preupgrade Console*, and if you decide to change the ports in the *Preupgrade Console*, then follow these steps:

   1. Exit the installer.
   2. Discard the backed up database.
   3. Change the ports in the *Preupgrade Console*.
   4. Take a fresh backup of the database now.
   5. Invoke the installer all over again, and retry the upgrade process.

   ■ For other components, you can enter a free custom port that is either within or outside the port range recommended by Oracle. However, the custom port must be greater than 1024 and lesser than 65535.

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

   On Unix:

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

   On Microsoft Windows:

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

   ■ 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. If you do pass this file, then ensure that the ports you enter for **Enterprise Manager Upload Http Port** and **Enterprise Manager Upload Http SSL Port** match with the unsecure and secure ports you entered in the *Preupgrade Console*.

   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.

   ---

24. Click **Next**.

25. 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.

26. On the Install Progress screen, view the overall progress (in percentage) of the installation and the status of each of the Configuration Assistants. Configuration Assistants are run for configuring the installed components of Enterprise Manager Cloud Control.

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 accidently 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 OMS home to rerun the Configuration Assistant in silent mode:

```
$<OMS_HOME>/oui/bin/runConfig.sh ORACLE_HOME=<absolute_path_
to_OMS_home> MODE=perform ACTION=configure COMPONENT_
XML={encap_oms.1_0_0_0_0.xml}
```

If the `runConfig.sh` script fails, then clean up your environment and redo the installation.

---

27. Once the software binaries are copied and configured, you are prompted to run the `allroot.sh` script, and the `oraInstRoot.sh` script if this is the first Oracle product installation on the host. 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.

28. 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.

For more information about this installation, refer to the following file available in the OMS home:

```
$<OMS_HOME>/install/setupinfo.txt
```

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
```

12.2 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) in Silent Mode

This section describes how you can upgrade your existing OMS and Management Repository of 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) in silent mode using one of the upgrade approaches.

In particular, this section describes the following:

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 1-System Upgrade Approach in Silent Mode

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 2-System Upgrade Approach in Silent Mode

---

Note: You can find the OMS and Management Agent entries in the `/etc/oragchomelist` file for all UNIX platforms except HPUNIX, HPia64, Solaris Sparc. On HPUNIX, HPia64, Solaris Sparc platforms, the entries are present in `/var/opt/oracle/oragchomelist`.

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:

  ```
  <OMS_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 < emkey file>
  ```

- If your OMS is not configured with a service name, then run the following command:

  ```
  <OMS_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 <emkey file>
  ```

  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.

12.2.1 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 1-System Upgrade Approach in Silent Mode

> **Note:** When you upgrade using the 1-System upgrade approach, the Enterprise Manager Cloud Control Installation Wizard neither installs a new Management Agent with the OMS it installs, nor upgrades the existing Management Agent. The Management Agent is predeployed using the *Preupgrade Console*. This is an expected behavior.

To upgrade your existing OMS and Management Repository with 1-System upgrade approach in silent mode, refer to Section 5.2.

12.2.2 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 2-System Upgrade Approach in Silent Mode

> **Caution:** For 2-system upgrade approach, Oracle recommends that you use a clean, fresh host for installing Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5). Therefore, ensure that the host does not already have any Management Agent installed on it.
>
> If you attempt to install on a host that already has a Management Agent, then the new Management Agent installed as part of the 2-system upgrade process will not be able to register the same host again as a target. This is because the existing Management Agent would have already registered the host as a target in your old Management Repository, and when you clone this Management Repository and upgrade it as part of the 2-system upgrade process, the entry for this host will continue to exist, that is, even after the cloned Management Repository is upgraded. And as a result, when the new Management Agent attempts to upload data, it will not be able to register this host again.
>
> If you are forced to use a host that already has a Management Agent installed on it, then first deinstall the existing Management Agent, and clean up information related to it and the targets monitored by it, from the Management Repository. And then start the 2-system upgrade on that host. For instructions to deinstall and clean up the existing Management Agent, see the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*
>
> If you accidentally installed Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) on a host that already has a Management Agent on it, then follow the workaround provided in Section 13.1.

To upgrade your existing OMS and Management Repository using 2-System upgrade approach in silent mode, follow these steps:

1. Copy the following response file to an accessible location on your local host:

    ```
    <Software_Location>/response/upgrade.rsp
    ```

In this command, `<Software_Location>` refers to the location where you have downloaded the software kit.

2. Edit the response file and enter appropriate values for the variables described in Appendix A.

3. Invoke the installer:

```
./runInstaller -silent -responseFile <absolute_path>/upgrade.rsp
-staticPortsIniFile <absolute_path_to_staticports.ini_file> [-invPtrLoc
<absolute_path_to_inventory_directory>] [ALLOW_ONLY_SECURE_ACCESS_TO_
CONSOLE=FALSE LOCK_ORACLE_MANAGEMENT_SERVICE=FALSE]
```

> **Note:** For information about the additional, advanced options you can pass while invoking the installer, refer to Section 5.2.1. To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe`. Also note that `-invPtrLoc` is not supported on Microsoft Windows.

> **Note:** 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,
>
> `./runInstaller -skipJDKValidation`

Note:

- Ensure that the host on which you are invoking the installer matches with the host you entered in the *Preupgrade Console*.

  If you are invoking the installer on a different host, and if you choose to modify the host name in the *Preupgrade Console*, then follow these steps:

  1. Exit the installer.

  2. Discard the backed up database.

  3. Access the *Preupgrade Console*, and change the host name in the Identify Host and Port for New Enterprise Manager System page.

  4. Take a fresh backup of the database now.

  5. Invoke the installer all over again, and retry the upgrade process.

  In this case, you must ensure that all the Management Agents, which were already deployed and configured through the *Preupgrade Console* before upgrading the OMS, are reconfigured with the new host name.

- In the `staticports.ini` file, ensure that the ports you enter for **Enterprise Manager Upload Http Port** and **Enterprise Manager Upload Http SSL Port** match with the unsecure and secure ports you entered in the *Preupgrade Console*.

  If you decide to change the ports in the Preupgrade Console instead, then follow these steps:

  1. Exit the installer.

  2. Discard the backed up database.

  3. Change the ports in the *Preupgrade Console*.

  4. Take a fresh backup of the database now.

  5. Invoke the installer all over again, and retry the upgrade process.

Note: 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 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
> ```

12.3 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method in Graphical Mode

This section explains how you can install only the software binaries of Enterprise Manager 12*c* Cloud Control in graphical mode at one point, and upgrade them at a later point.

In particular, this section describes the following:

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method for 1-System Upgrade Approach in Graphical Mode

- Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method for 2-System Upgrade Approach in Graphical Mode

> **Note:** You can find the OMS and Management Agent entries in the
> `/etc/oragchomelist` file for all UNIX platforms except HPUNIX,
> HPia64, Solaris Sparc. On HPUNIX, HPia64, Solaris Sparc platforms,
> the entries are present in `/var/opt/oracle/oragchomelist`.

> **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:
>
>   ```
>   <OMS_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 < emkey file>
>   ```
>
> - If your OMS is not configured with a service name, then run the
>   following command:
>
>   ```
>   <OMS_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 <emkey file>
>   ```
>
> 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.

12.3.1 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method for 1-System Upgrade Approach in Graphical Mode

This section describes how you can upgrade your OMS and Management Repository in software-only mode with 1-System upgrade approach. In particular, this section covers the following:

- Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 1-System Upgrade Approach in Graphical Mode

- Running the allroot.sh Script After Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 1-System Upgrade Approach in Graphical Mode

- Configuring and Upgrading the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 1-System Upgrade Approach in Graphical Mode

12.3.1.1 Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 1-System Upgrade Approach in Graphical Mode

To install the software binaries of Enterprise Manager Cloud Control, refer to Section 5.3.1.

12.3.1.2 Running the allroot.sh Script After Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 1-System Upgrade Approach in Graphical Mode

To run the `allroot.sh` script, refer to Section 5.3.2.

12.3.1.3 Configuring and Upgrading the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 1-System Upgrade Approach in Graphical Mode

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

1. Invoke the installation wizard by running the following script:

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

   > **Note:**
   >
   > - While installing the software binaries as described in Section 12.3.1.1, 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.

2. On the Install Types screen, do the following:

   a. Select **Upgrade an Existing Enterprise Manager System**, and then, select **One System Upgrade**.

   b. Select the OMS home you want to upgrade.

3. Click **Next**.

4. On the Database Connection Details screen,

- 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 Oracle Management Repository (Management Repository). 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.

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. Click **Next**.

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. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):

http://www.oracle.com/technetwork/oem/grid-control/downlo
ads/oem-upgrade-console-502238.html

3. Expand the section that lists the software binaries and plug-ins for your upgrade path.

4. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.

5. Invoke the `ConfigureGC.sh` script in the following way to install the downloaded plug-ins:

`<OMS_HOME>/sysman/install/ConfigureGC.sh -pluginLocation`
`<absolute_path_to_plugin_sw>`

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

You might have a plug-in version deployed to the earlier release of Enterprise Manager that is not supported in Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5). In this case, when you invoke the installer with `-pluginLocation` argument, make sure you do NOT provide the software of the higher version of the unsupported plug-in even if the higher version is available for download. This ensures that the unsupported version is removed while upgrading to 12c Release 5 (12.1.0.5). After you upgrade, you can deploy the higher version directly from the Plug-In Manager.

---

6. 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.

> **Note:** If you want to install any additional plug-ins that are not listed on this screen, then follow these steps:
>
> 1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
>
>   http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html
>
> 2. Expand the section that lists the software binaries and plug-ins for your upgrade path.
>
> 3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.
>
> 4. Invoke the installer with the following option, and pass the location where the plug-ins you downloaded are available:
>
>   `$<MIDDLEWARE_HOME>/oms/sysman/install/ConfigureGC.sh -pluginLocation <absolute_path_to_plugin_software_location>`

7. Click **Next**.

8. Provide WebLogic Server configuration details:

   - If you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5), then on the WebLogic Server Configuration Details screen, enter the credentials for the WebLogic Server user account and the Node Manager user account, and validate the path to the OMS instance base location.

     > **Note:**
     >
     > - Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.
     >
     > - IIf 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 5.1.4.

     By default, the WebLogic Domain name is `GCDomain`, and the Node Manager name is `nodemanager`. These are non-editable fields. The installer uses this information for creating Oracle WebLogic Domain and other associated components such as the admin server, the managed server, and the node manager. A Node Manager enables you to start, shut down, or restart an Oracle WebLogic Server instance remotely, and is recommended for applications with high availability requirements.

   - If you are upgrading from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), then 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 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 5.1.4.

- If you are upgrading an additional OMS from 10g Release 5 (10.2.0.5) or from 11g Release 1 (11.1.0.1), then enter the host name and port of the AdminServer configured for the first OMS, and then, enter the credentials for the existing WebLogic Server user account.

> **Note:**
>
> - The password you enter in this screen is not validated by the installer, so make sure you enter the correct password.
>
> - 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 5.1.4.

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

9. Click **Next**.

10. On the Tablespace Location screen, validate the location where the data file (`mgmt_deepdive.dbf`) for JVM Diagnostics data tablespace can be stored. You can choose to edit it if you want. In that case, ensure that the path leads up to the file name. Enterprise Manager Cloud Control requires this data file to store monitoring data related to JVM Diagnostics and Application Dependency Performance (ADP).

> **Note:** This screen appears only if you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5).

11. Click **Next**.

12. On the Port Configuration Details screen, customize the ports to be used for various components.

- If you are upgrading from Enterprise Manager 11g Grid Control Release 1 (11.1.0.1), then you will NOT see the Port Configuration Details screen because the ports used by the old OMS will be reused by the upgraded OMS. Hence, go to Step (14).

- If you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5), then on the Port Configuration Details screen, customize the ports to be used for various components.

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 -anp | 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
```

---

13. Click **Next**.

14. 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.

15. 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 OMS home to rerun the Configuration Assistant in silent mode:
>
> ```
> $<OMS_HOME>/oui/bin/runConfig.sh ORACLE_HOME=<absolute_path_
> to_OMS_home> 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.

16. 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.

> **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
> ```

12.3.2 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method for 2-System Upgrade Approach in Graphical Mode

This section describes how you can upgrade your OMS and Management Repository in software-only mode with 2-System upgrade approach. In particular, this section covers the following:

- Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Graphical Mode

- Running the allroot.sh Script After Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Graphical Mode

- Configuring and Upgrading the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Graphical Mode

> **Caution:** For 2-system upgrade approach, Oracle recommends that you use a clean, fresh host for installing Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5). Therefore, ensure that the host does not already have any Management Agent installed on it.
>
> If you attempt to install on a host that already has a Management Agent, then the new Management Agent installed as part of the 2-system upgrade process will not be able to register the same host again as a target. This is because the existing Management Agent would have already registered the host as a target in your old Management Repository, and when you clone this Management Repository and upgrade it as part of the 2-system upgrade process, the entry for this host will continue to exist, that is, even after the cloned Management Repository is upgraded. And as a result, when the new Management Agent attempts to upload data, it will not be able to register this host again.
>
> If you are forced to use a host that already has a Management Agent installed on it, then first deinstall the existing Management Agent, and clean up information related to it and the targets monitored by it, from the Management Repository. And then start the 2-system upgrade on that host. For instructions to deinstall and clean up the existing Management Agent, see the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*
>
> If you accidentally installed Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) on a host that already has a Management Agent on it, then follow the workaround provided in Section 13.1.

12.3.2.1 Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Graphical Mode

To install the software binaries, follow the steps outlined in Section 5.3.1.

12.3.2.2 Running the allroot.sh Script After Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Graphical Mode

To run the `allroot.sh` script, Section 5.3.2.

12.3.2.3 Configuring and Upgrading the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Graphical Mode

To configure and upgrade your existing Enterprise Manager system, follow these steps:

1. Invoke the installation wizard by running the following script:

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

> **Note:**
>
> - While installing the software binaries as described in Section 12.3.2.1, 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.

2. On the Install Types screen, select **Upgrade an Existing Enterprise Manager System**, and then, select **Two System Upgrade**.

3. Click **Next**.

4. On the Database Connection Details screen, enter the fully qualified name of the host where the backed up database resides, its listener port and its service name or system ID (SID), and the SYS and SYSMAN user account passwords.

> **Note:** Oracle Real Application Cluster (Oracle RAC) nodes are referred to by their virtual IP (vip) names. The `service_name` parameter is used instead of the system identifier (SID) in `connect_data` mode, and failover is turned on. For more information, refer to *Oracle Database Net Services Administrator's Guide*.

The installer uses this information to connect to the backed up database for upgrading the SYSMAN schema. SYSMAN schema holds most of the relational data used in managing Enterprise Manager Cloud Control.

> **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. Click **Next**.

Note:

- If you are connecting to an Oracle RAC database, and if you have entered the virtual IP address of one of its nodes, then the installation wizard prompts you with a Connection String dialog and requests you to update the connection string with information about the other nodes that are part of the cluster. Update the connection string and click **OK**. If you want to test the connection, click **Test Connection**.

- Oracle Real Application Cluster (Oracle RAC) nodes are referred to by their virtual IP (vip) names. The `service_name` parameter is used instead of the system identifier (SID) in `connect_data` mode, and failover is turned on. For more information, refer to *Oracle Database Net Services Administrator's Guide*.

- If you encounter a Provisioning Archive Framework (PAF) prerequisite check error, then do the following:

  - Exit the installer, run the following SQL command on the backed up database, invoke the installer all over again, and retry the upgrade process.

    ```
    UPDATE MGMT_PAF_STATES
    SET status = 6
    WHERE state_type = 0
    AND status IN (0, 1);
    ```

  - Exit the installer, discard the backed up database, stop all the running and schedule deployment procedures in your existing Enterprise Manager system, take a fresh backup of the database now, invoke the installer all over again, and retry the upgrade process.

- If you see a warning asking you to unlock the MGMT_VIEW user account and change the password, ignore it because the installer automatically unlocks it for you.

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. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):

   http://www.oracle.com/technetwork/oem/grid-control/downlo
   ads/oem-upgrade-console-502238.html

3. Expand the section that lists the software binaries and plug-ins for your upgrade path.

4. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.

5. Invoke the `ConfigureGC.sh` script in the following way to install the downloaded plug-ins:

   `<OMS_HOME>/sysman/install/ConfigureGC.sh -pluginLocation <absolute_path_to_plugin_sw>`

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

   You might have a plug-in version deployed to the earlier release of Enterprise Manager that is not supported in Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5). In this case, when you invoke the installer with -pluginLocation argument, make sure you do NOT provide the software of the higher version of the unsupported plug-in even if the higher version is available for download. This ensures that the unsupported version is removed while upgrading to 12c Release 5 (12.1.0.5). After you upgrade, you can deploy the higher version directly from the Plug-In Manager.

---

6. 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.

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 plug-ins from the Enterprise Manager download page on OTN, and store them in an accessible location.

   http://www.oracle.com/technetwork/oem/grid-control/downlo
   ads/oem-upgrade-console-502238.html

2. Invoke the installer with the following option, and pass the location where the plug-ins you downloaded are available:

   `./runInstaller -pluginLocation <absolute_path_to_plugin_
   software_location>`

---

7. Click **Next**.

8. On the WebLogic Server Configuration Details screen, enter the credentials for the WebLogic Server user account and the Node Manager user account, and validate the path to the Oracle Management Service instance base location.

Note:

- Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.

- 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 5.1.4.

By default, the WebLogic Domain name is `GCDomain`, and the Node Manager name is `nodemanager`. These are non-editable fields. The installer uses this information for creating Oracle WebLogic Domain and other associated components such as the admin server, the managed server, and the node manager. A Node Manager enables you to start, shut down, or restart an Oracle WebLogic Server instance remotely, and is recommended for applications with high availability requirements.

9. Click **Next**.

WARNING: Verify the value set to the GLOBAL_NAMES parameter on both the databases:

- **If the GLOBAL_NAMES parameter is set to FALSE on both the databases, then ensure that you do not change this value until the upgrade is complete, and all the Management Agents are switched over.**

- **If the GLOBAL_NAMES parameter is set to TRUE on even one of the databases, and if both the databases have the same value for the GLOBAL_NAME parameter, then change the value of the GLOBAL_NAME parameter set on the new, cloned database to a value that is different from the one set on the old database.**

---

10. On the Old Repository Details screen, validate the connect string and enter the SYSMAN password of the old Management Repository.

The details are used to connect to the old Management Repository, check for accrued data, and seamlessly transfer it to the upgraded Management Repository. Accrued data refers to the data that was uploaded to the old Management Repository from the time it was backed up till the time it was upgraded.

> **Note:** Typically, the connect string is prepopulated. However, if it is not prepopulated, then enter it in the following format:
>
> - With SID
>
>   ```
>   (DESCRIPTION=(ADDRESS_
>   LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_
>   name>)(PORT=<port>)))(CONNECT_DATA=(SID=<sid>)))
>   ```
>
> - With Service Name
>
>   ```
>   (DESCRIPTION=(ADDRESS_
>   LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_
>   name>)(PORT=<port>)))(CONNECT_DATA=(SERVICE_
>   NAME=<service_name>)))
>   ```

11. Click **Next**.

12. On the Tablespace Location screen, validate the location where the data file (`mgmt_deepdive.dbf`) for JVM Diagnostics data tablespace can be stored. You can choose to edit it if you want. In that case, ensure that the path leads up to the file name. Enterprise Manager Cloud Control requires this data file to store monitoring data related to JVM Diagnostics and Application Dependency Performance (ADP).

    > **Note:** This screen appears only if you are upgrading from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5).

13. Click **Next**.

14. On the Port Configuration Details screen, customize the ports to be used for various components.

    - Ensure that the ports you enter for **Enterprise Manager Upload Http Port** and **Enterprise Manager Upload Http SSL Port** match with the unsecure and secure ports you entered in the *Preupgrade Console*.

    - For other components, you can enter a free custom port that is either within or outside the port range recommended by Oracle. However, the custom port must be greater than 1024 and lesser than 65535.

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

      On Unix:

      `netstat -anp | grep <port no>`

      On Microsoft Windows:

      `netstat -an|findstr <port_no>`

    - 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. If you do pass this file, then ensure that the ports you enter for **Enterprise Manager Upload Http Port** and **Enterprise Manager Upload Http SSL Port** match with the unsecure and secure ports you entered in the *Preupgrade Console*.

15. Click **Next**.

16. 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.

17. 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 OMS home to rerun the Configuration Assistant in silent mode:
>
> ```
> $<OMS_HOME>/oui/bin/runConfig.sh ORACLE_HOME=<absolute_path_
> to_OMS_home> MODE=perform ACTION=configure COMPONENT_
> XML={encap_oms.1_0_0_0_0.xml}
> ```
>
> If the `runConfig.sh` script fails, then clean up your environment and redo the installation.

18. 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.

> **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
> ```

12.4 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method in Silent Mode

This section explains how you can install only the software binaries of Enterprise Manager 12*c* Cloud Control in silent mode at one point, and upgrade them at a later point.

This section covers the following:

■ Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method for 1-System Upgrade Approach in Silent Mode

■ Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method for 2-System Upgrade Approach in Silent Mode

---

Note: You can find the OMS and Management Agent entries in the `/etc/oragchomelist` file for all UNIX platforms except HPUNIX, HPia64, Solaris Sparc. On HPUNIX, HPia64, Solaris Sparc platforms, the entries are present in `/var/opt/oracle/oragchomelist`.

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:

```
<OMS_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 < emkey file>
```

■ If your OMS is not configured with a service name, then run the following command:

```
<OMS_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 <emkey file>
```

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.

12.4.1 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method for 1-System Upgrade Approach in Silent Mode

To upgrade in software-only mode with 1-System upgrade approach, refer to Section 5.4.

> **Note:** You might have a plug-in version deployed to the earlier release of Enterprise Manager that is not supported in Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5). In this case, when you invoke the installer with `-pluginLocation` argument, make sure you do NOT provide the software of the higher version of the unsupported plug-in even if the higher version is available for download. This ensures that the unsupported version is removed while upgrading to 12c Release 5 (12.1.0.5). After you upgrade, you can deploy the higher version directly from the Plug-In Manager.

12.4.2 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) Using the Software-Only Upgrade Method for 2-System Upgrade Approach in Silent Mode

This section describes how you can upgrade in software-only mode with 2-System upgrade approach. In particular, this section covers the following:

- Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Silent Mode

- Running the allroot.sh Script After Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Silent Mode

- Configuring and Upgrading the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Silent Mode

> **Caution:** For 2-system upgrade approach, Oracle recommends that you use a clean, fresh host for installing Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5). Therefore, ensure that the host does not already have any Management Agent installed on it.
>
> If you attempt to install on a host that already has a Management Agent, then the new Management Agent installed as part of the 2-system upgrade process will not be able to register the same host again as a target. This is because the existing Management Agent would have already registered the host as a target in your old Management Repository, and when you clone this Management Repository and upgrade it as part of the 2-system upgrade process, the entry for this host will continue to exist, that is, even after the cloned Management Repository is upgraded. And as a result, when the new Management Agent attempts to upload data, it will not be able to register this host again.
>
> If you are forced to use a host that already has a Management Agent installed on it, then first deinstall the existing Management Agent, and clean up information related to it and the targets monitored by it, from the Management Repository. And then start the 2-system upgrade on that host. For instructions to deinstall and clean up the existing Management Agent, see the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*
>
> If you accidentally installed Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) on a host that already has a Management Agent on it, then follow the workaround provided in Section 13.1.

12.4.2.1 Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Silent Mode

To install the software binaries of Enterprise Manager Cloud Control, follow the steps outlined in Section 5.4.1.

12.4.2.2 Running the allroot.sh Script After Installing the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Silent Mode

To run the `allroot.sh` script, Section 5.4.2.

12.4.2.3 Configuring and Upgrading the Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5) Software Binaries for 2-System Upgrade Approach in Silent Mode

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

1. Copy the following response file to an accessible location on your local host:

   `<Software_Location>/response/upgrade.rsp`

   In this command, `<Software_Location>` refers to the location where you have downloaded the software kit.

2. Edit the response file and enter appropriate values for the variables described in Appendix A.

3. Configure the software binaries by invoking the `ConfigureGC.sh` script passing the response you edited in the previous step:

   ```
   $<MIDDLEWARE_HOME>/oms/sysman/install/ConfigureGC.sh -silent
   -responseFile <absolute_path>/upgrade.rsp -staticPortsIniFile
   <absolute_path_to_staticports.ini_file> [-invPtrLoc <absolute_path_to_
   inventory_directory>]
   ```

   > **Note:**
   >
   > - While installing the software binaries as described in Section 12.4.2.1, 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.
   >
   > - The staticports.ini file is available at the following location of the software kit (DVD, downloaded software, and so on):
   >
   >   `<software_kit>/response/staticports.ini`
   >
   > - In the `staticports.ini` file, ensure that the ports you enter for **Enterprise Manager Upload Http Port** and **Enterprise Manager Upload Http SSL Port** match with the unsecure and secure ports you entered in the *Preupgrade Console*.

> **Note:** 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. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
>
>   http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html
>
> 3. Expand the section that lists the software binaries and plug-ins for your upgrade path.
>
> 4. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.
>
> 5. Invoke the `ConfigureGC.sh` script in the following way to install the downloaded plug-ins:
>
>   `<OMS_HOME>/sysman/install/ConfigureGC.sh -pluginLocation <absolute_path_to_plugin_sw>`

> **Note:** If you encounter any validation error, then follow these steps:
>
> 1. Discard the backed up database.
>
> 2. Resolve the issue in the *Preupgrade Console*.
>
> 3. Take a fresh backup of the database now.
>
> 4. Invoke the installer all over again, and retry the upgrade process.

> **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`

12.5 Upgrading the OMS and the Management Repository of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5) with 1-System Upgrade Approach on a Different Host

To upgrade your existing OMS and Management Repository of 10g Release 5 (10.2.0.5) and 11g Release 1 (11.1.0.1) with *1-System on a Different Host* approach, follow these steps:

1. On the remote host, install only the software binaries of Enterprise Manager Cloud Control.

    ■   For instructions to install only the software binaries in graphical mode, see Section 12.3.1.1.

    ■   For instructions to install them in silent mode, see Section 12.4.1.

    Note that Step (15) in Section 12.3.1.1 (graphical mode) and Step (4) in Section 12.4.1 (silent mode) instruct you to deinstall the Management Agent. However, in the case of a 1-system upgrade on a different host, DO NOT deinstall the Management Agent. You need the Management Agent installed on the OMS host during the 1-system upgrade on a different host to monitor the Enterprise Manager components.

    Note: This remote host must be different from the host where your existing, earlier release of Enterprise Manager is running.

    ---

2. Deploy the plug-ins:

    `$<OMS_HOME>/sysman/install/PluginInstall.sh`

    On the Select Plug-ins screen, select the optional plug-ins you want to install.

    The screen displays only those plug-ins that were available in the software kit (DVD, downloaded software) you used in the previous step for installing the software binaries.

    The pre-selected rows on this screen are mandatory plug-ins that will be installed by default. Select the optional ones you want to install or upgrade.

Note:

- On Microsoft Windows, run `PluginInstall.bat`.

- If you want to install some plug-ins that are not in the software kit, then follow these steps:

    1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):

       http://www.oracle.com/technetwork/oem/grid-control/downloads/oem-upgrade-console-502238.html

    2. Expand the section that lists the software binaries and plug-ins for your upgrade path.

    3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.

    4. Invoke the script with the following option, and pass the location where the plug-ins you want to install are available:

       ```
       $<OMS_
       HOME>/sysman/install/PluginInstall.sh
       -pluginLocation <absolute_path_to_
       plugin_software_location>
       ```

       The Select Plug-ins screen displays a list of plug-ins that were available in the software kit as well as the downloaded plug-ins available in this custom location. You can choose the ones you want to install.

---

3. On the host where your existing, earlier release of Enterprise Manager is running, stop the OMS. To do so, run the following command from the OMS home:

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

   Note: On Microsoft Windows, run the following command:

   ```
   %OMS_HOME%\bin\emctl stop oms -all
   ```

   ---

4. On the remote host where you installed the software binaries of Enterprise Manager Cloud Control as described in Step (1), set the environment variable `ORACLE_HOME` to the OMS home, and `MW_HOME` to the Middleware home.

   - In bash terminal, run the following command:

     ```
     export ORACLE_HOME=<absolute_path_to_oms_home>

     export MW_HOME=<absolute_path_to_middleware_home>
     ```

   - In other terminals, run the following command:

     ```
     setenv ORACLE_HOME <absolute_path_to_oms_home>

     setenv MW_HOME <absolute_path_to_middleware_home>
     ```

Note: On Microsoft Windows, run the following commands:

```
set ORACLE_HOME=<absolute_path_to_oms_home>
```

```
set MW_HOME=<absolute_path_to_middleware_home>
```

---

5. Run the Management Repository-related prerequisite checks to verify if the Oracle Management Repository (Management Repository) is ready for upgrade:

a. Create a directory for storing prerequisite results:

```
mkdir  <prereq_result_location>
```

For example, on UNIX platforms, run this:

```
mkdir $ORACLE_HOME/prerequisiteResults
```

Note: Example for Microsoft Windows:

```
mkdir %ORACLE_HOME%\prerequisiteResults
```

---

b. Run the prerequisite checks:

```
$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType
upgrade -prerequisiteXMLRootDir $ORACLE_
HOME/install/requisites/list -prereqResultLoc <prereq_result_
location> -connectString "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=hostname)(PORT=listenerport)))(CO
NNECT_DATA=(SID=<sid>)))" -dbUser SYS -dbPassword <db_password>
-dbRole sysdba -configurationType <MINI/SMALL/MEDIUM/LARGE>
-runPrerequisites -reposUser SYSMAN
```

Note: On Microsoft Windows, run the following command:

```
%ORACLE_HOME%\install\requisites\bin\emprereqkit.bat
-executionType upgrade -prerequisiteXMLRootDir %ORACLE_
HOME%\install\requisites\list -prereqResultLoc <prereq_
result_location> -connectString "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=hostname)(PORT=listenerpor
t)))(CONNECT_DATA=(SID=<sid>)))" -dbUser SYS -dbPassword
<db_password> -dbRole sysdba -configurationType
<MINI/SMALL/MEDIUM/LARGE> -runPrerequisites -reposUser
SYSMAN
```

For example,

```
$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType
upgrade -prerequisiteXMLRootDir $ORACLE_
HOME/install/requisites/list -prereqResultLoc $ORACLE_
HOME/prerequisiteResults -connectString "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(CONNECT
_DATA=(SID=dbview)))" -dbUser SYS -dbPassword dbpass -dbRole sysdba
-configurationType SMALL -runPrerequisites -reposUser SYSMAN
```

> **Note:** Example for Microsoft Windows:
>
> ```
> %ORACLE_HOME%\install\requisites\bin\empreqkit.bat
> -executionType upgrade -prerequisiteXMLRootDir %ORACLE_
> HOME%\install\requisites\list -prereqResultLoc %ORACLE_
> HOME%\prerequisiteResults -connectString
> "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(
> CONNECT_DATA=(SID=dbview)))" -dbUser SYS -dbPassword dbpass
> -dbRole sysdba -configurationType SMALL -runPrerequisites
> -reposUser SYSMAN
> ```

> **Note:**
>
> - If you do not pass the argument `-configurationType`, then by default, the deployment size MEDIUM is honored. For more information on deployment sizes, the prerequisite checks that are run, the database parameters that are set, and how you can modify the deployment size after installation, refer to *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*
>
> - The output of this step confirms the prerequisite checks that passed and failed. You will see the status *Pass* or *Fail.*

6. If the Management Repository-related prerequisite checks fail, run the auto-corrective actions to automatically correct the issues:

```
$ORACLE_HOME/install/requisites/bin/empreqkit -executionType upgrade
-prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list
-prereqResultLoc <prereq_result_location> -connectString
"(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=hostname)(PORT=listenerport)))(CONNEC
T_DATA=(SID=<sid>)))" -dbUser SYS -dbPassword <db_password> -dbRole
sysdba  -useHistory -runCorrectiveActions -reposUser SYSMAN
```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\install\requisites\bin\empreqkit.bat
> -executionType upgrade -prerequisiteXMLRootDir %ORACLE_
> HOME%\install\requisites\list -prereqResultLoc <prereq_
> result_location> -connectString "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=hostname)(PORT=listenerpor
> t)))(CONNECT_DATA=(SID=<sid>)))" -dbUser SYS -dbPassword
> <db_password> -dbRole sysdba  -useHistory
> -runCorrectiveActions -reposUser SYSMAN
> ```

For example,

```
$ORACLE_HOME/install/requisites/bin/empreqkit -executionType upgrade
-prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list
-prereqResultLoc $ORACLE_HOME/prerequisiteResults -connectString
"(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(CONNECT_
```

```
DATA=(SID=dbview)))" -dbUser SYS -dbPassword dbpass -dbRole sysdba
-useHistory -runCorrectiveActions -reposUser SYSMAN
```

> **Note:** Example for Microsoft Windows:
>
> ```
> %ORACLE_HOME%\install\requisites\bin\emprereqkit.bat
> -executionType upgrade -prerequisiteXMLRootDir %ORACLE_
> HOME%\install\requisites\list -prereqResultLoc %ORACLE_
> HOME%\prerequisiteResults -connectString
> "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(
> CONNECT_DATA=(SID=dbview)))" -dbUser SYS -dbPassword dbpass
> -dbRole sysdba -useHistory -runCorrectiveActions -reposUser
> SYSMAN
> ```

> **Note:** The output of this step confirms whether or not corrective actions were taken by the script. If corrective actions were taken by the script, then you will see the status *Pass*. Otherwise, you will see the status *NA.*
>
> If the status of the prerequisite check was *Fail* in the output of Step (4), and if it changed to *NA* in the output of Step (5), do the following:
>
> 1. Access the following file:
>
>   On UNIX platforms:
>
>    ```
>    $ORACLE_
>    HOME/prerequisiteResults/log/LATEST/emprereqkit.out
>    ```
>
>   On Microsoft Windows platforms:
>
>    ```
>    %ORACLE_
>    HOME%\prerequisiteResults\log\LATEST\emprereqkit.out
>    ```
>
> 2. Review the passed and failed tests and their corresponding corrective actions.
> 3. For the failed tests, manually take corrective actions.

7. Run the plug-in configuration assistant in prerequisite mode:

```
$ORACLE_HOME/bin/pluginca -oracleHome $ORACLE_HOME -middlewareHome $MW_
HOME -action prereqCheck -plugins <list_of_plugins> -oldOracleHome
<old_oms_home> -installMode gcUpgrade -client gcinstaller -customParams
"connectString=(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_
HOST>)(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY_
SID>)))),username=sysman"
```

> **Note:** The plug-ins to be mentioned for the <pluginslist> argument can be found in the following file:
>
> ```
> $ORACLE_HOME/sysman/install/plugins_installed.txt
> ```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\bin\pluginca -oracleHome %ORACLE_HOME%
> -middlewareHome %MW_HOME% -action prereqCheck -plugins
> <list_of_plugins> -oldOracleHome <old_oms_home> -installMode
> gcUpgrade -client gcinstaller -customParams
> "connectString=(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_
> HOST>)(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY_
> SID>))),username=sysman"
> ```

For example,

```
$ORACLE_HOME/bin/pluginca -oracleHome $ORACLE_HOME -middlewareHome $MW_
HOME -action prereqCheck  -plugins
"oracle.sysman.db=12.1.0.1.0,oracle.sysman.xa=12.1.0.1.0,oracle.sysman.
emas=12.1.0.1.0,oracle.sysman.mos=12.1.0.1.0,oracle.em.sat=12.1.0.1.0,o
racle.em.sidb=12.1.0.1.0,oracle.em.smdn=12.1.0.1.0,oracle.em.smad=12.1.
0.1.0,oracle.em.smss=12.1.0.1.0,oracle.sysman.emct=12.1.0.1.0,oracle.sy
sman.ssa=12.1.0.1.0,oracle.sysman.emfa=12.1.0.1.0,oracle.sysman.empa=12
.1.0.1.0,oracle.sysman.vt=12.1.0.1.0,oracle.em.ssad=12.1.0.1.0"
-oldOracleHome /net/example.com/software/oracle/oms10g -installMode
gcUpgrade -client gcinstaller -customParams
"connectString=(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(CONNECT_
DATA=(SID=dbview))),username=sysman"
```

> **Note:** Ensure that the old OMS home is accessible from the remote host where you are running this command.

> **Note:** Example for Microsoft Windows:
>
> ```
> %ORACLE_HOME%\bin\pluginca -oracleHome %ORACLE_HOME%
> -middlewareHome %MW_HOME% -action prereqCheck -plugins
> "oracle.sysman.db=12.1.0.1.0,oracle.sysman.xa=12.1.0.1.0,ora
> cle.sysman.emas=12.1.0.1.0,oracle.sysman.mos=12.1.0.1.0,orac
> le.em.sat=12.1.0.1.0,oracle.em.sidb=12.1.0.1.0,oracle.em.smd
> n=12.1.0.1.0,oracle.em.smad=12.1.0.1.0,oracle.em.smss=12.1.0
> .1.0,oracle.sysman.emct=12.1.0.1.0,oracle.sysman.ssa=12.1.0.
> 1.0,oracle.sysman.emfa=12.1.0.1.0,oracle.sysman.empa=12.1.0.
> 1.0,oracle.sysman.vt=12.1.0.1.0,oracle.em.ssad=12.1.0.1.0"
> -oldOracleHome \\oldem\c$\EM\oms10g -installMode gcUpgrade
> -client gcinstaller -customParams
> "connectString=(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(
> CONNECT_DATA=(SID=dbview))),username=sysman"
> ```

8. Run Management Repository-related preupgrade checks:

```
$ORACLE_HOME/sysman/admin/emdrep/bin/RepManager <REPOSITORY_HOST>
<PORT> <REPOSITORY_SID> -doPurging yes -action preupgrade  -dbUser SYS
-reposName sysman -mwHome $MW_HOME -mwOraHome $ORACLE_HOME -oracleHome
$ORACLE_HOME
```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\sysman\admin\emdrep\bin\RepManager
> <REPOSITORY_HOST> <PORT> <REPOSITORY_SID> -doPurging yes
> -action preupgrade  -dbUser SYS  -reposName sysman -mwHome
> %MW_HOME% -mwOraHome %ORACLE_HOME% -oracleHome %ORACLE_HOME%
> ```

For example,

```
$ORACLE_HOME/sysman/admin/emdrep/bin/RepManager example.com 1521 dbview
-doPurging yes -action preupgrade  -dbUser SYS  -reposName sysman
-mwHome $MW_HOME -mwOraHome $ORACLE_HOME -oracleHome $ORACLE_HOME
```

> **Note:** Example for Microsoft Windows:
>
> ```
> %ORACLE_HOME%\sysman\admin\emdrep\bin>RepManager example.com
> 1521 dbview -doPurging yes -action preupgrade -dbUser SYS
> -reposName sysman -mwHome %MW_HOME% -mwOraHome %ORACLE_HOME%
> -oracleHome %ORACLE_HOME%
> ```

9. Upgrade the Management Repository:

```
$ORACLE_HOME/sysman/admin/emdrep/bin/RepManager -doPurging yes
-connectString "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_HOST>
)(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY SID>)))" -action upgrade
-dbUser SYS  -reposName sysman -mwHome $MW_HOME -mwOraHome $ORACLE_HOME
-oracleHome $ORACLE_HOME
```

If the preceding command fails, then run the following:

```
$ORACLE_HOME/sysman/admin/emdrep/bin/RepManager -doPurging yes
-connectString "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_HOST>
)(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY SID>)))" -resume retry
-checkpointLocation $ORACLE_HOME/sysman/log/schemamanager -dbUser SYS
-reposName sysman -mwHome $MW_HOME -mwOraHome $ORACLE_HOME -oracleHome
$ORACLE_HOME
```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\sysman\admin\emdrep\bin\RepManager -doPurging
> yes -connectString "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_HOST>
> )(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY SID>)))"
> -action upgrade  -dbUser SYS  -reposName sysman -mwHome %MW_
> HOME% -mwOraHome %ORACLE_HOME% -oracleHome %ORACLE_HOME%
> ```
>
> If the preceding command fails, then run the following:
>
> ```
> %ORACLE_HOME%\sysman\admin\emdrep\bin\RepManager -doPurging
> yes -connectString "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_HOST>
> )(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY SID>)))"
> -resume retry -checkpointLocation $ORACLE_
> HOME/sysman/log/schemamanager -dbUser SYS  -reposName sysman
> -mwHome %MW_HOME% -mwOraHome %ORACLE_HOME% -oracleHome
> %ORACLE_HOME%
> ```

For example,

```
$ORACLE_HOME/sysman/admin/emdrep/bin/RepManager -doPurging yes
-connectString "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<example.com> )(PORT=1521)))(CONNECT_
DATA=(SID=dbview)))" -action upgrade  -dbUser SYS  -reposName sysman
-mwHome $MW_HOME -mwOraHome $ORACLE_HOME -oracleHome $ORACLE_HOME
```

> **Note:** Example for Microsoft Windows:
>
> ```
> %ORACLE_HOME%\sysman\admin\emdrep\bin\RepManager -doPurging
> yes -connectString "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(
> CONNECT_DATA=(SID=dbview)))" -action upgrade -dbUser SYS
> -reposName sysman -mwHome %MW_HOME% -mwOraHome %ORACLE_HOME%
> -oracleHome %ORACLE_HOME%
> ```

10. Revert the corrective actions that were automatically taken in Step (5):

```
$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade
-prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list
-prereqResultLoc <prereq_result_location> -connectString
"(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_
HOST> )(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY_SID>)))" -dbUser
SYS -dbPassword <db_password> -dbRole sysdba  -useHistory
-runPostCorrectiveActions -reposUser SYSMAN
```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\install\requisites\bin\emprereqkit.bat
> -executionType upgrade -prerequisiteXMLRootDir %ORACLE_
> HOME%\install\requisites\list -prereqResultLoc <prereq_
> result_location> -connectString "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_HOST>
> )(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY_SID>)))"
> -dbUser SYS -dbPassword <db_password> -dbRole sysdba
> -useHistory -runPostCorrectiveActions -reposUser SYSMAN
> ```

For example,

```
$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade
-prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list
-prereqResultLoc $ORACLE_HOME/prerequisiteResults -connectString
"(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(CONNECT_
DATA=(SID=dbview)))" -dbUser SYS -dbPassword dbpass -dbRole sysdba
-useHistory -runPostCorrectiveActions -reposUser SYSMAN
```

> **Note:** Example for Microsoft Windows:
>
> ```
>  %ORACLE_HOME%\install\requisites\bin\emprereqkit.bat
> -executionType upgrade -prerequisiteXMLRootDir %ORACLE_
> HOME%\install\requisites\list -prereqResultLoc %ORACLE_
> HOME%\prerequisiteResults -connectString
> "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(
> CONNECT_DATA=(SID=dbview)))" -dbUser SYS -dbPassword dbpass
> -dbRole sysdba -useHistory -runPostCorrectiveActions
> -reposUser SYSMAN
> ```

11. Set the environment variable JAVA_HOME to the JDK location:

    For UNIX Platforms:

    ```
    setenv JAVA_HOME <MIDDLEWARE_HOME>/jdk16/jdk
    ```

    For example,

    ```
    setenv JAVA_HOME /u01/oracle/middleware/jdk16/jdk
    ```

    For Microsoft Windows Platforms:

    ```
    set JAVA_HOME=<MIDDLEWARE_HOME>\jdk16\jdk
    ```

    For example,

    ```
    set JAVA_HOME=C:\Oracle\Middlware\jdk16\jdk
    ```

    > **Note:** If you had installed JDK in a different location, then specify
    > the absolute path to that location. Also ensure that it is JDK 1.6.0.43.0
    > (64-bit version for 64-bit platforms and 32-bit version for 32-bit
    > platforms).

12. Create MDS schema in the Management Repository:

```
$ORACLE_HOME/perl/bin/perl  $ORACLE_
HOME/sysman/admin/emdrep/bin/mdsschemamanager.pl
-action=-createRepository -connectString=<REPOSITORY_
HOST>:<PORT>:<REPOSITORY_SID> -dbUser=SYS -dbPassword=<db_password>
-mdsPassword=<new_mds_user_password> -mwHome=$MW_HOME
```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\perl\bin\perl  %ORACLE_
> HOME%\sysman\admin\emdrep\bin\mdsschemamanager.pl
> -action=-createRepository -connectString=<REPOSITORY_
> HOST>:<PORT>:<REPOSITORY_SID> -dbUser=SYS -dbPassword=<db_
> password> -mdsPassword=<new_mds_user_password> -mwHome=%MW_
> HOME%
> ```

For example,

```
$ORACLE_HOME/perl/bin/perl  $ORACLE_
HOME/sysman/admin/emdrep/bin/mdsschemamanager.pl
-action=-createRepository -connectString=example.com:1521:dbview
-dbUser=SYS -dbPassword=dbpass -mdsPassword=mdspass -mwHome=$MW_HOME
```

> **Note:** Example for Microsoft Windows:
>
> ```
> %ORACLE_HOME%\perl\bin\perl %ORACLE_
> HOME%\sysman\admin\emdrep\bin\mdsschemamanager.pl
> -action=-createRepository
> -connectString=example.com:1521:dbview -dbUser=SYS
> -dbPassword=dbpass -mdsPassword=mdspass -mwHome=%MW_HOME%
> ```

13. Create OPS schema in the Management Repository:

```
$ORACLE_HOME/sysman/admin/emdrep/bin/SecurityRepManager -action
createRepository -connectString "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_
HOST>)(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY_SID>)))" -dbUser
SYS -dbPassword <db_password> -schemaPrefix sysman -schemaPassword
<sysman_user_password> -component opss
```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\sysman\admin\emdrep\bin\SecurityRepManager
> -action createRepository -connectString
> "(DESCRIPTION=(ADDRESS_
> LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_
> HOST>)(PORT=<PORT>)))(CONNECT_DATA=(SID=<REPOSITORY_SID>)))"
> -dbUser SYS -dbPassword <db_password> -schemaPrefix sysman
> -schemaPassword <sysman_user_password> -component opss
> ```

For example,

```
$ORACLE_HOME/sysman/admin/emdrep/bin/SecurityRepManager -action
createRepository -connectString "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(CONNECT_
```

```
DATA=(SID=dbview)))" -dbUser SYS -dbPassword dbpass -schemaPrefix
sysman -schemaPassword sysmanpass -component opss
```

Note: Example for Microsoft Windows:

```
%ORACLE_HOME%\sysman\admin\emdrep\bin\SecurityRepManager
-action createRepository -connectString
"(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(
CONNECT_DATA=(SID=dbview)))" -dbUser SYS -dbPassword dbpass
-schemaPrefix sysman -schemaPassword sysmanpass -component
opss
```

---

14. Configure the OMS:

```
$ORACLE_HOME/bin/omsca NEW -lock_console -lock_upload -CONFIGURE_
REPEATER true -nostart [-RESPONSE_FILE <absolute_location_to_response_
file>]
```

Note: On Microsoft Windows, run the following command:

```
%ORACLE_HOME%\bin\omsca NEW -lock_console -lock_upload
-CONFIGURE_REPEATER true -nostart [-RESPONSE_FILE <absolute_
location_to_response_file>]
```

Note: The argument -RESPONSE_FILE <absolute_location_to_
response_file> is optional.

The response file must contain the following variables:

```
-AS_HOST=<hostname>
-AS_USERNAME=<admin serverr username>
-AS_HTTPS_PORT=<admin server https port>
-MSPORT=<managed server http port>
-MS_HTTPS_PORT=<managed server https port>
-EM_INSTANCE_HOME=<MW_HOME/gc_inst by default>
-EM_NODEMGR_PORT=<node manager https port>
-WEBTIER_ORACLE_HOME=<MW_HOME/Oracle_WT>
-REP_USER=SYSMAN
-REP_CONN_STR=<connection string>
-NM_USER=<node manager username>
-EM_DOMAIN_NAME=<domain name>
-EM_INSTANCE_HOST=<hostname where the instance home will reside>
-EM_UPLOAD_PORT=<upload http port>
-EM_UPLOAD_HTTPS_PORT=<upload https port>
-EM_CONSOLE_PORT=<console http port>
-EM_CONSOLE_HTTPS_PORT=<console https port>
```

The following is an example of the response file format for UNIX.

```
-AS_HOST=example.com
-AS_USERNAME=weblogic
-AS_HTTPS_PORT=7101
-MSPORT=7201
-MS_HTTPS_PORT=7301
```

```
-EM_INSTANCE_HOME=/home/john/oracle/em/middleware/gc_inst
-EM_NODEMGR_PORT=7401
-WEBTIER_ORACLE_HOME=/home/john/oracle/em/middleware/Oracle_WT
-REP_USER=SYSMAN
-REP_CONN_STR=(DESCRIPTION\=(ADDRESS_
LIST\=(ADDRESS\=(PROTOCOL\=TCP)(HOST\=example.com)(PORT\=1521)))(CONNECT_
DATA\=(SID\=dbview)))
-NM_USER=nodemanager
-EM_DOMAIN_NAME=GCDomain
-EM_INSTANCE_HOST=example.com
-EM_UPLOAD_PORT=4889
-EM_UPLOAD_HTTPS_PORT=1159
-EM_CONSOLE_PORT=7788
-EM_CONSOLE_HTTPS_PORT=7799
```

The following is an example of the response file format for Microsoft Windows.

```
-AS_HOST=example.com
-AS_USERNAME=weblogic
-AS_HTTPS_PORT=7101
-MSPORT=7201
-MS_HTTPS_PORT=7301
-EM_INSTANCE_HOME=C\:\\Oracle\\Middleware\\gc_inst
-EM_NODEMGR_PORT=7401
-WEBTIER_ORACLE_HOME=C\:\\Oracle\\Middleware\\Oracle_WT
-REP_USER=SYSMAN
-REP_CONN_STR=(DESCRIPTION\=(ADDRESS_
LIST\=(ADDRESS\=(PROTOCOL\=TCP)(HOST\=example.com)(PORT\=1521)))(CONNECT_
DATA\=(SID\=dbview)))
-NM_USER=nodemanager
-EM_DOMAIN_NAME=GCDomain
-EM_INSTANCE_HOST=example.com
-EM_UPLOAD_PORT=4889
-EM_UPLOAD_HTTPS_PORT=1159
-EM_CONSOLE_PORT=7788
-EM_CONSOLE_HTTPS_PORT=7799
```

15. Configure the plug-ins:

```
$ORACLE_HOME/bin/pluginca  -oracleHome $ORACLE_HOME -middlewareHome
$MW_HOME -action deploy -plugins <pluginlist> -oldOracleHome <old_oms_
home> -installMode gcupgrade
```

> **Note:** The plug-ins to be mentioned for the <pluginslist> argument
> can be found in the following file:
>
> ```
> $ORACLE_HOME/sysman/install/plugins_installed.txt
> ```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\bin\pluginca -oracleHome %ORACLE_HOME%
> -middlewareHome %MW_HOME% -action deploy -plugins
> "<pluginlist>" -oldOracleHome <old_oms_home> -installMode
> gcupgrade
> ```

For example,

```
$ORACLE_HOME/bin/pluginca  -oracleHome $ORACLE_HOME -middlewareHome
$MW_HOME -action deploy -plugins
"oracle.sysman.db=12.1.0.1.0,oracle.sysman.xa=12.1.0.1.0,oracle.sysman.
emas=12.1.0.1.0,oracle.sysman.mos=12.1.0.1.0,oracle.em.sat=12.1.0.1.0,o
racle.em.sidb=12.1.0.1.0,oracle.em.smdn=12.1.0.1.0,oracle.em.smad=12.1.
0.1.0,oracle.em.smss=12.1.0.1.0,oracle.sysman.emct=12.1.0.1.0,oracle.sy
sman.ssa=12.1.0.1.0,oracle.sysman.emfa=12.1.0.1.0,oracle.sysman.empa=12
.1.0.1.0,oracle.sysman.vt=12.1.0.1.0,oracle.em.ssad=12.1.0.1.0"
-oldOracleHome /net/example.com/software/oracle/middleware/oms11g
-installMode gcupgrade
```

> **Note:** Ensure that the old OMS home is accessible from the remote host where you are running this command.

> **Note:** Example for Microsoft Windows:
>
> ```
> %ORACLE_HOME%\bin\pluginca -oracleHome %ORACLE_HOME%
> -middlewareHome %MW_HOME% -action deploy -plugins
> "oracle.sysman.db=12.1.0.1.0,oracle.sysman.xa=12.1.0.1.0,ora
> cle.sysman.emas=12.1.0.1.0,oracle.sysman.mos=12.1.0.1.0,orac
> le.em.sat=12.1.0.1.0,oracle.em.sidb=12.1.0.1.0,oracle.em.smd
> n=12.1.0.1.0,oracle.em.smad=12.1.0.1.0,oracle.em.smss=12.1.0
> .1.0,oracle.sysman.emct=12.1.0.1.0,oracle.sysman.ssa=12.1.0.
> 1.0,oracle.sysman.emfa=12.1.0.1.0,oracle.sysman.empa=12.1.0.
> 1.0,oracle.sysman.vt=12.1.0.1.0,oracle.em.ssad=12.1.0.1.0"
> -oldOracleHome \\comp1\c$\EM\oms10g -installMode gcupgrade
> ```

16. Migrate the plug-in inventory from old tables to the new Plug-In Lifecycle Application (PLA) inventory table:

   a. Log in to the upgraded Management Repository as SYSMAN user either from the old OMS or from the new OMS.

   From the Old OMS

   To log in from the old OMS, follow these steps:

   - Navigate to the $DB_HOME\bin directory.

   For example (UNIX), /scratch/aime/DB/db/bin. For example (Microsoft Windows), C:\DB\db\bin.

   - Run the following, where HOST is where the Management Repository resides:

   ```
   sqlplus sysman/<password _for_sysman_
   user>@"(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_
   HOST>)(PORT=<PORT>))(CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_
   NAME=<REPOSITORY_SID>)))"
   ```

   For example,

   ```
   sqlplus
   sysman/mypwd@"(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com
   )(PORT=1521))(CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_
   NAME=dbview)))"
   ```

   From the New OMS

To log in from the new OMS, follow these steps:

- Navigate to the `$MW_HOME\oms\bin` directory.

- Run the following:

```
sqlplus sysman/<password _for_sysman_
user>@"(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=<REPOSITORY_
HOST>)(PORT=<PORT>))(CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_
NAME=<REPOSITORY_SID>)))"
```

For example,

```
sqlplus
sysman/mypwd@"(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com
)(PORT=1521))(CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_
NAME=dbview)))"
```

b. Run the following SQL query

```
SET SERVEROUTPUT ON SIZE 100000
DECLARE
PLUGIN_BITS_TYPE      CONSTANT NUMBER := 1;
DISCOVERY_BITS_TYPE    CONSTANT NUMBER := 2;
AGENT_DEST_TYPE      CONSTANT NUMBER := 3;
err_num NUMBER;
err_msg VARCHAR2(100);

BEGIN
       FOR rec in ( select plugin_id, plugin_version, target_guid, plugin_
home,  plugin_type from PRE_UPGC_DEP_PLUGINS )
LOOP

BEGIN

IF rec.plugin_type = 'discoveryplugin' THEN
EM_PLUGIN_INVENTORY.add_to_plugin_inventory(rec.plugin_id, rec.plugin_
version, DISCOVERY_BITS_TYPE, AGENT_DEST_TYPE, rec.target_guid, rec.plugin_
home);
ELSE
EM_PLUGIN_INVENTORY.add_to_plugin_inventory(rec.plugin_id, rec.plugin_
version, PLUGIN_BITS_TYPE, AGENT_DEST_TYPE, rec.target_guid, rec.plugin_
home);
END IF;

EXCEPTION
WHEN DUP_VAL_ON_INDEX THEN
-- ALTER SESSION CLOSE DATABASE LINK PREUPGTO_NG_LINK;
DBMS_OUTPUT.PUT_LINE('Records already exists.');
WHEN OTHERS THEN
-- ALTER SESSION CLOSE DATABASE LINK PREUPGTO_NG_LINK;
err_num := SQLCODE;
err_msg := SUBSTR(SQLERRM, 1, 100);
DBMS_OUTPUT.PUT_LINE('Found exception Error Message :' || err_msg || '
Error Number ;' || err_num);

END;

END LOOP;
commit;
END;
```

```
/
```

17. Start the OMS:

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

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\bin\emctl start oms
> ```

18. While installing the software binaries in Step (1), if you had chosen to configure the security updates, then configure Oracle Configure Manager (OCM):

```
$ORACLE_HOME/perl/bin/perl $ORACLE_
HOME/sysman/install/RunOMSOCMConfig.pl $ORACLE_HOME $ORACLE_
HOME/perl/bin/perl
```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\perl\bin\perl %ORACLE_
> HOME%\sysman\install\RunOMSOCMConfig.pl %ORACLE_HOME%
> %ORACLE_HOME%\perl\bin\perl
> ```

19. Configure the Management Agent. To do so, run the following command from the Management Agent home:

```
$ORACLE_HOME/sysman/install/agentDeploy.sh AGENT_BASE_DIR=<absolute_
path_to_agentbasedir> OMS_HOST=<oms_host> EM_UPLOAD_PORT=<secure_oms_
upload_port> AGENT_REGISTRATION_PASSWORD=<agent_reg_password>
-configOnly
```

> **Note:** On Microsoft Windows, run the following command:
>
> ```
> %ORACLE_HOME%\sysman\install\agentDeploy.bat AGENT_BASE_
> DIR=<absolute_path_to_agentbasedir> OMS_HOST=<oms_host> EM_
> UPLOAD_PORT=<secure_oms_upload_port> AGENT_REGISTRATION_
> PASSWORD=<agent_reg_password> -configOnly
> ```

For example,

```
/u01/app/Oracle/agent/core/12.1.0.5.0/sysman/install/agentDeploy.sh
AGENT_BASE_DIR=/u01/app/Oracle/agent OMS_HOST=example.com EM_UPLOAD_
PORT=1159 AGENT_REGISTRATION_PASSWORD=2bornot2b -configOnly
```

> **Note:** Ensure that you enter the secure (HTTPS) upload port number for the argument EM_UPLOAD_PORT.

> **Note:** Example for Microsoft Windows:
>
> ```
> C:\Oracle\agent\core\12.1.0.5.0\sysman\install\agentDeploy.b
> at AGENT_BASE_DIR=C:\Oracle\agent OMS_HOST=example.com EM_
> UPLOAD_PORT=1159 AGENT_REGISTRATION_PASSWORD=2bornot2b
> -configOnly
> ```

> **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
> ```

12.6 Upgrading a Multi-OMS Environment of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) to 12c Release 5 (12.1.0.5)

To upgrade an Enterprise Manager system of 10g Release 5 (10.2.0.5) or 11g Release 1 (11.1.0.1) that has multiple OMS instances, follow these steps:

1. Upgrade the first OMS. You can use any of the upgrade approaches described in this guide — Section 12.1, Section 12.2, Section 12.3, or Section 12.4.

    > **Note:** 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 home and verify if the output
    > displays the Admin Server details.
    >
    > ```
    > $<OMS_HOME>/bin/emctl status oms -details
    > ```
    >
    > You should see a similar output:
    >
    > ```
    > Oracle Enterprise Manager Cloud Control 12c
    > 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
    > .
    > .
    > .
    > ```

2. After upgrading the first OMS in your system, do the following:

    –   If you upgraded the first OMS with 2-System upgrade approach, then for every other host where an additional OMS of the earlier release is running, install a new Oracle Management Service 12*c* using the *Add Management Service* deployment procedure available in the Enterprise Manager Cloud Control console.

        For information about installing an additional OMS using the *Add Management Service* deployment procedure, refer to the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

    –   If you upgraded the first OMS with 1-System upgrade approach, then for every other host where an additional OMS of the earlier release is running, invoke the Enterprise Manager Cloud Control Installation Wizard, and on the Install Types screen, select **Upgrade an Existing Enterprise Manager System**,

and then, select **One System Upgrade**. Then, select the OMS home you want to upgrade.

13

Performing Postupgrade Tasks After Upgrading to Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5)

This chapter describes the postinstallation tasks you must perform. In particular, this part covers the following:

- Verifying the Host on Which Enterprise Manager Is Installed
- Creating a Link to the Upgraded Management Repository
- Discovering the Database Where the Management Repository Was Upgraded
- Reconfiguring the Software Library
- Checking the Agent Upgrade Status
- Performing General Postupgrade Tasks
- Tracking the Status of Deferred Data Migration Jobs
- Tracking the Status of Accrued Data Migration Jobs
- Generating and Viewing Diff Reports
- Viewing Inactive Targets in the Upgraded Enterprise Manager System
- Signing Off the Accrued Data Migration Process
- Signing Off the Migration Processes and Exiting the Upgrade Mode
- Deleting Old Central Agents and the Associated Targets
- (Optional) Monitoring Targets That Were Monitored by the Deleted Central Agent
- (Optional) Deleting the Old OMS Home
- Migrating the SYSMAN Schema to a Database Configured with CDB and PDB
- Enabling the Create External Role Option

13.1 Verifying the Host on Which Enterprise Manager Is Installed

> **Note:** Follow these instructions only if you are upgrading using the 2-System upgrade approach.

For 2-system upgrade approach, Oracle recommends that you use a clean, fresh host for installing Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5). Verify that you have installed on a fresh host.

To do so, on the Management Services and Repository page, click the information icon adjacent to the page title. In the Target Information region that appears, as shown in Figure 13–1, validate the host name and make sure it reflects the host on which you have installed the new 12c OMS. Also verify that the same host name appears on the top-right corner of the page, right below the Search Target Name text box, as shown in Figure 13–1.

Figure 13–1   Verifying the Host
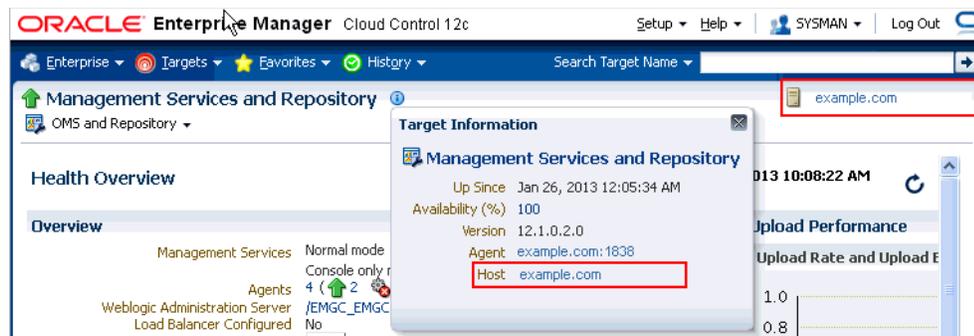
If the host names match and if they reflect the host on which you have installed the new 12c OMS, then it is a confirmation that you have installed on a fresh host.

If one of them reflects a different host name, then it is a confirmation that you have installed on a host that already has a Management Agent. Under such circumstances, follow these steps:

1. Deinstall the Management Agent that already exists. Clean up or remove information related to this Management Agent and the targets monitored by it, from the Management Repository. For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

2. Add the host as a target to the new Management Agent, which was installed with the new 12c OMS as part of the 2-system upgrade.

   To do so, run the following command from the new Management Agent home:

   ```
   $<AGENT_HOME>/bin/emctl config agent addInternaltargets
   ```

3. Verify that the host is added as a target in Enterprise Manager Cloud Control Console. To do so, on the Management Agent home page, in the Monitoring section, in the Monitored Targets tab, verify that the host is listed.

4. Relocate the Management Services and Repository target, which is monitored by the Management Agent installed with the old OMS host, to the new Management Agent, which was installed with the new 12c OMS as part of the 2-system upgrade.

   To do so, log in as SYSMAN and run the following command from any host where EM CLI is installed:

   ```
   emcli relocate_targets -src_agent="<agent_installed_with_old_OMS>"
   -dest_agent="<new_agent_installed_with_new_12c_OMS>" -target_
   name="Management Services and Repository"  -target_type=oracle_emrep
   -copy_from_src
   ```

5. Set the connect descriptor and credentials of the new, upgraded Management Repository as the monitoring configuration settings of the Management Services and Repository target.

   To do so, on the Management Services and Repository Home page, from the **OMS and Repository** menu, select **Target Setup,** then select **Monitoring Configuration.** On the Monitoring Configuration page, enter the connect descriptor and the credentials of the new, upgraded Management Repository. Click **OK.**

13.2 Creating a Link to the Upgraded Management Repository

> **Note:** Follow these instructions only if you are upgrading using the 2-System upgrade approach. Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

As a prerequisite for upgrading your Enterprise Manager system using the 2-System upgrade approach, you are required to clone (or back up) your existing database first, and then upgrade the Oracle Management Repository (Management Repository) that is configured in it. This is to ensure that the upgraded Management Repository coexists with the earlier release of the Management Repository.

However, after you upgrade the Management Repository in the backed up database, link it to your earlier release of the Management Repository so that the two repositories are linked with each other, and any operations on the upgraded repository can be directly done from the old repository.

> **WARNING:** Verify the value set to the GLOBAL_NAMES parameter on both the databases:
>
> - **If the GLOBAL_NAMES parameter is set to FALSE on both the databases, then ensure that you do not change this value until the upgrade is complete, and all the Management Agents are switched over.**
>
> - **If the GLOBAL_NAMES parameter is set to TRUE on even one of the databases, and if both the databases have the same value for the GLOBAL_NAME parameter, then change the value of the GLOBAL_NAME parameter set on the new, cloned database to a value that is different from the one set on the old database.**

To link the earlier release of the repository to the upgraded repository, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, in the Select Upgrade Type section, select **2-System**. For information about these upgrade approaches, see Chapter 2.

   Enterprise Manager Grid Control refreshes the page and displays a table with a list of tasks you need to perform for the upgrade approach you selected.

4. In the OMS Upgrade Steps section, from the table, click **Create Link to Upgraded Repository**.

5. On the Create Upgraded Oracle Management Repository Link page, in the Repository Link Details section, do the following:

   a. Enter the connect string to connect to the upgraded Management Repository that will be used by Enterprise Manager Cloud Control.

   Note: You will find the connect string set as a value to the `EM_REPOS_CONNECTDESCRIPTOR` parameter of the `emgc.properties` file. This file is present in the OMS Instance Base directory (`gc_inst`). When you enter this value as the connect string, remove all backslashes (\) and white spaces if any.

   For example, the value in the `emgc.properties` file might be:

   ```
   (DESCRIPTION\=(ADDRESS_
   LIST\=(ADDRESS\=(PROTOCOL\=TCP)(HOST\=example.com)(PORT\=152
   1)))(CONNECT_DATA\=(SID\=emrep)))
   ```

   When you enter this value as the connect string, it must look like this:

   ```
   (DESCRIPTION=(ADDRESS_
   LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(
   CONNECT_DATA=(SID=emrep)))
   ```

   If you connect using service name instead of SID, then replace `SID` in the syntax with `SERVICE_NAME`.

   ---

   b. Enter the SYSMAN password of the upgraded Management Repository that will be used by Enterprise Manager Cloud Control.

   c. Enter the SYS password of the old Management Repository.

6. Click **Create DB Link**.

   Note: If you had already provided these details and linked the two repositories, and if you are updating the connect descriptor or the SYSMAN password, then click **Re-create DB Link**.

13.3 Discovering the Database Where the Management Repository Was Upgraded

---

Note: Follow these instructions only if you are upgrading using the 2-System upgrade approach.

After completing the 2-System upgrade, manually discover the database where you upgraded the Management Repository so that the database can be monitored in the Enterprise Manager Cloud Control Console.

For instructions, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

13.4 Reconfiguring the Software Library

> **Note:**   Follow these instructions only if you are upgrading using the 2-System upgrade approach.

To reconfigure an upgraded Software Library in a two-system upgrade, perform these steps:

> **Note:**
>
> ■ In a one-system upgrade, where the upgraded Enterprise Manager 12*c* comes up on the same host, reconfiguration is not required as the upgraded Software Library becomes functional when the system starts.
>
>   For a one system upgrade, where the upgraded Enterprise Manager 12*c* comes up on a different host, all the location(s) configured in the earlier, existing Enterprise Manager system for Software Library should be accessible from the new host.
>
> ■ In a two-system upgrade, and sometimes in a one-system upgrade on a different host, if the location configured in the earlier, existing Enterprise Manager system is a local file system path, then follow the instructions outlined in Section 9.1 for more information.

1. In Cloud Control, from **Setup** menu, select **Provisioning and Patching** and then, click **Software Library.**

2. If the Software Library has been upgraded, then on the Software Library home page, the following notification will appear:

    ```
    Software Library has been upgraded recently and has not been
    reconfigured yet. Software Library will be usable only after the
    reconfiguration has been performed. To initiate the reconfiguration
    process, click Post Upgrade Reconfiguration.
    ```

    Click **Post Upgrade Reconfiguration**, to reconfigure the Software Library.

3. On the Software Library Reconfigure Locations page, enter the new file system location that is to be configured, corresponding to the location configured in the earlier, existing Enterprise Manager system.
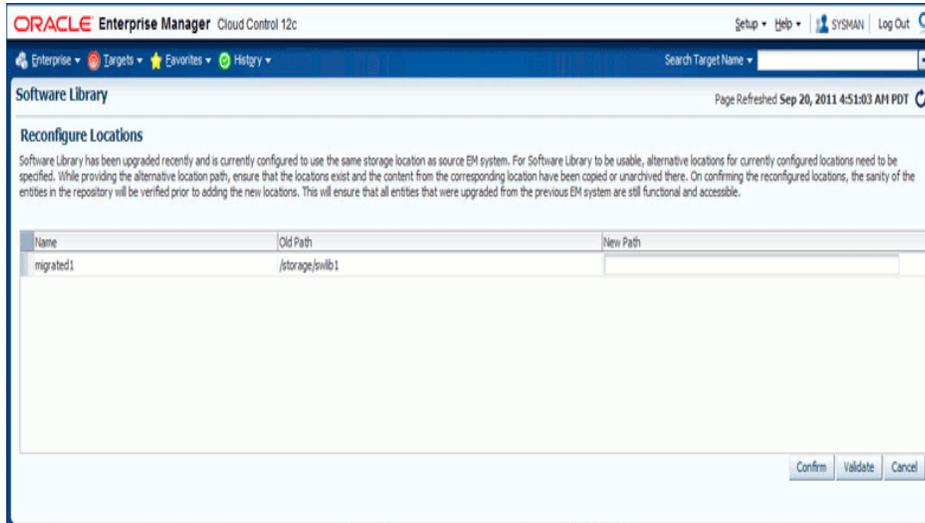
The archive of the location which was configured for the old Enterprise Manager system must be unzipped in the corresponding location on the new file system. Also, ensure that the new location, and all its unarchived files and directories have read/write permissions for the 12*c* OMS process owner.

For example:

In the earlier, existing Enterprise Manager system, lets assume that the Software Library was configured to use the following file system locations:

```
/shared/swlib1
/shared/swlib2
```

Figure 13–2   Two-System Reconfiguration
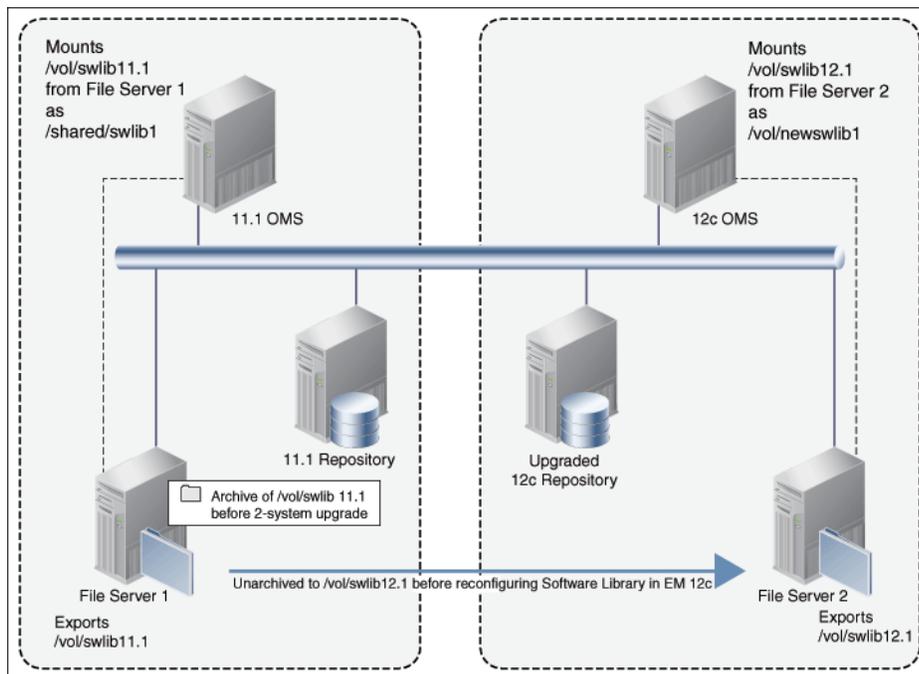
After an upgrade, on the Reconfigure Locations page, you will see:

```
migrated1, /shared/swlib1
migrated2, /shared/swlib2
```

where, `migrated1` and `migrated2` are names automatically assigned to the upgraded locations.

> **Note:** Since the new locations are only reconfiguring the OMS Shared File System storage locations, you must ensure that these new locations are either NFS-mounted shared locations or OCFS2 shared locations.

You should then provide an alternate file system path for each of the existing locations. For example, as follows:

```
migrated1, /shared/swlib1, /vol/newswlib1
migrated2, /shared/swlib2, /vol/newswlib2
```

Before confirming this configuration, you must ensure that the new locations have the corresponding back ups of the configured Software Library directories unarchived, which means, `/vol/newswlib1` should have the same content as `/shared/swlib1`, `/vol/newswlib2` should have the same content as `/shared/swlib2` had when the backup was taken.

a. Click **Validate** to submit a validation job that performs exhaustive validation checks on the entities being migrated. Ensure that you track this job to completion. If there are any validation errors, then it will appear on the job step. Some of the common validation errors are:

- The new location specified for reconfiguration does not exist.

- The new location specified for reconfiguration does not have read/write permissions for the OMS process owner.

- The content of the location(s) configured in the old Enterprise Manager Software Library is not restored in the corresponding new location specified for reconfiguration.

b. After a successful validation, click **Confirm** to reconfigure the Software Library. A job starting with `SwlibUpgradeLocations` is submitted, which must be tracked to successful completion, following which you should initiate any patching or provisioning tasks.

13.5 Checking the Agent Upgrade Status

> **Note:** Perform these steps in the Enterprise Manager Grid Control console of the earlier release.

To check the status of the agent upgrade operations, follow these steps:

1. In Grid Control, click **Deployments**.

2. On the Deployments page, in the Upgrade section, click **Enterprise Manager 12c Upgrade Console**.

3. On the Upgrade Console page, do the following:

- For macro-level details, in the Agent Upgrade Status section, view the count displayed against the following:

  - **Successful**, to identify the Management Agents that have been successfully upgraded.

  - **Failed**, to identify the Management Agents that failed to get upgraded.

  - **In Progress**, to identify the Management Agents that are currently being upgraded.

  - **Not Started**, to identify the Management Agents that are yet to be upgraded.

  - **Not Supported**, to identify the Management Agents that are not supported in the upgraded Enterprise Manager system because Oracle Management Agent 12*c* is not released for a particular platform.

    To drill down and view more information, click the count value. Enterprise Manager Grid Control displays the Agent Upgrade Status page that provides information.

- For micro-level details, in the Other Links section, click **Agent Upgrade Status**.

  On the Agent Upgrade Status page, do the following:

  - To filter the list according to your needs and view only the upgrade operations that interest you, use the search functionality.

    For example, to view only the deployment operations that have failed, select **Deployment** from the Operation Type list, and select **Failed** from the Operation Status list, and click **Search**.

    Note: An Operation Type refers to a job submitted for a particular agent upgrade step such as *Deployment*, *Configuration*, *Health Check*, *Upgrade*, or *Switch Over*. An operation name refers to the operation name you specified while submitting any of these jobs. And each of these operations can have a status such as *Not Started*, *In Progress*, *Success*, *Not Supported*, *Failed*, or *Pending Report Verification*.

  - To deploy the agent software, select one or more Management Agent from the table, and click **Deploy and Configure Agent**.

    Note: You cannot deploy and configure Oracle Management Agent 12*c* for problematic Management Agents. To identify problematic Management Agents, see Section 10.6.5.

     Also, you can deploy and configure Oracle Management Agent 12*c* only on existing Management Agents that are either completely upgradable or upgradable with missing plug-ins. To identify the upgradability status of the Management Agents, see Section 10.6.3.

  - To check the health and readiness of the deployed Management Agent, select one or more Management Agents, and click **Check Agent Readiness**.

  - To view the readiness check details, select one or more Management Agents, and click **View and Verify Health Check Reports**.

On the Agent Readiness Check Details page, review the reports one by one. If you want to confirm that you have verified the report, then select the Management Agent and click **Verify and Sign Off Report**. If you want to view more details about the readiness check, then select the Management Agent and click **View Detailed Report**.

– To switch over the agents, select one or more Management Agents, which have successfully been deployed, configured, and health-checked, and click **Switch Agent**.

13.6 Performing General Postupgrade Tasks

This section describes the postupgrade steps you must follow after upgrading to Enterprise Manager Cloud Control. In particular, this section describes the following postupgrade steps:

- Performing General Postupgrade Steps After Upgrading to Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5)

- Patching Oracle WebLogic Server

- Upgrading Oracle Exalogic System Targets

- Restarting the Central Agent When Additional OMS Is Upgraded

- Stopping the OCM Scheduler

- Deleting Obsolete Targets

- Cleaning Up Stale Compliance Standards of Deleted Targets

- Updating Incident Rules

- Disabling Incident Rule Sets

- Resolving Metric Collection Errors for SOA Target

- Enabling Linux Patching After Upgrading Enterprise Manager

- Updating the Console URL

- Redoing the Custom Configurations

- Reconfiguring Oracle WebLogic Server with Custom Certificates

- Restarting the Management Agent After Upgrading an Additional OMS

- Enabling the Compliance Standards That Were Disabled in the Previous Release

- Resetting the Java Heap Memory Arguments

- Enabling Upgrade of Job Types That Were Skipped Before the Upgrade of the Enterprise Manager System

13.6.1 Performing General Postupgrade Steps After Upgrading to Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5)

Perform the following general postupgrade tasks:

1. Follow the postupgrade steps outlined in the chapter that describes how to install a new Enterprise Manager system, in the *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

2. As a sanity check, ensure that all the database parameters are reset to their original values that existed before you started the upgrade operation, particularly for the `job_queue_processes` parameter.

3. *(Only for 1-System Upgrade Approach)* Start the Management Agent that monitors the *Management Services and Repository* target. Before starting the 2-system upgrade, you would have shut it down to prevent it from connecting to the Management Repository for metric collections. After upgrade, make sure you start it.

13.6.2 Patching Oracle WebLogic Server

While upgrading the Enterprise Manager system, in the installer if you had provided a middleware home location that already contained an Oracle WebLogic Server of the supported version, which you had installed yourself before invoking the installer, then make sure you apply the patches 14482558, 13349651, and 16080294 on that Oracle WebLogic Server. Without these patches, the additional OMS installation will fail.

These patches are required only if you are using an Oracle WebLogic Server that you installed yourself. They are not required if you provided an empty middleware home location and let the installer install the Oracle WebLogic Server while performing the upgrade.

In addition, apply the WebLogic Server PSU 10.3.6.8, as it contains several performance and security fixes.

13.6.3 Upgrading Oracle Exalogic System Targets

> **Note:** This section is NOT applicable for upgrade from 10g Release 5 (10.2.0.5).

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 12*c* Release 4 (12.1.0.4), and if you had not performed this step when you upgraded to 12*c* Release 4 (12.1.0.4), then perform this step now in 12*c* Release 5 (12.1.0.5). Ensure that the Management Agent in this case is either 12*c* Release 5 (12.1.0.5), 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2).

- If you upgraded from Enterprise Manager Cloud Control 12*c* Release 3 (12.1.0.3), and if you had not performed this step when you upgraded to 12*c* Release 3 (12.1.0.3), then perform this step now in 12*c* Release 5 (12.1.0.5). Ensure that the Management Agent in this case is either 12*c* Release 5 (12.1.0.5), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2).

- If you upgraded from Enterprise Manager Cloud Control 12*c* Release 2 (12.1.0.2), and if you had not performed this step when you upgraded to 12*c* Release 2 (12.1.0.2), then perform this step now in 12*c* Release 5 (12.1.0.5). Ensure that the

Management Agent in this case is either 12*c* Release 5 (12.1.0.5) or 12*c* Release 2 (12.1.0.2).

- If you upgraded from 11*g* Release 1 (11.1.0.1) to 12*c* Release 5 (12.1.0.5), then the Management Agent must be 12*c* Release 5 (12.1.0.5).

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.

13.6.4 Restarting the Central Agent When Additional OMS Is Upgraded

After you upgrade an additional OMS of 10*g* Release 5 (10.2.0.5) to 12*c* Release 5 (12.1.0.5) using 1-system upgrade approach, the targets that begin with `/EMGC_GCDomain/GCDomain` might appear as if they are down.

```
/EMGC_GCDomain/GCDomain/EMGC_OMS2
/EMGC_GCDomain/GCDomain/EMGC_OMS2/emgc
/EMGC_GCDomain/GCDomain/EMGC_OMS2/empbs
/EMGC_GCDomain/GCDomain/EMGC_OMS2/OCMRepeater
/EMGC_GCDomain/GCDomain/EMGC_OMS2/oracle.security.apm(11.1.1.3.0)
```

To resolve this issue, first check if the Management Agent on the additional OMS host is up, then refresh the Weblogic domain in the Enterprise Manager Cloud Control Console, and then restart the Management Agent on the additional OMS host.

13.6.5 Stopping the OCM Scheduler

If OCM was installed in the Enterprise Manager system that you upgraded, then follow these steps:

- If you upgraded from Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5), then follow these steps:

  1. Set the environment variable `ORACLE_HOME` to the upgraded OMS home.

     – In bash terminal, run the following command:

        ```
        export ORACLE_HOME=<absolute_path_to_oms_home>
        ```

     – In other terminals, run the following command:

        ```
        setenv ORACLE_HOME <absolute_path_to_oms_home>
        ```

  2. Stop the OCM scheduler:

     ```
     $ORACLE_HOME/ccr/bin/emCCR stop
     ```

     Note: If you have the OCM scheduler installed on Oracle Management Agent, then repeat these steps on the Management Agent home as well. In this case, set the environment variable `ORACLE_HOME` to the Management Agent home as described in Step (1), and perform Step (2) from its home.

- If you upgraded from Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1), then

  1. Set the environment variable `ORACLE_CONFIG_HOME` to the OMS instance home:

-   In bash terminal, run the following command:

    ```
    export ORACLE_CONFIG_HOME=<absolute_path_to_gc_inst>
    ```

-   In other terminals, run the following command:

    ```
    setenv ORACLE_CONFIG_HOME <absolute_path_to_gc_inst>
    ```

2. Set the environment variable `ORACLE_HOME` to the OMS home:

    ```
    setenv ORACLE_HOME <absolute_path_to_oms_home>
    ```

3. Stop the OCM scheduler:

    ```
    $ORACLE_HOME/ccr/bin/emCCR stop
    ```

Note: If you have the OCM scheduler installed on Oracle
Management Agent, then repeat these steps on the Management
Agent home as well. In this case, skip Step (1), set the environment
variable `ORACLE_HOME` to the Management Agent home as described in
Step (2), and perform Step (3) from its home.

13.6.6 Deleting Obsolete Targets

Targets that were created to monitor the earlier release of Enterprise Manager are not
deleted automatically. This is because you might have created notification rules, metric
threshold settings, compliance standard settings, jobs, and so on for these targets, and
you might want to copy them to the new Oracle WebLogic Server targets of Enterprise
Manager Cloud Control. After copying them, manually delete these targets.

This section describes how you can delete these obsolete targets. In particular, this
section covers the following:

-   Deleting the Obsolete Targets After 1-System Upgrade

-   Deleting the Obsolete Targets After 2-System Upgrade

13.6.6.1 Deleting the Obsolete Targets After 1-System Upgrade

-   After upgrading from Enterprise Manager Cloud Control 12*c* Release 4 (12.1.0.4),
    12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2), you will not have any obsolete
    targets to delete. In this case, you can ignore this section.

-   After upgrading from Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5),
    the following targets are not deleted automatically. You must delete them
    manually.

    -   EM Website

    -   EM Website System

    -   Microsoft Operations Manager Connector Target *(generic_mom_managed_host)*

    -   The following targets of each old OMS. You can delete these by deleting the
        top-level Oracle Application Server target of each old OMS.

        *   Oracle Application Server

        *   OC4J

        *   Oracle HTTP Server

        *   Web Cache

- After upgrading from Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1), the following targets are not deleted automatically. You must delete them manually.

  - EM Website

  - EM Website System

  - Microsoft Operations Manager Connector Target *(generic_mom_managed_host)*

  - The following targets of each old OMS. You can manually delete these by deleting the top-level farm target `secFarm_GCDomain.`

    * Oracle Fusion Middleware Farm

    * Oracle Weblogic Domain

    * Application Deployment

    * Metadata Repository

> **Note:** After you upgrade your Enterprise Manager using the 1-System upgrade approach, these targets might appear as if they are up and running. This status is false. In any case, do not investigate to resolve the status issue. Manually delete the targets as they are no longer needed in the Enterprise Manager Cloud Control.

13.6.6.2 Deleting the Obsolete Targets After 2-System Upgrade

- Manually delete these targets:

  - EM Website

  - EM Website System

  - Microsoft Operations Manager Connector Target *(generic_mom_managed_host)*

- As part of 2-system upgrade, the central agent and the targets monitored by it are automatically deleted, and therefore, you need not manually delete the old central agent.

  If you want to continue to monitor some of the targets that were automatically deleted, then install Oracle Management Agent 12c on that host. For instructions, see *Oracle Enterprise Manager Cloud Control Basic Installation Guide*.

13.6.7 Cleaning Up Stale Compliance Standards of Deleted Targets

From the Enterprise Manager Cloud Control Console (or from EM CLI), when you delete a target that is associated with a user-defined compliance standard, the target is deleted from the Enterprise Manager system but its user-defined compliance standard is not removed completely. This causes an issue when attempting to edit this compliance standard later on. To circumvent this issue, after upgrading the Enterprise Manager system, manually delete all stale compliance-related data for the deleted targets.

To verify if you have any stale, compliance-related data for the deleted targets, run the following SQL query manually as SYSMAN user on the Management Repository. If the result of the query is greater than zero, then manually delete the stale data.

```
select count(*) from em_cs_tgt_assoc_txf_req where root_target_guid not in
(select target_guid from mgmt_targets);
```

To manually delete all stale compliance-related data for the deleted targets, follow these steps:

1. Log in to the database, which houses the Management Repository, as SYSMAN user.

2. Run the cleanup script uploaded to My Oracle Support note 1643222.1:

   ```
   SQL>@cleanup_stale_data.sql
   ```

3. Run the following SQL query manually, and make sure the output is zero:

   ```
   SQL> select count(*) from sysman.em_cs_tgt_assoc_txf_req where root_
   target_guid not in (select target_guid from mgmt_targets);
   ```

13.6.8 Updating Incident Rules

During upgrade, all *Notification Rules* created in the earlier release of Enterprise Manager are automatically migrated to corresponding *Incident Rulesets* that act on the targets originally defined in the *Notification Rule*. For more information about *Incident Rulesets*, see Appendix B.

However, for situations where the target type modeling has changed in Enterprise Manager Cloud Control, you must manually adjust the rules. This section describes how you can manually adjust the rulesets.

In particular, this section covers the following:

- About Updating the Incident Rules

- Updating the Incident Rules for Moved Metrics

- Updating the Incident Rules for Renamed Metrics

- Deleting Incident Rules

13.6.8.1 About Updating the Incident Rules

In the earlier releases of Enterprise Manager, *OMS and Repository* was a common target type defined for all the OMS instances in your environment. And the metrics collected for the different OMS instances were shown within this common target type.

However, in Enterprise Manager Cloud Control, in addition to the target type *OMS and Repository*, a new target type *Oracle Management Service* has been introduced to represent each of the OMS instances in your environment. Therefore, if you have five OMS instances in your environment, you will see one target type *OMS and Repository* and five instances of the target type *Oracle Management Service* - one for each OMS.

While the target type *OMS and Repository* captures metrics that are common to all the OMS instances in your environment, the target type *Oracle Management Service* captures metrics specific to an OMS.

Table 13–1 lists the metrics and describes the changes done to them due to the introduction of a new target type *Oracle Management Service*, and the actions you must take for each change.

Table 13–1   Changes to Metrics and Updates to Be Done

Change Type	Change Description	Affected Metrics	Action to Be Taken by You
Retained	Some metrics have been retained for the same target type —*OMS and Repository*.	The following metrics have been retained: - Collections Waiting To Run - DBMS Job Invalid Schedule - DBMS Job Processing Time (% of Last Hour) - DBMS Job UpDown - Dequeue Status - Enqueue Status - Job Step Backlog - Notification UpDown - Number of Active Agents - Overall Files Pending Load - Agent - Overall Rows Processed by Loader in the Last Hour - Number of Agent Restarts - Target Addition Rate (Last Hour) - User Addition Rate (Last Hour)	No changes required.
Moved	Some metrics have been moved to the individual target type—*Oracle Management Service*.	The following metrics have been moved: - Loader Throughput (rows per second) - Total Loader Runtime in the Last Hour (seconds) - Management Service Status - Job Dispatcher Processing Time, (% of Last Hour) - Service Status - Repository Session Count [**Note:** This metric has moved under the child targets *OMS Console* and *OMS Platform*]	Set up new incident rules to respond to the metrics that have been moved to different target types. See Section 13.6.8.2
Renamed	Some metrics have been renamed for easy undersanding.	The following metrics have beenhave been renamed: - Average Notification Delivery Time (ms) Per Method [Renamed to Average Notification Time (seconds)] - Notifications Waiting [Renamed to Pending Notifications Count]	Update the incident rules set to the metrics that have been renamed. See Section 13.6.8.3

Table 13–1   (Cont.) Changes to Metrics and Updates to Be Done

Change Type	Change Description	Affected Metrics	Action to Be Taken by You
Decommiss ioned	Some metrics have been decommissioned due to lack of support in Enterprise Manager Cloud Control.	The following metrics have been decommissioned: ■ Number of Duplicate Targets ■ Notification Processing Time (% of Last Hour) ■ Overall Files Pending Load - Loader ■ Notifications Waiting (**Note:** This is different from the Notifications Waiting metric that is renamed. This one does not have objects, while the one renamed has objects.)	Remove decommissioned metrics from the incident rules. See Section 13.6.8.4

13.6.8.2 Updating the Incident Rules for Moved Metrics

To update the incident rules set to the metrics that have been moved to the individual target type *Oracle Management Service* in Enterprise Manager Cloud Control, follow these steps:

1. In Cloud Control, from the **Setup** menu, select **Incidents**, and then, click **Incident Rules**.

2. On the Incident Rules page, from the table, select an incident rule created for Oracle Management Service (OMS), click **Edit**.

3. On the Edit Rule Set page, in the Rules tab, select the event rule that operates on the moved metrics, and click **Edit**.

    Enterprise Manager displays the Edit Rule Wizard where you can edit the incident rule for the selected incident rule set.

4. In the Edit Rule Wizard, do the following:

    a. On the Select Events page, select the metrics listed in the second row of Table 13–1, and click **Remove**.

    b. Click **Next**.

    c. On the Add Actions page and the Specify Name and Description page, click **Next** without making any change.

    d. On the Review page, click **Continue**.

5. Click **Save**.

    Enterprise Manager displays the Incident Rules page.

6. On the Incident Rules page, click **Create Rule Set**.

7. On the Create Rule Set page, enter a unique name for the rule set.

8. In the Targets tab, select **All targets of types**, and select **Oracle Management Service**.

9. In the Rules tab, click **Create**.

10. In the Select Type of Rule to Create dialog, select **Event Rule**, and click **Continue**.

Enterprise Manger displays the Create New Rule Wizard where you can create a new incident rule set.

11. In the Create New Rule Wizard, do the following:

   a. On the Select Events page, from the **Event Type** list, select **Metric Alert**.

   > **Note:** For the metric *Management Service Status*, select **Target Availability** from the **Event Type** list.

   b. Select **Specific metric alerts**, and click **Add**.

   c. In the Select Specific Metric Alert dialog, do the following:

      a. In the Search region, from the **Target Type** list, select **Oracle Management Service**, and then, click **Search**.

      b. From the table, select the moved metrics listed in the second row of Table 13–1.

      c. In the Severity and Corrective Action Status region, from the **Severity** list, select an appropriate severity level.

      d. Click **OK**.

   d. Click **Next**.

   e. On the Add Actions page and the Specify Name and Description page, click **Next** without making any change.

   f. On the Review page, click **Continue**.

12. Click **Save**.

   Enterprise Manager displays the Incident Rules page.

   > **Note:** Repeat the procedure for all other incident rules created for the OMS.

13.6.8.3 Updating the Incident Rules for Renamed Metrics

To update the incident rules set to the metrics that have been renamed in Enterprise Manager Cloud Control, follow these steps:

1. In Cloud Control, from the **Setup** menu, select **Incidents**, and then, click **Incident Rules**.

2. On the Incident Rules page, from the table, select an incident rule created for Oracle Management Service (OMS), click **Edit**.

3. On the Edit Rule Set page, in the Rules tab, select the event rule that operates on the renamed metrics, and click **Edit**.

   Enterprise Manager displays the Edit Rule Wizard where you can edit the incident rule for the selected incident rule set.

4. In the Edit Rule Wizard, do the following:

   a. On the Select Events page, select the metrics listed in the third row of Table 13–1, and click **Remove**.

   b. Click **Add**.

      c. In the Select Specific Metric Alert dialog, do the following:

          a. In the Search region, from the **Target Type** list, select **OMS and Repository**, and then, click **Search**.

          b. From the table, select the renamed metrics listed in the third row of Table 13–1.

          c. In the Severity and Corrective Action Status region, from the **Severity** list, select an appropriate severity level.

          d. Click **OK**.

      d. Click **Next**.

      e. On the Add Actions page and the Specify Name and Description page, click **Next** without making any change.

      f. On the Review page, click **Continue**.

> **Note:** Repeat the procedure for all other incident rules created for the OMS.

13.6.8.4 Deleting Incident Rules

To remove the decommissioned metrics from the the incident rules, follow these steps:

1. In Cloud Control, from the **Setup** menu, select **Incidents**, and then, click **Incident Rules**.

2. On the Incident Rules page, from the table, select an incident rule created for Oracle Management Service (OMS), click **Edit**.

3. On the Edit Rule Set page, in the Rules tab, select the rule *Metric Alerts Event Rule*, and click **Edit**.

Enterprise Manager displays the Edit Rule Wizard where you can edit the incident rule for the selected incident rule set.

4. In the Edit Rule Wizard, do the following:

      a. On the Select Events page, select the metrics listed in the last row of Table 13–1, and click **Remove**.

      b. Click **Next**.

      c. On the Add Actions page and the Specify Name and Description page, click **Next** without making any change.

      d. On the Review page, click **Continue**.

> **Note:** Repeat the procedure for all other incident rules created for the OMS.

13.6.9 Disabling Incident Rule Sets

If you upgraded using the 2-System upgrade approach, then disable the default incident rule sets. If you do not disable them, the incidents are automatically created for all critical metric alerts.

To disable the default incident rule sets, follow the steps:

1. In Cloud Control, from the **Setup** menu, select **Incidents,** and then select **Incident Rules.**

2. On the Incident Rules - All Enterprise Rules page, scroll down the table, and expand **Incident management Ruleset for all targets**.

3. Select the row for the rule set you want to disable.

4. From the **Actions** menu, click **Disable.**

5. On the pop-up window, click **OK.**

6. Repeat Step (3) to Step (5) for every rule set you want to disable.

7. Once all the rule sets are disabled, ensure that the **Enabled** column of the table shows *No* with a warning icon next to it.

13.6.10 Resolving Metric Collection Errors for SOA Target

If you were monitoring a SOA target in your earlier release of Enterprise Manager, then in the health report you generated as described in Section 11.2, you might have seen metric collection errors for the metrics *Top SOA SQL Queries* and *Dehydration Store Tables*.

To resolve that issue, access the Monitoring Configuration page of the SOA target, and provide the database credentials.

13.6.11 Enabling Linux Patching After Upgrading Enterprise Manager

> **Note:** This section is applicable only when you upgrade from Enterprise Manager 10g Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11g Grid Control Release 1 (11.1.0.1) to Enterprise Manager Cloud Control 12c.

If you had scheduled any jobs of the types `DownloadLatestPkgs` or `UpdateHostPackages` in the previous release, then after upgrading to 12c Release 5 (12.1.0.5), those jobs will fail due to missing credentials. Therefore, to resolve this issue, you can do one of the following:

- Resubmitting All Active Linux Patching Jobs After Stopping the Jobs and Resetting their Credentials

- Resubmitting All Active Linux Patching Jobs After Resetting the Credentials, but without Stopping the Jobs

13.6.11.1 Resubmitting All Active Linux Patching Jobs After Stopping the Jobs and Resetting their Credentials

After the upgrade, you must stop all active Linux patching jobs that were submitted prior to the upgrade, reset their credentials, and then resubmit the jobs on the same targets. To do so, follow the instructions outlined in the following sections:

- Resubmitting DownloadLatestPackages Jobs After Stopping them and Resetting their Credentials

- Resubmitting UpdateHostPackages Jobs After Stopping Them and Resetting their Credentials

> **Note:** If you do not want to stop the active Linux patching jobs, then see Section 13.6.11.2.

13.6.11.1.1 Resubmitting DownloadLatestPackages Jobs After Stopping them and Resetting their Credentials

To stop and resubmit all `DownloadLatestPackages` jobs, follow these steps:

1. Stop active jobs which were scheduled prior to upgrade as follows:

   a. From the Enterprise menu, select **Job** and then **Activity**. The Job Activity page is displayed.

   b. In the Job Activity page, click the **Advanced Search** link.

   c. In the Advanced Search options, select Job Type as **DownloadLatestPkgs**, Target Type as **Host**, Status as **Active**, Scheduled Start as **All**, and then click **Go**.

   d. In the Advanced Search result, select each job listed in the table and click **Stop**.

2. For each host target on which an active **DownloadLatestPkgs** job was stopped, resubmit a new **DownloadLatestPkgs** job on it as follows:

   a. From the **Setup** menu, select **Provisioning and Patching** and then **Linux Patching**. The Patching Setup page is displayed.

   b. In the Patching Setup page, click **Setup RPM Repository**.

   c. In the Setup RPM Repository page, select the Host target and set Normal Host Credentials and Privileged Host Credentials for this host target.

   d. Click **Apply** to submit the new job.

13.6.11.1.2 Resubmitting UpdateHostPackages Jobs After Stopping Them and Resetting their Credentials

To stop and resubmit all `UpdateHostPackages` jobs, follow these steps:

1. Stop active jobs which were scheduled prior to upgrade as follows:

   a. From the Enterprise menu, select **Job** and then **Activity**. The Job Activity page is displayed.

   b. In the Job Activity page, click the **Advanced Search** link.

   c. In the Advanced Search options, select Job Type as **UpdateHostPackages**, Target Type as **All Target Types against which jobs were submitted**, Status as **Active**, Scheduled Start as **All**, and then click **Go**.

   d. In the Advanced Search result, select each job listed in the table and click **Stop**.

2. For each group target on which an active **UpdateHostPackages** job was stopped, resubmit a new **UpdateHostPackages** job on it as follows:

   a. From the **Setup** menu, select **Provisioning and Patching** and then **Linux Patching**.

   b. In the Patching Setup page, click **Setup Groups**. The Setup Groups page is displayed.

   c. In the Setup Groups page, select the group on which you stopped an active UpdateHostPackages job and click **Edit**. The Edit Group wizard is displayed.

   d. In the Edit Group: Properties page, click **Next**.

e. In the Edit Group: Package Repositories page, click **Next**.

f. In the Edit Group: Credentials page, either use Host Preferred Credentials or Override Preferred Credentials and specify Normal Host Credentials and Privileged Host Credentials. Click **Next**.

> **Note:** Before editing this step, ensure that the host Preferred credentials are set already or the appropriate Named Credentials have been created already. If not, from the **Setup** menu, select **Security** and then **Named Credentials** to create Named Credentials or **Preferred Credentials** to set the Preferred Credentials for the host targets contained in the Linux Patching group.

---

g. In the Edit Group: Review page, click **Finish** to submit the new job.

13.6.11.2 Resubmitting All Active Linux Patching Jobs After Resetting the Credentials, but without Stopping the Jobs

After upgrade, you must reset the credentials of all active Linux patching jobs that were submitted prior to the upgrade, and then resubmit the jobs. To do so, follow these steps:

1. From the **Enterprise** menu, select **Job,** then select **Activity.**

2. On the Job Activity page, click **Advanced Search.**

3. In the Advanced Search region, in the **Name** field, enter the job name `PACKAGES UPDATE%`, and from the **Job Type** list, select **UpdateHostPackages.** Click **Go.**

4. In the search results table, select the job and click **Edit.**

5. On the Edit 'UpdateHostPackages' Job page, click the **Credentials** tab.

6. In the Credentials tab, set the necessary credentials.

7. Click **Submit.**

8. Repeat Step (3) to Step (7) for the job name `DOWNLOADLATESTPKGS%` of the job type **DownloadLatestPkgs.**

13.6.12 Updating the Console URL

If you have a multi-OMS environment with a Server Load Balancer (SLB) configured for the upgraded OMS instances, then make sure you update the console URL on the Management Services and Repository page. The console URL you enter here is used to compose links pointing back to the Enterprise Manager Cloud Control Console in the e-mails sent by Enterprise Manager.

To update the Console URL, follow these steps:

1. From the **Setup** menu, select **Manage Cloud Control,** then select **Health Overview.**

2. On the Management Services and Repository page, in the Overview section, click **Edit** against the **Console URL** label, and modify the URL to the SLB URL.

   For example, `http://www.example.com`, `https://www.example.com:4443`.

> **Note:** Do NOT end the Console URL with `/em`.

---

3. Verify if the updated console URL appears correctly in the e-mails sent by Enterprise Manager.

13.6.13 Redoing the Custom Configurations

Upgrade to 12c Release 5 (12.1.0.5) 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. For example, any LDAP configuration in the emd.properties file is not going to be carried over, so you will have to reconfigure it on the emd.properties file after the upgrade.

13.6.14 Reconfiguring Oracle WebLogic Server with Custom Certificates

> **Note:**
>
> - This section is applicable only if you are upgrading from 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5).
>
> - 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) in 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2), then after upgrading to 12c Release 5 (12.1.0.5), 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*.

   ```
   $<OMS_Home>/bin/emctl secure wls <options>
   ```

2. Stop all the OMS instances:

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

3. Start all the OMS instances:

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

13.6.15 Restarting the Management Agent After Upgrading an Additional OMS

After upgrading the first OMS of 12*c* Release X (12.1.0.X) to 12*c* Release 5 (12.1.0.5), Oracle strongly recommends that you immediately upgrade the central agent on that host as described in Chapter 4.

However, if you did not upgrade the central agent on that host, and instead proceeded with the upgrade of an additional OMS from 12*c* Release X (12.1.0.X) to 12*c* Release 5 (12.1.0.5), 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.

13.6.16 Enabling the Compliance Standards That Were Disabled in the Previous Release

After you upgrade to 12*c* Release 5 (12.1.0.5), the compliance standards that were disabled in the previous release are automatically enabled in 12*c* Release 5 (12.1.0.5). If you want to continue to have these compliance standards disabled, then manually disable them for each target in 12*c* Release 5 (12.1.0.5) after you upgrade. To do so, follow these steps:

1. From the **Enterprise** menu, select **Compliance,** then **Library.**

2. On the Compliance Library page, click the **Compliance Standards** tab.

3. In the Compliance Standards tab, select a compliance standard and click **Associate Targets.**

4. On the Compliance Standard Target Association page, select a target and click **Edit.**

5. On the Target Settings for Compliance Standard page, in the left tree view, select the rule node, and in the right panel, from the **Compliance Standard Rule Evaluation Status** list, select **Disabled.** Click **OK.**

6. On the Compliance Standard Target Association page, click **OK.**

13.6.17 Resetting the Java Heap Memory Arguments

After upgrading to 12*c* Release 5 (12.1.0.5), the Java heap memory arguments are automatically set to the default values, and therefore, any customization done to the arguments in the previous release of Enterprise Manager Cloud Control are not persisted to the upgraded OMS. You must manually reset the Java memory arguments to the custom values.

For example, if you had customized the heap size in the WebLogic Server configuration file earlier to 8 GB, then after upgrading to 12*c* Release 5 (12.1.0.5), the heap size is reset to a default value of 4 GB. Therefore, as a postupgrade step, you must manually reset the heap size to the custom value of 8 GB.

In 12*c* Release 3 (12.1.0.3) and 12*c* Release 2 (12.1.0.2), the `JAVA_EM_MEM_ARGS` argument was supported, which not only changed the memory settings of the OMS but also the memory settings of the other components integrated with Enterprise Manager Cloud Control, such as Oracle BI Publisher. This argument is no longer supported in 12*c* Release 4 (12.1.0.4) or higher.

In 12*c* Release 4 (12.1.0.4) or higher, the following Java heap memory arguments are supported.

- `OMS_HEAP_MIN`

- `OMS_HEAP_MAX`

- `OMS_PERMGEN_MIN`

- `OMS_PERMGEN_MAX`

To reset the aforementioned Java heap memory arguments after upgrading to 12*c* Release 5 (12.1.0.5), follow these steps:

1. Check the current value set for the argument on the OMS:

```
emctl get property -name <argument_name>
```

For example,

```
emctl get property -name OMS_HEAP_MAX
```

2. Reset the value:

```
emctl set property -name <argument_name> -value <value_followed_by_G_
or_M>
```

For example,

```
emctl set property -name OMS_HEAP_MAX -value 8192M
```

3. Stop the OMS:

```
emctl stop oms -all
```

4. Start the OMS:

```
emctl start oms
```

5. Verify the changes in one of the following steps:

- Access the `emgc.properties` file in the OMS base instance home directory (`gc_inst`), and check the value of the argument you reset.

- Run the following command and check the value of the argument you reset.

  ```
  ps -aef | grep weblogic.Server | grep EMGC_OMS1
  ```

13.6.18 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 Step 2 (j) of Table 4–1, 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;
```

13.7 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

13.7.1 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:**
>
> - If you want to prevent the DDMP jobs from running immediately by default, then see Section 10.3 and Section 10.2 (Step 6).
>
> - 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.

13.7.2 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**.

13.8 Tracking the Status of Accrued Data Migration Jobs

> **Note:** This section is applicable only for 2-system upgrade of 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) of Enterprise Manager system.

This section describes the following:

- About Accrued Data Migration Jobs

- Tracking the Status of Accrued Data Migration Jobs

13.8.1 About Accrued Data Migration Jobs

Accrued Data Migration is a post-upgrade activity to migrate the accrued data stored in an earlier release of Oracle Management Repository (Management Repository) to the

upgraded Management Repository. The accrued data relates to functional areas such as blackouts, alerts, events, metrics, and so on.

> **Note:** The *Accrued Data Migration* process does not migrate any of the following changes if they were done after the Management Repository was backed up. If you want these changes in the upgraded Enterprise Manager system, you must manually redo these changes after upgrade.
>
> - Security data (new users created, passwords changed)
> - Jobs created, deleted, or submitted
> - Customized deployment procedures
> - Patches
> - Targets added or deleted
> - Reports created, modified, or deleted
> - Software Library configuration changes
> - Templates created, modified, or deleted
> - User-defined metrics
>
> Check the Diff Report as described in Section 13.9 to know what all changes are not migrated via the ADMP process and what needs to be migrated manually.

The migration activity is essentially a job in Enterprise Manager that runs in the background immediately after the earlier releases of Oracle Management Agents (Management Agents) are switched over to Oracle Management Agent 12*c*, particularly in the case of 2-System upgrade approach.

As part of the upgrade process, when you switch over the earlier releases of Oracle Management Agents to Oracle Management Agent 12*c*, the new Management Agents start communicating with Enterprise Manager Cloud Control, and start uploading data to the upgraded Oracle Management Repository (Management Repository).

In the 1-System upgrade approach, the entire Enterprise Manager system is upgraded, and therefore, all the Management Agents are switched over at a given time. In this approach, earlier releases of Management Agents cannot coexist with the upgraded ones, and once they are switched over, the upgraded Management Agents upload data only to one Management Repository at any given point, which is the upgraded repository. Therefore, there is no scope for accrued data.

However, in the 2-System upgrade approach, you can choose to switch over your Management Agents in phases. When one set of Management Agents are switched over, they start uploading data about their hosts and targets to the upgraded Management Repository, whereas the ones that are not switched over yet, continue to upload data about their hosts and targets to the old Management Repository. Therefore, the earlier releases of Management Agents coexist with the upgraded ones when only some of them are switched over, and under such circumstances, the data is uploaded to the old Management Repository as well as the new one at a given point. However, note that only one Management Agent represents a host at any given time, so the coexistence does not indicate two Management Agents on the same host. It only indicates an earlier release of Management Agent monitoring a host that coexists with an upgraded Management Agent monitoring another host.

When you swtich over the next set of Management Agents in the next phase, although they start uploading data to the upgraded Management Repository, the data uploaded to the old Management Repository before being switched over continues to exist in the old Management Repository. This data is called the *Accrued Data*, and the process of migrating this accrued data from the old Management Repository to the new one is called the *Accrued Data Migration Process*.

Note: The accrued data migration jobs migrate ECM history data with the following exceptions:

- If the ECM history data is associated with a target that is no longer part of the Enterprise Manager system, then the ECM history data for that target is not migrated to Enterprise Manager Cloud Control.

- For Oracle WebLogic Server targets, the WebLogic configuration data is not migrated. This configuration data has changed significantly in Enterprise Manager Cloud Control.

- As part of the data migration process, summary counts are now calculated and displayed in the ECM Summary region. For migrated data, the summary counts are only calculated for the last seven days.

If you do not see key values that you saw in the past, or if you see new values as key values, then note that this is an expected behavior. Some snapshots have had metadata changes in the last release and key values have changed. If metadata keys were removed from the metadata, those values will no longer be displayed in the Enterprise Manager Cloud Control as key columns, though the data is still present in the migrated database. If existing columns are now flagged as key columns, those columns will start appearing as key columns for newly collected data only. For new columns that are added either as key columns or non key columns, data will start appearing for newly collected data only.

Note:

- If you want to prevent the ADMP jobs from running immediately by default, then see Section 10.2 (Step 6).

- Do NOT change any database link-related settings during ADMP process. If you do, the ADMP process will fail to use the database link.

- ADMP uses DBMS_SCHEDULER, so make sure all scheduler-related settings are turned on (on the server) to submit any jobs using DBMS_SCHEDULER.

  To verify this, run the following query:

  ```
  select value from dba_scheduler_global_attribute where
  attribute_name='SCHEDULER_DISABLED'
  ```

  If the query returns TRUE, then run the following query:

  ```
  exec dbms_scheduler.set_scheduler_attribute('SCHEDULER_
  DISABLED','FALSE');
  ```

13.8.2 Tracking the Status of Accrued Data Migration Jobs

> **Note:** This section is applicable only for 2-system upgrade of 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) of Enterprise Manager system.

To track the status of accrued 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 **Accrued Data Migration** tab.

   The Accrued Data Migration page displays information about the accrued data migration jobs related to all the targets available in your Enterprise Manager system. By default, for every target, the accrued data migration job migrates the ECM history details as well as the metric details.

3. In this tab, you can do the following:

   - To control the data being migrated for all the targets, from the **Run accrued data migration for** list, select one of the following options:

     - **ECM HISTORY MIGRATION,** to migrate only the ECM history details.

     - **METRIC DATA MIGRATION,** to migrate only the metric details.

     - **All Components,** to migrate the ECM history details as well as the metric details.

   - To view different types of data, from the **View Targets** list, select one of the following options:

     - **All,** to view all the accrued data migration jobs for all the targets in your Enterprise Manager system.

     - **Active,** to view the accrued data migration jobs that either failed or are currently running.

     - **History,** to view the accrued data migration jobs that succeeded.

     - **Not Started,** to view the accrued data migration jobs that have not started yet.

   - To retry a failed job, select the target for which the job failed and click **Retry**.

   - To stop a running job, select the target for which you want to stop the job and click **Stop.**

13.9 Generating and Viewing Diff Reports

> **Note:** This section is applicable only for 2-system upgrade of 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) of Enterprise Manager system.

This section describes the following:

- About Diff Reports
- Generating and Viewing Diff Reports

13.9.1 About Diff Reports

Diff Reports provide information about the configuration or setup-related changes that were manually made to the earlier release of Enterprise Manager while it was being upgraded to Enterprise Manager Cloud Control using the 2-System upgrade approach.

In the 2-System upgrade approach, the earlier release of Enterprise Manager coexists with Enterprise Manager Cloud Control until the upgrade operation ends. In some production environments, the upgrade operation might take a long time to complete due to a large volume of data, and during this period, you might make some changes to the functional areas in the earlier release.

For example, you might add additional Software Library entity, new jobs, new deployment procedures, and so on.

Such changes must be carried over to Enterprise Manager Cloud Control so that the upgraded system is identical to the earlier release. The Diff Reports show a summary of such changes so that you can manually redo those changes in Enterprise Manager Cloud Control.

13.9.2 Generating and Viewing Diff Reports

> **Note:**   This section is applicable only for 2-system upgrade of 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) of Enterprise Manager system.

> **Note:**   All the changes shown in the diff report are not migrated by the upgrade process from old to new Enterprise Manager system, so you must migrate them manually. Ensure that the database link-related settings are intact while you use the diff report.

To generate and view diff reports, 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 **Diff Report** tab.

   The Diff Report page lists the reports that were generated in the past for various components. However, when you visit this page the first time, you will not see any reports.

3. On this page, you can do the following:

   - To generate the reports for various components, click **Regenerate Report**.

     > **Note:**   On clicking **Regenerate Report**, the status in the Status column changes to *In Progress*. Keep refreshing the page manually until the status changes to *Completed*.

   - To view a report of a particular component, select a component (row) from the table, and click **Show Report**.

   - To refresh a report and view the latest changes related to a component, select a component (row) from the table, and click **Regenerate Report**.

- To hide or unhide the table columns, or to reorder the table columns, from the **View** list, select an appropriate option.

- To detach the table from the screen, click **Detach**.

13.10 Viewing Inactive Targets in the Upgraded Enterprise Manager System

> **Note:** This section is applicable only for 2-system upgrade of 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) of Enterprise Manager system.

Targets available in the existing Enterprise Manager system are active (monitored) in the upgraded Enterprise Manager system only when the Oracle Management Agents that were monitoring those targets are switched over to the upgraded Enterprise Manager system using Oracle Management Agent 12*c*.

To view a list of targets that are currently inactive in the upgraded Enterprise Manager system, 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 **Targets with Pending Activation** tab.

3. In this tab, you can view a list of inactive targets.

   To search for targets of your choice, enter a keyword or a part of the target name (or target type) in the search text box placed right above the Target Name column (or Target Type column).

   Alternatively, you can click the links in the **Refine Search** pane to filter the table and list the targets of your choice.

> **Note:** To convert these inactive targets to active targets, switch over the Management Agents that are monitoring these targets in the existing Enterprise Manager system to the upgraded Enterprise Manager system. For information about switching over the Management Agents, see Section 11.4.

13.11 Signing Off the Accrued Data Migration Process

> **Note:** This section is applicable only for 1-system upgrade, 2-system upgrade, and 1-system upgrade on a different host for 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) of Enterprise Manager system.

After you switch over the Oracle Management Agents (Management Agent) to the new Enterprise Manager system, you can deinstall the earlier release of Management Agents. Instead of manually deinstalling the Management Agents, you can formally sign off the Accrued Data Migration Process (ADMP) for each of the Management Agents and have the Post Upgrade Console automatically deinstall them for you.

> **Caution:** The sign-off process requires you to have all the credentials set to run file system-related operations on the Management Agent, so make sure you have set all the required credentials.

To sign off the ADMP process for each of the Management Agents, 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 **Sign Off** tab.

    By default, the page lists all the Management Agents regardless of their sign-off status.

3. On this page, search Management Agents for which you have signed off the ADMP process or for which you are yet to sign off.

    (i) From the **Search Criteria** list, select an appropriate option.

    (ii) In the **Agent** field, enter the name of the Management Agent. You can leave this blank if you want to search all Management Agents with a particular sign-off status. Alternatively, you can enter a part of the name and use wildcards to search for Management Agents with a similar name.

    (iii) Click **Search**.

4. Select Management Agents you want to formally sign off. To select all the Management Agents in one attempt, enable **Select All.**

    > **Note:** If you are selecting a *Master Agent* to sign off, then make sure you sign it off only after all its *Shared Agents* have been signed off. If they have not already been signed off, then select those *Shared Agents* to be signed off along with the Master Agent.

5. Click **Sign off Agents.**

6. Provide credentials to access the hosts on which the selected Management Agents were running.

7. Click **Submit.**

    > **Note:** Once you sign off, the selected Management Agents will automatically be deinstalled and removed, and they cannot be recovered in any way. Therefore, before you sign off, ensure that your Management Agents have switched over successfully and they are fully functional, and their targets are successfully being monitored in the new Enterprise Manager system.

13.12 Signing Off the Migration Processes and Exiting the Upgrade Mode

> **Note:** This section is applicable only for 1-system upgrade, 2-system upgrade, and 1-system upgrade on a different host for 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) of Enterprise Manager system.

After the Deferred Data Migration Process (DDMP), the Management Agent switchover, the Accrued Data Migration Process (ADMP), the manual data migration as calculated by the diff report, you can formally sign off the migration process, and exit upgrade mode.

> **WARNING:** Sign-off must be the last step of the upgrade process. Once this is done, all upgrade-related processes and resources are cleaned up, and you must not run any ADMP or DDMP jobs, or generate any diff reports.

To sign off the migration processes and formally exit the upgrade mode, 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 **Sign Off** tab.

3. On this page, select **Sign off Migration,** and click **Go.** This option is placed at the bottom-left corner below the table.

4. *(Applicable Only for 2-System Upgrade Approach and 1-System Upgrade Approach on a Different Host)* After exiting the upgrade mode, delete the old central agents as described in Section 13.13.

   After deleting the central agents, if you want to continue monitoring the targets that were monitored by them, then follow the instructions outlined in Section 13.14.

13.13 Deleting Old Central Agents and the Associated Targets

This section describes the following procedures for deleting the old central agents and their associated targets.

- Deleting Unwanted Central Agents After Upgrading from 10.2.0.5/11.1.0.1 to 12.1.0.5

- Deleting Unwanted Central Agents After Upgrading from 12.1.0.2/12.1.0.3/12.1.0.4 to 12.1.0.5

13.13.1 Deleting Unwanted Central Agents After Upgrading from 10.2.0.5/11.1.0.1 to 12.1.0.5

> **Note:** This section is applicable only for 2-system upgrade and 1-system upgrade on a different host for 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1).

If you upgraded 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) using the 2-system upgrade approach or the 1-system upgrade approach on a different host, then delete the old central agent that was not switched over. You do not require this central agent.

> **Note:** In the Preupgrade Console, the central agents are listed for selection, but when you select and try to submit a deployment and configuration job, the selected central agents are validated and reported as problematic agents. Therefore, they cannot be deployed and configured, and as a result, cannot be switched over. Since these central agents are no longer required, you must delete them.

To delete the old central agent and the associated targets, follow these steps:

1. As a prerequisite, verify the host where you installed Enterprise Manager Cloud Control as described in Section 13.1.

2. Identify the central agents by running the following query as SYSMAN user in the upgraded Management Repository (12.1.0.5 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 IN (SELECT emd_url FROM mgmt_targets WHERE
   target_type = 'host' AND target_name IN (SELECT value FROM mgmt_oms_
   parameters WHERE name = 'HOST_NAME')) 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
   ```

3. Delete the identified, old central agent:

   a. On the remote host where you installed the new Enterprise Manager Cloud Control, from the OMS home, 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.

   ```
   $<OMS_HOME>/bin/emcli login -username=SYSMAN
   -password=<sysman-passwd>
   ```

   b. Synchronize EM CLI:

   ```
   $<OMS_HOME>/bin/emcli sync
   ```

   c. Delete the central agent. Here, `agentName` is the name of the central agent you want to delete.

   ```
   $<OMS_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
   ```

4. (Optional) After deleting the central agent, if you want to continue monitoring the targets that were monitored by it, then follow the instructions outlined in Section 13.14.

13.13.2 Deleting Unwanted Central Agents After Upgrading from 12.1.0.2/12.1.0.3/12.1.0.4 to 12.1.0.5

> **Note:** This section is applicable only for 1-system upgrade from 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), 12*c* Release 2 (12.1.0.2).

After upgrading from 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), or 12*c* Release 4 (12.1.0.4), you should ideally delete the old central agent, which was not switched over, as described in Section 13.13.1. However, if you did not delete the unwanted central agent for some reason, and if you upgraded from 12c Release 2 (12.1.0.2), 12c Release 3 (12.1.0.3), or 12*c* Release 4 (12.1.0.4) to 12c Release 5 (12.1.0.5), then you might continue to see the old, unwanted 10g or 11g central agent in *Activation Pending* state in the 12.1.0.5 Enterprise Manager Cloud Control Console.

If you do see such unwanted central agents in *Activation Pending* state, then delete by following these steps:

1. As a prerequisite, verify the host where you installed/upgraded Enterprise Manager Cloud Control as described in Section 13.1.

2. Identify the unwanted central agents to be deleted by running the following query as SYSMAN user in the upgraded Management Repository (12.1.0.5 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
   ```

3. Delete the unwanted central agents:

   a. On the upgraded OMS host, from the OMS home, 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.

      ```
      $<OMS_HOME>/bin/emcli login -username=SYSMAN
      -password=<sysman-passwd>
      ```

   b. Synchronize EM CLI:

      ```
      $<OMS_HOME>/bin/emcli sync
      ```

   c. Delete the unwanted central agents. Here, `agentName` is the name of the central agent you want to delete.

      ```
      $<OMS_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
      ```

13.14 (Optional) Monitoring Targets That Were Monitored by the Deleted Central Agent

> **Note:** This section is applicable only for 2-system upgrade and 1-system upgrade on a different host for 10*g* Release 5 (10.2.0.5) and 11*g* Release 1 (11.1.0.1) of Enterprise Manager system.

If you upgraded 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) using the 2-system upgrade approach or the 1-system upgrade approach on a different host, then you are required to delete the unwanted old central agent as described in Section 13.13. After deleting this central agent, if you want to continue monitoring the targets that were monitored by the deleted central agent, then follow these steps:

1. Install a fresh Oracle Management Agent 12*c* using the Add Host Targets Wizard from the new OMS, on the old central agent host.

2. Discover all the targets running on that host so that they can be monitored in the new OMS.

13.15 (Optional) Deleting the Old OMS Home

After upgrading your Enterprise Manager system completely, if you want to delete your old OMS home, follow these steps:

- If you upgraded from 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5), either full release or an additional OMS, then follow the instructions outlined in Appendix K.

- If you upgraded from 11*g* Release 1 (11.1.0.1) to 12*c* Release 4 (12.1.0.4), either full release or an additional OMS, then follow the instructions outlined in the *Oracle Enterprise Manager Grid Control Advanced Installation and Configuration Guide*.

- If you upgraded from 10*g* Release 5 (10.2.0.5) to 12*c* Release 4 (12.1.0.4), either full release or an additional OMS, then follow the instructions outlined in the *Oracle Enterprise Manager Grid Control Installation and Configuration Guide*.

13.16 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 all the OMS instances.

   ```
   emctl stop oms -all
   ```

   b. Start the administration server on the first OMS.

   ```
   emctl start oms -admin-only
   ```

   c. On each OMS instance, 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_conndesc
"(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
```

13.17 Enabling the Create External Role Option

To enable the Create External Role option and use it while creating new roles, set the External Authentication-related properties on the OMS. To do so, run the following commands. If Enterprise Manager is authenticated with any Single Sign-On (SSO), then set the value `SSO` instead of `LDAP` for the `oracle.sysman.emSDK.sec.DirectoryAuthenticationType` property.

```
OMS_HOME/bin>emctl set property -name
"oracle.sysman.core.security.auth.is_external_authentication_enabled"
-value "true"
```

```
OMS_HOME/bin>emctl set property -name
"oracle.sysman.emSDK.sec.DirectoryAuthenticationType" -value "LDAP"
```

For more details, see My Oracle Support note 1902075.1.

Part IV

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, "Overview of the Notification System in Enterprise Manager Cloud Control"

- Appendix C, "Overview of the Metric Changes in Enterprise Manager Cloud Control"

- Appendix D, "Identifying the Jobs That Will Not Run in Enterprise Manager for 2-System Upgrade Approach"

- Appendix E, "Updating Server Load Balancer Configuration Settings"

- Appendix F, "Setting Preferred Credentials Using EM CLI"

- Appendix H, "Searching and Adding Oracle Management Agents"

- Appendix I, "Securing Oracle Management Agents After Backing Up Oracle Management Repository"

- Appendix J, "Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host"

- Appendix K, "Deleting the Old OMS Home"

- Appendix M, "Reviewing Log Files Related to the Upgrade of an Enterprise Manager System"

Editing the Response File for Upgrading Oracle Management Service and Oracle Management Repository in Silent Mode

Table A–1 describes what variables you must update and how you must update them in the `upgrade.rsp` response file for upgrading your OMS and Management Repository in silent mode.

Table A–1 Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
UNIX_GROUP_ NAME	Applicable to all upgrade approaches for 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 all upgrade approaches for normal upgrade as well as software-only upgrade.	String	Yes	*(Required only when central inventory does not exist)* Enter the absolute path to the Central Inventory. For example, `"/scratch/oracle/oraInventory"`.

SECURITY_ UPDATES_VIA_ MYORACLESUPP ORT	Applicable to all upgrade approaches for normal upgrade.
	
	Not applicable to software-only upgrade. **Therefore, comment out this parameter for this upgrade approach.**
		Boolean	Yes	▪ Enter `TRUE` if you want to download and install security updates. Then, enter the credentials for the following variables in double quotes:
				`MYORACLESUPPORT_USERNAME`
				`MYORACLESUPPORT_PASSWORD`
				▪ Enter `FALSE` if you do not want to download and install security updates:

DECLINE_ SECURITY_ UPDATES	Applicable to all upgrade approaches for normal upgrade. Not applicable to software-only upgrade. **Therefore, comment out this parameter for this upgrade approach.**	Boolean	No	▪ 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`.

Table A–1 (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
INSTALL_ UPDATES_ SELECTION	Applicable to all upgrade approaches of normal upgrade. Not applicable to software-only upgrade. **Therefore, comment out this parameter for this upgrade approach.**	String	Yes	By default, this variable is set to `"skip"` indicating that the software updates will not be installed during installation. ■ If you want to install the software updates from My Oracle Support, then set this variable to `"download"`. Then, enter the credentials for the following variables 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 variable to `"staged"`. Then, for the STAGE_LOCATION variable, 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 *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*
ORACLE_ MIDDLEWARE_ HOME_ LOCATION	Applicable to all upgrade approaches of normal upgrade. Not applicable to software-only upgrade. **Therefore, comment out this parameter for this upgrade approach.**	String	Yes	Upgrade to 12*c* Release 5 (12.1.0.5) is an out-of-place upgrade, therefore you must do one of the following: ■ Enter a new middleware home where the installer can automatically install Oracle WebLogic Server 11*g* Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0 for you. ■ Enter a new middleware home where you have preinstalled Oracle WebLogic Server 11*g* Release 1 (10.3.6) and Java Development Kit 1.6.0.43.0. However, make sure this is a new middleware home meant for the Enterprise Manager system you are installing now, and not the middleware home you were using earlier for the previous release of Enterprise Manager system. Ensure that the middleware location has *write* permission. **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.

Table A–1 (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
ORACLE_ INSTANCE_ HOME_ LOCATION	Applicable to all upgrade approaches for normal upgrade as well as software-only upgrade.	String	Yes	By default, `gc_inst` 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. ■ To accept the default location and the directory name, leave the variable 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. **Important:** 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 5.1.4.
OLD_BASE_DIR	Applicable only to 1-system upgrade approach for normal upgrade as well software-only upgrade. Not applicable to 2-system upgrade approach and 1-system upgrade approach on a different host. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	Enter the base directory of the OMS you want to upgrade. If you are upgrading from 10g Release 5 (10.2.0.5), then it is the old OMS base directory. If you are upgrading from 11g Release 1 (11.1.0.1) or within the 12c series, then it is the middleware home.
ORACLE_ HOSTNAME	Applicable only to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade. Not applicable for 2-system upgrade approach and 1-system upgrade approach on a different host for software-only upgrade. Therefore, comment out this parameter for these upgrade approaches.	String	Yes	By default, the fully qualified name of the host on which you have invoked the installer, is considered. ■ To accept the default value, leave it blank. ■ To install with a different host name, then enter another host name.
ONE_SYSTEM	Applicable to all upgrade approaches for normal upgrade as well as software-only upgrade.	Boolean	No	By default, this variable is set to `TRUE`, which indicates that you are performing a 1-system upgrade. ■ If you are indeed performing a 1-system upgrade, retain this value. ■ If you are performing a 2-system upgrade, then set it to `FALSE`.

Table A–1 (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
AGENT_BASE_DIR	Applicable only to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade. Not applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for software-only upgrade. Also not applicable for additional OMS upgrade. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	Enter the absolute path to the agent base directory, a location outside the Oracle Middleware home where the Management Agent can be installed. For example, `u01/app/software/agent`. Ensure that this location is empty and has write permission. Also ensure that it is always maintained outside the Oracle Middleware home.

Table A–1   (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description

OLD_DATABASE_ CONNECTION_ DESCRIPTION	Applicable only to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade.
	
	Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade. Also not applicable for additional OMS upgrade. **Therefore, comment out this parameter for this upgrade approach.**
		String	Yes	By default, the connect string of the old Management Repository you entered in the *Preupgrade Console* is considered. However, if you had not entered there, then you can enter here in the following format:
				
				■ To connect using SID, enter the connect string in the following format:
				
				`"(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_ name>)(PORT=<port>)))(CONNECT_ DATA=(SID=<sid>)))"`
				
				For example,
				
				`"(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example. com)(PORT=1521)))(CONNECT_ DATA=(SID=emrep)))"`
				
				■ To connect using the service name, enter the connect string in the following format:
				
				`"(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<host_ name>)(PORT=<port>)))(CONNECT_ DATA=(SERVICE_NAME=<service_name>)))"`
				
				For example,
				
				`"(DESCRIPTION=(ADDRESS_ LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example. com)(PORT=1521)))(CONNECT_DATA=(SERVICE_ NAME=emrep)))"`
				
				The connect string is used to connect to the old Management Repository, check for accrued data, and transfer it to the upgraded Management Repository. Accrued data refers to the data that was uploaded to the old Management Repository from the time it was backed up till the time it was upgraded.
				
				IMPORTANT: Verify the value set to the GLOBAL_ NAMES parameter on both the databases.
				
				■ If the GLOBAL_NAMES parameter is set to FALSE on both the databases, then ensure that you do not change this value until the upgrade is complete, and all the Management Agents are switched over.
				
				■ If the GLOBAL_NAMES parameter is set to TRUE on even one of the databases, and if both the databases have the same value for the GLOBAL_NAME parameter, then change the value of the GLOBAL_NAME parameter set on the new, cloned database to a value that is different from the one set on the old database.

Table A–1 (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
OLD_DATABASE_ SYSMAN_ PASSWORD	Applicable only to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade. Also not applicable for additional OMS upgrade. **Therefore, comment out this parameter for this upgrade approach.**	String	Yes	Enter the SYSMAN password of the old Management Repository. The password is used to connect to the old Management Repository using the connect string entered either in the *Preupgrade Console* or in the previous variable; check for accrued data; and transfer it to the upgraded Management Repository. Accrued data refers to the data that was uploaded to the old Management Repository from the time it was backed up till the time it was upgraded.
WLS_ADMIN_ SERVER_ USERNAME	Applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 10.2.0.5. Applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade of 10.2.0.5 and 11.1.0.1. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 12.1.0.4, 12.1.0.3, 12.1.0.2, and 11.1.0.1. Not applicable to additional OMS upgrade. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	By default, weblogic is the name assigned to the default user account that is created for the Oracle WebLogic Domain. ■ To accept the default name, leave this variable blank. ■ To have a custom name, then enter the name of your choice.
WLS_ADMIN_ SERVER_ PASSWORD	Applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 10.2.0.5. Applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade of 10.2.0.5 and 11.1.0.1. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 12.1.0.4, 12.1.0.3, 12.1.0.2, and 11.1.0.1. Not applicable to additional OMS upgrade. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	Enter a password for the WebLogic user account. Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.

Table A–1 (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
WLS_ADMIN_ SERVER_ CONFIRM_ PASSWORD	Applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 10.2.0.5. Applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade of 10.2.0.5 and 11.1.0.1. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 12,1.0.4, 12.1.0.3, 12.1.0.2, and 11.1.0.1. Not applicable to additional OMS upgrade. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	Confirm the password for the WebLogic user account.
NODE_ MANAGER_ PASSWORD	Applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 10.2.0.5. Applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade of 10.2.0.5 and 11.1.0.1. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 12.1.0.4, 12.1.0.3, 12.1.0.2, and 11.1.0.1. Not applicable to additional OMS upgrade. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	By default, `nodemanager` is the name assigned to the default user account that is created for the node manager. Enter a password for this node manager user account. Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.

Table A–1   (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
NODE_ MANAGER_ CONFIRM_ PASSWORD	Applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 10.2.0.5. Applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade of 10.2.0.5 and 11.1.0.1. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 12.1.0.4, 12.1.0.3, 12.1.0.2, and 11.1.0.1. Not applicable to additional OMS upgrade. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	Confirm the password for the node manager user account.
WLS_ADMIN_ SERVER_ PASSWORD	Applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 12.1.0.4, 12.1.0.3, 12.1.0.2, and 11.1.0.1. Applicable to additional OMS upgrade of 12.1.0.4, 12.1.0.3, 12.1.0.2, 11.1.0.1, and 10.2.0.5. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade of 10.2.0.5. Not applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade of 10.2.0.5 and 11.1.0.1. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	Enter the password for the WebLogic user account you had created for the old Enterprise Manager system.
JVM_ DIAGNOSTICS_ TABLESPACE_ LOCATION	Applicable to all upgrade approaches for normal upgrade as well as software-only upgrade of 10.2.0.5. Not applicable to any of the upgrade approaches for normal upgrade as well as software-only upgrade of 12.1.0.4, 12.1.0.2, 12.1.0.3, and 11.1.0.1. **Therefore, comment out this parameter for these upgrade approaches.**	String	Yes	During upgrade, an additional tablespace called JVM diagnostics data tablespace is created for storing all JVM-related monitoring data. Enter the absolute path to a location where the data file (`mgmt_deepdive.dbf`) for this tablespace can be stored. Ensure that the entered path leads up to the file name. For example, `"/home/john/oradata/mgmt_ deepdive.dbf"`.

Table A–1   (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
DATABASE_ HOSTNAME	Applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade. **Therefore, comment out this parameter for this approach.**	String	Yes	Enter the fully qualified name of the host where the existing database resides. For example, `"example.com"`. If you are connecting to an Oracle RAC Database, and if the nodes have virtual host names, then enter the virtual host name of one of its nodes. The connection to the database is established with a connect string that is formed using only this virtual host name, and the installation ends successfully. However, if you want to update the connect string with other nodes of the cluster, then after the installation, do the following: 1. Open the following file: `<OMS_Instance_Home>/em/EMGC_OMS#/emgc.properties` 2. Enter the other nodes for the variable `EM_RESPOS_CONNECTDESCRIPTOR`.
LISTENER_PORT	Applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade. **Therefore, comment out this parameter for this approach.**	String	Yes	Enter the listener port to connect to the existing database. For example, `"1532"`.
SERVICENAME_ OR_SID	Applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only upgrade. Not applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade. **Therefore, comment out this parameter for this approach.**	String	Yes	Enter the service name or the system ID (SID) of the existing database. For example, `"orcl"`.
SYS_PASSWORD	Applicable to all upgrade approaches for normal upgrade as well as software-only upgrade.	String	Yes	Enter the SYS user account's password.

Table A–1   (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description
SYSMAN_ PASSWORD	Applicable to all upgrade approaches for normal upgrade as well as software-only upgrade.	String	Yes	Enter the SYSMAN user account's password.
REPOSITORY_ BACKUP_DONE	Applicable to 1-system upgrade approach for normal upgrade as well as software-only upgrade. Not applicable to 2-system upgrade approach and 1-system upgrade approach on a different host for normal upgrade as well as software-only 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 TRUE. Otherwise, set it to FALSE

Table A–1   (Cont.) Editing Parameters of the upgrade.rsp File for Upgrading OMS in Silent Mode

Parameter Name	Applicable Upgrade Approach	Data Type	Are Double Quotes Needed for the Values?	Description

PLUGIN_ SELECTION	Applicable to all upgrade approaches for 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)
				By default, mandatory plug-ins such as Oracle Database Management Plug-In, Oracle Fusion Middleware Management Plug-In, Oracle My Oracle Support Management Plug-In, Oracle Exadata Management Plug-In, and Oracle Cloud Framework Plug-In get automatically installed when you upgrade your Enterprise Manager.
				
				 However, if you want to install any of the other optional plug-ins that are available in the software kit (DVD or downloaded software), then enter the names of those plug-ins for this variable. The plug-ins are available in the `Disk1/plugins` directory.
				
				 For example,
				
				 If you want to install `12.1.0.2.0_ oracle.sysman.empa_2000_0.opar` and `12.1.0.2.0_ oracle.sysman.vt_2000_0.opar,` then enter the plug-in IDs in the following way:
				
				 `PLUGIN_ SELECTION={"oracle.sysman.empa","oracle.sysman. vt"}`
				
				 If you want to install any plug-in that is not available in the software kit, then do the following:
				
				 1. Access the following Enterprise Manager download page on Oracle Technology Network (OTN):
				
				 http://www.oracle.com/technetwork/oem/grid -control/downloads/oem-upgrade-console-502 238.html
				
				 2. Expand the section that lists the software binaries and plug-ins for your upgrade path.
				
				 3. From the **Download Plug-ins** section, manually download the plug-ins and store them in an accessible location.
				
				 4. Update this variable (PLUGIN_SELECTION) to the names of those plug-ins you downloaded.
				
				 5. Invoke the installer with the following option, and pass the location where you downloaded the plug-ins:
				
				 `./runInstaller -pluginLocation <absolute_ path_to_plugin_software_location>`
				
				 You might have a plug-in version deployed to the earlier release of Enterprise Manager that is not supported in Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5). In this case, when you invoke the installer with -pluginLocation argument, make sure you do NOT provide the software of the higher version of the unsupported plug-in even if the higher version is available for download. This ensures that the unsupported version is removed while upgrading to 12c Release 5 (12.1.0.5). After you upgrade, you can deploy the higher version directly from the Plug-In Manager.

B

Overview of the Notification System in Enterprise Manager Cloud Control

> **Note:** This appendix is applicable only if you are upgrading from Enterprise Manager 10*g* Grid Control Release 5 (10.2.0.5) or Enterprise Manager 11*g* Grid Control Release 1 (11.1.0.1).

Prior to Enterprise Manager Cloud Control, the notification system notified administrators of target availability status changes, metric alerts, and status changes of job executions. In addition to notifying the administrators, the notification system performed actions such as running operating system commands, including scripts, and PL/SQL procedures when an alert was triggered.

This appendix describes how the notification system has changed significantly in Enterprise Manager Cloud Control. In particular, this appendix covers the following:

- About Events, Incidents, and Incident Rulesets

- Accessing Incident Rulesets in Enterprise Manager 12c

- Notification Rules Migrated to Incident Rulesets After Upgrading to Enterprise Manager 12c

- Notification Methods and Actions After Upgrading to Enterprise Manager 12c

B.1 About Events, Incidents, and Incident Rulesets

In the earlier releases of Enterprise Manager, the notification system operated using *Notification Rules*, which were a set of predetermined rules or conditions indicating when a notification had to be sent and what actions had to be taken.

In Enterprise Manager Cloud Control, this concept of *Notification Rules* has been enhanced and subsumed into a much larger and newer concept called *Incident Rulesets*.

Before discussing *Incident Rulesets*, understand the concept of *Events* and *Incidents*.

- *Events* are significant and interesting occurrences in your managed environment. Target availability status changes, metric alerts, and status changes of job executions are examples of the types of events that Enterprise Manager detects. Users may be interested in getting notified about these events and responding accordingly to resolve the underlying issues. By formalizing the concept of events, Enterprise Manager extends the monitoring functionality to additional occurrences in the enterprise that might be of interest, such as metric evaluation errors or compliance standard violations.

- *Incidents* are a subset of related events that may indicate potential or actual disruption to the dependent IT services, and require attention from an administrator or a team. *Incidents* can be created for such events, which can then be assigned to an administrator and tracked to completion.

Incident Ruleset is a set of rules that typically operate on a set of targets, and include individual rules to notify appropriate personnel and take appropriate action on events, incidents, and problems.

A rule can operate on events to send notifications as well as create incidents. It can also operate on specific incidents, so you can auto-assign, prioritize, or even escalate them via time-based conditions.

Incident Rulesets are further classified into enterprise and private rulesets.

- *Enterprise Rulesets* are used to automate and enforce enterprise level behavior such as notifying one or more users, sending notifications using advanced notification methods, raising tickets in external ticketing systems, creating and updating incidents. Only administrators with the *Create Enterprise Ruleset* privilege can create these rulesets.

- *Private Rulesets* are useful for administrators to e-mail themselves about specific changes. They can be created by any administrator and can only be used to send e-mails to the owner of the ruleset.

All *Incident Rulesets* can be edited by the owner of the ruleset and any super administrator. In addition, the owners can designate other users as coauthors of *Enterprise Rulesets*. This enables shared management of the ruleset.

> **Note:** For more information about events, incidents, and incident rulesets, see the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

B.2 Accessing Incident Rulesets in Enterprise Manager 12c

To view all *Incident Rulesets*, in Enterprise Manager Cloud Control, from the **Setup** menu, click **Incidents**, and then, select **Incident Rules**. Figure B–1 shows the Incident Ruleset page:

Figure B–1   Viewing Incident Rulesets
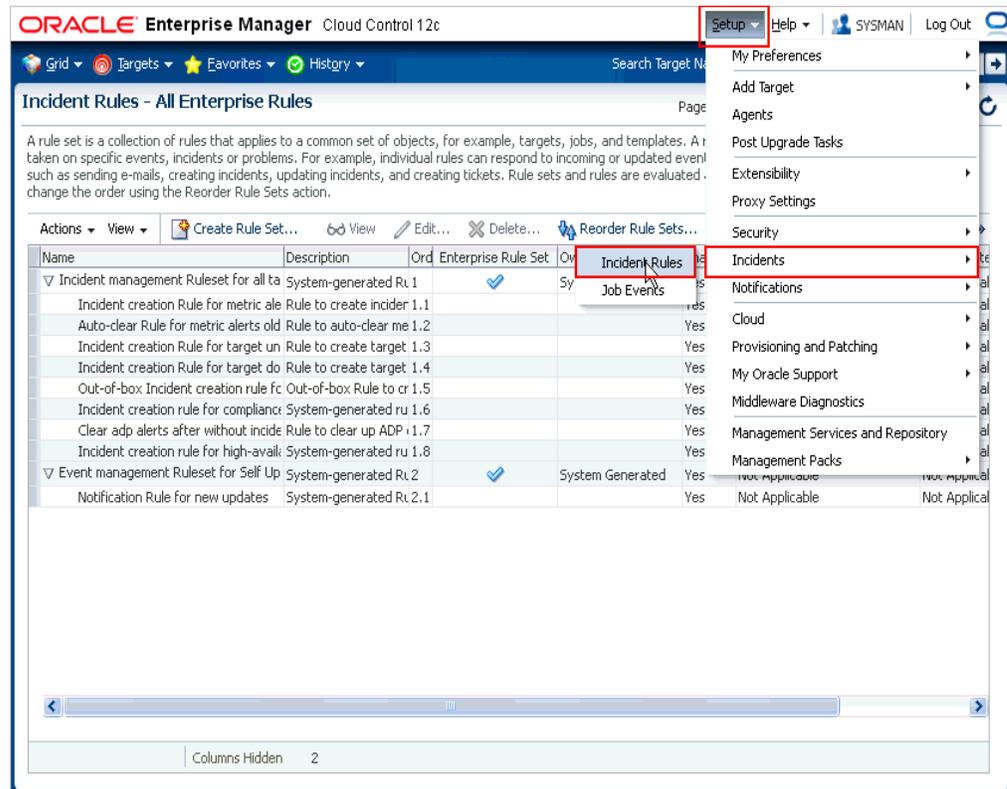
B.3 Notification Rules Migrated to Incident Rulesets After Upgrading to Enterprise Manager 12c

During upgrade, all *Notification Rules* created in the earlier release of Enterprise Manager are automatically migrated to corresponding *Incident Rulesets* that act on the targets originally defined in the *Notification Rule*.

The following *Notification Rules* are migrated to *Enterprise Rulesets*:

- *Notification Rules* that send e-mails to owners who have not created the rules

- *Notification Rules* that invoke an advanced notification method

The following *Notification Rules* are migrated to *Private Rulesets*:

- *Notification Rules* that have no actions.

- *Notification Rules* that send e-mails to owners who have created the rules.

Each of the three possible criteria—availability, metrics, jobs—defined in an old *Notification Rule* are migrated to three individual rules that operate on appropriate events. The action defined at the *Notification Rule* level is copied over to each of these rules.

One exception is that the concept of Policy Violations is being withdrawn in Enterprise Manager Cloud Control, and therefore, all policy-specific criteria are ignored and none of the rules that solely operate on policies are migrated.

The owners of *Notification Rules*, which were created in the earlier release of Enterprise Manager, become the owners of the corresponding *Incident Rulesets* in Enterprise

Manager Cloud Control. These owners can edit the *Enterprise Rulesets* and *Private Rulesets*. In addition, all administrators can create *Private Rulesets* to send e-mails to themselves.

Going forward, the super administrators should determine which administrators can create *Enterprise Rulesets* by granting the *Create Enterprise Ruleset* resource privilege.

> **Note:** For situations where the target type modeling has changed in Enterprise Manager Cloud Control, you must manually adjust the rules as described in Section 13.6.8.

B.4 Notification Methods and Actions After Upgrading to Enterprise Manager 12c

Notification methods and actions defined in earlier releases of Enterprise Manager will continue to work in Enterprise Manager Cloud Control, and the input to these original notification methods are backward compatible in Enterprise Manager Cloud Control. So if you had an OS command or a PL/SQL notification method that operated on metric alerts, you will continue to receive the same input after upgrade. However, all new notification methods you create in Enterprise Manager Cloud Control will accept input based on the new event and incident model.

> **Note:** The OS commands, and the PL/SQL and SNMP Trap notification methods created in the pre-12c version will have the *Event Compatible* column set to No on the Notification Methods page. To access this page, from the **Setup** menu, select **Notifications,** then select **Notification Methods.**

> **Note:** Oracle strongly recommends you to replace the Notification Methods created in the earlier releases of Enterprise Manager with the new Enterprise Manager Cloud Control-specific notification methods that operate on the new event model. With the next major release of Enterprise Manager Cloud Control, the older notification methods will no longer function. For instructions, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

C

Overview of the Metric Changes in Enterprise Manager Cloud Control

This appendix describes the changes to the metrics of the following targets:

- Changes to Oracle SOA Infrastructure Metrics in Enterprise Manager Cloud Control

- Changes to Oracle SOA Composite Metrics in Enterprise Manager Cloud Control

- Changes to Oracle Service Bus Metrics in Enterprise Manager Cloud Control

- Changes to Oracle WebLogic Server Metrics in Enterprise Manager Cloud Control

- Changes to JBoss Application Server Metrics in Enterprise Manager Cloud Control

- Changes to Siebel Enterprise Metrics in Enterprise Manager Cloud Control

- Changes to Siebel Server Metrics in Enterprise Manager Cloud Control

C.1 Changes to Oracle SOA Infrastructure Metrics in Enterprise Manager Cloud Control

The following are the changes to the metrics related to Oracle SOA Infrastructure:

- The old metric SOA Infrastructure - Service Engine Detail Metrics appears on the *All Metrics* page to show historical data. However, there is no further collection for this metric.

- The new metric *SOA Infrastructure - Service Engine Detail Metrics* has now moved under the target component type **SOA Infrastructure Engine**.

- In addition, the following metrics have been introduced:

  - *Top SOA SQL Queries*

  - *Dehydration Store Tables*

- In the *Preupgrade Console*, when you generate a health report, you might see metric collection errors for the new metrics. You can ignore these errors and proceed further. However, ensure that you provide the database credentials for this target as described in Chapter 13.

C.2 Changes to Oracle SOA Composite Metrics in Enterprise Manager Cloud Control

The following are the changes to the metrics related to Oracle SOA Composite:

■ The old metrics *SOA Composite - Component Detail Metrics* and *SOA Composite - Services/References Detail Metrics* appear on the *All Metrics* page to show historical data. However, there is no further collection for this metric.

■ The new metric *SOA Composite - Component Detail Metrics* has now moved under the target component type **SOA Composite Component**.

■ The new metric *SOA Composite - Services/References Detail Metrics* has now been divided into the following metrics:

– *SOA Composite Service Metric* that appears under the target component type **SOA Composite Service**.

– *SOA Composite Reference Metric* that appears under the target component type **SOA Composite Reference**.

C.3 Changes to Oracle Service Bus Metrics in Enterprise Manager Cloud Control

■ The old metric *OSB Service Metrics* appears on the *All Metrics* page to show historical data. However, there is no further collection for this metric.

■ The new metric *OSB Service Metrics* has now been divided into the following metrics:

– *OSB Proxy Service Metrics* that appears under the target component type **OSB Proxy Service**.

– *OSB Business Service Metrics* that appears under the target component type **OSB Business Service**.

C.4 Changes to Oracle WebLogic Server Metrics in Enterprise Manager Cloud Control

■ The following configuration metrics are collected for the J2EE Application target, and not for the Oracle WebLogic Server target.

– *General*

– *Web Services*

– *Web Service Ports*

– *JRF Web Services*

– *JRF Web Services Ports*

– *JRF Web Services Operations*

– *JRF Web Services Policy References*

– *Web Modules*

– *EJB Modules*

■ The following configuration metrics are available for Oracle WebLogic Server version 7, 8, and 9 and higher:

– *General*

– *Web Modules*

– *EJB Modules*

- The following configuration metrics are available for Oracle WebLogic Server version 9 and higher:

    – *Web Services*

    – *Web Service Ports*

- The configuration metric *JDBC Datasource* is now available for all Oracle WebLogic Server targets.

- The data for JDBC Multi Datasource was earlier collected by the metric *JDBC Datasource*. Now the data is collected by the metric *JDBC Multi Datasource*.

- The data for JDBC Connection Pool was earlier collected by the metric *JDBC Connection Pool*. However, this metric is no longer available. All the data collected by that metric has now been moved to the metric *JDBC Datasource*.

These are configuration metrics, and therefore, they do not appear on the *All Metrics* page. Instead, they appear on the *Last Collected* page of the J2EE application.

C.5 Changes to JBoss Application Server Metrics in Enterprise Manager Cloud Control

In the earlier releases of Enterprise Manager, for monitoring JBoss Application Server, the Management Agent required some JAR files listed in the following file of the agent home:

`$<AGENT_HOME>/sysman/config/classpath.lst`

This file was populated during discovery, and the Management Agent had to restart to honor the JAR files location and append to its classpath.

In Enterprise Manager Cloud Control, the `classpath.lst` file is not used because there is a dynamic classloader that loads the classes specific to the target after discovery. So the Management Agent need not restart.

There is a new target instance property `Library Path` that is added to the target metadata. This property is needed by the monitoring logic to differentiate between the case of local and remote monitoring (target monitored by a local or remote agent).

In the case of local monitoring, this property is null.

In the case of remote monitoring, this property is set to the library path location you provide during discovery, which contains the JAR files required for discovering and monitoring JBoss.

During upgrade, ignore this error.

After upgrade, the monitored target status shows as down and no metrics are collected. So set the Library path instance property on the Monitoring Configuration page of the target. Set it to the JAR files location.

C.6 Changes to Siebel Enterprise Metrics in Enterprise Manager Cloud Control

All the metrics available for Siebel Enterprise target have been moved to Siebel Gateway target in Enterprise Manager Cloud Control. As a result, to view the ECM metrics, access the Siebel Gateway target.

C.7 Changes to Siebel Server Metrics in Enterprise Manager Cloud Control

In the earlier releases of Enterprise Manager, for SARM reports, event log, server process control, and workflow processes, you were required to set only the preferred credentials of the hosts on which Siebel Server and Siebel Gateway Server were running. However, in Enterprise Manager Cloud Control, for these features, you must set several other credentials, besides the host credentials. This section describes the different credentials you must set for various Siebel target types.

This section covers the following:

- Setting Preferred Credentials for Siebel Server
- Setting Preferred Credentials for Siebel Gateway Server
- Setting Preferred Credentials for Siebel Database Repository

C.7.1 Setting Preferred Credentials for Siebel Server

For Siebel Server, set the following credentials:

Host Preferred Credentials	To do so, in Cloud Control, from the **Setup** menu, select **Security**, and then, click **Preferred Credentials**. On the Preferred Credentials page, select **Host** and click **Manage Preferred Credentials**. On the Host Preferred Credentials page, set the operating system credentials of the host on which the Siebel Server is running.
Host Credentials for Siebel Server	To do so, in Cloud Control, from the **Setup** menu, select **Security**, and then, click **Preferred Credentials**. On the Preferred Credentials page, select **Siebel Server** and click **Manage Preferred Credentials**. On the Siebel Server Preferred Credentials page, in the Target Preferred Credentials section, select the credential set **Host Credentials**, and click **Set** to set the operating system credentials of the host on which the Siebel Server is running.
Server Manager Credentials for Siebel Server	To do so, in Cloud Control, from the **Setup** menu, select **Security**, and then, click **Preferred Credentials**. On the Preferred Credentials page, select **Siebel Server** and click **Manage Preferred Credentials**. On the Siebel Server Preferred Credentials page, in the Target Preferred Credentials section, select the credential set **Server Manager Credentials**, and click **Set** to set the server manager credentials.

C.7.2 Setting Preferred Credentials for Siebel Gateway Server

For Siebel Gateway Server, set the following credentials:

Host Preferred Credentials	To do so, in Cloud Control, from the **Setup** menu, select **Security**, and then, click **Preferred Credentials**. On the Preferred Credentials page, select **Host** and click **Manage Preferred Credentials**. On the Host Preferred Credentials page, set the operating system credentials of the host on which the Siebel Gateway Server is running.
Host Credentials for Siebel Gateway Server	To do so, in Cloud Control, from the **Setup** menu, select **Security**, and then, click **Preferred Credentials**. On the Preferred Credentials page, select **Siebel Gateway Server** and click **Manage Preferred Credentials**. On the Siebel Gateway Server Preferred Credentials page, in the Target Preferred Credentials section, select the credential set **Host Credentials**, and click **Set** to set the operating system credentials of the host on which the Siebel Gateway Server is running.

Server Manager Credentials for Siebel Gateway Server	To do so, in Cloud Control, from the **Setup** menu, select **Security**, and then, click **Preferred Credentials**. On the Preferred Credentials page, select **Siebel Gateway Server** and click **Manage Preferred Credentials**. On the Siebel Gateway Server Preferred Credentials page, in the Target Preferred Credentials section, select the credential set **Manage Preferred Credentials**, and click **Set** to set the server manager credentials.

C.7.3 Setting Preferred Credentials for Siebel Database Repository

For Siebel Database Repository, set the Siebel DBStore Credentials.

To do so, in Cloud Control, from the **Setup** menu, select **Security**, and then, click **Preferred Credentials**. On the Preferred Credentials page, select **Siebel Database Repository** and click **Manage Preferred Credentials**. On the Siebel Database Repository Preferred Credentials page, in the Target Preferred Credentials section, select the credential set **Siebel DBStore Credentials**, and click **Set** to set the credentials.

D

Identifying the Jobs That Will Not Run in Enterprise Manager for 2-System Upgrade Approach

This appendix describes how you can identify the jobs that will not run in the existing Enterprise Manager system and in the upgraded Enterprise Manager system.

- Identifying the Jobs That Will Not Run in the New, Upgraded Enterprise Manager System

- Identifying the Jobs That Will Not Run in the Existing Enterprise Manager System

D.1 Identifying the Jobs That Will Not Run in the New, Upgraded Enterprise Manager System

The following SQL query will help identify any jobs that are currently blocked from running if only certain Oracle Management Agents for their targets are migrated. Run the query in Enterprise Manager Cloud Control.

At the end of the query, is an optional query for modifications that can be used to give a list of Oracle Management Agents that need to be migrated.

For more information on the need for identifying jobs that will not run in the upgraded or new Enterprise Manager System, refer to Chapter 3, "Things to Know About Upgrading an Enterprise Manager System"

```
SET TRIMSPOOL ON
SET VERIFY   OFF
SET LINESIZE  80
SET PAGESIZE 500


PROMPT =====================
PROMPT Valid on "new" 12.1 EM
PROMPT =====================
PROMPT List jobs that will not be run on either system
PROMPT due to a partially migrated target list
PROMPT =====================

WITH
-- list of migrated targets
migrated_targets AS
(
SELECT   target_guid
```

```
FROM      EM_CURRENT_AVAILABILITY
WHERE     current_status     = 4 -- G_STATUS_UNREACHABLE
AND       current_sub_status = 1 -- G_SUB_STATUS_UNMIGRATED
),
-- list of job related migrated targets
migrate_job_targets AS
(
SELECT   job_id, execution_id, target_guid
FROM      MGMT$JOB_EXECUTION_HISTORY JOIN
          migrated_targets            USING(target_guid)
WHERE     STATE_CYCLE NOT IN ('FINISHED', 'RUNNING')
),
-- list of jobs against the migrate job targets
effected_jobs AS
(
SELECT   count(1) migrated_target_count, job_id, execution_id
FROM     migrate_job_targets
GROUP BY job_id, execution_id
),
-- list of jobs with some unmigrated targets and some migrate targets
partly_migrated_jobs AS
(
SELECT je.job_id,
       je.execution_id,
       je.job_name,
       je.job_owner,
       je.job_type,
       je.target_name,
       je.target_type,
       je.target_guid
FROM   MGMT$JOB_EXECUTION_HISTORY je,
       effected_jobs              ej
WHERE  je.job_id       = ej.job_id
AND    je.execution_id = ej.execution_id
AND    target_guid     NOT IN
                       ( SELECT target_guid
                         FROM   migrate_job_targets
                       )
)
-- list jobs, targets and agents
SELECT job_name, target_name, target_type
FROM   partly_migrated_jobs
ORDER BY job_name, target_type, target_name;

/*
 Could change the last select to
 SELECT DISTINCT job_name, job_owner
 or
 SELECT DISTINCT target_guid

 to get the distinct list of jobs or target guids.

 or
 SELECT DISTINCT emd_url
 FROM   partly_migrated_jobs JOIN
        MGMT_TARGETS        USING (target_guid)

 to get the distinct list of agents
*/
```

D.2 Identifying the Jobs That Will Not Run in the Existing Enterprise Manager System

The following SQL query will help identify any jobs that are currently blocked from running if only certain Oracle Management Agents for their targets are migrated. Run the query in Enterprise Manager Cloud Control.

At the end of the query, is an optional query for modifications that can be used to give a list of Oracle Management Agents that need to be migrated.

For more information on the need for identifying jobs that will not run in the existing Enterprise Manager System, refer to Chapter 3, "Things to Know About Upgrading an Enterprise Manager System"

```
SET TRIMSPOOL ON
SET VERIFY   OFF
SET LINESIZE  80
SET PAGESIZE 500


PROMPT =====================
PROMPT Valid on "original" EM
PROMPT =====================
PROMPT List jobs that will not be run on either system
PROMPT due to a partially migrated target list
PROMPT =====================
PROMPT Enter a quoted, comma separated list of agent guids about to be
migrated
PROMPT OR any quoted character to list currently stuck jobs
PROMPT =====================

WITH
-- list of targets the user is about to migrate
migrating_targets AS
(
SELECT   target_name, target_type, target_guid
FROM     MGMT_TARGETS t
WHERE    t.emd_url IN ( SELECT emd_url
                        FROM   MGMT_TARGETS
                        WHERE  target_guid IN (&p_agent_guid_list)
                        AND    target_type = 'oracle_emd') --MGMT_GLOBAL.G_AGENT_
TARGET_TYPE )
),
-- list of already migrated targets
migrated_targets AS
(
SELECT   target_name, target_type, target_guid
FROM     PRE_UPGC_TGT_SW
WHERE    STATUS  =  'AVAILABLE'
-- NOTE: neither system will monitor targets <> 'AVAILABLE'
--       How to treat them here?
--       For now, treat them as unmigrated
AND      emd_url IN ( SELECT emd_url
                      FROM   PRE_UPGC_AGT_STAT_MGMT JOIN
                             MGMT_TARGETS           USING(target_guid)
                      WHERE  SWITCH_STATUS='STATUS_SUCCESS'
                      OR     SWITCH_STATUS='STATUS_IN_PROGRESS')
),
-- list of job related targets (either migrating or already migrated)
```

```
            migrate_job_targets AS
            (
            SELECT   -- use DISTINCT to cover target overlap case
            DISTINCT job_id, execution_id, target_guid
            FROM     MGMT$JOB_EXECUTION_HISTORY JOIN
                     ( SELECT target_guid FROM migrating_targets
                       UNION ALL
                       SELECT target_guid FROM migrated_targets
                     ) USING(target_guid)
            WHERE    status  NOT IN ('Error',
                                      'Failed',
                                      'Succeeded',
                                      'Skipped',
                                      'Stopped')
            ),
            -- list of jobs against the migrate job targets
            effected_jobs AS
            (
            SELECT  count(1) migrated_target_count, job_id, execution_id
            FROM    migrate_job_targets
            GROUP BY job_id, execution_id
            ),
            -- list of jobs with some unmigrated targets and some migrate targets
            partly_migrated_jobs AS
            (
            SELECT je.job_id,
                   je.execution_id,
                   je.job_name,
                   je.job_owner,
                   je.job_type,
                   je.target_name,
                   je.target_type,
                   je.target_guid
            FROM   MGMT$JOB_EXECUTION_HISTORY je,
                   effected_jobs              ej
            WHERE  je.job_id       = ej.job_id
            AND    je.execution_id = ej.execution_id
            AND    target_guid     NOT IN
                              ( SELECT target_guid
                                FROM   migrate_job_targets
                              )
            )
            -- list jobs, targets and agents
            SELECT job_name, target_name, target_type
            FROM   partly_migrated_jobs
            ORDER BY job_name, target_type, target_name;

            /*
             Could change the last select to
             SELECT DISTINCT job_name, job_owner
             or
             SELECT DISTINCT target_guid

             to get the distinct list of jobs or target guids.

             or
             SELECT DISTINCT emd_url
             FROM   partly_migrated_jobs JOIN
                    MGMT_TARGETS        USING (target_guid)
```

```
 to get the distinct list of agents
*/


/*
to test already migrated target part, do
update PRE_UPGC_AGT_STAT_MGMT set SWITCH_STATUS ='STATUS_SUCCESS' where target_
guid = (select target_guid from mgmt_targets where target_type = 'oracle_emd' and
emd_url = (select emd_url from mgmt_targets where target_name =
'db.example.com'));

but DO NOT COMMIT
rollback when done.
*/
```

E

Updating Server Load Balancer Configuration Settings

If you have a Server Load Balancer (SLB) configured, make the changes described in Table E–1 to your monitors.

> **Note:** The HTTPS and HTTP ports you must associated with can be found by running the following command:
>
> `$<OMS_HOME>/bin/emctl status oms -details`

Table E–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/uplo ad	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/genw allet	GenWallet Servlet activated	HostA:<http_upload_ port>
						HostB:<http_upload_ port>
mon_emcc_ secure_ console<https_ console_port>	https	5	16	GET /em/consoleS tatus.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/consoleS tatus.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.

F

Setting Preferred Credentials Using EM CLI

When you provide the agent credentials, you can choose to enter the preferred credentials registered with the Enterprise Manager system. However, ensure that the credentials were registered using EM CLI.

- To register the credentials as preferred credentials for one host at a time, run the following command on the host where the Management Agent is running:

```
emcli set_credential -target_type=host -target_name="<host_name>"
-credential_set=OHCreds -column="OHUsername:<em_job_
user>;OHPassword:<em_job_pwd>" -oracle_homes="<agent_home>"
```

For example,

```
emcli set_credential -target_type=host -target_name="example.com"
-credential_set=OHCreds
-column="OHUsername:myuser;OHPassword:2bornot2b" -oracle_
homes="/home/john/programs/EM/agent10g"
```

- To register the credentials as default preferred credentials for all hosts at a time, run the following command on one of the hosts where the Management Agent is running. Ensure that the user is a shared user on all the hosts.

```
emcli set_credential -target_type=host -credential_set=OHCreds
-column="OHUsername:<em_job_user>;OHPassword:<em_job_pwd>" -oracle_
homes="<agent_home>"
```

For example,

```
emcli set_credential -target_type=host -credential_set=OHCreds
-column="OHUsername:myuser;OHPassword:2bornot2b"
```

> **Note:** To run these commands, you must have the EM CLI Client installed on the hosts. If you do not have EM CLI, install one following the instructions outlined in *Oracle Enterprise Manager Command Line Interface Guide.*

G

Moving the Central Agent Base Directory Outside Oracle Middleware Home

In Enterprise Manager Cloud Control 12*c* Release 1 (12.1.0.1) and 12*c* 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 (OMS).

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 12c 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), or 12c Release 5 (12.1.0.5) OMS, you will see the central 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) or 12c Release 4 (12.1.0.4) OMS to 12c Release 4 (12.1.0.4) or 12c Release 5 (12.1.0.5), respectively, 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 12*c* 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 central agent base directory inside the middleware home (unless you had not already migrated it outside the middleware home). You can choose to migrate the central agent base directory to a location outside the middleware if you want.

Note that moving the central agent base directory outside the Oracle Middleware home is a one-time activity. Once the central agent base directory 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 central agent base directory 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 the central agent, and not for the other Management Agents.
>
> - Moving the agent base directory is not supported on a host that is running on Microsoft Windows.

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. Edit the `agentimage.properties` file and set the `SBIN_MODIFIED_VERSION` parameter to **12.1.0.5.0**.

   ```
   <AGENT_BASE_DIRECTORY>/agentimage.properties
   ```

3. Run the following script:

   ```
   <AGENT_HOME>/perl/bin/perl <AGENT_HOME>/sysman/install/ConvertToStandalone.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.

H

Searching and Adding Oracle Management Agents

To search and add Oracle Management Agents (Management Agent) on the Deploy and Configure Agents page, Generate Health Report of Deployed Agents page, and on the Switch Agents page, follow these steps:

- To search Management Agents, select the platform and the version of the Management Agents you are searching for, from the **Platform** and **Version** lists, respectively. Then, click **Search**.

  Alternatively, if you know the name of the Management Agent, then enter the name in **Agent**, and click **Search**. If you have created a logical group of Management Agents in Enterprise Manager Grid Control, and if you want to list the Management Agents of that group, then from the **Group** list, select the name of that group, and click **Search**.

- The search results in a list of Management Agents discovered in your environment. If you do not want to deploy the software now for some of the Management Agents, then select those Management Agents and click **Remove**.

- In case the search result does not list the Management Agents you are searching for, then click **Add** and manually add the Management Agents of your choice.

- The Management Agent you have added might be part of multiple groups (an Enterprise Manager group), systems (an Enterprise Manager system), or clusters of Management Agents, or it might be associated with multiple shared Management Agents.

  In such cases, if you want to select and add the Management Agents of all the groups and clusters, and also the associated shared Management Agents, then click **Add Related Agents**.

  > **Note:** If you are adding a *Shared Agent*, then ensure that you add the *Master Agent* to which it communicates, and all the *Shared Agents* that communicate with this *Master Agent*.

Securing Oracle Management Agents After Backing Up Oracle Management Repository

Before you deploy and configure Oracle Management Agents 12*c* (Management Agent) as described in Section 11.1, you must ensure that the old Management Agents remain in the same mode as they were before the Management Repository was backed up. In other words, if your old Management Agents were running in secure (or unsecure) mode before the Management Repository was backed up, then they must continue to run in the same mode while you deploy and configure the new Management Agents for them.

Do not resecure the Management Agents after backing up the Management Repository. If you do so, the ping test might fail while performing the healthcheck because of a mismatch between the configuration stored in the repository and the actual configuration of the Management Agent. You will see the following `KEY_MISMATCH` error in the `gcagent.log` file.

```
gcagent.log:2011-09-28 05:41:46,192 [82:B5BF5C12:GC.Executor.1 (Ping OMS)] WARN -
Received response status KEY_MISMATCH
gcagent.log:2011-09-28 05:42:16,231 [89:D485F18E:GC.Executor.5 (Ping OMS)] WARN -
Received response status KEY_MISMATCH
gcagent.log:2011-09-28 05:42:29,232 [1:3305B9] WARN - Received response status
KEY_MISMATCH
```

If you still want to resecure the Management Agents for some reason, then follow these steps:

1. Disable the health check by running the following SQL query against the old Management Repository.

   ```
   BEGIN PRE_UPG_UTL.set_param('bypass_hc', '1'); END;
    /
   commit;
   ```

2. Switch over the Management Agent as described in Section 11.4.

3. Secure the new Management Agents.

   ```
   $<AGENT_INSTANCE_DIR>/bin/emctl secure agent
   ```

4. Start the new Management Agents.

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

5. Enable the health check.

   ```
   BEGIN PRE_UPG_UTL.set_param('bypass_hc', '0'); END;
   /
   commit;
   ```

J

Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

This appendix describes how you can recover the backed up Oracle Database 11g Release 1 (11.1.0.7) or 10g Release 2 (10.2.0.5) from Microsoft Windows 32-bit to Microsoft Windows 64-bit. This appendix is based on the following note:

How To Change Oracle 11g Wordsize from 32-bit to 64-bit. [ID 548978.1]

For information on repository recovery, refer to *How To Change Oracle 11g Wordsize from 32-bit to 64-bit [ID 548978.1]*.

In case of some olap data in win32, at the end of Step (21) of Section J.2, follow the steps mentioned in *Note [ID 386990.1]*.

This appendix contains the following sections:

- Steps to Perform on the Source Host (Microsoft Windows 32-bit) for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

- Steps to Perform on the Destination Host (Microsoft Windows 64-bit) for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

- Final Steps to Perform for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit

J.1 Steps to Perform on the Source Host (Microsoft Windows 32-bit) for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

To recover the backed up Oracle Database 11g Release 1 (11.1.0.7) or 10g Release 2 (10.2.0.5) from Microsoft Windows 32-bit to Microsoft Windows 64-bit, follow these steps on source host:

1. Access the database home `<DB_HOME>\bin\sqlplus /NOLOG`

2. Run the following command:

   ```
   SQL> CONNECT / AS SYSDBA :
   ```

Note: If you are using Oracle Database 10g Release 2 (10.2.0.5):

- Access `<DB HOME>/admin/<SID>/udump`, and make a backup of this in your local system.

- Run the following command:

  `<OMS_HOME>\bin>`

  `emctl config emkey -copy_to_repos -sysman_pwd <sysman_ password>`

  For example:

  `C:\Oracle\Middleware\oms\BIN>emctl config emkey -copy_to_ repos -sysman_pwd Welcome1`

---

3. Run the following command:

   `SQL> ALTER DATABASE BACKUP CONTROLFILE TO TRACE;`

Note:

- If you are using Oracle Database 10g Release 2 (10.2.0.5), the trace file will be generated in `<DB HOME>/admin/<SID>/udump`. Now compare the files with the backed up `<DB HOME>/admin/<SID>/udump`. You will find some new trace files. One of the new trace files will contain the steps that will be performed later on the destination host on Microsoft Windows 64-bit.

- If you are using Oracle Database 11g Release 1 (11.1.0.7) Database, the command creates a new `<sid>_ora_XX.trc` file in `<DB_ BASE>\diag\rdbms\<SID>\<SID>\trace\<sid>_ora_xx.trc`. For example:

  `C:\DB\diag\rdbms\orcl\orcl\traceorcl_ora_3832.trc`

  This file can be used to create the control file in the destination host.

  This file can be identified by the `<DB_ BASE>\diag\rdbms\<SID>\<SID>\trace\alert_<Sid>.log`

  For information about the generated trace file, go to the last few lines.

  Next, go to the console, where you were following the steps for upgrade. Select "Provide Repository Back up details" and then provide the date and time of creation of the trace file which you just identified.

---

4. Perform a full offline database backup (optional).

5. Run the following commands:

   `SQL> SHUTDOWN IMMEDIATE;`

   `SQL> STARTUP;`

J.2 Steps to Perform on the Destination Host (Microsoft Windows 64-bit) for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

To recover Oracle Database 11g Release 1 (11.1.0.7) or 10g Release 2 (10.2.0.5) from Microsoft Windows 32-bit to Microsoft Windows 64-bit, follow these steps on the destination host:

1. Perform a software-only installation of the Oracle Database software on the computer.

   > **Note:** Ensure that the database being installed has the same path as the database on the source host that is on Microsoft Windows 32-bit. This ensures speedy recovery.

2. Copy the entire `<DB_Base>\oradata` directory from Microsoft Windows 32-bit source host to the `<DB_Base>\` directory of Microsoft Windows 64-bit destination host.

3. Run the following command:

   ```
   <DB_HOME>\bin\oradim -new -sid <SID> -maxusers <no. of users>
   -startmode auto -pfile <DB_HOME>\database\init<SID>.ora
   ```

   For example:

   ```
   C:\DB\db\BIN>oradim.exe -new -sid orcl -maxusers 3 -startmode auto -pfile
   C:\DB\db\database\initorcl.ora
   ```

   > **Note:**
   >
   > - `MAXUSERS` may not work with Oracle Database 10g Release 2 (10.2.0.5).
   >
   > - You may see an error here. This error can be ignored. However, make sure *Instance is created.* Also, `init<SID>.ora` will not be created now.

4. Copy the entire `<DB_Base>\admin` directory from Microsoft Windows 32-bit source host to the `<DB_Base>\` directory of Microsoft Windows 64-bit destination host.

5. Copy the entire `<DB_Base>\fast_recovery_area` directory from Microsoft Windows 32-bit source host to the `<DB_Base>\` directory of Microsoft Windows 64-bit destination host.

6. Copy `<DBHOME>\database\*.*` files from Microsoft Windows 32-bit source host to the `<DBHOME>\database\` directory of Microsoft Windows 64-bit destination host.

   > **Note:** If you are using Oracle Database 10g Release 2 (10.2.0.5), copy `<DB_HOME>\dbs\SPFILE<SID>.ORA` from win32 to the same location on win64. An example of this file is as follows:
   >
   > ```
   > C:\DB\db\dbs\SPFILEORCL.ORA
   > ```

7. Set the following environment variables:

- set ORACLE_HOME=<DB_home>

- set ORACLE_SID=<SID>

8. Access the DB_HOME\rdbms\admin directory.

> **Note:** If you cannot find sqlplus inside this, then go to <DB_HOME>\bin

9. Run the following command:

   sqlplus /NOLOG

10. Connect /as sysdba.

11. Run the following command:

    SQL> create pfile from spfile;

   > **Note:**
   >
   > - If you are using Oracle Database 10g Release 5 (10.2.0.5), run the following command:
   >
   >   create pfile='<DB_HOME>\database\init<SID>.ora' from
   >   SPFILE='<DB_HOME>\dbs\SPFILE<SID>.ORA';
   >
   >   For example:
   >   create pfile='C:\DB\db\database\initorcl.ora' from
   >   SPFILE='C:\DB\db\dbs\SPFILEORCL.ORA';
   >
   > - If you are using Oracle Database 11g Release 1 (11.1.0.7), run the following command:
   >
   >   create pfile='<DB_HOME>\database\init<SID>.ora' from
   >   SPFILE='<DB_HOME>\database\SPFILE<SID>.ORA';
   >
   >   For example:
   >   create pfile='C:\DB\db\database\initorcl.ora' from
   >   SPFILE='C:\DB\db\database\SPFILEORCL.ORA';

12. Edit <DB_HOME>\database\init<SID>.ora by adding _SYSTEM_TRIG_
    ENABLED=FALSE.

13. Run the following command:

    SQL> create spfile from pfile

    The spfile gets created in the same directory.

14. Run the following command:

    SQL> startup nomount

    The Instance starts as nomount.

> **Note:** You may receive a failure message as follows:
>
> ```
> ORA-00119: invalid specification for system parameter LOCAL_
> LISTENER
> ```
>
> ```
> ORA-00132: syntax error or unresolved network name
> '<listener name>'
> ```
>
> To correct this you may need to edit `pfile`, `spfile`;
>
> To edit the pfile and spfile, open `'<DB_`
> `HOME>\database\init<SID>.ora'` and delete the following line:
>
> ```
> LOCAL_LISTENER
> ```
>
> Next, run the following command:
>
> ```
> Sql> create spfile from pfile
> ```

15. Go to the file `<sid>_ora_xx.trc` as identified in Step (3) of Section J.1. Perform Step (15), Step (16), and Step (17) from this file. For your reference, example of these steps are as follows:

```
SQL > CREATE CONTROLFILE REUSE DATABASE "ORCL" NORESETLOGS  NOARCHIVELOG
    MAXLOGFILES 16
    MAXLOGMEMBERS 3
    MAXDATAFILES 100
    MAXINSTANCES 8
    MAXLOGHISTORY 292
LOGFILE
  GROUP 1 'C:\DB\ORADATA\ORCL\REDO01.LOG'  SIZE 50M BLOCKSIZE 512,
  GROUP 2 'C:\DB\ORADATA\ORCL\REDO02.LOG'  SIZE 50M BLOCKSIZE 512,
  GROUP 3 'C:\DB\ORADATA\ORCL\REDO03.LOG'  SIZE 50M BLOCKSIZE 512
DATAFILE
  'C:\DB\ORADATA\ORCL\SYSTEM01.DBF',
  'C:\DB\ORADATA\ORCL\SYSAUX01.DBF',
  'C:\DB\ORADATA\ORCL\UNDOTBS01.DBF',
  'C:\DB\ORADATA\ORCL\USERS01.DBF',
  'C:\DB\ORADATA\ORCL\MGMT_ECM_DEPOT1.DBF',
  'C:\DB\ORADATA\ORCL\MGMT.DBF',
  'C:\DB\ORADATA\ORCL\mgmt_deepdive.dbf'
CHARACTER SET WE8MSWIN1252;
```

> **Note:** : In case you find an error here, try the following command:
>
> ```
> SQL> RECOVER DATABASE;
> ```

16. Run the following command:

```
SQL>ALTER DATABASE OPEN;
```

17. Run the following command:

```
SQL>ALTER TABLESPACE TEMP ADD TEMPFILE 'C:\DB\ORADATA\ORCL\TEMP01.DBF'
SIZE 20971520 REUSE AUTOEXTEND ON NEXT 655360 MAXSIZE 32767M;
```

This command updates the temp table space.

18. Run the following command:

```
SQL> SHUTDOWN IMMEDIATE;
```

19. Run the following command:

```
SQL> startup upgrade;
```

20. Run the following command:

```
SQL> SPOOL mig32-64.log;
```

21. Run the following command:

```
SQL> SET ECHO ON;
```

22. Run the following command:

```
SQL> @utlirp.sql;
```

> **Note:** If you are using sqlplus from `<DB_HOME>\bin\` then run the following command:
>
> ```
> SQL> @ <DB_HOME>\RDBMS\ADMIN\utlirp.sql
> ```
>
> or
>
> ```
> SQL> @ ?/RDBMS/ADMIN?utlirp.sql
> ```

23. Run the following command:

```
SQL> spool off;
```

24. Run the following command:

```
SQL> shutdown immediate;
```

25. Run the following command:

```
SQL> startup
```

26. Run the following script. To run the script paste it in SQL>prompt and press Enter.

```
begin
  update obj$ set status=5 where obj#=(select obj# from obj$,javasnm$
    where owner#=0 and type#=29 and short(+)=name and
    nvl(longdbcs,name)='oracle/aurora/rdbms/Compiler');
  commit;
  declare
    cursor C1 is select
        'DROP JAVA DATA "' || u.name || '"."' || o.name || '"'
        from obj$ o,user$ u where o.type#=56 and u.user#=o.owner#;

    ddl_statement varchar2(200);
    iterations number;
    previous_iterations number;
    loop_count number;
    my_err     number;
  begin
    previous_iterations := 10000000;
    loop
      -- To make sure we eventually stop, pick a max number of iterations
      select count(*) into iterations from obj$ where type#=56;
      exit when iterations=0 or iterations >= previous_iterations;
      previous_iterations := iterations;
      loop_count := 0;
      open C1;
```

```
   loop
     begin
       fetch C1 into ddl_statement;
       exit when C1%NOTFOUND or loop_count > iterations;
    exception when others then
       my_err := sqlcode;
       if my_err = -1555 then -- snapshot too old, re-execute fetch query
         exit;
       else
         raise;
     end if;
   end;
   initjvmaux.exec(ddl_statement);
   loop_count := loop_count + 1;
  end loop;
  close C1;
 end loop;
end;
commit;
initjvmaux.drp('delete from java$policy$shared$table');
update obj$ set status=1 where obj#=(select obj# from obj$,javasnm$
  where owner#=0 and type#=29 and short(+)=name and
  nvl(longdbcs,name)='oracle/aurora/rdbms/Compiler');
commit;
end;
/
create or replace java system;
/
```

27. Run the following command:

```
SQL> @utlrp.sql
```

> **Note:** If you are using sqlplus from <DB_HOME>\bin\ then, run
> the following command:
>
> ```
> SQL> @ <DB_HOME>\RDBMS\ADMIN\utlrp.sql
> ```
>
> or
>
> ```
> SQL> @ ?/RDBMS/ADMIN?utlrp.sql
> ```

If it succeeds, then continue to Step (28). Otherwise, if you receive an error, do the following:

a. Run the following command:

```
SQL> alter system reset "_system_trig_enabled"  scope = spfile;
```

If you see errrors, ignore them and continue to the next step.

b. Remove olap by running the following commands:

```
SQL>  @?/olap/admin/catnoamd.sql
```

> **Note:** If you get an error related to files not found then, for each of
> those files, use the following command:
>
> ```
> SQL>@C:\DB\db\olap\admin\<filename>.sql;
> ```
>
> However, even if you receive errors, you can just continue.

```
SQL> @?/olap/admin/catnoaps.sql

SQL> @?/olap/admin/olapidrp.plb
```

   c. Add olap by running the following commands:

```
SQL> connect SYS as SYSDBA

SQL> spool olap.log

SQL> @?/olap/admin/olap.sql SYSAUX TEMP;
```

   d. Reenter the following command:

```
SQl> @utlrp.sql
```

Note: : If you are using sqlplus from <DB_HOME>\bin\ then, run the following command:

```
SQL> @ <DB_HOME>\RDBMS\ADMIN\utlrp.sql
```

or

```
SQL> @ ?/RDBMS/ADMIN?utlrp.sql
```

---

   e. Check for the following (optional):

    - Invalid OLAPSYS objects, by running the following command:

```
SQL> select owner, object_name, object_type, status from dba_
objects where status = 'INVALID' and OWNER = 'OLAPSYS' ;
```

    - OLAP components in the DBA_REGISTRY, by running the following commands:

```
SQL> column comp_name format a35

SQL> SELECT comp_name, status, substr(version,1,10) as version from
dba_registry;

SQL> Spool Off
```

28. Delete the line _SYSTEM_TRIG_ENABLED=FALSE in init<SID>.ora in step 11 and run the following commands:

```
SQL> ALTER SYSTEM RESET "_system_trig_enabled" SCOPE=SPFILE sid='*';

commit;

shutdown immediate;

startup;
```

J.3 Final Steps to Perform for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit

To finalize the process, do the following:

- Final Steps to Perform on the Microsoft Windows 32-bit Host for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

- Final Steps to Perform on the Microsoft Windows 64-bit Host for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

-

J.3.1 Final Steps to Perform on the Microsoft Windows 32-bit Host for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

On the Microsoft Windows 32-bit source host, do the following:

1. Access `<DB_HOME>\bin`.

   ```
   sqlplus "/as sysdba"
   ```

   ```
   SQL>startup;
   ```

2. Run the following command:

   ```
   <OMS_HOME>\bin>emctl config emkey -remove_from_repos
   ```

   For example:

   ```
   C:\Oracle\Middleware\oms\BIN>emctl config emkey -remove_from_repos
   ```

3. Access `<DB_HOME>\bin`.

   ```
   sqlplus "/as sysdba"
   ```

   ```
   shutdown immediate;
   ```

   ```
   startup;
   ```

J.3.2 Final Steps to Perform on the Microsoft Windows 64-bit Host for Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

On Microsoft Windows 64-bit destination host, do the following:

1. Start the listener, by running the following command:

   ```
   <DB_HOME>\bin\listener.exe start
   ```

   Alternatively, you can start the listener, by running the following command:

   ```
   <DB_HOME>\bin\netca
   ```

   This can be done before or after recovery.

2. If the listener does not start, perform the following commands with `<SID>`:

   ```
   <DB_HOME>\bin\sqlplus "/as sysdba"
   ```

   ```
   SQL>alter system register;
   ```

   ```
   SQL>commit;
   ```

   ```
   SQL>shutdown immediate;
   ```

   ```
   SQL>startup;
   ```

J.3.3 Troubleshooting Issues with Recovering Oracle Database 11.1.0.7 or 10.2.0.5 from Microsoft Windows 32-bit Host to Microsoft Windows 64-bit Host

If you still face any issues, follow these steps:

> **Note:** These steps have been tested with Database 10.2.0.5.

1. Run the following command:

   ```
   <DB_HOME>\BIN\orapwd file=<DB_HOME>\database\PWDorcl.ora
   password=<enter_password> entries=30 FORCE=Y
   ```

2. You may need to add an entry in `tnsnames.ora`. An example of the entry is as follows:

   ```
   ORCL =
     (DESCRIPTION =
       (ADDRESS = (PROTOCOL = TCP)(HOST = host.example.com)(PORT = 1521))
       (CONNECT_DATA =
         (SERVER = DEDICATED)
         (SERVICE_NAME = orcl.example.com)
       )
     )

   Where, orcl is the SID.
   ```

3. Bounce the database from SQLPlus by running the following commands:

   ```
   <DB_HOME>\bin\sqlplus "/as sysdba"

   SQL>shutdown immediate;

   SQL>startup;
   ```

4. Bounce the listener by running the following commands:

   ```
   <DB_HOME>\bin\listener.exe stop

    <DB_HOME>\bin\listener.exe start

   <DB_HOME>\bin\listener.exe status (to be repeated till you see the
   service name)
   ```

K

Deleting the Old OMS Home

This chapter describes how you can delete the old OMS home after upgrading from 12*c* Release 4 (12.1.0.4), 12*c* Release 3 (12.1.0.3), or 12*c* Release 2 (12.1.0.2) to 12*c* Release 5 (12.1.0.5). In particular, this chapter covers the following:

-
-

K.1 Deinstalling the Old OMS Home in Graphical Mode

To deinstall the old OMS home in graphical mode, follow these steps:

> **IMPORTANT:**
>
> 1. Deinstall the components in the order described in this procedure. Otherwise, the installation wizard displays an error.
>
> 2. **Ensure that you do NOT remove the Management Agent that is present in the old middleware home.**
>
>   For information on moving the agent base directory of this Management Agent (that is, the central agent) outside the old Oracle Middleware home, refer the My Oracle Support note 1520010.1.

1. Invoke the installer from the OMS home by running the following command:

   ```
   $<OMS_HOME>/oui/bin/runInstaller -deinstall [-removeAllFiles -invPtrLoc
   <absolute_path_to_oraInst.loc>]
   ```

   > **Note:**
   >
   > - You can invoke the installer even from the directory where you downloaded the software. For example, `<software_location>/`.
   >
   > - The `-invPtrLoc` parameter is supported only on UNIX platforms, and not on Microsoft Windows platforms.
   >
   > - When you run `runInstaller -help`, you will see the option `-nowarningonremovefiles` listed. This option is currently not supported and has no effect even if you use it.

> **Note:** When you invoke `runInstaller` or `setup.exe`, if the
> Enterprise Manager Cloud Control Installation Wizard does not
> appear, then it is possible that you do not have read and write access
> to `/stage`, which a subdirectory in the `Disk1` directory of the
> Enterprise Manager software.
>
> There is a classpath variable that the installation wizard computes for
> OPatch as `../stage/Components/`, and when the TEMP variable is set
> to `/tmp`, the installation wizard tries to look for the opatch JAR file in
> the `/tmp/../stage` directory, which is equivalent to `/stage`. However,
> if you do not have read and write permission on `/stage`, then the
> installation wizard can hang. Under such circumstances, verify if you
> have read and write access to the `/stage` directory. If you do not have,
> then set the TEMP variable to a location where the install user has
> access to, and then relaunch the installation wizard.

2. On the Inventory screen, select only the OMS-related plug-in homes, and click
   Remove.

   > **Caution:** Make sure you have selected only the OMS-related plug-in
   > homes, and not any agent-related plug-ins.

3. On the Inventory screen, select the Java Development Kit (JDK) home, and click
   Remove.

   > **Note:** Deinstall JDK only if it was installed by the installation wizard
   > while installing the Enterprise Manager system. Otherwise, you can
   > skip this step.

   > **Note:** After deinstalling JDK, do NOT exit the installer. If you exit
   > the installer inadvertently, then follow these steps:
   >
   > 1. Manually download and install JDK 1.6.0.43.0 on the OMS host. If you
   >   already have this supported version, then you can reuse it.
   >
   > 2. Invoke the installer again and pass the absolute path to the location
   >   where you have JDK:
   >
   >    ```
   >    $<OMS_HOME>/oui/bin/runInstaller -deinstall -jreLoc <JDK_
   >    HOME> [-removeAllFiles] [-invPtrLoc <absolute_path_to_
   >    oraInst.loc>]
   >    ```

4. On the Inventory screen, select the Oracle WebTier home, and click **Remove**.

5. On the Inventory screen, select the following, and click **Remove**.

   - OMS home

   - Oracle Common directory

   > **Note:** If BI publisher was installed in the prior version of Enterprise
   > Manager, also select the BI publisher Oracle home (**Oracle_BI1**).

   6. On the Inventory screen, click **Close** to exit the wizard.

K.2 Deinstalling the Old OMS Home in Silent Mode

To deinstall the old OMS home in silent mode, follow these steps:

> **IMPORTANT:**
>
> **1.** Deinstall the components in the order described in this procedure. Otherwise, the installation wizard displays an error.
>
> **2.** **Ensure that you do NOT remove the Management Agent that is present in the old middleware home.**
>
> For information on moving the agent base directory of this Management Agent (that is, the central agent) outside the old Oracle Middleware home, refer the My Oracle Support note 1520010.1.

1. Deinstall the plug-in homes:

```
$<OMS_HOME>/oui/bin/runInstaller -deinstall -silent "REMOVE_
HOMES={absolute_path_to_oms_plug-in_home}" ORACLE_HOME=<absolute_path_
to_oms_home> [-removeAllFiles -invPtrLoc <absolute_path_to_
oraInst.loc>]
```

> **Note:**
>
> ■ You can invoke the installer even from the directory where you downloaded the software. For example, `<software_location>`/.
>
>   If you invoke the installer from here, then do NOT pass `-removeAllFiles`.
>
> ■ When you run `runInstaller -help`, you will see the option `-nowarningonremovefiles` listed. This option is currently not supported and has no effect even if you use it.
>
> ■ To deinstall multiple plug-ins, enter the plug-in homes separated by a comma.
>
> ■ The `-invPtrLoc` parameter is supported only on UNIX platforms, and not on Microsoft Windows platforms.

For example,

```
$<OMS_HOME>/oui/bin/runInstaller -deinstall -silent "REMOVE_
HOMES={/home/oracle/middleware/plugins/oracle.sysman.ssa.oms.plugin_
12.1.0.2.0}" ORACLE_HOME=/home/oracle/middleware/oms -removeAllFiles
-invPtrLoc /home/oracle/oraInst.loc
```

2. Deinstall the Java Development Kit (JDK) home:

```
$<OMS_HOME>/oui/bin/runInstaller -deinstall -silent "REMOVE_
HOMES={absolute_path_to_jdk_home}" ORACLE_HOME=<absolute_path_to_oms_
home> [-removeAllFiles] [-invPtrLoc <absolute_path_to_oraInst.loc>]
```

For example,

```
$<OMS_HOME>/oui/bin/runInstaller -deinstall -silent "REMOVE_
HOMES={/home/oracle/middleware/jdk16}" ORACLE_
HOME=/home/oracle/middleware/oms -removeAllFiles -invPtrLoc
/home/oracle/oraInst.loc
```

> **Note:** Deinstall JDK only if it was installed by the installation wizard while installing the Enterprise Manager system. Otherwise, you can skip this step.

3. Manually download and install JDK 1.6.0.43.0 on the OMS host. If you already have this supported version, then you can reuse it.

   You must reinstall JDK because the installer has a dependency on it. The new JDK can be installed anywhere on the OMS host, not necessarily in the same location where it existed before. However, ensure that you pass the -jreLoc parameter (as described in the following steps) while invoking the installer to indicate the location where you have installed the JDK.

4. Deinstall the Oracle WebTier home:

```
$<OMS_HOME>/oui/bin/runInstaller -deinstall -silent "REMOVE_
HOMES={absolute_path_to_web_tier}" -jreLoc <JDK_HOME> ORACLE_
HOME=<absolute_path_to_oms_home> [-removeAllFiles] [-invPtrLoc
<absolute_path_to_oraInst.loc>]
```

   For example,

```
$<OMS_HOME>/oui/bin/runInstaller -deinstall -silent "REMOVE_
HOMES={/home/oracle/middleware/Oracle_WT}" -jreLoc </home/oracle/jdk>
ORACLE_HOME=/home/oracle/middleware/oms -removeAllFiles -invPtrLoc
/home/oracle/oraInst.loc
```

5. Deinstall the OMS and the Oracle Common directory:

```
 $<OMS_HOME>/oui/bin/runInstaller -deinstall -silent "REMOVE_
HOMES={absolute_path_to_oms_oracle_home_and_common_directory_and_bip_
home_to_be_deinstalled}" -jreLoc <JDK_HOME> ORACLE_HOME=<absolute_path_
to_oms_home> [-removeAllFiles] [-invPtrLoc <absolute_path_to_
oraInst.loc>]
```

> **Note:** The argument REMOVE_HOMES accepts more than one path separated by a comma.

   For example, in this scenario, BI Publisher had been installed and is now being deinstalled.

```
$<OMS_HOME>/oui/bin/runInstaller -deinstall -silent "REMOVE_
HOMES={/home/oracle/middleware/oms,/home/oracle/middleware/oracle_
common,/home/oracle/middleware/Oracle_BI1}" -jreLoc </home/oracle/jdk>
ORACLE_HOME=/home/oracle/middleware/oms -removeAllFiles -invPtrLoc
/home/oracle/oraInst.loc
```

L

Correcting the Database Domain Name to Avoid or Resolve Database Link Error

If your database domain name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), then the *Run Presync* step of the switchover operation might fail, and you will see the following error in the `emoms.trc` trace file. For example, a database domain name with a hyphen (-) can result in this issue.

```
ORA-20000: Found exception Error Message :ORA-02083: database name has illegal
character '-' Error Number ;-2083
```

This appendix describes how you can circumvent this error if you have not already started your upgrade, and how you can work around this error if you have already started the upgrade and if you are seeing an error on the Create Upgraded Oracle Management Repository Link page.

In particular, this section covers the following:

- Avoiding the Database Link Error Before Starting the Upgrade Process
- Resolving the Database Link Error That Appears While the Upgrade Process Is in Progress

L.1 Avoiding the Database Link Error Before Starting the Upgrade Process

To circumvent the database link issue, as a prerequisite, follow these steps:

1. Run the following SQL commands as SYS user on the old as well as the new Management Repository:

   a. Verify the domain name:

   ```
   show parameters db_domain;
   ```

   b. If the domain name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), for example, a '-' (hyphen), then change the domain name.

   ```
   alter system set db_domain='<domain_name_with_illegal_char_
   replaced_with_legal_char>' scope=spfile sid='*';
   ```

   c. Verify the service name:

   ```
   show parameters service_names;
   ```

    d. If the service name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), for example, a '-' (hyphen), then change the service name.

```
alter system set service_names='service_name_with_illegal_char_
replaced_with_legal_char' scope=both sid='*';
```

    e. Verify the global name:

```
 select * from global_name;
```

    f. If the global name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), for example, a '-' (hyphen), then change global name.

```
alter database rename GLOBAL_NAME to "global_name_with_illegal_
char_replaced_with_legal_char";
```

2. Update the SERVICE_NAME value with the changed or corrected service name in the following files:

```
$<DB_HOME>/network/admin/listener.ora
```

```
$<DB_HOME>/network/admin/tnsnames.ora
```

3. Perform these steps on the old as well as the new OMS:

    a. Verify the connect descriptor for OMS:

```
$<OMS_HOME>/bin/emctl config oms -list_repos_details
```

    b. If the service name in the connect descriptor has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), for example, a '-' (hyphen), then change the connect descriptor.

```
$<OMS_HOME>/bin/emctl config oms -store_repos_details -repos_
conndesc '(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL =
TCP)(HOST = example.com)(PORT = 1521)))(CONNECT_DATA = (SERVICE_
NAME = service_name_with_illegal_char_replaced_with_legal_char)))'
-repos_user sysman
```

    c. Restart the OMS.

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

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

4. Restart the database:

```
SQL>shutdown immediate;
```

```
SQL>start the database
```

L.2 Resolving the Database Link Error That Appears While the Upgrade Process Is in Progress

To resolve the database link issue if you see an error on the Create Link to Upgraded Repository page of the Preupgrade Console, run the following commands as SYS user:

1. Drop the database link:

- If the database link is already created in the old repository, run the following command:

```
drop public database link PREUPGTO_NG_LINK;
```

- If the database link is already created in the new repository, run the following command:

  ```
  drop public database link PREUPG_EMREPO_LINK;
  ```

2. Run the following SQL commands as SYS user on the old as well as the new Management Repository:

   a. Verify the domain name:

      ```
      show parameters db_domain;
      ```

   b. If the domain name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), for example, a '-' (hyphen), then change the domain name.

      ```
      alter system set db_domain='domain_name_with_illegal_char_replaced_
      with_legal_char' scope=spfile sid='*';
      ```

   c. Verify the service name:

      ```
      show parameters service_names;
      ```

   d. If the service name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), for example, a '-' (hyphen), then change the service name.

      ```
      alter system set service_names='service_name_with_illegal_char_
      replaced_with_legal_char' scope=both sid='*';
      ```

   e. Verify the global name:

      ```
      select * from global_name;
      ```

   f. If the global name has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), for example, a '-' (hyphen), then change global name.

      ```
      alter database rename GLOBAL_NAME to "global_name_with_illegal_
      char_replaced_with_legal_char";
      ```

3. Update the SERVICE_NAME value with the changed/corrected service name in the following files:

   ```
   $<DB_HOME>/network/admin/listener.ora
   ```

   ```
   $<DB_HOME>/network/admin/tnsnames.ora
   ```

4. Perform these steps on the old as well as the new OMS:

   a. Verify the connect descriptor for OMS:

      For 11g and 12c OMS, run the following command:

      ```
      $<OMS_HOME>/bin/emctl config oms -list_repos_details
      ```

      For 10g OMS, open the `emoms.properties` file.

   b. If the service name in the connect descriptor has any characters other than A-Z (letters), 0-9 (numerals), _ (underscore), # (hash), $ (dollar),. (period), or @ (at the rate), for example, a '-' (hyphen), then change the connect descriptor.

      For 11g and 12c OMS, run the following command:

      ```
      $<OMS_HOME>/bin/emctl config oms -store_repos_details -repos_
      conndesc '(DESCRIPTION = (ADDRESS_LIST = (ADDRESS = (PROTOCOL =
      TCP)(HOST = example.com)(PORT = 1521)))(CONNECT_DATA = (SERVICE_
      ```

```
NAME = service_name_with_illegal_char_replaced_with_legal_char)))'
-repos_user sysman
```

For 10g OMS, edit the connect descriptor directly in the `emoms.properties` file, and save the file.

c. Restart the OMS:

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

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

5. Restart the database:

```
SQL>shutdown immediate;
```

```
SQL>start the database
```

6. Create or re-create the database link from the Create Link to Upgraded Repository page of the Preupgrade Console. For instructions, see .

7. Create the database link in the new Management Repository.

a. Verify the global names parameter:

```
show parameters global_names;
```

If `global_names` is set to `FALSE`, then use the database link name *PREUPG_EMREPO_LINK.*If it is set to `TRUE`, then use the database link name *<value_of_"select * from global_name"_from_the_old_Management_Repository>*.

Run the following command to use the database link:

```
CREATE PUBLIC DATABASE LINK <db_link_name> CONNECT TO SYSMAN
IDENTIFIED BY welcome1 using '(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=1521)))(CONNECT
_DATA=(SID=orcl)))';
```

b. Update the database link name in the new Management Repository:

```
UPDATE sysman.MGMT_UPGRADEUTIL_PROPS SET property_value='<db_link_
name>' WHERE  property_name = 'PREUPG_EMREPO_DBLINK_NAME'
```

8. Verify the database link in the old as well as the new Management Repository:

- Run the following SQL commands on the old Management Repository:

```
DECLARE

l_count number;

begin

select count(*) into l_count from mgmt_targets@PREUPGTO_NG_LINK;

end;

/
```

- Run the following SQL commands on the new Management Repository:

```
DECLARE

l_count number;

begin

select count(*) into l_count from mgmt_targets@<db_link_name>;

end;
```

/

M

Reviewing Log Files Related to the Upgrade of an Enterprise Manager System

Table M–1 lists the log files to be reviewed for various upgrade operations.

Table M–1 Log Files to Review for Various Upgrade Operations

Upgrade Operation	Console Name	Log Files to Review
Agent Health Check and Startup	Preupgrade Console[1]	Review the `gcagent.log` file in the following location of the 12*c* Management Agent: `$<AGENT_INSTANCE_DIR>/sysman/log/gcagent.log`
Agent Deployment and Configuration	Preupgrade Console	Review the log files in the following locations of the 12*c* Management Agent: ■ `$<AGENT_BASE_DIR>/core/<version>/cfgtoollogs/agentDeploy/` ■ `$<AGENT_BASE_DIR>/core/<version>/cfgtoollogs/cfgfw/`
Jobs *(Agent Deployment and Configuration Jobs, Health Check Jobs, Switchover Jobs)*	Preupgrade Console	Review the job output logs. To do so, follow these steps: **1.** Go to the Jobs page. **2.** Search for the job name. **3.** Click the job name, and then click on each step name to view the output logs for each step.
Plug-In Deployment *(While upgrading Management Agents using the Agent Upgrade Console)*	Agent Upgrade Console	To troubleshoot plug-in deployment issues, review the log files in the following location of the 12*c* Management Agent: `$<AGENT_INSTANCE_DIR>/install/logs/`
Ping Tests	Preupgrade Console	Review the `gcagent.log` file in the following location of the 12*c* Management Agent: `$<AGENT_INSTANCE_DIR>/sysman/log/gcagent.log`

[1] *Preupgrade Console* is essentially the *Enterprise Manager 12c Upgrade Console* accessed from the earlier release of Enterprise Manager.

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