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Cloud Control Basic Installation Guide

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Preface

Oracle Enterprise Manager Cloud Control Basic Installation Guide enables you to install Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5).

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

This preface covers the following topics:

- Audience
- Documentation Accessibility
- Related Documents
- Conventions

Audience

Oracle Enterprise Manager Cloud Control Basic Installation Guide is meant for system administrators who want to install a new Enterprise Manager system, an additional Oracle Management Service, or an additional Oracle Management Agent, especially in graphical mode.

Purpose of the Document

Oracle Enterprise Manager Cloud Control Basic Installation Guide describes how you can perform the following operations:

- Installing Enterprise Manager Cloud Control in graphical mode.
- Installing an additional Oracle Management Service in graphical mode.
- Installing Oracle Management Agent in graphical mode.
- Installing JVM Diagnostics and Application Dependency and Performance.

Oracle Enterprise Manager Cloud Control Basic Installation Guide does NOT cover the following procedures. These procedures are documented in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

- Installing the following in graphical mode:
  - Enterprise Manager Cloud Control software only so that you can configure it later.

  - Oracle Management Agent using a shared Oracle home.
- Installing the following in silent mode:
  - Enterprise Manager Cloud Control.
  - Enterprise Manager Cloud Control software only so that you can configure it later.
  - Oracle Management Service.
  - Oracle Management Agent.
  - Oracle Management Agent software only so that you can configure it later.
  - Oracle Management Agent using a shared Oracle home.
- Cloning Oracle Management Agent in graphical and silent mode.
- Deinstalling Enterprise Manager Cloud Control and Oracle Management Agent in graphical and silent mode.
- Upgrading Enterprise Manager Cloud Control and Oracle Management Agent in graphical or silent mode.
- Upgrading JVM Diagnostics and Application Dependency and Performance.

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 Advanced Installation and Configuration Guide*
- *Oracle Enterprise Manager Cloud Control Upgrade Guide*
- *Oracle Enterprise Manager Cloud Control Administrator's 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 (E22624-47) and all the previous revisions of *Oracle Enterprise Manager Cloud Control Basic Installation Guide* (this book) that was published for 12c Release 5 (12.1.0.5). Note that the latest revision (E22624-47) is the current revision published on OTN for 12c 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 (E22624-47) that is published on OTN.

Part, Chapter, or Section	Change Description
Section 6.7	Added a postinstallation step to highlight that patch 20181997 must be applied on the WebLogic Server home if JDK version is upgraded to JDK 6 update 95.
Appendix G	Introduced an appendix that describes how browser certificates can be imported to Google Chrome browsers.

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 E22624-46

Part, Chapter, or Section	Change Description
Appendix 7.2	Updated the important facts related to Management Agent installation.

Part I

Introduction to Enterprise Manager Cloud Control

Enterprise Manager Cloud Control is system management software that delivers centralized monitoring, administration, and life cycle management functionality for the complete IT infrastructure, including systems running Oracle and non-Oracle technologies.

This part introduces you to Enterprise Manager Cloud Control, and helps you understand its architecture and its core components. In particular, this part covers the following chapter:

- Chapter 1, "Overview of Enterprise Manager Cloud Control"

1

Overview of Enterprise Manager Cloud Control

This chapter provides an overview of Oracle Enterprise Manager Cloud Control (Enterprise Manager Cloud Control) and helps you understand its architecture and the various core components that are integrated within the product.

This chapter contains the following sections:

- Overview of Enterprise Manager Cloud Control
- Architecture of Enterprise Manager Cloud Control

> **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*.

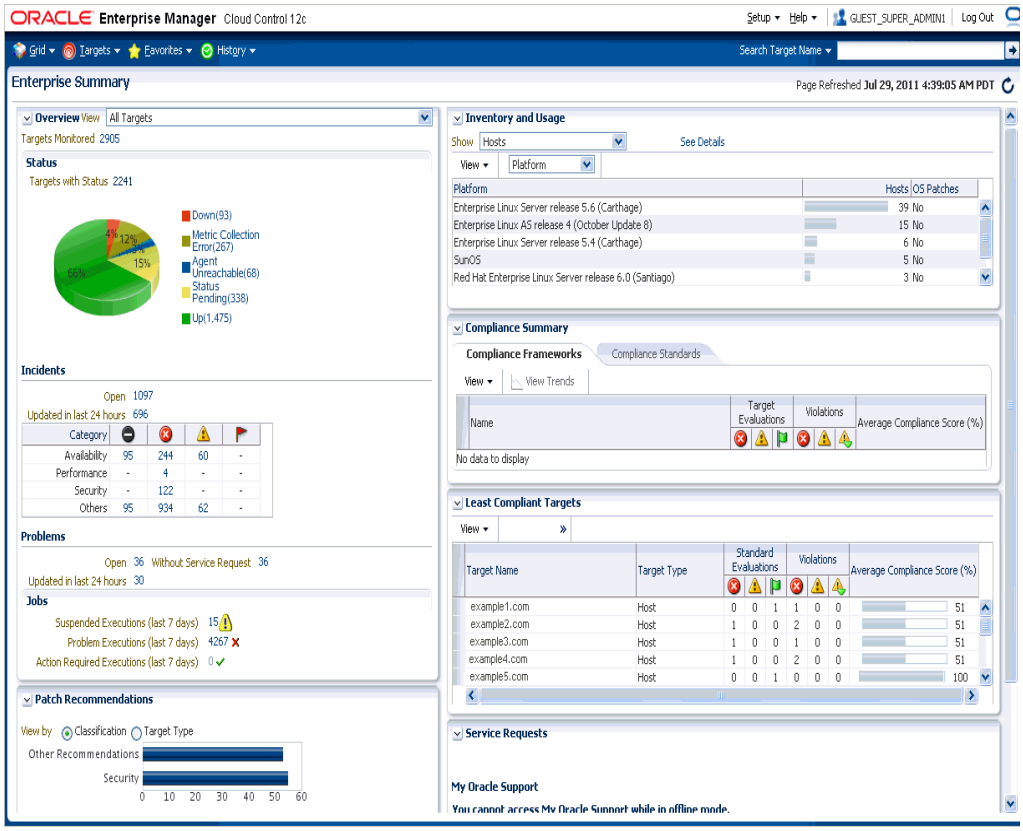
1.1 Overview of Enterprise Manager Cloud Control

Enterprise Manager Cloud Control is system management software that delivers centralized monitoring, administration, and life cycle management functionality for the complete IT infrastructure, including systems running Oracle and non-Oracle technologies.

Your environment may comprise multiple Oracle Databases, Oracle WebLogic Servers, Web applications deployed on these servers, hosts running these targets, and so on. You can, of course, use the individual product consoles to monitor the status of each of these targets, but it becomes cumbersome to shuttle between multiple console windows and track the performance of each of these targets using so many windows.

Enterprise Manager Cloud Control offers a solution that allows you to monitor and manage the complete Oracle IT infrastructure from a single console. In addition, it provides support for business-driven IT management and business-centric top-down application management to manage your business services, user experience, and infrastructure. It also offers support for monitoring certain non-Oracle products, for example, IBM WebSphere Application Server, Microsoft SQL Server, Juniper Networks NetScreen Firewall, and so on.

Figure 1–1 Enterprise Manager Cloud Control Console



With a broad set of end-to-end monitoring, administration, configuration management, provisioning, and security capabilities, Enterprise Manager Cloud Control reduces the cost and complexity of managing computing environments. Robust service-level management functionality within Enterprise Manager Cloud Control dramatically improves service levels through rich transaction and end-user performance monitoring and deep diagnostics for multi-tier Internet applications.

For more information about Enterprise Manager Cloud Control, access the following URL:

`http://www.oracle.com/us/products/enterprise-manager/index.html`

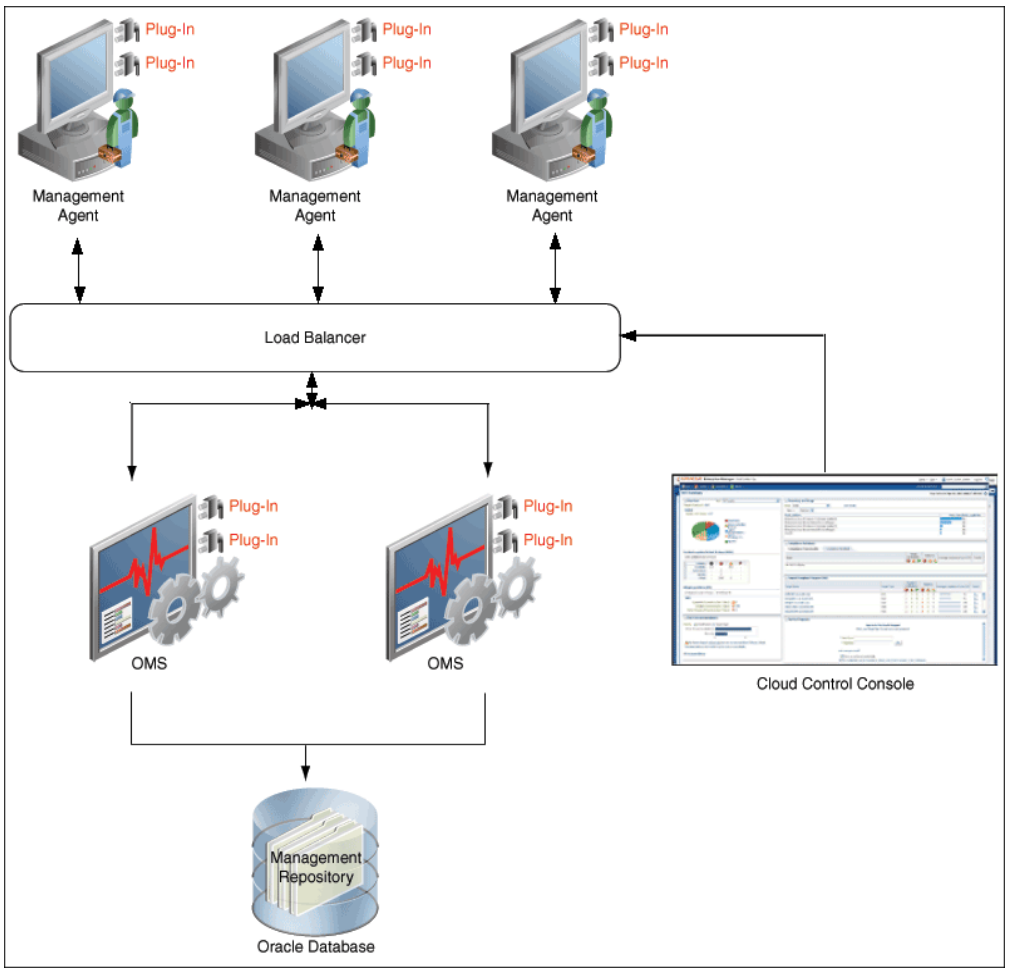
1.2 Architecture of Enterprise Manager Cloud Control

Enterprise Manager Cloud Control includes the following components:

- Oracle Management Agent
- Oracle Management Service
- Oracle Management Repository
- Plug-Ins
- Enterprise Manager Cloud Control Console

Figure 1–2 shows a sample Enterprise Manager Cloud Control architecture and illustrates how these core components fit into the architecture.

Figure 1–2 Enterprise Manager Cloud Control Architecture



Note: In Figure 1–2, the load balancer and the multiple OMS instances are depicted only to indicate how a sample Enterprise Manager Cloud Control architecture would look in a large organization. They are not a prerequisite or a requirement for an Enterprise Manager system installation. If you do not have a load balancer, then the Management Agents communicate directly with the OMS instances.

The following sections describe the core components of Enterprise Manager Cloud Control.

Oracle Management Agent (Management Agent)

The Management Agent is an integral software component that enables you to convert an unmanaged host to a managed host in the Enterprise Manager system. The Management Agent works in conjunction with the plug-ins to monitor the targets running on that managed host.

Oracle Management Service (OMS)

The OMS is a Web-based application that orchestrates with the Management Agents and the Plug-Ins to discover targets, monitor and manage them, and store the collected

information in a repository for future reference and analysis. The OMS also renders the user interface for Enterprise Manager Cloud Control. The OMS is deployed to the Oracle Middleware home (Middleware home), which is the parent directory that has the Oracle WebLogic Server home, the OMS home, the Management Agent home, the plug-in home, the Java Development Kit (JDK), the OMS instance base directory, the Oracle WT directory, the Oracle Common directory, and other relevant configuration files and directories. While deploying the OMS, the Enterprise Manager Cloud Control Installation Wizard installs Oracle WebLogic Server if it does not already exist in your environment. As a result, a WebLogic Server admin console is also installed.

Oracle Management Repository (Management Repository)

The Management Repository is a storage location where all the information collected by the Management Agent gets stored. It consists of objects such as database jobs, packages, procedures, views, and tablespaces.

The OMS uploads the monitoring data it receives from the Management Agents to the Management Repository. The Management Repository then organizes the data so that it can be retrieved by the OMS and displayed in the Enterprise Manager Cloud Control console. Since data is stored in the Management Repository, it can be shared between any number of administrators accessing the Enterprise Manager Cloud Control.

At the time of installation, the Enterprise Manager Cloud Control Installation Wizard configures the Management Repository in your existing, certified database. The wizard, however, does not install a new database.

Plug-Ins

Plug-Ins are pluggable entities that offer special management capabilities customized to suit specific target types. Unlike the earlier releases of Enterprise Manager, in Enterprise Manager Cloud Control, the plug-ins work in conjunction with the OMS and the Management Agent to monitor every target in your environment. Therefore, they are deployed to the OMS as well as the Management Agent. In the earlier releases, plug-ins enabled you to monitor only third-party targets, but in Enterprise Manager Cloud Control, plug-ins enable you to monitor all types of targets in your environment.

Plug-ins have independent release cycles, so every time you have a new version of an Oracle product released, you will have a new version of the plug-in released to support monitoring of that new product version in Enterprise Manager Cloud Control. This simplifies things because you no longer have to wait to upgrade your Enterprise Manager system to support a new product version; instead you can upgrade your plug-ins to monitor the new product version.

Table 1–1 lists the default plug-ins that are installed with a new Enterprise Manager system. In addition to these plug-ins, you can optionally install other plug-ins available in the software kit (DVD, downloaded software bundle, and so on). The installer offers a screen where you can select the optional plug-ins and install them.

Table 1–1 Default Plug-Ins Installed with Enterprise Manager Cloud Control

Name	Description
Oracle Database	Enables you to discover, monitor, and manage Oracle Database and related targets such as Oracle Real Application Clusters (Oracle RAC), Oracle Automatic Storage Management (Oracle ASM), and so on.

Table 1–1 (Cont.) Default Plug-Ins Installed with Enterprise Manager Cloud Control

Name	Description
Oracle Fusion Middleware	Enables you to discover, monitor, and manage Oracle Fusion Middleware products such as Oracle WebLogic Domain, Oracle WebLogic AdminServer, Oracle WebLogic Server, Oracle SOA Suite, Oracle Web Tier, and so on.
Oracle My Oracle Support	Enables you to log in to My Oracle Support from within the Cloud Control console, search the knowledge library for notes and documents, raise service requests, and create patch plans and templates for patching monitored targets.
Oracle Exadata	Enables you to discover, monitor, and manage Oracle Exadata targets.
Oracle Cloud Framework	Enables you to access basic features that are common across cloud services such as Middleware as a Service (MWaaS), Database as a Service (DBaaS), Infrastructure as a Service (IaaS), and Testing as a Service (TaaS).

Enterprise Manager Cloud Control Console

The Enterprise Manager Cloud Control console is the user interface you see after you install Enterprise Manager Cloud Control. With the help of the console, you can monitor and administer your entire computing environment from one location on the network. All the systems and services including enterprise application systems, databases, hosts, middleware application servers, listeners, and so on, are easily managed from one central location.

Part II

Preinstallation Requirements for Enterprise Manager Cloud Control

This part describes the preinstallation requirements you must meet before installing any of the core components of Enterprise Manager Cloud Control. In particular, this part contains the following chapters:

- Chapter 2, "Meeting Hardware Requirements for Enterprise Manager Cloud Control"
- Chapter 3, "Meeting Package, Kernel Parameter, and Library Requirements for Enterprise Manager Cloud Control"
- Chapter 4, "Creating Operating System Groups and Users for Enterprise Manager Cloud Control"
- Chapter 5, "Installing Cygwin and Starting the SSH Daemon"

2

Meeting Hardware Requirements for Enterprise Manager Cloud Control

This chapter describes the minimum hardware requirements you must meet before installing Oracle Management Service (OMS), Oracle Management Agents (Management Agents), and Oracle Management Repository (Management Repository).

In particular, this chapter covers the following:

- CPU, RAM, Heap Size, and Hard Disk Space Requirements for Oracle Management Service
- CPU, RAM, and Hard Disk Space Requirements for Oracle Management Agent, Enterprise Management Hybrid Cloud Agent, Enterprise Management Hybrid Cloud Gateway Agent
- CPU, RAM, and Hard Disk Space Requirements for Oracle Management Repository

Note: The hardware requirements outlined in this chapter can relate to either physical or virtual hardware. If you are allocating virtual resources, you must ensure that the underlying physical hardware is not over subscribed and can support the allocated virtual resources.

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.

2.1 CPU, RAM, Heap Size, and Hard Disk Space Requirements for Oracle Management Service

Table 2–1 describes the minimum CPU, physical memory (RAM), heap size, and hard disk space requirements for installing an OMS (including a Management Agent that comes with it).

Note: If you plan to have the OMS and the Management Repository on the same host, then meet the requirements described in Table 2–1 and Table 2–2, and make sure the CPU, RAM, and hard disk space requirements are a combination of the values mentioned in both tables.

Caution: The requirements mentioned in Table 2–1 indicate the minimum configuration required at the time of installation. Understandably, over a period of time, depending on the use of Enterprise Manager resources, you might have to upgrade to a higher configuration than the one you maintained at the time of installation. For example, the hard disk space required at the time of installation is 18 GB, but depending on the use of Oracle Software Library, generation of log files, and so on, you might require more space eventually.

To determine the exact number of Oracle BI Publisher instances you need to run in your production environment considering the concurrent usage and bursting usage parameters, see the My Oracle Support note 948841.1.

Table 2–1 Minimum CPU, RAM, Heap Size, and Hard Disk Space Requirements Per OMS

	Evaluation or Simple Installation	**Advanced Installation (SMALL)**	**Advanced Installation (MEDIUM)**	**Advanced Installation (LARGE)**	
Deployment Size	-	Small	Medium	Large	
Configuration	1 OMS, <100 Targets, <10 Agents, <3 Concurrent User Sessions	1 OMS, <1000 Targets, <100 Agents, <10 Concurrent User Sessions	2 OMSes, >=1000 but <10,000 Targets, >=100 but <1000 Agents,>=10 but <25 Concurrent User Sessions	2 OMSes, >=10,000 Targets, >=1000 Agents, >=25 but <=50 Concurrent User Sessions	4 OMSes, >=10,000 Targets, >=1000 Agents, >=25 but <=50 Concurrent User Sessions
CPU Cores/Host *(Can be shared with other processes)*	2	2	4	8	4
RAM	4 GB	6 GB	8 GB	16 GB	8 GB
RAM with Only Oracle BI Publisher	5.5 GB	7.5 GB	9.5 GB	17.5 GB	9.5 GB
RAM with Only ADP[1], JVMD[2]	-	8 GB	12 GB	20 GB	12 GB
RAM with Oracle BI Publisher, ADP, JVMD	5.5 GB	9.5 GB	13.5 GB	21.5 GB	13.5 GB
Oracle WebLogic Server JVM Heap Size	800 MB	1.7 GB	4 GB	8 GB	4 GB
Hard Disk Space[3]	18 GB	18 GB	18 GB	18 GB	18 GB
Hard Disk Space with ADP, JVMD	-	21 GB	23 GB	25 GB	23 GB

[1] ADP Manager is Application Dependency and Performance

[2] JVMD is JVM Diagnostics

[3] With Oracle Software Library and Oracle BI Publisher configured

2.2 CPU, RAM, and Hard Disk Space Requirements for Oracle Management Agent, Enterprise Management Hybrid Cloud Agent, Enterprise Management Hybrid Cloud Gateway Agent

The following are the minimum CPU, RAM, and hard disk space requirements for installing Oracle Management Agents (Management Agent), Enterprise Management Hybrid Cloud Agents, and Enterprise Management Hybrid Cloud Gateway Agents.

> **Caution:** The requirements mentioned in this section indicate the minimum configuration required at the time of installation. Understandably, over a period of time, depending on the use of Enterprise Manager resources, you might have to upgrade to a higher configuration than the one you maintained at the time of installation. For example, the hard disk space required at the time of installing a *Shared Agent* is 15 MB, but depending on its use, generation of log files, and so on, you might require more space eventually.

- For a *standalone Management Agent*, ensure that you have 2 CPU cores per host, 512 MB of RAM, and 1 GB of free hard disk space.
- For a *Master Agent*, ensure that you have 2 CPU cores per host, 512 MB of RAM, and 1 GB of free hard disk space.
- For a *Shared Agent*, ensure that you have 2 CPU cores per host, 512 MB of RAM, and 15 MB of free hard disk space.
- For a *Enterprise Management Hybrid Cloud Agent* and for a *Enterprise Management Hybrid Cloud Gateway Agent*, the requirements are the same as the requirements mentioned for a standalone Management Agent.

> **Note:** The CPU cores can be shared with other processes.

2.3 CPU, RAM, and Hard Disk Space Requirements for Oracle Management Repository

Table 2–2 describes the minimum RAM and hard disk space requirements for configuring a Management Repository:

> **Note:** If you plan to have the Management Repository and the OMS on the same host, then meet the requirements described in Table 2–2 and Table 2–1, and make sure the CPU, RAM, and hard disk space requirements are a combination of the values mentioned in both tables.

Caution: The requirements mentioned in Table 2–2 indicate the minimum configuration required at the time of installation. Understandably, over a period of time, depending on the use of Enterprise Manager resources, you might have to upgrade to a higher configuration than the one you maintained at the time of installation. For example, the hard disk space required at the time of installation is 18 GB, but depending on the use of Oracle Software Library, generation of log files, and so on, you might require more space eventually.

Table 2–2 Minimum CPU, RAM, and Hard Disk Space Requirements for Management Repository

	Evaluation or Simple Installation	**Advanced Installation (SMALL)**	**Advanced Installation (MEDIUM)**	**Advanced Installation (LARGE)**
Deployment Size	-	Small	Medium	Large
Configuration	1 OMS, <100 Targets, <10 Agents, <3 Concurrent User Sessions	1 OMS, <1000 Targets, <100 Agents, <10 Concurrent User Sessions	2 OMSes, >=1000 but <10,000 Targets, >=100 but <1000 Agents,>=10 but <25 Concurrent User Sessions	> 2 OMSes, >=10,000 Targets, >=1000 Agents, >=25 but <=50 Concurrent User Sessions
CPU Cores/Host[1]	-	2	4	8
RAM	-	6 GB	8 GB	16 GB
Hard Disk Space	19 GB *(MGMT_ TABLESPACE: 15 GB, MGMT_ ECM_DEPOT_ TS: 1 GB, TEMP 3 GB)*	87 GB *(SYSTEM: 600 MB, MGMT_ TABLESPACE: 50 GB, MGMT_ ECM_DEPOT_ TS: 1 GB, MGMT_AD4J_ TS: 100 MB, TEMP 10 GB, ARCHIVE LOG AREA: 25 GB)*	325 GB *(SYSTEM: 600 MB, MGMT_ TABLESPACE: 200 GB, MGMT_ECM_ DEPOT_TS: 4 GB, MGMT_AD4J_TS: 200 MB, TEMP 20 GB, ARCHIVE LOG AREA: 100 GB)*	499 GB *(SYSTEM: 600 MB, MGMT_ TABLESPACE: 300 GB, MGMT_ ECM_DEPOT_ TS: 8 GB, MGMT_ AD4J_TS: 400 MB, TEMP 40 GB, ARCHIVE LOG AREA: 150 GB)*

[1] For high availability, Oracle Real Application Cluster (Oracle RAC) database must be set up.

3

Meeting Package, Kernel Parameter, and Library Requirements for Enterprise Manager Cloud Control

This chapter describes the packages, kernel parameters settings, and libraries required on different platforms (32-bit and 64-bit) for installing a new Enterprise Manager system, an additional Oracle Management Service (OMS), and a standalone Oracle Management Agent (Management Agent).

In particular, this chapter covers the following:

- Package Requirements for Enterprise Manager Cloud Control
- Kernel Parameter Requirements for Enterprise Manager Cloud Control
- Library Requirements for Enterprise Manager Cloud Control

Note: The packages and libraries are NOT required for Microsoft Windows platforms.

3.1 Package Requirements for Enterprise Manager Cloud Control

This section lists the packages required on different platforms (32-bit and 64-bit) for installing an OMS or a Management Agent. In particular, this section covers the following:

- About the Logic Used by the Enterprise Manager Cloud Control Installation Wizard to Verify the Packages
- Identifying the Installed Packages
- Package Requirements for Oracle Management Service
- Package Requirements for Oracle Management Agent

3.1.1 About the Logic Used by the Enterprise Manager Cloud Control Installation Wizard to Verify the Packages

The Enterprise Manager Cloud Control Installation Wizard runs prerequisite checks to verify these packages. If the packages are not found or if the packages are found to be of a lower version than what is required at a minimum, then the wizard prompts you to install the required packages of the required version before proceeding with the installation or upgrade.

The package name contains two parts, mainly the name and the version separated by a hyphen. For example, for `libstdc++43-4.3` package, `libstdc++43` is the name and `4.3` is the version of the package.

The Enterprise Manager Cloud Control Installation Wizard verifies the package name as well as the version required for a particular platform. For example, if libstdc++43-4.3 is required for SUSE Linux Enterprise 11, and if libstdc++46-4.6.1 is found instead, then the wizard will report this as a missing package and prompt you to install libstdc++43-4.3. This is because libstdc++46-4.6.1 is not a higher version of libstdc++43-4.3; libstdc++46 and libstdc++43 are two different packages (the former is 46 and the latter is 43).

You can have a package of a higher version than what is required, but not a different package and not a package of a lower version. For example, if libstdc++43-4.3 is required for SUSE Linux Enterprise 11, and if libstdc++43-6.7 is found instead, then the wizard will not report this as an issue, and will pass the perquisite check. This is because, in this case, libstdc++43-6.7 is a higher version of libstdc++43-4.3, which is required at a minimum (the former is 43 and so is the latter).

Therefore, as a prerequisite, make sure you install all the required packages listed in this chapter for your respective platform.

3.1.2 Identifying the Installed Packages

To identify the packages already installed on your system, run the following command. If the command does not list the packages listed in Section 3.1.3 or Section 3.1.4, then install them manually.

For Linux Platforms

```
rpm -qa --queryformat "%{NAME}-%{VERSION}-%{RELEASE}(%{ARCH})\n" | grep glibc
```

The command lists all the packages installed on the system. The 32-bit ones are appended with `(i386)` or `(i686)`, and the 64-bit ones are appended with `(x86_64)`.

For example, if you run the command on a 32-bit system, you should see something similar to the following:

```
glibc-devel-2.3.4-2.43(i386)
glibc-headers-2.3.4-2.43(i386)
glibc-2.3.4-2.43(i686)
compat-glibc-headers-2.3.2-95.30(i386)
glibc-profile-2.3.4-2.43(i386)
glibc-utils-2.3.4-2.43(i386)
glibc-kernheaders-2.4-9.1.103.EL(i386)
glibc-common-2.3.4-2.43(i386)
compat-glibc-2.3.2-95.30(i386)
```

For example, if you run the command on a 64-bit system, you should see something similar to the following:

```
glibc-common-2.3.4-2.43(x86_64)
glibc-devel-2.3.4-2.43(x86_64)
glibc-profile-2.3.4-2.43(x86_64)
glibc-headers-2.3.4-2.43(x86_64)
glibc-utils-2.3.4-2.43(x86_64)
glibc-2.3.4-2.43(x86_64)
```

For Solaris Platforms

```
pkginfo <package_name>
```

For example,

```
pkginfo SUNWbtool
```

For AIX Platforms

```
lslpp -l <package name>
```

For example,

```
lslpp -l  bos.perf.proctools
```

For HP Platforms

To determine whether a bundle, product, or fileset is installed, enter the following command, where `level` is either bundle, product, or fileset:

```
# /usr/sbin/swlist -l level |more
```

For example,

```
/usr/sbin/swlist -l bundle |grep QPK
```

3.1.3 Package Requirements for Oracle Management Service

Table 3–1 lists the packages required on different platforms (32-bit and 64-bit) for installing a new Enterprise Manager system or an additional OMS.

WARNING: Ensure that you install only the versions recommended in Table 3–1. Installing any lower or higher versions of the packages might cause the installation to fail.

Table 3–1 Package Requirements for Oracle Management Service

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
Oracle Linux 6.x *(Red Hat 6 Kernel and Unbreakable Enterprise Kernel (UEK))* *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 6.2, where 6 is the release number and 2 is the version number.*	*Not Supported*	▪ make-3.81 ▪ binutils-2.20.51.0.2-5.11 ▪ gcc-4.4.4 ▪ libaio-0.3.107 ▪ glibc-common-2.12-1 ▪ libstdc++-4.4.4 ▪ libXtst-1.0.99.2-3.el6.x86_64.rpm ▪ sysstat-9.0.4 ▪ glibc-devel-2.12-1.7.el6.i686 *(This is a 32-bit package)* ▪ glibc-devel-2.12-1.7.el6.x86_64 *(This is a 64-bit package)* ▪ *(Applicable only for Oracle Linux 6.2, which includes RH6.2 and UEK 6.2)* glibc-2.12-1.47.0.2

Table 3–1 (Cont.) Package Requirements for Oracle Management Service

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
Oracle Linux 5.x Red Hat Enterprise Linux 5.x *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 5.2, where 5 is the release number and 2 is the version number.*	■ make-3.81 ■ binutils-2.17.50.0.6 ■ gcc-4.1.1 ■ libaio-0.3.106 ■ glibc-common-2.3.4 ■ compat-libstdc++296-2.96 ■ libstdc++ 4.1.1 ■ libstdc++devel-4.1.0 ■ setarch-1.6 ■ sysstat-5.0.5 ■ compat-db 4.1.25 ■ rng-utils-2.0 ■ libXtst-1.0.1-3.1(i386) ■ xorg-x11-utils *(This package is required only for GUI-based interactive installation, and not for silent installation)*	■ make-3.81 ■ binutils-2.17.50.0.6 ■ gcc -4.1.1 ■ libaio-0.3.106 ■ glibc-common-2.3.4 ■ libstdc++ -4.1.1 ■ setarch-1.6 ■ sysstat-5.0.5 ■ rng-utils-2.0 ■ libXtst-1.0.1-3.1(x86_64) ■ xorg-x11-utils *(This package is required only for GUI-based interactive installation, and not for silent installation)* In addition, install the 32-bit version as well as the 64-bit version of glibc-devel-2.5-49 to avoid any linking errors while installing the OMS. The installer checks for this package, so if this package is not installed, the installer displays an error.
Oracle Linux 4.x Red Hat Enterprise Linux 4.x *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 4.2, where 4 is the release number and 2 is the version number.*	■ make-3.80 ■ binutils-2.15.92.0.2 ■ gcc-3.4.5 ■ libaio-0.3.105 ■ glibc-common-2.3.4 ■ libstdc++-3.4.5 ■ libstdc++-devel-3.4.3 ■ pdksh-5.2.14 ■ setarch-1.6 ■ sysstat-5.0.5 ■ compat-db-4.1.25 ■ kernel-utils-2.4 ■ xorg-x11-utils *(This package is required only for GUI-based interactive installation, and not for silent installation)*	*Not Supported*
SUSE Linux Enterprise 10	■ make-3.80 ■ binutils-2.16.91.0.5 ■ gcc-4.1.0 ■ libstdc++ 4.1.0	*Not Supported*

Table 3–1 (Cont.) Package Requirements for Oracle Management Service

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
SUSE Linux Enterprise 11	■ make-3.81 ■ binutils-2.19-9.3 ■ gcc-4.3-62.198 ■ gcc43-4.3.3_ 20081022-11.18(i586) ■ gcc43-c++-4.3.3_ 20081022-11.18(i586) ■ glibc-devel-2.11.1-0.17.4(i686) ■ glibc-2.11.1-0.17.4(i686) ■ libstdc++43-devel-4.3.3_ 20081022-11.18(i586) ■ libstdc++ 43.4.3	■ make-3.80 ■ binutils-2.16.91.0.5 ■ libstdc++ 43.4.3 ■ libstdc++43-devel-4.3.3_ 20081022-11.18(x86_64) ■ libstdc++43-4.3.3_ 20081022-11.18(x86_64) ■ gcc43-4.3.3_ 20081022-11.18(x86_64) ■ gcc43-c++-4.3.3_ 20081022-11.18(x86_64) ■ gcc43-32bit-4.3.3_ 20081022-11.18(x86_64) ■ gcc-4.3-62.198(x86_64) ■ libstdc++ 43.4.3 ■ In addition, install the 32-bit version as well as the 64-bit version of glibc-devel-2.5-49 to avoid any linking errors while installing the OMS. The installer checks for this package, so if this package is not installed, the installer displays an error.
Asianux Server 3	■ make-3.81-3AXS3-i386 ■ binutils-2.17.50.0.6-9AXS3-i386 ■ gcc-4.1.2-44.1-i386 ■ libaio-0.3.106-3.2-i386 ■ glibc-common-2.5-34.1AXS3-i386 ■ compat-libstdc++-296-2.96-138.2 AX-i386 ■ libstdc++-4.1.2-44.1-i386 ■ libstdc++-devel-4.1.2-44.1-i386 ■ setarch-2.0-1.1-i386 ■ sysstat-7.0.4-1AX-i386 ■ compat-db-4.2.52-5.1-i386 ■ libXtst-1.0.1-3.1(i386) ■ xorg-x11-utils *(This package is required only for GUI-based interactive installation, and not for silent installation)*	■ make-3.81 ■ binutils-2.17.50.0.6 ■ gcc -4.1.1 ■ libaio-0.3.106 ■ glibc-common-2.3.4 ■ libstdc++ -4.1.1 ■ setarch-1.6 ■ sysstat-5.0.5 ■ libXtst-1.0.1-3.1(x86_64) ■ xorg-x11-utils *(This package is required only for GUI-based interactive installation, and not for silent installation)* In addition, install the 32-bit version as well as the 64-bit version of glibc-devel-2.5-49 to avoid any linking errors while installing the OMS. The installer checks for this package, so if this package is not installed, the installer displays an error.

Table 3–1 (Cont.) Package Requirements for Oracle Management Service

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
Solaris SPARC 5.9	*Not Supported*	■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWsprox ■ SUNWtoo ■ SUNWi1of ■ SUNWxwfnt
Solaris SPARC 5.10 *Also supported on Solaris Local Container*	*Not Supported*	SUNWbtool
Solaris SPARC 5.11	*Not Supported*	■ SUNWbtool ■ SunWhea or system/header ■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWtoo ■ SUNWxwplt *(This is for setting xwindow)* ■ SUNWfont-xorg-core *(This package is required only for GUI-based interactive installation, and not for silent installation)* ■ SUNWlibC ■ SUNWcsl
Solaris x86-64 5.11	*Not Supported*	■ SUNWbtool ■ SunWhea or system/header ■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWtoo ■ SUNWxwplt *(This is for setting xwindow)* ■ SUNWfont-xorg-core *(This package is required only for GUI-based interactive installation, and not for silent installation)* ■ SUNWlibC ■ SUNWcsl

Table 3–1 (Cont.) Package Requirements for Oracle Management Service

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
Solaris x86-64 5.10	*Not Supported*	▪ SUNWbtool ▪ SUNWarc ▪ SUNWhea ▪ SUNWlibm ▪ SUNWlibms ▪ SUNWsprot ▪ SUNWtoo ▪ SUNWi1of ▪ SUNWi1cs ▪ SUNWi15cs ▪ SUNWxwfnt
IBM AIX 5.3.00.04 **Note:** Maintenance level 4 and higher are supported for AIX 5.3. Check the maintenance level using the following command: `oslevel -r`	*Not Supported*	▪ bos.perf.proctools(0.0) ▪ bos.adt.base(0.0) ▪ bos.adt.libm(0.0) ▪ rsct.basic.rte(0.0) ▪ rsct.compat.clients.rte(0.0)
IBM AIX 6.1 **Note:** All maintenance levels are supported. Check the maintenance level using the following command: `oslevel -r`	*Not Supported*	▪ bos.adt.base(0.0) ▪ bos.adt.lib(0.0) ▪ bos.adt.libm(0.0) ▪ bos.perf.libperfstat(0.0) ▪ bos.perf.perfstat(0.0) ▪ bos.perf.proctools(0.0) ▪ rsct.basic.rte(0.0) ▪ rsct.compat.clients.rte(0.0) ▪ xlC.aix61.rte.(9.0.0.0) ▪ xlC.rte.(9.0.0.0)
IBM AIX 7.1 **Note:** All maintenance levels are supported. Check the maintenance level using the following command: `oslevel -r`	*Not Supported*	▪ bos.adt.base(0.0) ▪ bos.adt.lib(0.0) ▪ bos.adt.libm(0.0) ▪ bos.perf.libperfstat(0.0) ▪ bos.perf.perfstat(0.0) ▪ bos.perf.proctools(0.0) ▪ rsct.basic.rte(0.0) ▪ rsct.compat.clients.rte(0.0) ▪ xlC.aix61.rte.(9.0.0.0) ▪ xlC.rte.(9.0.0.0)

Table 3–1 (Cont.) Package Requirements for Oracle Management Service

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
HP PA-RISC 11.23	*Not Supported*	▪ BUNDLE11i(B.11.23.0409.3) ▪ Minimum Compiler Version aCC: HP C/aC++ B3910B A.06.14 [Feb 22 2007]
HP PA-RISC 11.31	*Not Supported*	▪ OnlineDiag(B.11.31.01.03) ▪ Base-VXFS(B.11.31) ▪ Minimum Compiler Version aCC: HP C/aC++ B3910B A.06.14 [Feb 22 2007]
HP-UX Itanium 11.23	*Not Supported*	▪ BUNDLE11i(B.11.23.0409.3) ▪ Minimum Compiler Version aCC: HP C/aC++ B9007AA (C.11.23.12)
HP-UX Itanium 11.31	*Not Supported*	▪ OS-Core(B.11.31) ▪ Minimum Compiler Version aCC: HP C/aC++ B9007AA (C.11.31.07)

3.1.4 Package Requirements for Oracle Management Agent

Table 3–2 lists the packages required on different platforms (32-bit and 64-bit) for installing a Management Agent.

WARNING:

- **Ensure that you install only the versions recommended in Table 3–2. Installing any lower or higher versions of the packages might cause the installation to fail.**
- **The GCC packages mentioned in this section are required during installation and also after installation, therefore do not deinstall them after installation. During installation, they are required for relinking binaries, and after installation they are required for discovering hosts and for collecting real-time monitoring modules on Linux hosts. Do NOT deinstall any of the GCC packages after installation.**

Table 3–2 Package Requirements for Oracle Management Agent

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
Oracle Linux 7.x *(Red Hat 7 Compatible Kernel and Unbreakable Enterprise Kernel (UEK))* *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 7.2, where 7 is the release number and 2 is the version number.*	*Not Supported*	■ make-3.82-21 ■ binutils-2.23.52.0.1-16 ■ gcc-4.8.2-16 ■ libaio-0.3.109-12 ■ glibc-common-2.17-55 ■ libstdc++-4.8.2-16 ■ sysstat-10.1.5-4
Oracle Linux 6.x *(Red Hat 6 Kernel and Unbreakable Enterprise Kernel (UEK))* *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 6.2, where 6 is the release number and 2 is the version number.*	*Not Supported*	■ make-3.81 ■ binutils-2.20.51.0.2-5.11 ■ gcc-4.4.4 ■ libaio-0.3.107 ■ glibc-common-2.12-1.7 ■ libstdc++-4.4.4 ■ sysstat-9.0.4
Oracle Linux 5.x Red Hat Enterprise Linux 5.x *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 5.2, where 5 is the release number and 2 is the version number.*	■ make-3.81 ■ binutils-2.17.50.0.6 ■ gcc-4.1.1 ■ libstdc++-4.1.1	**Oracle Linux 5.x and Red Hat Enterprise Linux 5.x, where x <= 5 [for example, Oracle Linux 5.3]** ■ make-3.81 ■ binutils-2.17.50.0.6 ■ gcc -4.1.1 ■ libstdc++ -4.1.1 **Oracle Linux 5.x and Red Hat Enterprise Linux 5.x, where x > 5 [for example, Oracle Linux 5.6]** ■ make-3.81 ■ binutils-2.17.50.0.6 ■ gcc -4.1.1 ■ libaio-0.3.106 ■ glibc-common-2.3.4 ■ libstdc++ -4.1.1 ■ setarch-1.6 ■ sysstat-5.0.5 ■ rng-utils-2
Oracle Linux 4.x Red Hat Enterprise Linux 4.x *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 4.2, where 4 is the release number and 2 is the version number.*	■ make-3.80 ■ binutils-2.15.92.0.2 ■ gcc-3.4.5 ■ libstdc++-3.4.5 ■ kernel-utils-2.4	*64-bit Management Agent is NOT supported on 64-bit platform, but 32-bit Management Agent is supported, so install all 32-bit packages (listed in the previous column) on your 64-bit platform.*

Table 3–2 (Cont.) Package Requirements for Oracle Management Agent

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
SUSE Linux Enterprise 10	■ make-3.80 ■ binutils-2.16.91.0.5 ■ gcc-4.1.0 ■ libstdc++ 4.1.0 ■ libaio-32bit-0.3.104-14.2 ■ libaio-devel-32bit-0.3.104-14.2	*64-bit Management Agent is NOT supported on 64-bit platform, but 32-bit Management Agent is supported, so install all 32-bit packages (listed in the previous column) on your 64-bit platform.*
SUSE Linux Enterprise 11	■ make-3.81 ■ binutils-2.19-9.3 ■ gcc-4.3-62.198 ■ libstdc++ 43.4.3	■ make-3.80 ■ binutils-2.16.91.0.5 ■ gcc -4.1.0 ■ libstdc++ 43.4.3
Asianux Server 3	■ make-3.81-3AXS3-i386 ■ binutils-2.17.50.0.6-9AXS3-i386 ■ gcc-4.1.2-44.1-i386 ■ libstdc++-4.1.2-44.1-i386 ■ libXtst-1.0.1-3.1(i386)	■ make-3.81 ■ binutils-2.17.50.0.6 ■ gcc -4.1.1 ■ libstdc++ -4.1.1 ■ libXtst-1.0.1-3.1(x86_64)
Solaris SPARC 5.9	*Not Supported*	■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWsprox ■ SUNWtoo ■ SUNWi1of ■ SUNWxwfnt
Solaris SPARC 5.10 *Also supported on Solaris Local Container*	*Not Supported*	SUNWbtool
Solaris SPARC 5.11	*Not Supported*	■ SUNWbtool ■ SunWhea or system/header ■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWtoo ■ SUNWlibC ■ SUNWcsl

Table 3–2 (Cont.) Package Requirements for Oracle Management Agent

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
Solaris x86-64 5.11	*Not Supported*	■ SUNWbtool ■ SunWhea or system/header ■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWtoo ■ SUNWlibC ■ SUNWcsl
Solaris x86-64 5.10	*Not Supported*	■ SUNWbtool ■ SUNWarc ■ SUNWhea ■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWtoo ■ SUNWi1of ■ SUNWi1cs ■ SUNWi15cs ■ SUNWxwfnt
Solaris Express 5.11 x86-64 **Note:** The supported Kernel ID is 175.0.0.0.2.0,151.0.1.12. To check the kernel ID, run the following command: `uname -X |grep KernelID`	*Not Supported*	■ SUNWbtool ■ SUNWhea ■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWtoo ■ SUNWlibC ■ SUNWcsl
Solaris SPARC Express 5.11 **Note:** The supported Kernel ID is 175.0.0.0.2.0,151.0.1.12. To check kernel ID, run the following command: `uname -X |grep KernelID`	*Not Supported*	■ SUNWbtool ■ SUNWhea ■ SUNWlibm ■ SUNWlibms ■ SUNWsprot ■ SUNWtoo ■ SUNWlibC ■ SUNWcsl

Table 3–2 (Cont.) Package Requirements for Oracle Management Agent

Platform	32-Bit Packages for 32-Bit Platform	64-Bit Packages for 64-Bit Platform
IBM AIX 5.3.00.04 **Note:** Maintenance level 4 and higher are supported for AIX 5.3. Maintenance level can be checked using the following command: `oslevel -r`	*Not Supported*	▪ bos.perf.proctools(5.3.0.50) ▪ bos.adt.base(0.0) ▪ bos.adt.libm(0.0) ▪ rsct.basic.rte(0.0) ▪ rsct.compat.clients.rte(0.0)
IBM AIX 6.1 **Note:** All maintenance levels are supported. Check the maintenance level using the following command: `oslevel -r`	*Not Supported*	▪ bos.adt.base(0.0) ▪ bos.adt.lib(0.0) ▪ bos.adt.libm(0.0) ▪ bos.perf.libperfstat(0.0) ▪ bos.perf.perfstat(0.0) ▪ bos.perf.proctools(0.0) ▪ rsct.basic.rte(0.0) ▪ rsct.compat.clients.rte(0.0) ▪ xlC.aix61.rte.(9.0.0.0) ▪ xlC.rte.(9.0.0.0)
IBM AIX 7.1 **Note:** All maintenance levels are supported. Check the maintenance level using the following command: `oslevel -r`	*Not Supported*	▪ bos.adt.base(0.0) ▪ bos.adt.lib(0.0) ▪ bos.adt.libm(0.0) ▪ bos.perf.libperfstat(0.0) ▪ bos.perf.perfstat(0.0) ▪ bos.perf.proctools(0.0) ▪ rsct.basic.rte(0.0) ▪ rsct.compat.clients.rte(0.0) ▪ xlC.aix61.rte.(9.0.0.0) ▪ xlC.rte.(9.0.0.0)
HP PA-RISC 11.23	*Not Supported*	BUNDLE11i(B.11.23.0409.3)
HP PA-RISC 11.31	*Not Supported*	▪ OnlineDiag(B.11.31.01.03) ▪ Base-VXFS(B.11.31)
HP-UX Itanium 11.23	*Not Supported*	BUNDLE11i(B.11.23.0409.3)
HP-UX Itanium 11.31	*Not Supported*	OS-Core(B.11.31)

3.2 Kernel Parameter Requirements for Enterprise Manager Cloud Control

This section lists the kernel parameters required on different platforms (32-bit and 64-bit) for installing an OMS or a Management Agent. In particular, this section covers the following:

- Kernel Parameter Requirements for Oracle Management Service
- Kernel Parameter Requirements for Oracle Management Agent

3.2.1 Kernel Parameter Requirements for Oracle Management Service

This section covers the following:

- Verifying UDP and TCP Kernel Parameters
- Setting Up `kernel.shmmax` Kernel Parameter

3.2.1.1 Verifying UDP and TCP Kernel Parameters

Set TCP/IP ephemeral port range parameters to provide enough ephemeral ports for the anticipated server workload. Ensure that the lower range is set to at least 11,000 or higher, to avoid Well Known ports, and to avoid ports in the Registered Ports range commonly used by Oracle and other server ports.

Set the port range high enough to avoid reserved ports for any applications you may intend to use. If the lower value of the range you have is greater than 11,000, and the range is large enough for your anticipated workload, then you can ignore OUI warnings regarding the ephemeral port range.

For example, with IPv4, use the following command to check your current range for ephemeral ports:

```
$ cat /proc/sys/net/ipv4/ip_local_port_range
32768 61000
```

In the preceding example, the lowest port (32768) and the highest port (61000) are set to the default range.

If necessary, update the UDP and TCP ephemeral port range to a range high enough for anticipated system workloads, and to ensure that the ephemeral port range starts at 11,000 and above.

For example:

```
# echo 11000 65500 > /proc/sys/net/ipv4/ip_local_port_range
```

Oracle recommends that you make these settings permanent. For example, as `root`, use a text editor to open `/etc/sysctl.conf`, and add or change to the following: `net.ipv4.ip_local_port_range = 11000 65500`, and then restart the network (`# /etc/rc.d/init.d/network restart`). For detailed information on how to automate this ephemeral port range alteration on system restarts, refer to your Linux distribution system administration documentation.

3.2.1.2 Setting Up `kernel.shmmax` Kernel Parameter

This section covers the following:

- If OMS and Management Repository Are on Different Hosts
- If OMS and Management Repository Are on the Same Host

If OMS and Management Repository Are on Different Hosts

If you are installing OMS and Management Repository (database) on different hosts, which are running on Linux operating systems (32-bit or 64-bit), then on the OMS host, set the `kernel.shmmax` parameter to a value 1 byte less than 4 GB or 4294967295.

Oracle recommends this value to avoid lack of memory issues for other applications and to enable a complete and successful core file generation under any and all circumstances.

- To verify the value assigned to the `kernel.shmmax` parameter, run the following command:

```
cat /proc/sys/kernel/shmmax
```

- To set the value for `kernel.shmmax` parameter, do the following:

  1. Log in as *root*.
  2. Open the `/etc/sysctl.conf` file.
  3. Set the `kernel.shmmax` parameter to `4294967295`.

  By setting the value in the `/etc/sysctl.conf` file, the value persists even when you restart the system.

  On SUSE Linux Enterprise Server systems, do the following:

  1. Run the following command to ensure that the system reads the `/etc/sysctl.conf` file when it restarts:

     ```
     # /sbin/chkconfig boot.sysctl on
     ```

  2. Run the following command to change the current values of the kernel parameters:

     ```
     # /sbin/sysctl -p
     ```

If OMS and Management Repository Are on the Same Host

If you are installing OMS and Management Repository (database) on the same host, which is running on a Linux operating system (32-bit or 64-bit), then set the `kernel.shmmax` parameter to a value prescribed in the *Oracle Database Installation Guide 11g Release 2 (11.2) for Linux*.

3.2.2 Kernel Parameter Requirements for Oracle Management Agent

There are no kernel parameter requirements for Management Agent.

3.3 Library Requirements for Enterprise Manager Cloud Control

This section lists the libraries required on different platforms (32-bit and 64-bit) for installing an OMS or a Management Agent. In particular, this section covers the following:

- Library Requirements for Oracle Management Service
- Library Requirements for Oracle Management Agent

3.3.1 Library Requirements for Oracle Management Service

Table 3–3 lists the libraries required on different platforms (32-bit and 64-bit) for installing a new Enterprise Manager system or an additional OMS.

Table 3–3 Library Requirements for Oracle Management Service

Platform	32-Bit Libraries for 32-Bit Platform	64-Bit Libraries for 64-Bit Platform
Oracle Linux 6.x Red Hat Enterprise Linux 6.x *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 6.2, where 6 is the release number and 2 is the version number.*	*Not Supported*	glibc-2.5-12

Table 3–3 (Cont.) Library Requirements for Oracle Management Service

Platform	32-Bit Libraries for 32-Bit Platform	64-Bit Libraries for 64-Bit Platform
Oracle Linux 5.x Red Hat Enterprise Linux 5.x *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 5.2, where 5 is the release number and 2 is the version number.*	glibc-2.5-12	glibc-2.5- 12
Oracle Linux 4.x Red Hat Enterprise Linux 4.x *Here, x refers to the version of the Oracle Linux release. For example, Oracle Linux 4.2, where 4 is the release number and 2 is the version number.*	glibc-2.3.4-2.43.i386	-
SUSE Linux Enterprise 10	glibc-2.2.4-31.7	-
SUSE Linux Enterprise 11	glibc-2.9	glibc-2.9
Asianux Server 3	glibc-2.3.4-2.9	glibc-2.3.4-2.9

3.3.2 Library Requirements for Oracle Management Agent

There are no library requirements for Management Agent.

4

Creating Operating System Groups and Users for Enterprise Manager Cloud Control

This chapter explains how to create the operating system groups and users required for installing Enterprise Manager Cloud Control. In particular, this chapter covers the following:

- About the Operating System Groups and Users Required for Installing Enterprise Manager Cloud Control
- Creating the Operating System Groups and Users Required for Installing Enterprise Manager Cloud Control?

4.1 About the Operating System Groups and Users Required for Installing Enterprise Manager Cloud Control

The following operating system group and user are required for all installation types:

- The Oracle Inventory Group (typically, `oinstall`)

  You must create this group the first time you install Oracle software on the system. The default name chosen for this group is `oinstall`. This group owns the Oracle inventory that is a catalog of all Oracle software installed on the system.

  > **Note:** If Oracle software is already installed on the system, then the existing Oracle Inventory group must be the primary group of the operating system user that you use to install other Oracle software.

- The Oracle Software Owner User (typically, `oracle`)

  You must create this user the first time you install Oracle software on the system. This user owns all of the software installed during the installation. This user must have the Oracle Inventory group as its primary group.

  > **Note:** In Oracle documentation, this user is referred to as the `oracle` user.

A single Oracle Inventory group is required for all installations of Oracle software on the system. After the first installation of Oracle software, you must use the same Oracle Inventory group for all subsequent Oracle software installations on that system.

4.2 Creating the Operating System Groups and Users Required for Installing Enterprise Manager Cloud Control?

The following sections describe how to create the required operating system users and groups:

- Creating the Oracle Inventory Group for Enterprise Manager Cloud Control
- Creating the Oracle Software Owner User for Enterprise Manager Cloud Control

> **Note:** As an alternative to creating local users and groups, you can create the appropriate users and groups in a directory service, for example, Network Information Services (NIS). For information about using directory services, contact your system administrator or refer to your operating system documentation.

4.2.1 Creating the Oracle Inventory Group for Enterprise Manager Cloud Control

You must create the Oracle Inventory group if it does not already exist. The following subsections describe how to determine the Oracle Inventory group name if it exists, and how to create it if necessary.

- Determining Whether the Oracle Inventory Group Already Exists for Enterprise Manager Cloud Control
- Creating the Oracle Inventory Group for Enterprise Manager Cloud Control

4.2.1.1 Determining Whether the Oracle Inventory Group Already Exists for Enterprise Manager Cloud Control

When you install Oracle software on the system for the first time, the `oraInst.loc` file is created. This file identifies the name of the Oracle Inventory group and the path to the Oracle Inventory directory.

To determine whether the Oracle Inventory group exists, enter the following command:

```
$ more /etc/oraInst.loc
```

> **Note:** the oraInst.loc file is available in the `/etc` directory for Linux and other platforms. On Solaris platforms, it is available at `/var/opt/oracle/`.

If the `oraInst.loc` file exists, then the output from this command looks like:

```
inventory_loc=/u01/app/oracle/oraInventory
inst_group=oinstall
```

The `inst_group` parameter shows the name of the Oracle Inventory group, `oinstall`.

4.2.1.2 Creating the Oracle Inventory Group for Enterprise Manager Cloud Control

If the `oraInst.loc` file does not exist, or if the file exists but the Oracle Inventory group is different, then create the Oracle Inventory group `oinstall` using the following command:

```
# /usr/sbin/groupadd oinstall
```

4.2.2 Creating the Oracle Software Owner User for Enterprise Manager Cloud Control

You must create an Oracle software owner user in the following circumstances:

- If an Oracle software owner user does not exist, for example, if this is the first installation of Oracle software on the system.
- If an Oracle software owner user exists, but you want to use a different operating system user, with different group membership, to give database administrative privileges to those groups in a new Oracle Database installation.

To create an Oracle software owner, follow the steps outlined in these sections:

- Determining Whether an Oracle Software Owner User Already Exists for Enterprise Manager Cloud Control
- Creating an Oracle Software Owner User for Enterprise Manager Cloud Control
- Modifying an Oracle Software Owner User for Enterprise Manager Cloud Control

4.2.2.1 Determining Whether an Oracle Software Owner User Already Exists for Enterprise Manager Cloud Control

To determine whether an Oracle software owner user named `oracle` exists, run the following command:

```
$ id oracle
```

If the `oracle` user exists, then the output from this command looks like this:

```
uid=440(oracle) gid=200(oinstall) groups=201(dba),202(oper)
```

If the user exists, then determine whether you want to use the existing user or create another `oracle` user.

- To use the existing user, ensure that the user's primary group is the Oracle Inventory group.
- To modify an existing user, refer to the Section 4.2.2.3.
- To create a user, refer to Section 4.2.2.2.

> **Note:** If necessary, contact your system administrator before using or modifying an existing user.

4.2.2.2 Creating an Oracle Software Owner User for Enterprise Manager Cloud Control

If the Oracle software owner user does not exist or if you require a new Oracle software owner user, then follow these steps to create one. In the following procedure, use the user name `oracle` unless a user with that name already exists.

1. To create the `oracle` user, enter a command similar to the following:

   ```
   # /usr/sbin/useradd -g oinstall oracle
   ```

   In this command, the `-g` option specifies the primary group, which must be the Oracle Inventory group, for example `oinstall`.

2. Set the password of the `oracle` user:

   ```
   # passwd oracle
   ```

Note: Oracle recommends you to use the same UIDs across all the OMS instances, especially when you use Oracle Software Library. If the UIDs are different, then the files created by one OMS cannot be modified by another OMS.

4.2.2.3 Modifying an Oracle Software Owner User for Enterprise Manager Cloud Control

If the `oracle` user exists, but its primary group is not `oinstall`, then enter a command similar to the following to modify it. Specify the primary group using the `-g` option.

```
# /usr/sbin/usermod -g oinstall oracle
```

5

Installing Cygwin and Starting the SSH Daemon

This chapter explains how to install Cygwin and start the SSH daemon on Microsoft Windows hosts. This chapter is applicable only when you want to install a Management Agent on a Microsoft Windows host, using the Add Host Targets Wizard or EM CLI. In particular, this chapter covers the following:

- About the Cygwin Requirement for Installing Management Agents
- Before You Begin Installing Cygwin
- Installing Cygwin
- Configuring SSH
- After Installing Cygwin and Configuring SSH

> **Important:** If you do not want to install Cygwin to deploy Management Agents on Microsoft Windows hosts using the Add Host Targets Wizard or EM CLI, you can choose to deploy Management Agents on these hosts using the PsExec process utility. For information on how to deploy Management Agents on Microsoft Windows hosts using PsExec, see Appendix F.

5.1 About the Cygwin Requirement for Installing Management Agents

The Add Host Targets Wizard is an application built into the Enterprise Manager Cloud Control console. It offers GUI-rich, interactive screens that enable you to install Oracle Management Agents (Management Agents) on unmanaged hosts and convert them to managed hosts, so that they can be monitored and managed in Enterprise Manager Cloud Control.

When you use the Add Host Targets Wizard or EM CLI to install a Management Agent on a host running on Microsoft Windows, as a prerequisite, you must install Cygwin and start the SSH Daemon on the host. To do so, follow the steps listed in Section 5.3.

Cygwin is essentially a utility that offers a Linux-like environment on a Microsoft Windows host. Technically, it is a DLL (`cygwin1.dll`) that acts as a Linux API layer providing substantial Linux API functionality. Once you install Cygwin, you can configure the SSH Daemon on the host. The Add Host Targets Wizard is certified and supported with **Cygwin 1.7.**

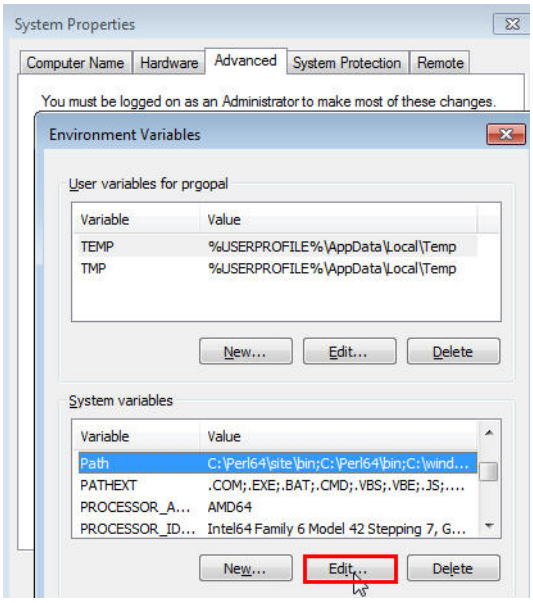
The SSH Daemon enables the Add Host Targets Wizard to establish SSH connectivity between the OMS host and the host on which you want to install a Management Agent. Using this connectivity, the wizard transfers the Management Agent software

binaries to the destination host over SSH protocol, installs the Management Agent, and configures it.

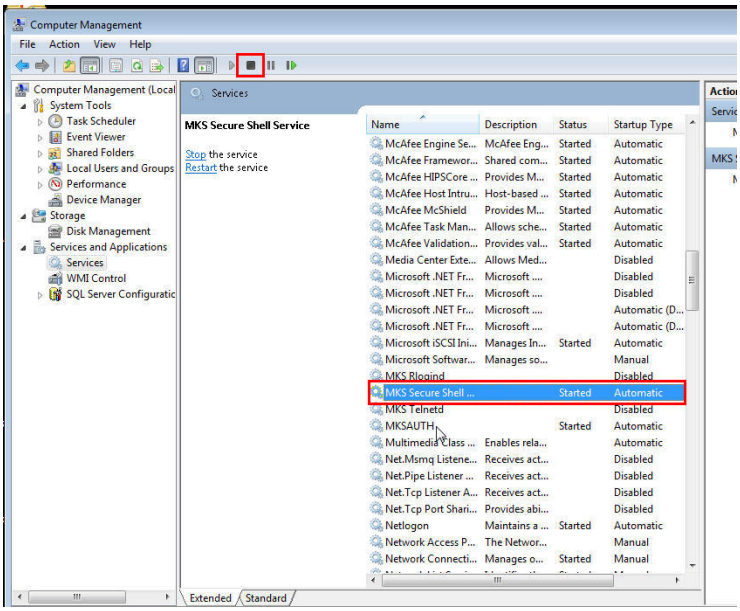
5.2 Before You Begin Installing Cygwin

Before starting with the SSHD setup, ensure you are not using OpenSSH and MKSNT when using the Add Host Targets Wizard. To do so, perform the following checks:

1. Ensure `OpenSSH\bin` and `mksnt` are not in your `PATH` environment variable. If they are, remove them by doing the following:
   a. Right-click on **My Computer** and go to **Properties**.
   b. In the System Properties window, click **Advanced.**
   c. In this tab, click **Environment Variables.**
   d. Here, search for the `PATH` system variable, select it, and if the `OpenSSH\bin` and `mksnt` are present in `PATH`, click **Edit.**
   e. In the Edit System Variable dialog box, delete these two values from `PATH`, then click **OK.**



2. Stop the SSH Daemon if it is running from `OpenSSH`, `MKS` or any other vendor. If the SSH Daemon is running, stop it by doing the following:
   a. Right-click on **My Computer**, and select **Manage.**
   b. In the Computer Management window, in the left pane, expand **Services and Applications**, and select **Services**.
   c. In the right pane, click the SSH Daemon/MKS Secure Shell service, then click the Stop button.



Note: The navigational steps described in this section may vary for different Microsoft Windows operating systems.

5.3 Installing Cygwin

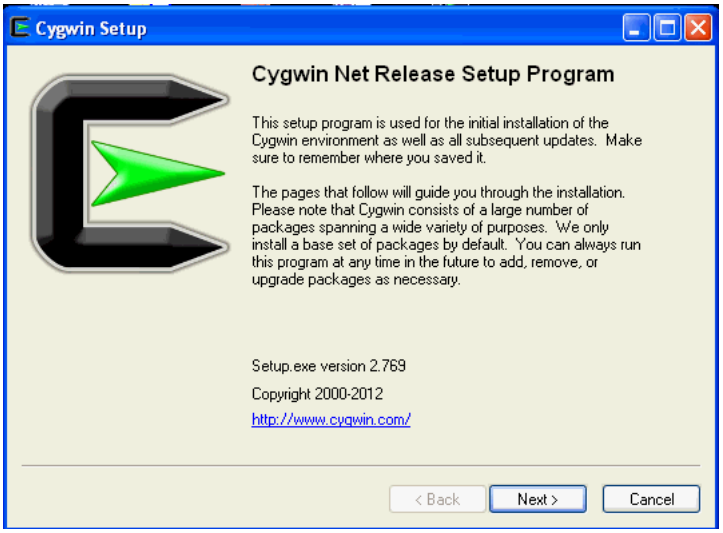
To install Cygwin on a Microsoft Windows host, follow these steps:

1. Access the following URL, then click **Install Cygwin:**

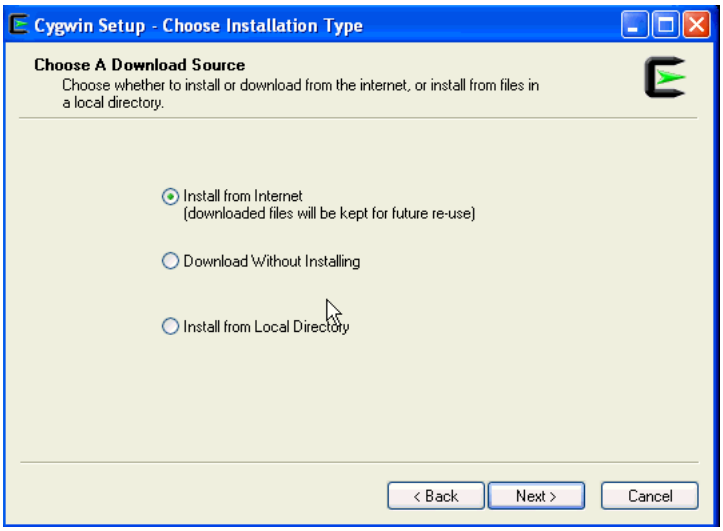
   `http://www.cygwin.com/`

2. Download the 32-bit version (if you are running a 32-bit version of Microsoft Windows) or the 64-bit version (if you are running a 64-bit version of Microsoft Windows) of the Cygwin setup executable.

3. Run the setup executable, then click **Next** to proceed.



4. On the Choose Installation Type screen, select **Install from Internet,** then click **Next.**

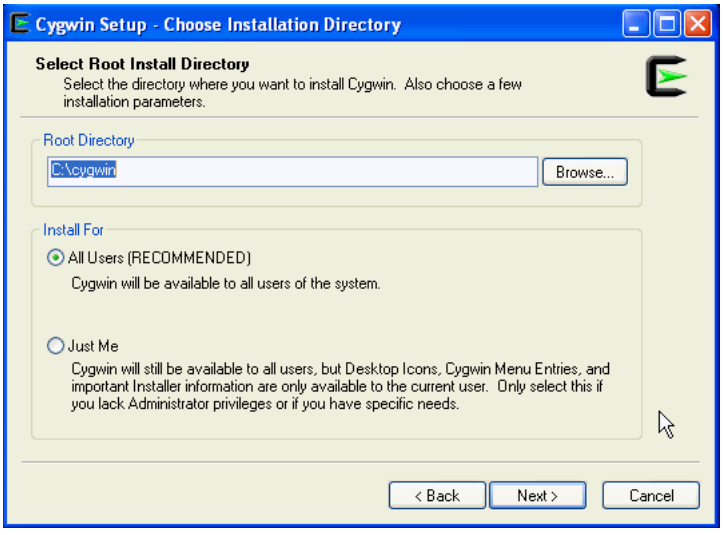


5. On the Choose Installation Directory screen, enter **C:\cygwin** as the Root Directory, then click **Next.**

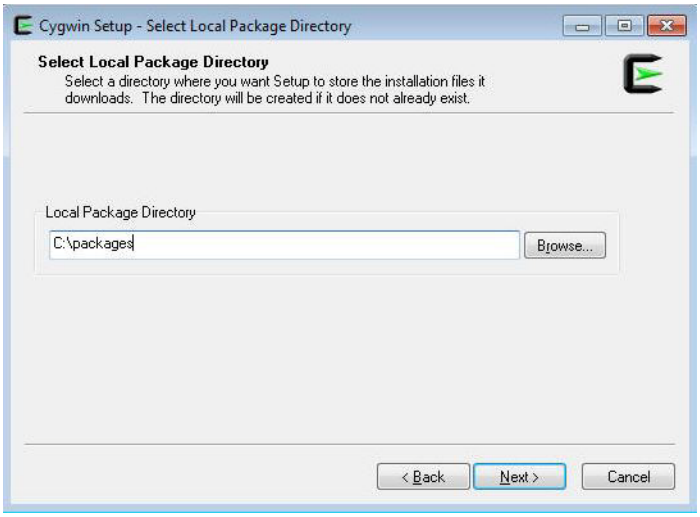
Note: If you choose to install Cygwin in a different directory, then ensure that you update the `SSH_PATH, SCP_PATH, MKDIR_PATH, SH_PATH, CHMOD_PATH`, and `TRUE` properties present in the `$<OMS_HOME>\oui\prov\resources\ssPaths_msplats.properties` file to their proper Cygwin binary values, after installing the Enterprise Manager system.

For example, if you choose to install Cygwin in the `D:\software\cygwin` directory, then update the specified properties in the following manner:

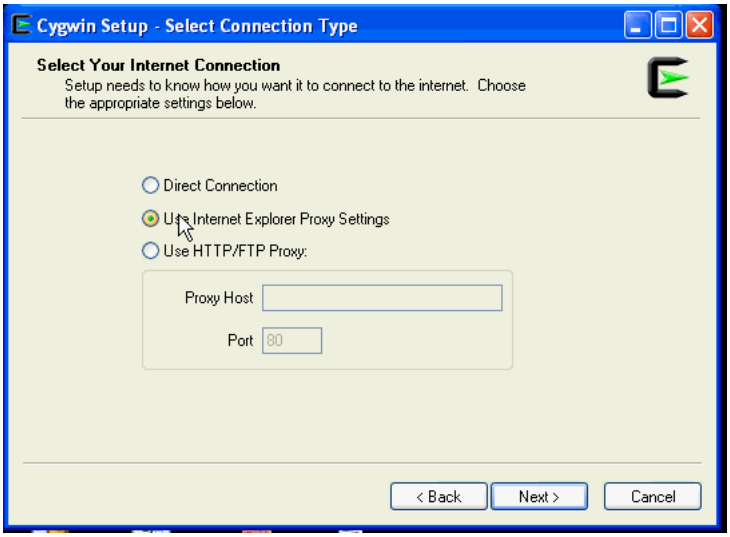
```
SCP_PATH=D:\software\cygwin\bin\scp.exe
SH_PATH=D:\software\cygwin\bin\sh.exe
CHMOD_PATH=D:\software\cygwin\bin\chmod.exe
LS_PATH=D:\software\cygwin\bin\ls.exe
```



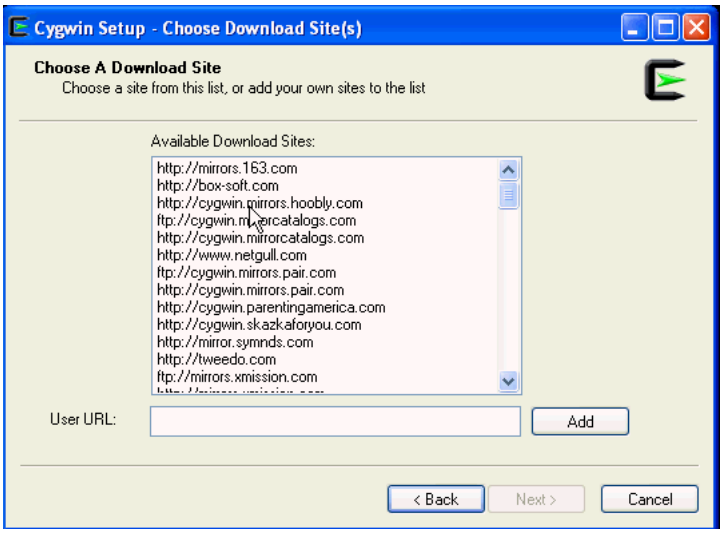
6. On the Select Local Package Directory screen, select a directory on your local machine where you want to store the downloaded installation files, then click **Next.**



7. On the Select Connection Type screen, select appropriate settings to connect to the internet, then click **Next.**

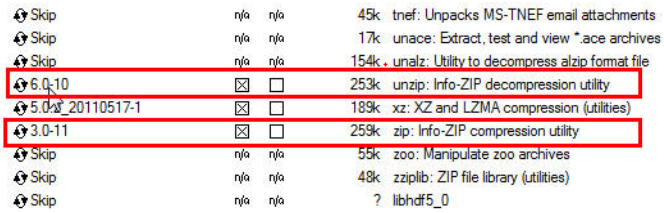


8. On the Choose Download Site(s) screen, select any site from the available list, then click **Next.**

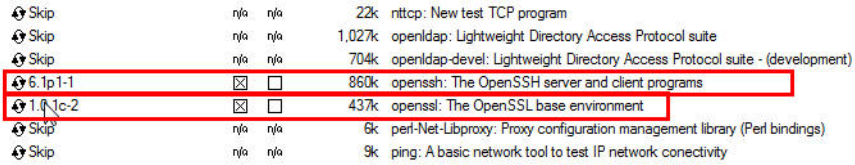


9. On the select packages screen, ensure that you select the following packages, then click **Next**:

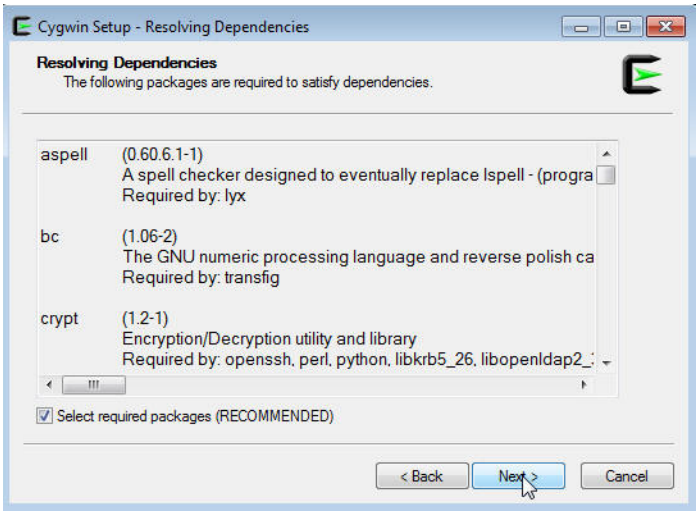
   From the **Archive** category, select `unzip` and `zip` as follows:



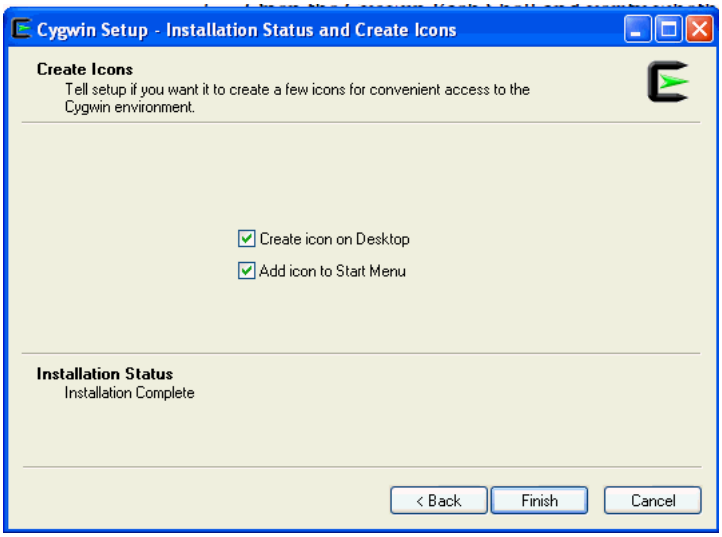
   From the **Net** category, select `openssh` and `openssl` as follows:



   After selecting the packages and clicking **Next,** the Resolving Dependencies screen is displayed. Click **Next** to proceed.



10. On the Installation Status and Create Icons screen, do not make any changes. Click **Finish** to complete the installation process.



5.4 Configuring SSH

This section describes how to configure SSH and test your Cygwin setup after installing Cygwin on a host.

> **Note:** While configuring SSH, you may need to run the `cygwin.bat` script. While running `cygwin.bat` in Microsoft Windows Server 2008 and Microsoft Windows Vista, ensure that you invoke it in administrator mode. To do this, right-click the `cygwin.bat` file and select **Run as administrator.**

To configure SSH and test your Cygwin setup, follow these steps:

1. After you install Cygwin, navigate to the `C:\cygwin` directory, open the `Cygwin.bat` file in edit mode using any editor, and add the following line before invoking the bash shell.

```
set CYGWIN=binmode ntsec
```

For example, here are the contents for the `Cygwin.bat` file after adding the above line:

```
@echo off

C:
chdir C:\cygwin\bin
set CYGWIN=binmode ntsec
bash --login -i
```

2. To verify if Cygwin (`cygrunsrv`) is installed properly, run `C:\cygwin\Cygwin.bat`, and execute the following command:

```
cygrunsrv -h
```

If Cygwin is installed properly, then all the Cygwin help options are displayed on the screen. However, if this command returns an error message, then you may have to reinstall Cygwin.

3. To configure the SSHD service, run `C:\cygwin\Cygwin.bat`, and execute the following command:

```
ssh-host-config
```

After running the command, you are prompted the following questions:

```
*** Query: Should privilege separation be used? <yes/no>: yes
*** Query: New local account 'sshd'? <yes/no>: yes
*** Query: Do you want to install sshd as a service?
*** Query: <Say "no" if it is already installed as a service> <yes/no>: yes
*** Query: Enter the value of CYGWIN for the deamon: [] binmode ntsec
*** Query: Do you want to use a different name? (yes/no) yes/no
```

At this point, if you want to use the same name, that is `cyg_server`, enter `no`. You are then prompted the following questions:

```
*** Query: Create new privileged user account 'cyg_server'? (yes/no) yes
*** Query: Please enter the password:
*** Query: Renter:
```

However, if you want to use a different name, enter `yes`. You are then prompted the following questions:

```
*** Query: Enter the new user name: cyg_server1
*** Query: Reenter: cyg_server1
*** Query: Create new privileged user account 'cyg_server1'? (yes/no) yes
*** Query: Please enter the password:
*** Query: Reenter:
```

If the configuration is successful, you will see the following message:

```
Host configuration finished. Have fun!
```

4. Backup the `c:\cygwin\etc\passwd` file and then use any editor to open the file in edit mode. Remove only those entries of the user that you will use to connect to the host on which you want to install a Management Agent. Ask the user to make a backup of the `c:\cygwin\etc\passwd` file before editing.

   - If the user that you are employing to connect to the host on which you want to install the Management Agent is a local user, run `C:\cygwin\Cygwin.bat` and execute the following:

     ```
     /bin/mkpasswd -l –u <USER> >> /etc/passwd (for example, /bin/mkpasswd -l -u pjohn >> /etc/passwd)
     ```

   - If the user you are employing to connect to the host on which you want to install the Management Agent running is a domain user, run `C:\cygwin\Cygwin.bat` and execute the following:

     ```
     /bin/mkpasswd -d -u <USER> >> /etc/passwd (for example, /bin/mkpasswd -d -u pjohn >> /etc/passwd)
     mkdir -p /home/<USER>  (for example, mkdir -p /home/pjohn)
     chown <USER> /home/<USER> (for example, chown pjohn /home/pjohn)
     ```

5. *(Only if the Cygwin software you have installed is of version 1.7.32 or higher)* Open `C:\cygwin\etc\sshd_config` in a text editor and add the following line to the end of the file:

   ```
   KexAlgorithms
   diffie-hellman-group-exchange-sha1,diffie-hellman-group1-sha1
   ```

6. *(For a domain user only)* If the user you are employing to connect to the host on which you want to install the Management Agent is a domain user, do the following to start the SSH daemon:

   a. Right-click on **My Computer**, and select **Manage**.

   b. In the Computer Management dialog box that appears, go to Services and Applications, and select **CYGWIN sshd**.

   c. Right-click **CYGWIN sshd** and select **Properties**.

   d. In the Properties dialog box, go to the **Log On** tab.

   e. Here, specify the domain/user name and password. Click **Apply.**

   f. Run `C:\cygwin\Cygwin.bat`, and execute the following:

   ```
   chown <USERNAME> /var/log/sshd.log
   chown -R <USERNAME> /var/empty
   chown <USERNAME> /etc/ssh*
   chmod 755 /var/empty
   chmod 644 /var/log/sshd.log
   ```

   Note: If `/var/log/sshd.log` does not exist, you do not have to execute the following commands:

   ```
   chown <USERNAME> /var/log/sshd.log
   chmod 644 /var/log/sshd.log
   ```

7. Perform one of the following steps to start the SSH daemon:

   Run `C:\cygwin\Cygwin.bat` and execute the following command:

```
/usr/sbin/sshd
```

OR

Run `C:\cygwin\Cygwin.bat` and execute the following command:

```
cygrunsrv -S sshd
```

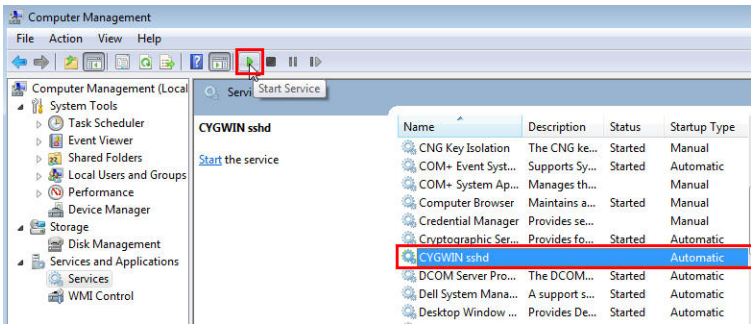
OR

Perform these steps:

a. Right-click on **My Computer**, and select **Manage**.

b. In the Computer Management dialog box that appears, go to Services and Applications, and select **CYGWIN sshd**.

c. Click **CYGWIN sshd,** then click the Start button.



> **Note:** If the SSH daemon does not start up, view the `c:\cygwin\var\log\sshd.log` file for information on why the start up failed.

8. You can now test your Cygwin setup.

To do this, go to a different machine (that has the `ssh` client running), and execute the following command:

```
ssh -l <USERNAME> <localhost> 'date'

OR

ssh -l <USERNAME> <this node> 'date'
```

For example,

```
ssh -l pjohn example.com 'date'
```

This command will prompt you to specify the password. When you specify the correct password, the command should return the accurate date.

Note: If you experience a process fork failure, memory leak error, or a file access error after configuring SSH, view the following website for a workaround:

http://cygwin.com/faq.html

If you are unable to find a workaround for your problem, report your problem to the Cygwin community using the following website:

http://cygwin.com/problems.html

5.5 After Installing Cygwin and Configuring SSH

After installing Cygwin (as described in Section 5.3) and configuring SSH (as described in Section 5.4), follow these steps:

1. If the OMS host runs on a Microsoft Windows platform, perform the following on the OMS host:
    1. Right click **My Computer,** then select **Properties.** In the window that appears, select **Advanced system settings,** then select **Environment Variables.** In the System Variables section, create the `CYGWIN` variable, and specify its value as `nodosfilewarning`

    Note: You do not need to restart the host after performing this step.

    2. Navigate to the Cygwin install directory (that is, `C:\cygwin` if you chose to install Cygwin in the default location), open the `Cygwin.bat` file in edit mode using any editor, then edit the following line:

    ```
    set CYGWIN=binmode ntsec nodosfilewarning
    ```

    For example, these are the contents of the `Cygwin.bat` file after editing the above line:

    ```
    @echo off

    C:
    chdir C:\cygwin\bin
    set CYGWIN=binmode ntsec nodosfilewarning
    bash --login -i
    ```

    3. From the **Start** menu, select **Run.** For **Open,** enter `services.msc,` then click **OK.** Search for the Cygwin SSHD service and stop it.
    4. Navigate to the Cygwin install directory (that is, `C:\cygwin` if you chose to install Cygwin in the default location), then run `Cygwin.bat`. Run the following command to start the SSHD service:

    ```
    $ /usr/sbin/sshd
    ```

Note: Running this command may return an error mentioning that `/var/empty` must be owned by the *root* user. If you encounter this error, run the following from the Cygwin terminal:

```
$ chown <windows_install_user>:<windows_install_group> /var/empty
```

After running this command, retry the `$ /usr/sbin/sshd` command.

2. Perform the tasks mentioned in Step 1 on all the Microsoft Windows target hosts (on which you want to install Management Agents using the Add Host Targets Wizard or EM CLI).

Part III

Installation of Enterprise Manager Cloud Control

This part describes how you can install Enterprise Manager Cloud Control. In particular, this part contains the following chapters:

- Chapter 6, "Installing an Enterprise Manager System"
- Chapter 7, "Installing Oracle Management Agents"
- Chapter 8, "Adding Additional Oracle Management Services"
- Chapter 9, "Installing Application Dependency and Performance"
- Chapter 10, "Installing JVM Diagnostics"

6

Installing an Enterprise Manager System

This chapter describes how you can install a new Enterprise Manager system while utilizing an existing, certified Oracle Database to store Oracle Management Repository (Management Repository).

In particular, this chapter covers the following:

- Introduction to Installing an Enterprise Manager System
- Before You Begin Installing an Enterprise Manager System
- Prerequisites for Installing an Enterprise Manager System
- Installing an Enterprise Manager System for a Demonstration Site (Simple Configuration)
- Installing an Enterprise Manager System for a Production Site (Advanced Configuration)
- Enabling Hybrid Cloud Management
- Performing Postinstallation Tasks After Installing an Enterprise Manager System

Note: This chapter is only for installing a complete Enterprise Manager system (with a Management Repository). If you want to install an additional Oracle Management Service (OMS), then see Chapter 8.

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.

6.1 Introduction to Installing an Enterprise Manager System

Before you start installing Enterprise Manager Cloud Control, you must understand the fundamentals of Enterprise Manager installation, the various installation types you can use, the components that are installed by default, and so on. This section introduces you to the installation process, and covers the following:

- Overview of the Installation Types Offered for Enterprise Manager Cloud Control
- Overview of the Core Components Installed and Configured with an Enterprise Manager System
- Overview of the Directories Created for an Enterprise Manager System

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*.

6.1.1 Overview of the Installation Types Offered for Enterprise Manager Cloud Control

You can install Enterprise Manager Cloud Control with either simple or advanced configuration. Table 6–1 describes the basic differences between the two installation types.

Note: If you want to install Enterprise Manager Cloud Control for evaluation or demo purposes, then use the *Simple* installation type.

Table 6–1 Differences Between Simple and Advanced Installation

Simple Installation	Advanced Installation
Meant for demonstration or evaluation purposes, and small deployments, and when you do not want to worry about the granular control of the installer and want to install the Enterprise Manager system quickly, with less memory, and for monitoring fewer targets in their environment	Meant for small, medium, and large deployments, and when you want to customize your installation with custom locations, directory names, and passwords.
Installs with minimal, default configuration settings and preferences that you need for a complete Enterprise Manager system. Does not offer too many options to customize your installation.	Offers custom or advanced configuration options that you can select to suit your environment and customize your installation.
Configures with less memory to monitor up to 30 targets, with 2 Oracle Management Agents (Management Agent) and 2 concurrent user sessions for handling about 10 jobs per day.	Offers an option to select the deployment size (small, medium, or large) of your choice, and depending on the deployment size you select, configures with the required memory. The deployment size essentially indicates the number of targets you plan to monitor, the number of Management Agents you plan to have, and the number of concurrent user sessions you plan to have. The prerequisite checks are run regardless of the selection you make, but the values to be set for the various parameters checked depend on the selection you make 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*.
Sets lower values for database parameters. For information about the database initialization parameters to be set for various deployment sizes, refer to the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.	Sets higher values for database parameters. For information about the database parameters set for different deployment sizes, refer to the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Table 6–1 (Cont.) Differences Between Simple and Advanced Installation

Simple Installation	Advanced Installation
Allows you to use a database where the Management Repository is preconfigured using the database templates offered by Oracle.	Allows you to use a database where the Management Repository is preconfigured using the database templates offered by Oracle.
Installs mandatory plug-ins such as Oracle Database plug-in, Oracle Fusion Middleware plug-in, Oracle My Oracle Support plug-in, Oracle Exadata plug-in, and Oracle Cloud Framework Plug-In.	■ Installs mandatory plug-ins such as Oracle Database plug-in, Oracle Fusion Middleware plug-in, Oracle My Oracle Support plug-in, Oracle Exadata plug-in, and Oracle Cloud Framework Plug-In. ■ Installs any other plug-in you select in the installation wizard.
Creates a default user account *weblogic* for the WebLogic domain *GCDomain*.	Allows you to change the name of the default user account *weblogic* for the WebLogic domain *GCDomain*.
Prompts for a common password for WebLogic Server administration, Node Manager, SYSMAN user account, and Management Agent registration.	Prompts for separate, distinct passwords for WebLogic Server administration, Node Manager, SYSMAN user account, and Management Agent registration.
Creates a default OMS instance base directory `(gc_inst)` outside the Middleware home.	Allows you to change the name of the default OMS instance base directory `(gc_inst)` to a name of your choice, and creates that directory outside the Middleware home.
Creates tablespaces for management, configuration data, and JVM diagnostics data in default locations.	Allows you to change the locations of the tablespaces for management, configuration data, and JVM diagnostics data.
Installs with default ports.	Allows you to customize the ports according to your environment.
Has only a few interview screens to fill in the Enterprise Manager Cloud Control Installation Wizard.	Has many interview screens to fill in the Enterprise Manager Cloud Control Installation Wizard

6.1.2 Overview of the Core Components Installed and Configured with an Enterprise Manager System

As part of a new Enterprise Manager system, the installation wizard does the following:

- Installs the following components in the Middleware home you enter in the installation wizard:
  - Java Development Kit (JDK) 1.6.0.43.0
  - Oracle WebLogic Server 11*g* Release 1 (10.3.6)
  - Oracle Management Service 12*c* Release 5 (12.1.0.5)
  - Oracle JRF 11*g* Release (11.1.1.7), which includes `oracle_common` directory
  - Oracle Web Tier 11*g* Release (11.1.1.7), which includes `Oracle_WT` directory
  - Oracle BI Publisher 11*g* (11.1.1.7), 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 Advanced Installation and Configuration Guide*.

  - Oracle Plug-Ins
    * Oracle Database Plug-In
    * Oracle Fusion Middleware Plug-In
    * Oracle My Oracle Support Plug-In
    * Oracle Exadata Plug-In
    * Oracle Cloud Framework Plug-In

> **Note:**
>
> - Java Development Kit (JDK) 1.6.0.43.0 and Oracle WebLogic Server 11*g* Release 1 (10.3.6) 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 you want to manually install Oracle WebLogic Server 11*g* Release 1 (10.3.6), then follow the guidelines outlined in Section 6.2.
> - For advanced installation, in addition to the mandatory plug-ins listed above, you can optionally install other plug-ins available in the software kit (DVD, downloaded software). The installer offers a screen where you can select the optional plug-ins and install them. However, if you want to install some plug-ins that are not available in the software kit (DVD, downloaded software), then refer to Section 6.5.1.

- Installs Oracle Management Agent 12*c* Release 5 (12.1.0.5) in the agent base directory you specify (outside the Middleware home).

  For example, if the middleware home is `/u01/app/Oracle/Middleware/`, then you can specify the agent base directory as `/u01/app/Oracle/agent12c`.
- Creates an Oracle WebLogic domain called `GCDomain`. For this WebLogic Domain, a default user account, `weblogic`, is used as the administrative user. In advanced installation, you can choose to change this if you want.
- 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.

> **Note:** On Microsoft Windows, a Node Manager service is NOT created. This is an expected behavior.

- Configures an Oracle Management Service Instance Base location (`gc_inst`) outside the Oracle Middleware home (Middleware home), for storing all

configuration details related to the OMS. In advanced installation, you can choose to change this location if you want.

For example, if the Middleware home is `/u01/app/Oracle/Middleware/`, then the instance base location is `/u01/app/Oracle/gc_inst`. You can choose to change this, if you want, in the installer. However, you can change it for only advanced installation and not for simple installation.

- Configures Oracle Management Repository in the existing, certified Oracle Database. If the database instance is created using the database template offered by Oracle, then this step is skipped.

  Note: The existing, certified Oracle Database must be one of the certified databases listed in the Enterprise Manager certification matrix available on *My Oracle Support*, or a database instance created with a preconfigured Oracle Management Repository (Management Repository) using the database templates offered by Oracle.

  To access the Enterprise Manager certification matrix, follow the steps outlined in Appendix E.

  For information about creating a database instance with a preconfigured Management Repository using the database templates offered by Oracle, refer to Appendix D.

  The database can be on a local or remote host, and if it is on a remote host, it must be monitored by Oracle Management Agent. However, Oracle Real Application Clusters (Oracle RAC) databases must only be on a shared disk.

- Runs the following configuration assistants to configure the installed components for simple as well as advanced installation:
  - Plugins Prerequisites Check
  - Repository Configuration

    Note: If you use a database instance that was created with a preconfigured Management Repository using the database templates offered by Oracle, then *Repository Out-of-Box Configuration* is run instead of *Repository Configuration*.

  - MDS Schema Configuration

    Note: If you use a database instance that was created with a preconfigured Management Repository using the database templates offered by Oracle, then *MDS Schema Configuration* is not run.

  - OMS Configuration
  - Plugins Deployment and Configuration
  - Start Oracle Management Service
  - Oracle Configuration Manager Repeater Configuration
  - Agent Configuration Assistant

6.1.3 Overview of the Directories Created for an Enterprise Manager System

This section describes the following:

- Overview of the Directories Created for OMS Installation
- Overview of the Directories Created for Management Agent Installation (Central Agent)

6.1.3.1 Overview of the Directories Created for OMS Installation

By default, the following are the contents of the Middleware home for this type of installation:

```
<middleware_home>
    |_____wlserver_10.3
    |_____jdk16
    |_____oms
    |_____plugins
    |_____Oracle_BI1
    |_____oracle_common
    |_____Oracle_WT
    |_____utils
    |_____logs
    |_____modules
    |_____user_projects
    |_____ocm.rsp
    |_____registry.dat
    |_____domain-registry.xml
    |_____patch_wls1036
    |_____registry.xml
```

Note: The OMS instance base directory (typically, `gc_inst`) is maintained outside the middleware home directory, and that is why it is not shown in the directory structure described in Section 6.1.3.1.

6.1.3.2 Overview of the Directories Created for Management Agent Installation (Central Agent)

By default, the following are the contents of the agent base directory for the central agent (Management Agent installed with the OMS):

```
<agent_base_directory>
    |_____core
         |_____12.1.0.5.0
    |_____plugins
    |_____agent_inst
    |_____sbin
    |_____agentimage.properties
```

6.2 Before You Begin Installing an Enterprise Manager System

Before you begin installing Enterprise Manager Cloud Control, keep these points in mind:

- You must ensure that you have the latest Enterprise Manager Cloud Control software.

  For information about downloading the latest software, refer to the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

- Ensure that there are no white spaces in the name of the directory where you download and run the Enterprise Manager Cloud Control software from. For example, do not download and run the software from a directory titled `EM Software` because there is a white space between the two words of the directory name.
- You can install Enterprise Manager Cloud Control using the installation wizard only on a single host, that is, locally on the server where the wizard is invoked. You cannot install on multiple or remote hosts.
- Oracle Management Service 12*c* can communicate only with the following versions of Oracle Management Agent 12*c:*

Table 6–2 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

- Do not install on a symlink. Installing in such a location may impact life cycle operations such as patching and scaling out.
- You must not set the `ORACLE_HOME` and `ORACLE_SID` environment variables. You must ensure that the Oracle directories do NOT appear in the PATH.
- You must set the `DISPLAY` environment variable.
  - In bash terminal, run the following command:

    ```
    export DISPLAY=<hostname>:<vnc port>.0
    ```

For example, `export DISPLAY=example.com:1.0`

– In other terminals, run the following command:

`setenv DISPLAY <hostname>:1.0`

For example, `setenv DISPLAY example.com:1.0`

- 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) 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 Oracle WebLogic Server 11*g* Release 1 (10.3.6) does not exist and 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`

    Similarly, download the JDK for other platforms from other vendors' trusted Web sites.

  – 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 11g Release 1 (10.3.6) on Linux 64-bit platforms, first install the 64-bit JDK for that 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 procure the Oracle WebLogic Server 11*g* Release 1 (10.3.6) software and install it following the instructions outlined in the *Oracle Fusion Middleware Installation Guide for Oracle WebLogic Server.* Ensure that it is a default installation. 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 Oracle WebLogic Server is the same as the one installing Enterprise Manager Cloud Control.
  - After installing Oracle WebLogic Server, make sure you apply the patches 14482558, 13349651, 16080294, and 16888501 on it. Without these patches, the additional OMS installation will fail.

    For instructions to apply these patches, access 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 11g 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.

- As a prerequisite, you must have an existing Oracle Database to configure the Management Repository. This database can also have the Automatic Memory Management (AMM) feature enabled.
- 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.
- You can optionally use the database templates offered by Oracle to create a database instance with a preconfigured Management Repository. To do so, refer to Appendix D. You can use such a database instance for simple as well as advanced installation.

  However, note that the database templates are essentially designed for simple installation, although they can be used for advanced installation. Therefore, while performing an advanced installation (possibly with small, medium, or large deployment size selection), when you provide the details of such a database, you will be prompted that the database parameters need to be modified to suit the deployment size you selected. You can confirm the message to proceed further. The installation wizard will automatically set the database parameters to the required values.
- If you want to optionally follow the configuration guidelines for deploying the Management Repository so that your management data is secure, reliable, and always available, refer to the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
- 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.

- In addition to the mandatory plug-ins, you can optionally install other plug-ins available in the software kit (DVD, downloaded software). The installer offers a screen where you can select the optional plug-ins and install them. However, if you want to install some plug-ins that are not available in the software kit (DVD, downloaded software), then refer to Section 6.5.1.
- 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 6.7.
- If you are installing in, or will be converting in the future to, a high-availability or a disaster-recovery configuration, then review and become familiar with the contents in the following chapters in the Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide before continuing with this installation:
  - *Chapter 16 High Availability Solutions*
  - *Chapter 17 Enterprise Manager High Availability*
  - *Chapter 18 Enterprise Manager Disaster Recovery*

  Once you have reviewed the information in the aforementioned chapters, follow the best practices referenced in Chapter 17, specifically the information in *Section 17.3.1*, in order to best prepare your installation for high availability or disaster recovery.
- Oracle offers bug fixes for a product based on the Oracle Lifetime Support Policy. When the license period expires for a particular product, the support for bug fixes offered by Oracle also ends. For more information, see the Oracle Lifetime Support Policy available at:

  `http://www.oracle.com/support/library/brochure/lifetime-support-technology.pdf`

  When determining supportability and certification combinations for an Enterprise Manager Cloud Control installation, you must consider Enterprise Manager Cloud Control's framework components as well as the targets monitored by Enterprise Manager Cloud Control. Oracle recommends keeping your Cloud Control components and targets updated to the latest certified versions in order to receive code fixes without having to purchase an Extended Support license.
- 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`.
- The locale-specific data is stored in the `<OMS_Oracle_Home>/nls/data` directory. Oracle strongly recommends that you either set the environment variable `ORA_NLS10` to `<OMS_Oracle_Home>/nls/data` or do not set at all.
- Enforcing option is supported for Security-Enhanced Linux (SELinux).

6.3 Prerequisites for Installing an Enterprise Manager System

Table 6–3 lists the prerequisites you must meet before installing Enterprise Manager Cloud Control.

Table 6–3 Prerequisites for Installing Enterprise Manager Cloud Control

Requirement	Description
Hardware Requirements	Ensure that you meet the hard disk space and physical memory requirements as described in Chapter 2.

Operating System Requirements	Ensure that you install Enterprise Manager Cloud Control only on certified operating systems as mentioned in the Enterprise Manager certification matrix available on *My Oracle Support*. To access the Enterprise Manager certification matrix, follow the steps outlined in Appendix E.
	For information about platforms receiving future support, refer to *My Oracle Support* note 793512.1.
	Note:
	▪ OMS on Solaris 11 local zone is not supported.
	▪ If you want to install on Microsoft Windows 2012, then make sure you apply the patches described in My Oracle Support note 1590965.1.
	▪ If you use Oracle Solaris 10, then ensure that you have update 9 or higher installed. To verify whether it is installed, run the following command:
	`cat /etc/release`
	You should see the output similar to the following. Here, `s10s_u6` indicates that update 6 is already installed.
	`Solaris 10 10/08 s10s_u6wos_07b SPARC`

Package, Kernel Parameter, and Library Requirements	Ensure that you install all the operating system-specific packages, kernel parameters, and libraries as described in Chapter 3.
Operating System Groups and Users Requirements	Ensure that you create the required operating system groups and users as described in Chapter 4.

Table 6–3 (Cont.) Prerequisites for Installing Enterprise Manager Cloud Control

Requirement	Description
Existing Database Version Requirements	Ensure that the existing database is a certified database as mentioned in the Enterprise Manager certification matrix available on *My Oracle Support*. Alternatively, the database can be a database instance created with a preconfigured Management Repository using the database templates offered by Oracle. For information about creating a database instance with a preconfigured Management Repository using the database templates offered by Oracle, refer to Appendix D. To access the Enterprise Manager certification matrix and identify whether your database is a certified database, follow these steps in Appendix E. **Important:** ■ Ensure that the database is patched with all the Patch Set Updates (PSU) or Critical Patch Updates (CPU) released for that release. Also ensure that you apply the patches. ■ If you use *Oracle Database 11g Release 2 (11.2.0.1),* then ensure that you do the following: For Unix platforms, apply patch 12419378 *(Patch Set Update 6)*. Then apply patch 9260085. For Microsoft Windows platforms, Oracle Database 11g Release 2 (11.2.0.1) is not supported for Enterprise Manager Cloud Control 12c Release 4 (12.1.0.4). Therefore, you must upgrade the database to a supported release mentioned in the Enterprise Manager certification matrix available on *My Oracle Support.* To access the Enterprise Manager certification matrix and identify whether your database is a certified database, follow these steps in Appendix E. ■ If you use *Oracle Database 11g Release 1 (11.1.0.7),* then ensure that you apply these patches: For Unix platforms, apply patch 17082366 *(Patch Set Update 17)*. Then apply patch 18074855. For Microsoft Windows platforms, apply patch 17363760 *(Patch 54)*. Then apply patch 9012146. ■ The database can also have the Automatic Memory Management (AMM) feature enabled. ■ Ensure that this database is dedicated to Enterprise Manager.

Table 6–3 (Cont.) Prerequisites for Installing Enterprise Manager Cloud Control

Requirement	Description

NFS Mount Point Location Requirements	If you are installing onto an NFS-mounted location, then do the following:
	■ Ensure that root squash is enabled with execute permission on that host where you want to perform the installation.
	■ Ensure that the Access Control List processing is disabled for the NFS mount point. In other words, the mount point must be defined with the `noacl` option in the `/etc/fstab` file. Otherwise, the installation can fail.
	To verify this, run the following command as the install user to check the contents of the `/etc/fstab` file. Verify if the mount point on which you plan to install Enterprise Manager has the `noacl` option set.
	`cat /etc/fstab`
	For example, in the following output, the mount point `/u01/app/share1` has the `noacl` option set. In this case, you are ready to proceed with the installation.
	`nas.example.com:/export/share1 /u01/app/share1 nfs rw,bg,rsize=32768,wsize=32768,hard,nointr,tcp,noacl,vers=3,timeo=600 0 0`
	If you do not have the `noacl` option set, then contact your System Administrator to make the required changes in the `/etc/fstab` file.
	■ Ensure that the mount point is defined with the `actimeo` option in the `/etc/fstab` file, and ensure that the option is set to a value greater than 0.
	Setting `noac` or `actimeo` to 0 prevents the NFS client from caching attributes for the mounted directory, and causes delayed startup of the OMS.
	If you do not have the actimeo option set to greater than 0, then contact your System Administrator to make the required changes in the `/etc/fstab` file. For information on this prerequisite, refer to the My Oracle Support note 1385539.1.
	If you are installing on an NFS-shared middleware location, and if that location is mounted with the option *concurrent I/O (CIO),* which allows multiple reads and writes to a file at the same time, then the installation will fail reporting linking errors.
	If you verify the mounted file system, you will see the following CIO option enabled. If you have the CIO option enabled, then unmount the drive, disable the CIO option, and then re-mount the drive.
	`node mounted mounted over vfs date options`
	`/dev/host1 /host1/oracle jfs2 Feb 14 18:20 rw,cio,log=/dev/xd891loglv`

Middleware Home Path Requirements	Ensure that the number of characters in the middleware home path does not exceed 70 characters for Unix platforms and 25 characters for Microsoft Windows platforms. For example, the middleware home path `C:\Oracle\MW\EM` containing only 15 characters is acceptable. However, `C:\OracleSoftware\OracleMiddleware\OracleEnterpriseManager\OMS\newrelease\oms` containing more than 25 characters is not acceptable on Microsoft Windows platforms.

Table 6–3 (Cont.) Prerequisites for Installing Enterprise Manager Cloud Control

Requirement	Description
Agent Base Directory Path Requirements	*(Only for Microsoft Windows)* Ensure that the number of characters in the agent base directory path does not exceed 25 characters. For example, the agent base directory path `C:\Oracle\Agent\` containing only 16 characters is acceptable. However, `C:\Oracle\ManagementAgent\12c\new` containing more than 25 characters is not acceptable.
Unique Host Name and Static IP Address Requirements	Ensure that you check the network configuration to verify that the host on which you are installing resolves to a *unique* host name and a *static* IP address that are visible to other hosts in the network. **Note:** Oracle recommends that you use static IP address. If you use dynamic IP address, and if the host is rebooted, then the host might receive a new IP, and as a result, the OMS startup will fail.
Temporary Directory Space Requirements	Ensure that you allocate 400 MB of space for a temporary directory where the executables can be copied. By default, the temporary directory location set to the environment variable `TMP` or `TEMP` is honored. If both are set, then TEMP is honored. If none of them are set, then the following default values are honored: `/tmp` on UNIX hosts and `c:\Temp` on Microsoft Windows hosts.
Central Inventory Requirements	■ Ensure that you allocate 100 MB of space for the central inventory directory. ■ For a typical non-HA environment, the Central Inventory (oraInventory) can be in a shared or non-shared location. If you use a shared location, then ensure that only one shared location is maintained per host, and no two hosts update the same shared location. One inventory file is meant only for one host, so it must not be shared and edited by other hosts. When you use the `/etc/oraInst.loc` file, ensure that the inventory location specified there is not pointing to such a location. If you have configured a shared location that is common for two or more hosts, then switch over to a non-shared location. ■ For a typical HA environment with primary and standby disaster recovery sites using storage replication and alias host names, the Central Inventory `(oraInventory)` for software installed on the shared storage using the alias host name should be located in a shared location that is common between the OMS host in the primary site and the OMS host in the standby site. This shared location should be located on the replicated storage so that the `oraInventory` can be accessed from the active site for software maintenance activities.

UMASK Value Requirements	Ensure that you set the default file mode creation mask (umask) to 022 in the shell startup file.
	
	For example:
	
	■ **Bash Shell**
	
	`$ . ./.bash_profile`
	
	■ **Bourne or Korn Shell**
	
	`$ . ./.profile`
	
	■ **C Shell**
	
	`% source ./.login`

`CLASSPATH` Environment Variable Requirements	Unset the `CLASSPATH` environment variable. You can always reset the variable to the original value after the installation is complete.

Table 6–3 (Cont.) Prerequisites for Installing Enterprise Manager Cloud Control

Requirement	Description

File Descriptor Requirements	■ Ensure that the maximum user process limit is set to 13312 or greater. However, do not set it to unlimited.
	To verify the current value that is set, run the following command:
	`ulimit -u`
	To verify whether it is set to unlimited, run the following command. If it is set to unlimited, the output will be `unlimited`.
	`ulimit -n`
	If the current value is not set to 13312 or greater, or if it is set to unlimited, then contact your system administrator to correct it.
	■ Ensure that you set the soft limit of the file descriptor to a minimum of 4096 and the hard limit to less then or equal to 16384.
	To verify the current value set, run the following commands:
	For Soft Limit:
	`/bin/sh -c "ulimit -n"`
	For Hard Limit:
	`/bin/sh -c "ulimit -Hn"`
	If the current value is not 4096 or greater, then as a *root* user, update the `/etc/security/limits.conf` file with the following entries:
	`<UID> soft nofile 4096`
	`<UID> hard nofile 16384`

Table 6–3 (Cont.) Prerequisites for Installing Enterprise Manager Cloud Control

Requirement	Description

Host File Requirements	Ensure that the host name specified in the `/etc/hosts` file is unique, and ensure that it maps to the correct host name or IP address of that host. Otherwise, the installation can fail on the product-specific prerequisite check page.
	
	In some platforms, the installer does not validate the host name mentioned in the `/etc/hosts` file, therefore make sure the host names or IP addresses are correct.
	
	Ensure that *localhost* is pingable and resolves to `127.0.0.1` (or resolves to `::1` for IPv6 hosts).
	
	The following is the recommended format of the `/etc/hosts` file:
	
	`<ip> <fully_qualified_host_name> <short_host_name>`
	
	For example,
	
	`127.0.0.1 localhost.localdomain localhost`
	
	`172.16.0.0 myhost.example.com myhost`
	
	According to RFC 952, the following are the assumptions: A *name* (Net, Host, Gateway, or Domain name) is a text string up to 24 characters drawn from the alphabet (A-Z), digits (0-9), minus sign (-), and period (.). Note that periods are only allowed when they serve to delimit components of *domain style names*. No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character.
	
	Also, if DNS server is configured in your environment, then you should be able to use DNS to resolve the name of the host on which you want to install the OMS.
	
	For example, all these commands must return the same output:
	
	`nslookup myhost`
	
	`nslookup myhost.example.com`
	
	`nslookup 172.16.0.0`
	
	If alias host names are implemented in `/etc/hosts`, then it is not necessary to be able to use DNS to resolve the alias host name on which you want to install the OMS.

Installing User Requirements	Ensure that you meet the following requirements: ■ (For UNIX only) The installation must NOT be run by a *root* user. ■ (For Microsoft Windows only) User must be part of the ORA-DBA group and have administrator permissions. ■ (For Microsoft Windows only) User must belong to the DBA group, and have permissions to perform the following: Act as part of the operating system, Create a token object, Log on as a batch job, and Adjust memory quotas for a process. To verify whether the install user has these rights, from the Start menu, click **Settings** and then select **Control Panel**. From the Control Panel window, select **Administrative Tools**, and from the Administrative Tools window, select **Local Security Policy**. In the Local Security Settings window, from the tree structure, expand **Local Policies**, and then expand **User Rights Assignment**.

Table 6–3 (Cont.) Prerequisites for Installing Enterprise Manager Cloud Control

Requirement	Description
Permission Requirements	■ Ensure that you have *write* permission in the Middleware home and the Oracle Management Service Instance Base location. ■ Ensure that you have *write* permission in the temporary directory where the executables will be copied. For example, `/tmp` or `c:\Temp`. ■ Ensure that you have *write* permission in the location where you want to create the Central Inventory (`oraInventory`) if it does not already exist. If the Central Inventory already exists, then ensure that you have *write* permission in the inventory directory. ■ Ensure that the user who installed the existing Oracle Database has *write* permission in the data file locations where the data files for the new tablespaces will be copied. These tablespaces and data files are created while configuring Enterprise Manager Cloud Control. While installing with simple configuration (Section 6.4), the installer automatically honors the default locations so you are not prompted for them. However, while installing with custom configuration (Section 6.5), the installer prompts you to validate or enter the locations explicitly.
Proximity Requirements	Ensure that the host on which the OMS is being installed and the host on which the Management Repository is being configured are located in close proximity to each other. Ideally, the round trip network latency between the two should be less than 1 millisecond.

Port Requirements	Ensure that the ports you assign (within the given range) to the following components are free and available:
	■ Admin Server HTTP SSL Port = 7101 - 7200
	■ Enterprise Manager Upload HTTP Port = 4889 - 4898
	■ Enterprise Manager Upload HTTP SSL Port = 1159, 4899 - 4908
	■ Enterprise Manager Central Console HTTP Port = 7788 - 7798
	■ Enterprise Manager Central Console HTTP SSL Port = 7799 - 7809
	■ Oracle Management Agent Port = 3872, 1830 - 1849
	■ Node Manager HTTP SSL Port = 7401 - 7500
	■ Managed Server HTTP Port = 7201 - 7300
	■ Managed Server HTTPS Port = 7301 - 7400
	To verify if a port is free, run the following command:
	■ On Unix:
	`netstat -an | grep <port no>`
	■ On Microsoft Windows:
	`netstat -an|findstr <port_no>`

Table 6–3 (Cont.) Prerequisites for Installing Enterprise Manager Cloud Control

Requirement	Description
Internet Connection Requirements	Oracle recommends that the host from where you are running the installer have a connection to the Internet so that the configuration information can be automatically collected and uploaded to My Oracle Support. Using the Internet connection, you can also search and download software updates from My Oracle Support using the installer. For installations that do not have access to the Internet, see the instructions on how to manually obtain Software Updates for offline installation in *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*. These updates should be obtained before starting the 12c installation so they can be available to the installer at the proper time.

6.4 Installing an Enterprise Manager System for a Demonstration Site (Simple Configuration)

To install Enterprise Manager Cloud Control for evaluation or demonstration purposes, use the *Simple* installation type. This installation type installs with default configuration settings and preferences that you need for a complete Enterprise Manager system. It does not offer too many options to customize your installation. For example, only the default plug-ins are deployed with the installation, and you are not provided with a separate screen to manually select the other plug-ins you want to deploy.

Therefore, this installation type is primarily meant for demonstration or evaluation purposes, and small deployments, and when you do not want to worry about the granular control of the installer and want to install the Enterprise Manager system quickly, with less memory, and for monitoring fewer targets in their environment.

To install Enterprise Manager Cloud Control for evaluation or demonstration purposes, follow these steps:

Note: Oracle recommends you to run the EM Prerequisite Kit before invoking the installer to ensure that you meet all the repository requirements beforehand. Even if you do not run it manually, the installer anyway runs it in the background while installing the product. However, running it manually beforehand sets up your Management Repository even before you can start the installation or upgrade process. For information on the kit, to understand how to run it, and to know about the prerequisite checks it runs, see Appendix A.

However, if you plan to use a database instance that was created with a preconfigured Management Repository using the database templates offered by Oracle, then make sure you pass the following parameter while invoking the EM Prerequisite Kit.

```
-componentVariables repository:EXECUTE_CHECKS_NOSEED_DB_
FOUND:false
```

Note: To view a visual demonstration on simple installation, access the following URL and click **Begin Video.**

https://apex.oracle.com/pls/apex/f?p=44785:24:0::NO:24:P24_CONTENT_ID,P24_PREV_PAGE:5789,1

1. **Invoke the Enterprise Manager Cloud Control Installation Wizard**.

   Invoke the installation wizard as a user who belongs to the `oinstall` group you created following the instructions in Chapter 4.

   ```
   <Software_Location>/runInstaller
   ```

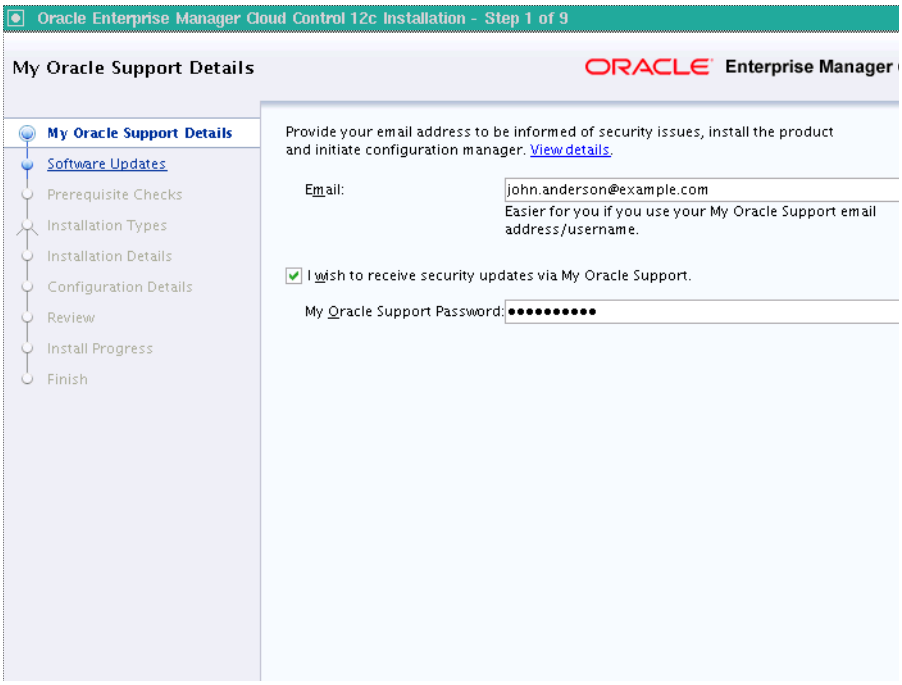
   In this command, `<Software_Location>` is either the DVD location or the location where you have downloaded the software kit.

   Note:

   - To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe`.
   - Ensure that there are no white spaces in the name of the directory where you download and run the Enterprise Manager Cloud Control software from. For example, do not download and run the software from a directory titled `EM Software` because there is a white space between the two words of the directory name.
   - 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. **(Optional) Enter My Oracle Support Details**.



(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.

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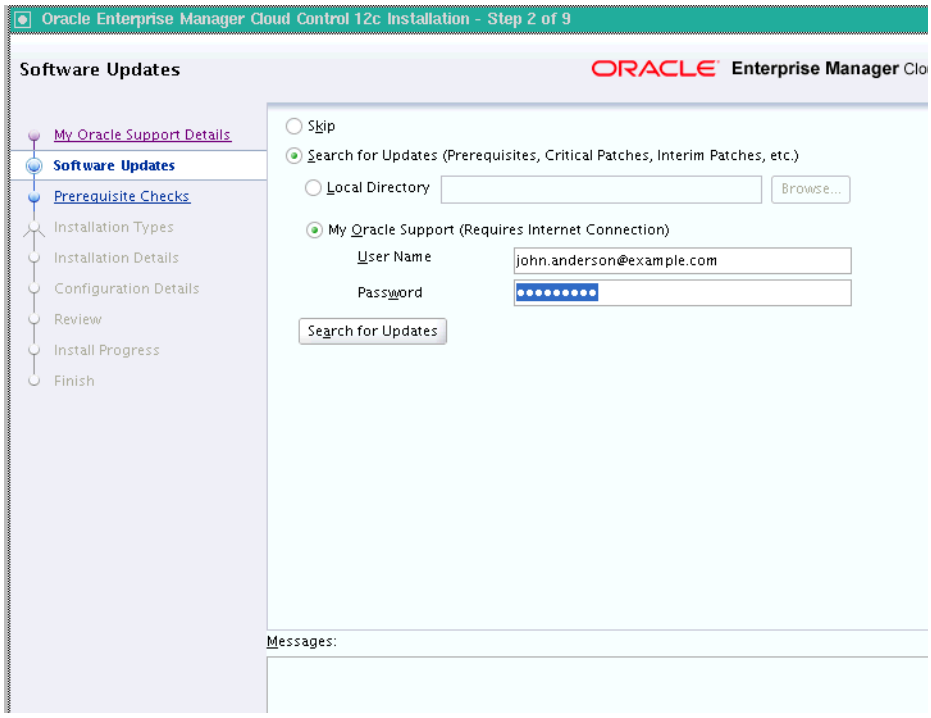
3. Click **Next**.
4. **(Recommended) Install Software Updates**.



On the Software Updates screen, select **Search for Updates,** and then select one of the following options to apply the latest software updates:

- **Local Directory,** if you do not have Internet connectivity on your host, and want to download the updates in offline mode and apply them while performing the installation.
- **My Oracle Support,** if you have Internet connectivity on your host, and want to connect to My Oracle Support directly via the installer to download the updates in online mode and apply them while performing the installation.

For more information on these options, and for instructions to download and apply the software updates using these options, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Note: The Software Updates screen uses the built-in feature *Auto Update* to automatically download and deploy the latest recommended patches while installing or upgrading Enterprise Manager Cloud Control. This way, you do not have to keep a manual check on the patches released by Oracle. All patches required by the installer for successful installation and upgrade are automatically detected and downloaded from My Oracle Support, and applied during the installation or upgrade, thus reducing the known issues and potential failures. Oracle strongly recommends using this feature, and applying the software updates while the installation is in progress. For more information, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Note: During installation, you will be prompted for the details of a database where Oracle Management Repository can be configured. If you plan to provide the details of a database that already has an Oracle Management Repository preconfigured using the database templates offered by Oracle, then the software updates selected on this screen cannot be automatically applied. In such a case, you must manually download and apply these software updates on the database after the installation.

Note: Despite providing the My Oracle Support credentials, if you are unable to download the software updates, then exit the installer, and invoke the installer again passing the `-showProxy` parameter in the following way:

```
<Software_Location>/runInstaller -showProxy
```

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. **Enter Oracle Inventory Details**.

   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.
- Ensure that you have *read*, *write*, and *execute* permissions on the default inventory directory. If you do not have the required permissions, then exit the installer, invoke the installer again with the `INVENTORY_LOCATION` parameter, and pass the absolute path to the alternative inventory location.

  For example,

  ```
  <Software_Location>/runInstaller INVENTORY_
  LOCATION=<absolute_path_to_inventory_directory>
  ```

  Alternatively, invoke the installer with the `-invPtrLoc` parameter, and pass the absolute path to the oraInst.loc file that contains the alternative inventory location.

  For example,

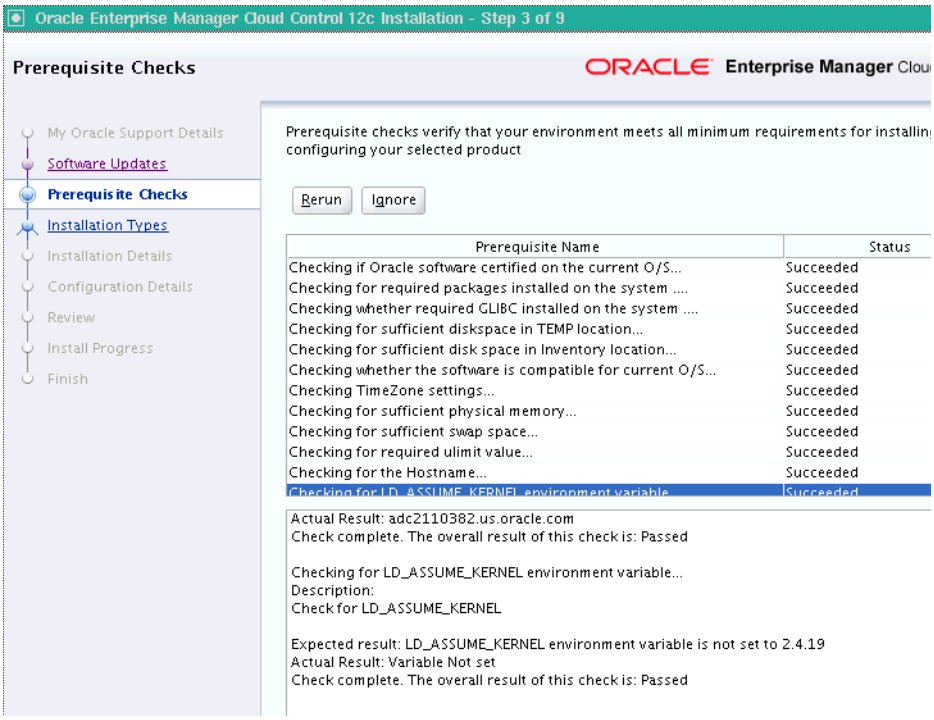
  ```
  <Software_Location>/runInstaller -invPtrLoc <absolute_
  path_to_oraInst.loc>
  ```

  However, note that these parameters are supported only on UNIX platforms, and not on Microsoft Windows platforms.

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. **Check Prerequisites**.



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 installation.

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 installation. 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.
- However, all package requirements must be met or fixed before proceeding any further. Otherwise, the installation might fail.

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 Chapter 3. To understand the logic the installation wizard uses to verify these packages, see Section 3.1.1.

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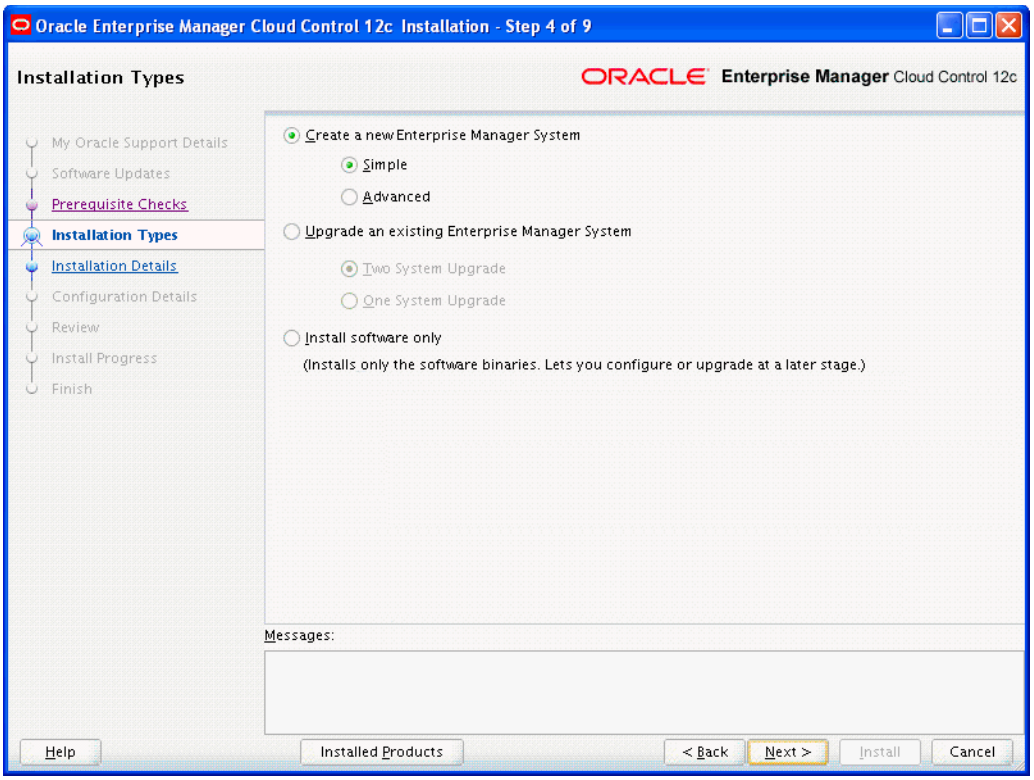
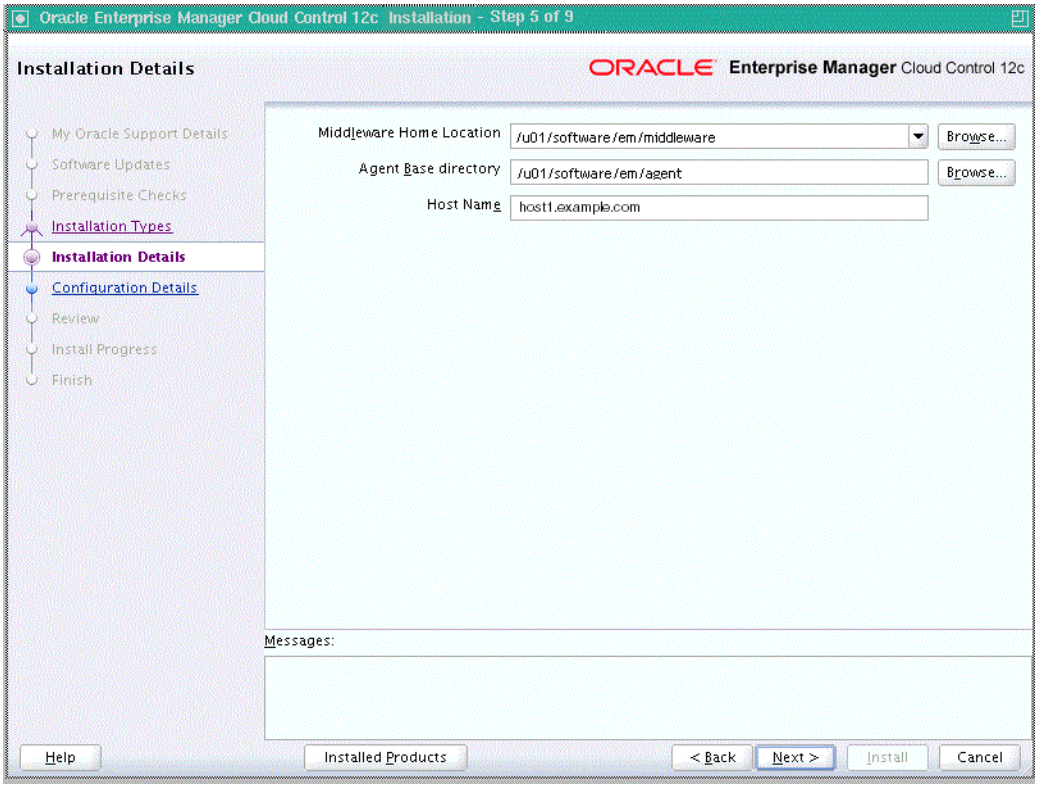
10. **Select Installation Type**.



On the Installation Types screen, select **Create a New Enterprise Manager System**, then select **Simple**.

11. Click **Next**.

12. **Enter Installation Details**.



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 11*g* 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.

  Also make sure you have applied the patches 14482558, 13349651, 16080294, and 16888501 on the Oracle WebLogic Server. Without these patches, the additional OMS installation will fail.

  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`

- If you want to manually install Oracle WebLogic Server 11*g* Release 1 (10.3.6), then follow the guidelines outlined in Section 6.2. After installing Oracle WebLogic Server, make sure you apply the patches 14482558, 13349651, 16080294, and 16888501 on it. Without these patches, the additional OMS installation will fail.

- 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.

- The installer creates the OMS home and other homes in the path you enter. Therefore, make sure you do not enter a path leading up to a directory named oms unless you are absolutely sure and have a reason to do so. Otherwise, you will see the OMS home named oms within the middleware directory named oms. For example, /oracle/software/em/middleware/oms/oms, which might be confusing.

- Ensure that the number of characters in the middleware home path does not exceed 70 characters for Unix platforms and 25 characters for Microsoft Windows platforms.

  For example, the middleware home path `C:\Oracle\MW\EM` containing only 15 characters is acceptable. However, `C:\OracleSoftware\OracleMiddleware\OracleEnterpriseManager\OMS\newrelease\oms` containing more than 25 characters is not acceptable for Microsoft Windows platforms.

- By default, the OMS instance base directory `(gc_inst)` is created outside the middleware home, and at the same parent level as the middleware home. For example, if you enter `u01/software/oracle/middleware` as the middleware home, then the instance base directory is created as

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, if the middleware home is `/u01/app/Oracle/Middleware/`, then you can specify the agent base directory as `/u01/app/Oracle/agent12c`.

Ensure that this location is empty and has write permission. Also ensure that it is always maintained outside the Oracle Middleware home.

Note: Ensure that the number of characters in the middleware home path does not exceed 70 characters for Unix platforms and 25 characters for Microsoft Windows platforms.

For example, the middleware home path `C:\Oracle\MW\EM` containing only 15 characters is acceptable. However, `C:\OracleSoftware\OracleMiddleware\OracleEnterpriseManager\OMS\newrelease\oms` containing more than 25 characters is not acceptable for Microsoft Windows platforms.

---

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 the DNS and is accessible from other network hosts, or enter an alias host name that is defined in the `/etc/hosts` file on all the OMS instances at this site.

Note: The host name must resolve to the local host or virtual 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.

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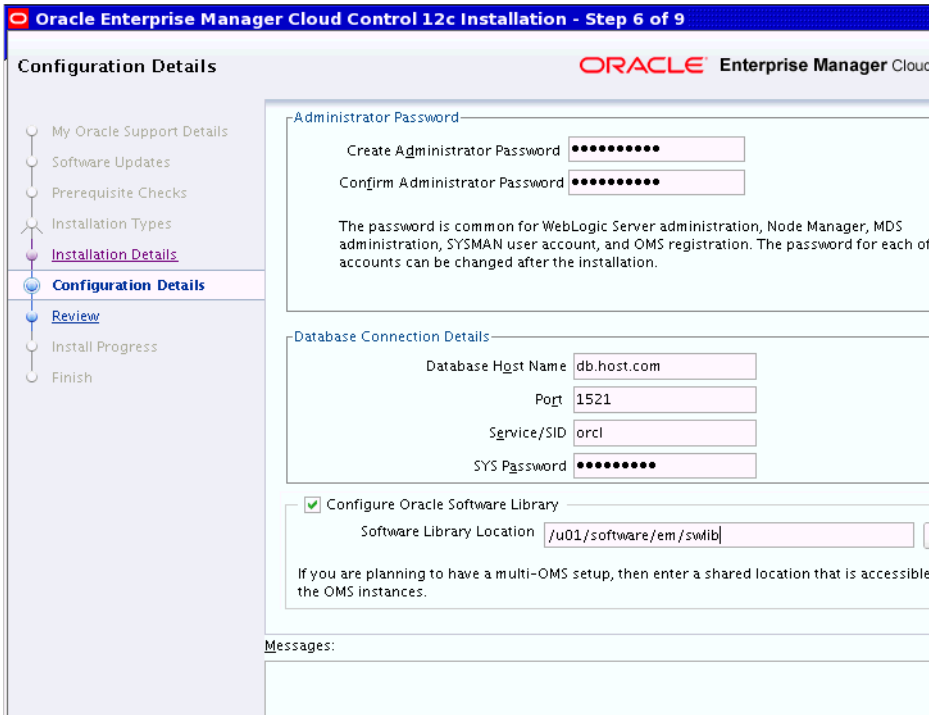
13. Click **Next.**
14. **Enter Configuration Details**.



On the Configuration Details screen, do the following:

a. Enter an administrator password, which can be used as a common password for configuring the Enterprise Manager Cloud Control.

Note: Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.

Table 6–4 describes what the administrator password is used for.

Table 6–4 Usage of Administrator Password

Purpose	Description
Creates SYSMAN User Account	The user account is used as the super administrator for configuring the SYSMAN schema in the Management Repository.
Creates Default WebLogic User Account `weblogic`	The user account is used as the administrator for creating the default WebLogic domain `GCDomain`.
Creates Default Node Manager User Account `nodemanager`	The user account 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.
Authenticates New Management Agents	The agent registration password is used for authenticating new Management Agents that join Enterprise Manager system, where the communication between the OMS and the Management Agent is secure.

b. Provide details of the existing, certified database where the Management Repository needs to be created. If you have already created a database

instance with a preconfigured Management Repository using the database templates offered by Oracle, then provide details about that database instance.

The installer uses this information to connect to the existing database for creating the SYSMAN schema and plug-in schemas. If you provide details of a database that already has a preconfigured Management Repository, then the installer only creates plug-in schemas.

Note:

- For information about creating a database instance with a preconfigured Management Repository using the database templates offered by Oracle, refer to Appendix D.
- If you connect to a database instance that was created using the database template offered by Oracle, then the password assigned to user accounts SYSMAN, SYSMAN_MDS, SYSMAN_APM, and SYSMAN_OPSS, which were created while preconfiguring the Management Repository, are automatically reset with the administrator password you enter here on this screen. We also unlock all these user accounts.
- To identify whether your database is a certified database listed in the certification matrix, follow the steps outlined in Appendix E.
- 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 are using an Oracle RAC database that is configured with Single Client Access Name (SCAN), then you can enter the SCAN name as the host name.
- For information on all the database initialization parameters that are set, and all the prerequisite checks that are run, and for instructions to run the prerequisite checks manually if they fail, see Appendix A.
- If you see a warning stating that the database you have provided already has Enterprise Manager schemas configured, then make sure you drop those schemas first, then deinstall the Enterprise Manager software that had created those schemas, and then return to the installer to proceed with the new installation. For instructions to drop the schemas and deinstall the software, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

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c. If you want to configure Oracle Software Library (Software Library), select **Configure Oracle Software Library.** Enter the absolute path leading up to a unique directory name on the OMS host where the Software Library can be configured.

By default, an *OMS Shared File System* storage location is configured, so ensure that the location you enter is a mounted location on the OMS host, and is placed outside the Middleware Home. Also ensure that the OMS process owner has read/write access to that location. This helps when you install

additional OMS instances as they will require read/write access to the same *OMS Shared File System* storage location.

Note:

- Oracle recommends that you maintain the Software Library outside the Middleware Home. For example, if the middleware home is `/u01/software/oracle/middleware`, then you can maintain the Software Library in `/u01/software/oracle`.
- Oracle strongly recommends that you enter a mounted location on the OMS host so that the same location can be used when you install additional OMS instances. However, if you are unable to provide a mounted location or if you are testing the installation in a test environment and do not want to provide a mounted location, then you can provide a local file system location. In this case, after the installation, make sure you migrate to a mounted location.

  For information about the Software Library storage locations, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*. For instructions to migrate to an *OMS Agent File System* storage location, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
- On Microsoft Windows, if you are unable to provide a mounted location, then enter a local file system location at the time of installing the product, and migrate to an *OMS Agent File System* storage location later. The *OMS Agent File System* storage location is the recommend storage type on Microsoft Windows.

  For information about the Software Library storage locations, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*. For instructions to migrate to an *OMS Agent File System* storage location, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
- Configuring the Software Library at the time of installation is optional. Even if you do not select this option and configure it now, your installation will succeed. You always have the option of configuring the Software Library later from the Enterprise Manager Cloud Control Console. However, Oracle strongly recommends that you select this option and configure it at the time of installation so that the installer can automatically configure it for you, thus saving your time and effort.
- Once the Software Library is configured, you can view the location details in the Software Library Console. To access the Software Library Console, in Cloud Control, from the **Setup** menu, select **Provisioning and Patching,** then select **Software Library.**

---

15. Click **Next**.

Note:

- If you are connecting to an Oracle RAC database, and if you have specified 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**.
- If your Oracle RAC database 11.2 or higher is configured with Single Client Access Name (SCAN) listener, then you can enter a connection string using the SCAN listener.
- 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 see an error stating that the connection to the database failed with ORA-01017 invalid user name/password, then follow these steps to resolve the issue:

  (1) Verify that SYS password provided is valid.

  (2) Verify that the database initialization parameter `REMOTE_LOGIN_PASSWORDFILE` is set to Shared or Exclusive.

  (3) Verify that password file with the file name `orapw<SID>` exists in the `<ORACLE_HOME>/dbs` directory of the database home. If it does not, create a password file using the `ORAPWD` command.
- If you are connecting to an Oracle Database that already has a Database Control configured, then you will see an error message prompting you to deconfigure it. Make sure you deconfigure the database control repository, the database control application, and the database control's central agent. For instructions, see Section A.5 of My Oracle Support note 278100.1.

16. Review and Install

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.

17. Track the Progress

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. Resolve the issue and retry the configuration assistant.

  For more information, see the appendix on troubleshooting tips in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

- 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. For Microsoft Windows platforms, invoke runConfig.bat script.

  ```
  $<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. **Run Scripts**

    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.

19. **End the Installation**

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

    For more information about this installation, refer to the following file in the OMS home:

    ```
    $<OMS_HOME>/install/setupinfo.txt
    ```

Note: If the installation fails for some reason, review the log files listed in *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Note: If you have run the installation wizard and let the installation wizard take corrective actions to correct the repository settings, and if you have exited the wizard without completing the installation process, then remember that the repository settings might not reset to their original values because you abruptly ended the installation. In this case, before invoking the installation wizard again, run the following command to manually reset the values.

```
<Software_Location>/install/requisites/bin/emprereqkit
-executionType install -prerequisiteXMLRootDir <prereq_
xmlrootdir_location> -connectString <connect_string> -dbUser
SYS -dbPassword <db_password> -reposUser sysman -dbRole
sysdba -runPrerequisites -runPostCorrectiveActions
```

6.5 Installing an Enterprise Manager System for a Production Site (Advanced Configuration)

To install Enterprise Manager Cloud Control in a production environment, use the *Advanced* installation type. This installation type offers custom or advanced configuration options that enable you to customize your installation to suit your needs.

This installation type provides the following benefits:

- Offers an option to select the deployment size (small, medium, or large) of your choice, and depending on the deployment size you select, configures with the required memory. The deployment size essentially indicates the number of targets you plan to monitor, the number of Management Agents you plan to have, and the number of concurrent user sessions you plan to have.
- Allows you to use a database where the Management Repository is preconfigured using the database templates offered by Oracle.
- Deploys the mandatory plug-ins such as Oracle Database plug-in, Oracle Fusion Middleware plug-in, Oracle My Oracle Support plug-in, Oracle Exadata plug-in, and Oracle Cloud Framework Plug-In. In addition, enables you to select and deploy other optional plug-ins of your choice.
- Allows you to change the name of the default user account weblogic for the WebLogic domain GCDomain.
- Prompts for separate, distinct passwords for WebLogic Server administration, Node Manager, SYSMAN user account, and Management Agent registration.
- Allows you to change the name of the default OMS instance base directory (gc_inst) to a name of your choice, and creates that directory outside the Middleware home.
- Allows you to change the locations of the tablespaces for management, configuration data, and JVM diagnostics data.
- Allows you to customize the ports according to your environment.

To install Enterprise Manager Cloud Control for a production site, follow these steps:

Note: Oracle recommends you to run the EM Prerequisite Kit before invoking the installer to ensure that you meet all the repository requirements beforehand. Even if you do not run it manually, the installer anyway runs it in the background while installing the product. However, running it manually beforehand sets up your Management Repository even before you can start the installation or upgrade process. For information on the kit, to understand how to run it, and to know about the prerequisite checks it runs, see Appendix A.

However, if you plan to use a database instance that was created with a preconfigured Management Repository using the database templates offered by Oracle, then make sure you pass the following parameter while invoking the EM Prerequisite Kit.

```
-componentVariables repository:EXECUTE_CHECKS_NOSEED_DB_
FOUND:false
```

1. **Invoke the Enterprise Manager Cloud Control Installation Wizard**.

   Invoke the installation wizard as a user who belongs to the `oinstall` group you created following the instructions in Chapter 4.

   ```
   <Software_Location>/runInstaller
   ```

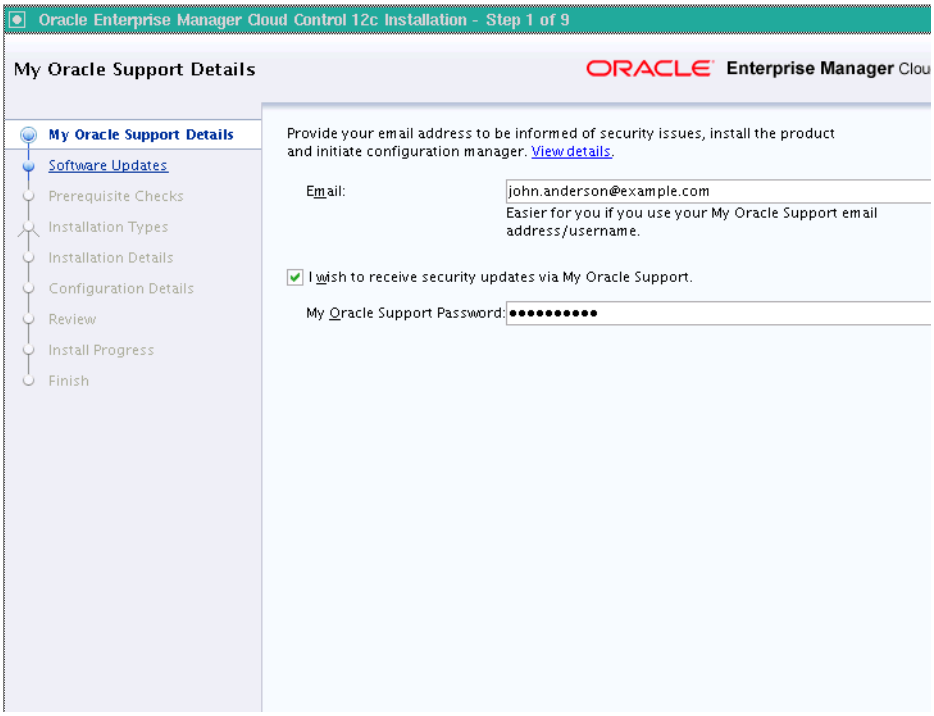
   In this command, `<Software_Location>` is either the DVD location or the location where you have downloaded the software kit.

   Note:

   - To invoke the installation wizard on UNIX platforms, run `runInstaller`. To invoke on Microsoft Windows platforms, run `setup.exe`.
   - Ensure that there are no white spaces in the name of the directory where you download and run the Enterprise Manager Cloud Control software from. For example, do not download and run the software from a directory titled `EM Software` because there is a white space between the two words of the directory name.
   - 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. **(Optional) Enter My Oracle Support Details**.



(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.

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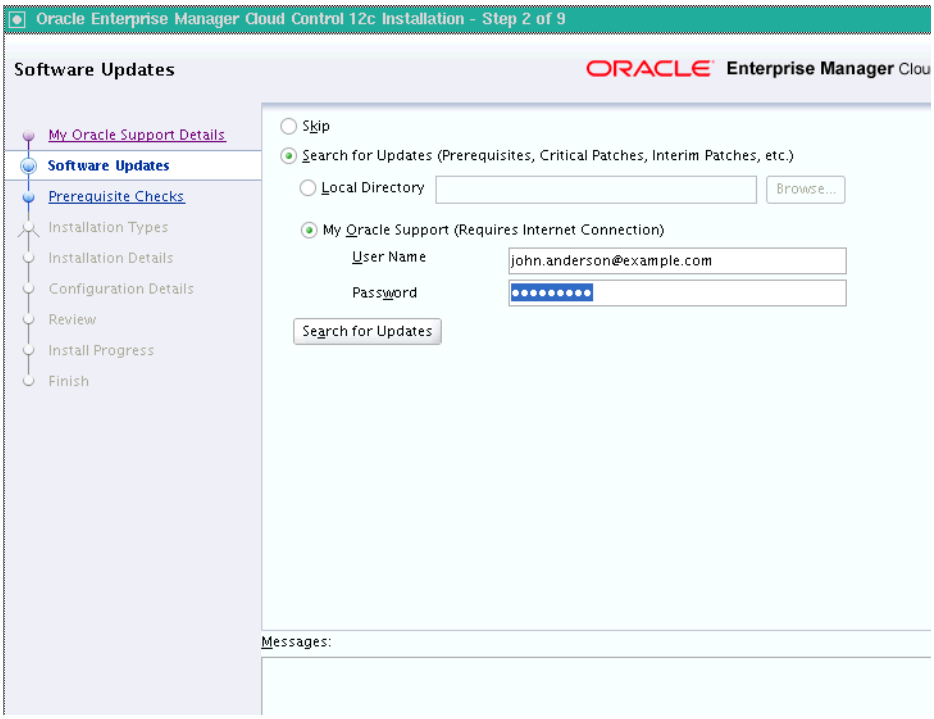
3. Click **Next**.
4. **(Recommended) Install Software Updates**.



On the Software Updates screen, select **Search for Updates,** and then select one of the following options to apply the latest software updates:

- **Local Directory,** if you do not have Internet connectivity on your host, and want to download the updates in offline mode and apply them while performing the installation.
- **My Oracle Support,** if you have Internet connectivity on your host, and want to connect to My Oracle Support directly via the installer to download the updates in online mode and apply them while performing the installation.

For more information on these options, and for instructions to download and apply the software updates using these options, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Note: The Software Updates screen uses the built-in feature *Auto Update* to automatically download and deploy the latest recommended patches while installing or upgrading Enterprise Manager Cloud Control. This way, you do not have to keep a manual check on the patches released by Oracle. All patches required by the installer for successful installation and upgrade are automatically detected and downloaded from My Oracle Support, and applied during the installation or upgrade, thus reducing the known issues and potential failures. Oracle strongly recommends using this feature, and applying the software updates while the installation is in progress. For more information, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Note: During installation, you will be prompted for the details of a database where Oracle Management Repository can be configured. If you plan to provide the details of a database that already has an Oracle Management Repository preconfigured using the database templates offered by Oracle, then the software updates selected on this screen cannot be automatically applied. In such a case, you must manually download and apply these software updates on the database after the installation.

Note: Despite providing the My Oracle Support credentials, if you are unable to download the software updates, then exit the installer, and invoke the installer again passing the `-showProxy` parameter in the following way:

```
<Software_Location>/runInstaller -showProxy
```

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. **Enter Oracle Inventory Details**.

   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.
- Ensure that you have *read*, *write*, and *execute* permissions on the default inventory directory. If you do not have the required permissions, then exit the installer, invoke the installer again with the `INVENTORY_LOCATION` parameter, and pass the absolute path to the alternative inventory location.

  For example,

  ```
  <Software_Location>/runInstaller INVENTORY_
  LOCATION=<absolute_path_to_inventory_directory>
  ```

  Alternatively, invoke the installer with the `-invPtrLoc` parameter, and pass the absolute path to the oraInst.loc file that contains the alternative inventory location.

  For example,

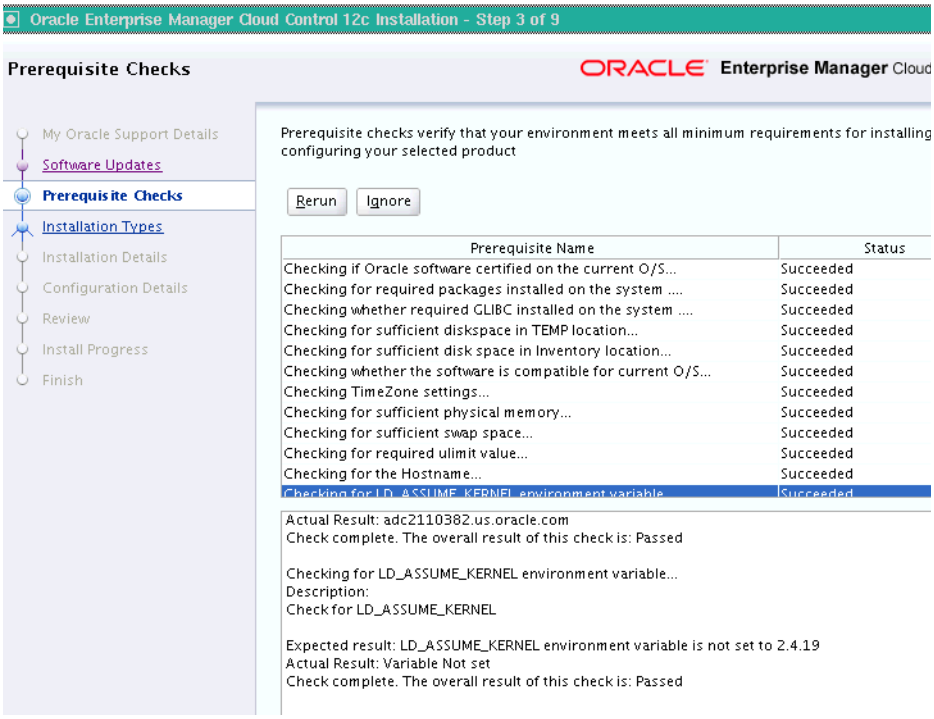
  ```
  <Software_Location>/runInstaller -invPtrLoc <absolute_
  path_to_oraInst.loc>
  ```

  However, note that these parameters are supported only on UNIX platforms, and not on Microsoft Windows platforms.

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. **Check Prerequisites**.



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 installation.

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 installation. The screen provides details on why the prerequisites failed and how you can resolve them. After you correct the problems, return to this screen and click **Rerun** to check the prerequisites again.

Note: You can choose to ignore the checks with **Warning** status by clicking **Ignore**. However, all package requirements must be met or fixed before proceeding any further.

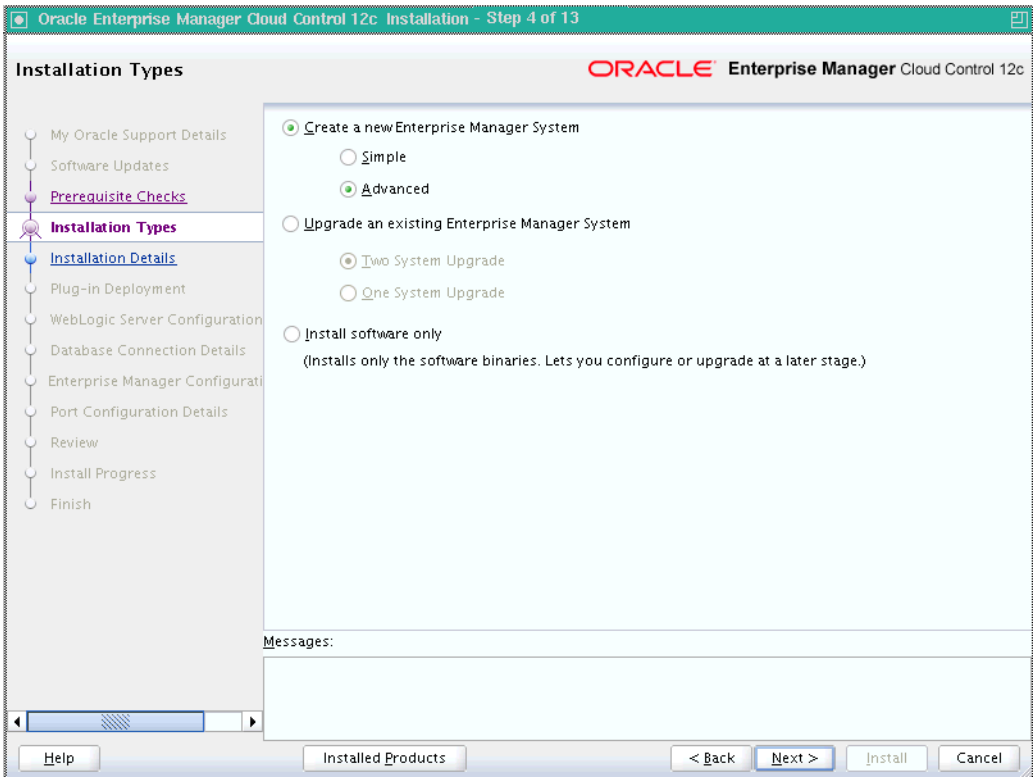
---

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 Chapter 3. To understand the logic the installation wizard uses to verify these packages, see Section 3.1.1.

---

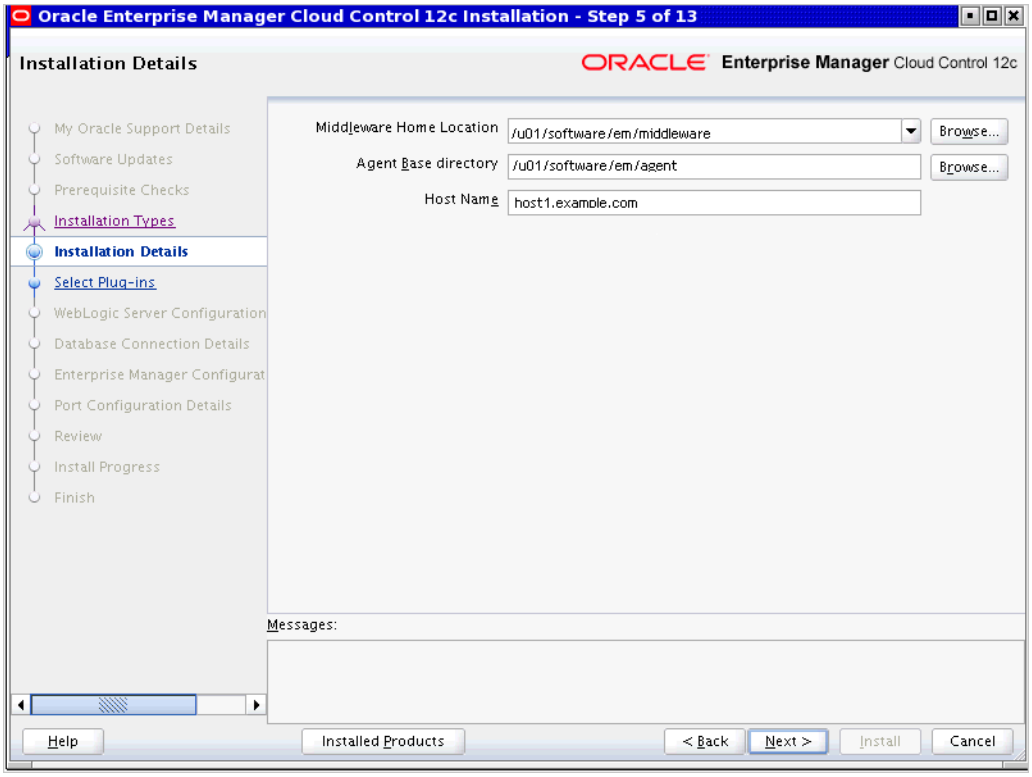
10. **Select Installation Type**.



On the Installation Types screen, select **Create a New Enterprise Manager System**, then select **Advanced**.

11. Click **Next**.

12. **Enter Installation Details**.



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 11*g* 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.

  Also make sure you apply the patches 14482558, 13349651, 16080294, and 16888501 on the Oracle WebLogic Server. Without these patches, the additional OMS installation will fail.

  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`

- If you do not have Oracle WebLogic Server 11*g* 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 manually install Oracle WebLogic Server 11*g* Release 1 (10.3.6), then follow the guidelines outlined in Section 6.2. After installing Oracle WebLogic Server, make sure you apply the patches 14482558, 13349651, 16080294, and 16888501 on it. Without these patches, the additional OMS installation will fail.

- Ensure that the number of characters in the middleware home path does not exceed 70 characters for Unix platforms and 25 characters for Microsoft Windows platforms.

  For example, the middleware home path `C:\Oracle\MW\EM` containing only 15 characters is acceptable. However, `C:\OracleSoftware\OracleMiddleware\OracleEnterpriseManager\OMS\newrelease\oms` containing more than 25 characters is not acceptable for Microsoft Windows platforms.

---

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, if the middleware home is `/u01/app/Oracle/Middleware/`, then you can specify the agent base directory as `/u01/app/Oracle/agent12c`.

Ensure that this location is empty and has write permission. Also ensure that it is always maintained outside the Oracle Middleware home.

Note: Ensure that the number of characters in the middleware home path does not exceed 70 characters for Unix platforms and 25 characters for Microsoft Windows platforms.

For example, the middleware home path `C:\Oracle\MW\EM` containing only 15 characters is acceptable. However, `C:\OracleSoftware\OracleMiddleware\OracleEnterpriseManager\OMS\newrelease\oms` containing more than 25 characters is not acceptable for Microsoft Windows platforms.

---

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.

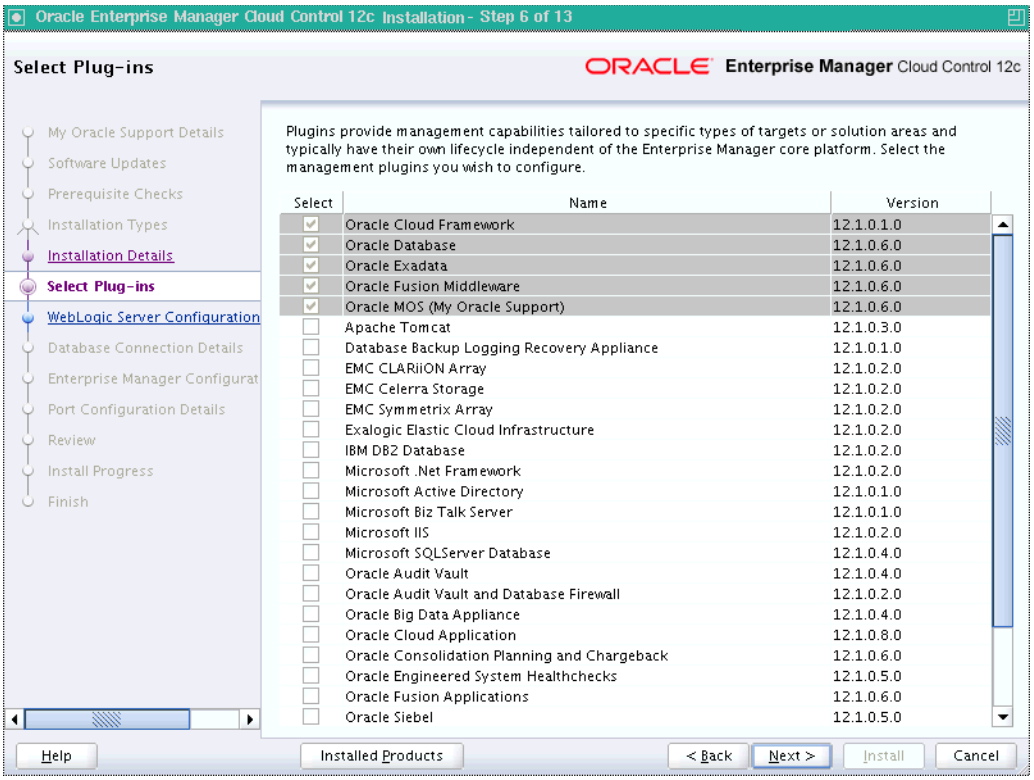
Accept the default host name, or enter a fully qualified domain name that is registered in the DNS and is accessible from other network hosts, or enter an alias host name that is defined in the `/etc/hosts` file on all the OMS instances at this site.

Note: The host name must resolve to the local host or virtual 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. Click **Next**.

14. **Deploy Plug-Ins**.



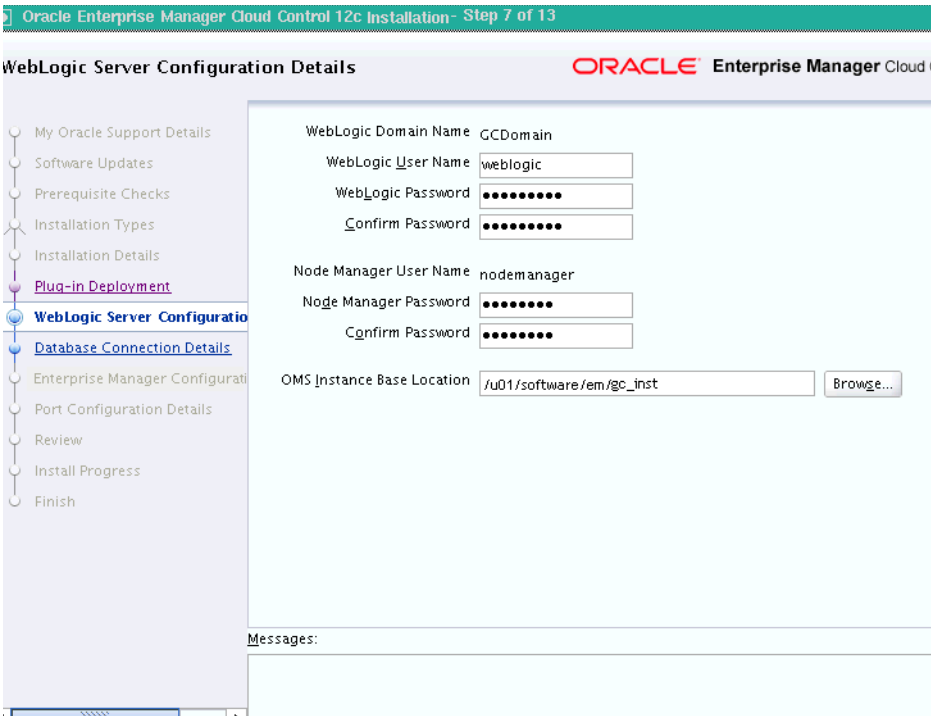
On the Plug-In Deployment screen, select the optional plug-ins you want to install from the software kit (DVD, downloaded software) while installing the Enterprise Manager system.

The pre-selected rows are mandatory plug-ins that will be installed by default. Select the optional ones you want to install.

Note: During installation, if you want to install a plug-in that is not available in the software kit, then refer to Section 6.5.1 for the point that describes how you can install additional plug-ins.

---

15. Click **Next**.
16. **Enter WebLogic Server Configuration Details**.



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. Ensure that the Oracle Management Service instance base location is outside the middleware home. By default, the WebLogic user name is `weblogic`. If you want, you can modify it.

Note: Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.

Note:

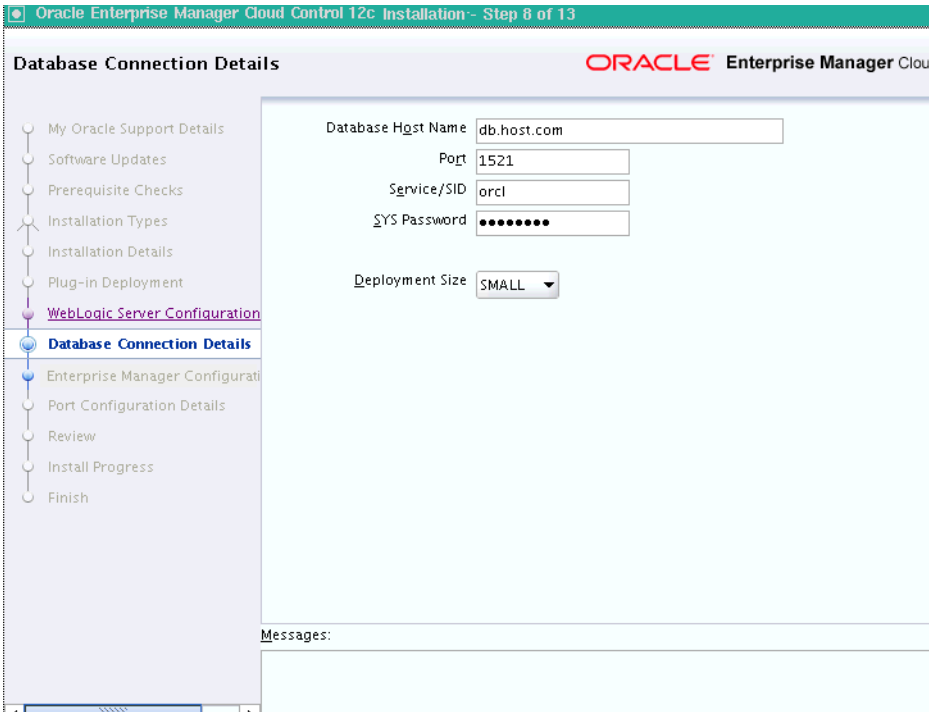
- Ensure that the Oracle Management Service instance base location is outside the middleware home.
- If you are installing on an NFS-mounted drive and creating the OMS instance base directory (`gc_inst`) on that NFS-mounted drive, then after you install, move the lock files from the NFS-mounted drive 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, see Section 6.7.

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.

Note: On Microsoft Windows, a Node Manager service is NOT created. This is an expected behavior.

17. Click **Next**.

18. **Enter Database Connection Details**.



On the Database Connection Details screen, do the following:

a. Provide details of the existing, certified database where the Management Repository needs to be created. If you have already created a database instance with a preconfigured Management Repository using the database templates offered by Oracle, then provide details about that database instance.

   The installer uses this information to connect to the existing database for creating the SYSMAN schema and plug-in schemas. If you provide details of a database that already has a preconfigured Management Repository, then the installer only creates plug-in schemas.

Note:

- If you connect to a database instance that was created using the database template offered by Oracle, then note that the password assigned to the user accounts SYSMAN_MDS, SYSMAN_APM, and SYSMAN_OPSS, which were created while preconfiguring the Management Repository, are automatically reset with the SYSMAN password you enter on the Enterprise Manager Configuration Details screen (as described in Step (20)).
- 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 are using an Oracle RAC database that is configured with Single Client Access Name (SCAN), then you can enter the SCAN name as the host name.

b. Select the deployment size from the **Deployment Size** list to indicate the number of targets you plan to monitor, the number of Management Agents you plan to have, and the number of concurrent user sessions you plan to have.

Table 6–5 describes each deployment size.

Table 6–5 Deployment Size

Deployment Size	Targets Count	Management Agents Count	Concurrent User Session Count
Small	Up to 999	Up to 99	Up to 10
Medium	Between 1000 and 9999	Between 100 and 999	Between 10 and 24
Large	10,000 or more	1000 or more	Between 25 and 50

Note: If the database you are connecting to is a database instance created with a preconfigured Management Repository using the database templates offered by Oracle (as described in Appendix D), then make sure the deployment size you select on this screen matches with the deployment size you selected on the Database Templates screen of Oracle Database Configuration Assistant (DBCA) while creating the database instance.

If you want to select a deployment size different from the deployment size you had selected while creating the database instance using DBCA, then do one of the following:

- Select the deployment size of your choice on this screen, and click **Next.** When you see errors, fix the parameters in the database, then return to this screen to continue with the installation. To automatically fix the parameters using Oracle-supplied SQL scripts, see Section 6.5.3.
- Minimize the installer, create another database instance with a template for the desired deployment size, then return to this screen and select the matching deployment size. For instructions, see Appendix D.

Note: 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*.

19. Click **Next**.

Note:

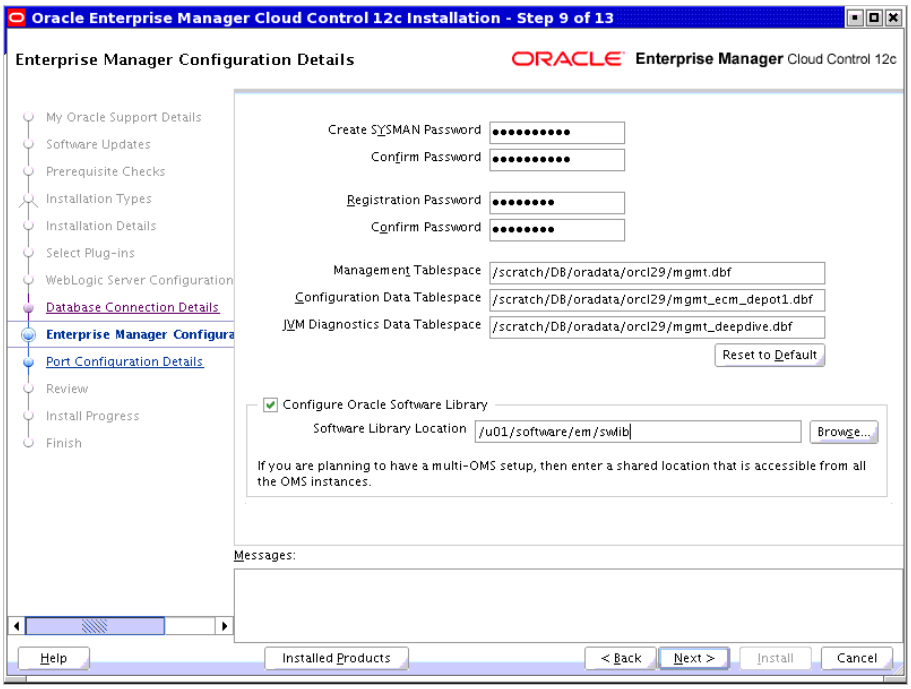
- If you are connecting to an Oracle RAC database, and if you have specified the virtual IP address of one of its nodes, then the installation wizard prompts you with a Connection String dialog and requests you to update the connection string with information about the other nodes that are part of the cluster. Update the connection string and click **OK**. If you want to test the connection, click **Test Connection**.
- If your Oracle RAC database 11.2 or higher is configured with Single Client Access Name (SCAN) listener, then you can enter a connection string using the SCAN listener.
- 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 see an error stating that the connection to the database failed with ORA-01017 invalid user name/password, then follow these steps to resolve the issue:

  (1) Verify that SYS password provided is valid.

  (2) Verify that the database initialization parameter `REMOTE_LOGIN_PASSWORDFILE` is set to Shared or Exclusive.

  (3) Verify that password file with the file name `orapw<SID>` exists in the `<ORACLE_HOME>/dbs` directory of the database home. If it does not, create a password file using the `ORAPWD` command.
- If you see a warning stating that the database you have provided already has Enterprise Manager schemas configured, then make sure you drop those schemas first, then deinstall the Enterprise Manager software that had created those schemas, and then return to the installer to proceed with the new installation. For instructions to drop the schemas and deinstall the software, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.
- If you are connecting to an Oracle Database that already has a Database Control configured, then you will see an error message prompting you to deconfigure it. Make sure you deconfigure the database control repository, the database control application, and the database control's central agent. For instructions, see Section A.5 of My Oracle Support note 278100.1.
- For information on all the database initialization parameters that are set, and all the prerequisite checks that are run, and for instructions to run the prerequisite checks manually if they fail, see Appendix A.

20. Enter Enterprise Manager Configuration Details



On the Enterprise Manager Configuration Details screen, do the following:

a. For **SYSMAN Password**, enter a password for creating the SYSMAN user account. The SYSMAN user account is used for creating the SYSMAN schema, which holds most of the relational data used in managing Enterprise Manager Cloud Control. SYSMAN is also the super administrator for Enterprise Manager Cloud Control.

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 connect to a database instance that was created using the database template offered by Oracle, then note that the password assigned to the user accounts SYSMAN_MDS, SYSMAN_APM, and SYSMAN_OPSS, which were created while preconfiguring the Management Repository, are automatically reset with the SYSMAN password you enter on this screen.

---

b. For **Registration Password**, enter a password for registering the new Management Agents that join the Enterprise Manager system.

Note: Ensure that your password contains at least 8 characters without any spaces, begins with a letter, and includes at least one numeric value.

---

c. For **Management Tablespace**, enter the full path to the location where the data file for management tablespace (`mgmt.dbf`) can be stored. The installer uses

this information for storing data about the monitored targets, their metrics, and so on. Ensure that the specified path leads up to the file name.

For example, `/u01/oracle/prod/oradata/mgmt.dbf`

If the database is on Oracle Automatic Storage Management (Oracle ASM), then the path must look like: `+<disk_group>/<sid>/<subdir_path_if_any>/<datafilename>.dbf`

For example, `+DATA/oemrsp01d/datafile/mgmt.dbf`

d. For **Configuration Data Tablespace**, enter the full path to the location where the data file for configuration data tablespace (`mgmt_ecm_depot1.dbf`) can be stored. This is required for storing configuration information collected from the monitored targets. Ensure that the specified path leads up to the file name.

For example, `/u01/oracle/prod/oradata/mgmt_ecm_depot1.dbf`

If the database is on Oracle Automatic Storage Management (Oracle ASM), then the path must look like: `+<disk_group>/<sid>/<subdir_path_if_any>/<datafilename>.dbf`

For example, `+DATA/oemrsp01d/datafile/mgmt_ecm_depot1.dbf`

e. For **JVM Diagnostics Data Tablespace**, enter the full path to a location where the data file for JVM Diagnostics data tablespace (`mgmt_deepdive.dbf`) can be stored. Ensure that the specified 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).

For example, `/u01/oracle/prod/oradata/mgmt_deepdive.dbf`

If the database is on Oracle Automatic Storage Management (Oracle ASM), then the path must look like: `+<disk_group>/<sid>/<subdir_path_if_any>/<datafilename>.dbf`

For example, `+DATA/oemrsp01d/datafile/mgmt_deepdive.dbf`

f. If you want to configure Oracle Software Library (Software Library), select **Configure Oracle Software Library.** Enter the absolute path leading up to a unique directory name on the OMS host where the Software Library can be configured.

By default, an *OMS Shared File System* storage location is configured, so ensure that the location you enter is a mounted location on the OMS host, and is placed outside the Middleware Home. Also ensure that the OMS process owner has read/write access to that location. This helps when you install additional OMS instances as they will require read/write access to the same *OMS Shared File System* storage location.

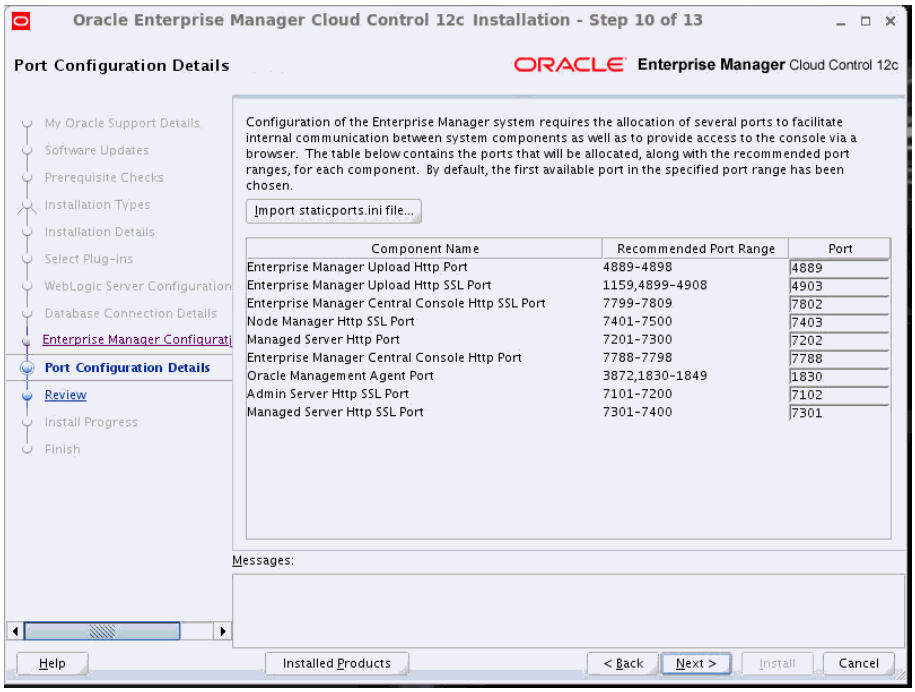
Note:

- Oracle recommends that you maintain the Software Library outside the Middleware Home. For example, if the middleware home is `/u01/software/oracle/middleware`, then you can maintain the Software Library in `/u01/software/oracle`.
- Oracle strongly recommends that you enter a mounted location on the OMS host so that the same location can be used when you install additional OMS instances. However, if you are unable to provide a mounted location or if you are testing the installation in a test environment and do not want to provide a mounted location, then you can provide a local file system location. In this case, after the installation, make sure you migrate to a mounted location.

  For information about the Software Library storage locations, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*. For instructions to migrate to an *OMS Agent File System* storage location, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
- On Microsoft Windows, if you are unable to provide a mounted location, then enter a local file system location at the time of installing the product, and migrate to an *OMS Agent File System* storage location later. The *OMS Agent File System* storage location is the recommend storage type on Microsoft Windows.

  For information about the Software Library storage locations, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*. For instructions to migrate to an *OMS Agent File System* storage location, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
- Configuring the Software Library at the time of installation is optional. Even if you do not select this option and configure it now, your installation will succeed. You always have the option of configuring the Software Library later from the Enterprise Manager Cloud Control Console. However, Oracle strongly recommends that you select this option and configure it at the time of installation so that the installer can automatically configure it for you, thus saving your time and effort.
- Once the Software Library is configured, you can view the location details in the Software Library Console. To access the Software Library Console, in Cloud Control, from the **Setup** menu, select **Provisioning and Patching,** then select **Software Library.**

21. Click **Next**.
22. **Customize Ports**



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 -an | grep <port no>
  ```

- On Microsoft Windows:

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

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

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

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

`<Software_Extracted_Location>/response`

23. Click **Next**.

24. **Review and Install**

    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.

25. **Track the Progress**

    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. Resolve the issue and retry the configuration assistant.

      For more information, see the appendix on troubleshooting tips in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

    - 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. For Microsoft Windows platforms, invoke runConfig.bat script.

      ```
      $<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.

26. **Run Scripts**

    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. You will directly reach the Finish screen as described in Step (27).

27. **End the Installation**

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

    For more information about this installation, refer to the following file available in the OMS home:

    ```
    $<OMS_HOME>/install/setupinfo.txt
    ```

    Note: If the installation fails for some reason, review the log files listed in *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

    Note: If you have run the installation wizard and let the installation wizard take corrective actions to correct the repository settings, and if you have exited the wizard without completing the installation process, then remember that the repository settings might not reset to their original values because you abruptly ended the installation. In this case, before invoking the installation wizard again, run the following command to manually reset the values.

    ```
    <Software_Location>/install/requisites/bin/emprereqkit
    -executionType install -prerequisiteXMLRootDir <prereq_
    xmlrootdir_location> -connectString <connect_string> -dbUser
    SYS -dbPassword <db_password> -reposUser sysman -dbRole
    sysdba -runPrerequisites -runPostCorrectiveActions
    ```

6.5.1 Advanced Installer Options Supported for Installing an Enterprise Manager System for a Production Site (Advanced Installation)

The following are some additional, advanced options you can pass while invoking the Enterprise Manager Cloud Control installer:

- 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 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 installation, if you want to install some plug-ins that are not in the software kit (DVD, downloaded software), 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:

     On UNIX platforms:

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

     On Microsoft Windows platforms:

     ```
     setup.exe -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 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
  ```

  To understand the limitations involved with this advanced option, see Section 6.5.2.

6.5.2 Limitations with the Advanced Options Supported for Installing an Enterprise Manager System for a Production Site (Advanced Installation)

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 6–6 lists the different combinations of these advanced options, and describes the workaround to be followed for each combination:

Table 6–6 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
START_OMS=true b_startAgent=false	Start the Management Agent: $<AGENT_HOME>/bin/emctl start agent
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

6.5.3 Automatically Setting Database Parameters and Converting the Management Repository to Support a Deployment Size (Large, Medium, or Small)

If the database you are connecting to is a database instance created with a preconfigured Management Repository using the database templates offered by Oracle (as described in Appendix D), then you should make sure the deployment size you select on the Database Connection Details screen of the installer matches with the deployment size you selected on the Database Templates screen of Oracle Database Configuration Assistant (DBCA) while creating the database instance.

If you want to select a deployment size different from the deployment size you had selected while creating the database instance using DBCA, then you must first fix the parameters in the database, then return to the Database Connection Details screen of the installer to continue with the installation.

To automatically set the parameters using the Oracle-supplied SQL scripts, follow these steps:

1. Log in to SQL Plus as SYSMAN.
2. Depending on the deployment size for which you want to install Enterprise Manager, run one of the following scripts. To download these scripts, follow Step (2) and Step (3) outlined in Appendix D.

Deployment Size	Scripts
Small	<DB_HOME>/assistance/dbca/templates/set_repo_param_12.1.0.2_Database_SQL_for_EM12_1_0_5_Small_deployment.sql
Medium	<DB_HOME>/assistance/dbca/templates/set_repo_param_12.1.0.2_Database_SQL_for_EM12_1_0_5_Medium_deployment.sql
Large	<DB_HOME>/assistance/dbca/templates/set_repo_param_12.1.0.2_Database_SQL_for_EM12_1_0_5_Large_deployment.sql

3. Restart the database.

> **Note:** For 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*.

6.6 Enabling Hybrid Cloud Management

With the introduction of Hybrid Cloud Management available with Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5), Enterprise Manager Cloud Control now provides you with a single pane of glass for monitoring and managing both your on-premise and Oracle Cloud deployments, all from the same management console. By deploying Hybrid Cloud Agents onto the Oracle Cloud virtual hosts serving your Oracle Cloud services, you are able to manage Oracle Cloud targets just as you would any other.

For more information on Hybrid Cloud Management and for instructions to enable the feature, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

6.7 Performing Postinstallation Tasks After Installing an Enterprise Manager System

After you install an Enterprise Manager system, perform the following postinstallation tasks:

1. (Only for UNIX Operating Systems) If you did not run the `allroot.sh` script when the installer prompted you to do so, then run it manually now:

   - If this is the first Oracle product you just installed on the host, then run the `oraInstroot.sh` script from the inventory location specified in the `oraInst.loc` file that is available in the Management Agent home.

     For example, if the inventory location specified in the `oraInst.loc` file is `$HOME/oraInventory`, then run the following command:

     ```
     $HOME/oraInventory/oraInstRoot.sh
     ```

     > **Note:** If you are not a *root* user, then use SUDO to change to a *root* user. For example, run the following command:
     >
     > ```
     > /usr/local/bin/sudo $HOME/oraInventory/oraInstRoot.sh
     > ```

   - Run the `allroot.sh` script from the OMS home:

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

Note: If you are not a *root* user, then use SUDO to change to a *root* user. For example, run the following command:

```
/usr/local/bin/sudo $<OMS_HOME>/allroot.sh
```

2. Verify the installation:

   a. Navigate to the OMS home and run the following command to see a message that confirms that OMS is up and running.

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

   For example,

   ```
   /u01/middleware/oms/bin/emctl status oms
   ```

   b. Navigate to the Management Agent home and run the following command to see a message that confirms that the Management Agent is up and running.

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

   For example,

   ```
   /u01/agent/core/12.1.0.5.0/bin/emctl status agent
   ```

   c. Navigate to the Management Agent home and run the following command to see a message that confirms that EMD upload completed successfully.

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

   For example,

   ```
   /u01/agent/core/12.1.0.5.0/bin/emctl upload agent
   ```

   Note: By default, you can access Enterprise Manager Cloud Control only using the HTTPS protocol. If you want to use the HTTP protocol, then unlock it by running the following command from the OMS home:

   ```
   emctl secure unlock -console
   ```

3. Verify if all the plug-ins were installed successfully. To do so, access the following log file from the Management Agent home, and search for the sentence *WARN:Plugin configuration has failed*.

   ```
   $<AGENT_HOME>/cfgtoollogs/cfgfw/CfmLogger-<timestamp>.log
   ```

   For example,

   ```
   $/u01/agent/core/12.1.0.5.0/cfgtoollogs/cfgfw/CfmLogger-<timestamp>.log
   ```

   If you find the sentence, resolve the issue by running the `AgentPluginDeploy.pl` script from the Management Agent home.

   ```
   $<AGENT_BASE_DIR>/agent/core/12.1.0.5.0/perl/bin/perl <AGENT_BASE_
   DIR>/agent/core/12.1.0.5.0/bin/AgentPluginDeploy.pl -oracleHome <AGENT_
   BASE_DIR>/agent/core/12.1.0.5.0 -agentDir <AGENT_BASE_DIR>
   -pluginIdsInfoFile <AGENT_BASE_DIR>/plugins.txt -action configure
   -emStateDir <AGENT_INSTANCE_HOME>
   ```

   For example,

```
/u01/agent/core/12.1.0.5.0/perl/bin/perl
/u01/agent/core/12.1.0.5.0/bin/AgentPluginDeploy.pl -oracleHome
/u01/agent/core/12.1.0.5.0/ -agentDir /u01/agent -pluginIdsInfoFile
/u01/agent/plugins.txt -action configure -emStateDir /u01/agent/agent_
inst
```

4. If you upgrade the JDK version to JDK 6 update 95, then you must apply patch 20181997 on the WebLogic Server home.

5. (Optional) If the repository prerequisites had failed, and if you had manually run the EM Prerequisite Kit and taken corrective actions to meet the repository requirements, then run the utility again to reset the repository settings to what it had originally:

```
<Software_Location>/install/requisites/bin/emprereqkit -executionType
install -prerequisiteXMLRootDir <prereq_xmlrootdir_location>
-connectString <connect_string> -dbUser SYS -dbPassword <db_password>
-reposUser sysman -dbRole sysdba -runPrerequisites
-runPostCorrectiveActions
```

> **Note:** If you had run the installation wizard and let the installation wizard take corrective actions to correct the repository settings, and if you had exited the wizard without completing the installation process, then remember that the repository settings might not reset to their original values because you abruptly ended the installation. In this case, before invoking the installation wizard again, run this command to manually reset the values.

6. By default, Oracle BI Publisher 11g (11.1.1.7) is installed in the middleware home, but it is not configured. If you want to configure it, then follow the instructions outlined in *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

7. If you installed using a virtual host name for any of the following reasons, particularly for a high-availability configuration, then manually update the configuration files to replace the physical host name with the virtual host name that you used for installation.

   - If you installed in a cold failover cluster (CFC).
   - If you installed using a storage replication disaster recovery solution and chose the alias host name option.

   To manually update the configuration files to replace the physical host name with the virtual host name that you used for installation, follow these steps:

   a. For each OMS in the domain, access the following file from the OMS home, and change the ServerName parameter value from physical host name to virtual host name that you used for installation.

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

   b. For the primary OMS, access the following file from the OMS home, and change the host from physical to virtual host (there will be an entry for each host in the domain).

      ```
      <OMS_INSTANCE_HOME>/user_
      projects/domains/GCDomain/opmn/topology.xml
      ```

8. By default, the following targets get automatically discovered and monitored in the Enterprise Manager Cloud Control console:

   - Oracle WebLogic Domain (for example, `GCDomain`)
   - Oracle WebLogic AdminServer
   - Oracle WebLogic Server
   - Oracle Web Tier
   - Application deployments, one for the Enterprise Manager Cloud Control console and one for the platform background services.
   - Oracle Management Service
   - Oracle Management Repository
   - Oracle Management Agent
   - The host on which you installed Enterprise Manager Cloud Control

   However, the other targets running on that host and other hosts do not get automatically discovered and monitored. To monitor the other targets, you need to add them to Enterprise Manager Cloud Control either using the Auto Discovery Results page, the Add Targets Manually page, or the discovery wizards offered for the targets you want to monitor.

   For information about discovering targets in Enterprise Manager Cloud Control, refer to the chapter on adding targets in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

9. If you installed on an NFS-mounted drive and created the OMS instance base directory `(gc_inst)` on that NFS-mounted drive, then 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.

   a. Stop the OMS:

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

   b. 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
      ```

   c. Search for sections related to the modules `mpm_prefork_module` and `mpm_worker_module`. In both these sections, modify the value for the `LockFile` parameter so that the path leads to a location on the local file system. If the directory does not already exist, then create it first, and then provide the path to that directory.

      ```
      <IfModule mpm_prefork_module>
      StartServers 5
      MinSpareServers 5
      MaxSpareServers 10
      MaxClients 150
      ```

```
MaxRequestsPerChild 0
AcceptMutex fcntl
LockFile uo1/em/ohs_locks/http_lock
</IfModule>
....
<IfModule mpm_worker_module>
StartServers 2
MaxClients 150
MinSpareThreads 25
MaxSpareThreads 75
ThreadsPerChild 25
MaxRequestsPerChild 0
AcceptMutex fcntl
LockFile uo1/em/ohs_locks/http_lock
</IfModule>b
```

d. Save the changes.

e. Restart the OMS:

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

10. Configure your proxy server as described in Appendix C.

11. (Optional) If you want to change the passwords of SYSMAN and all other internal user accounts such as SYSMAN_MDS, SYSMAN_OPSS, and SYSMAN_APM, then shut down the OMS, run the following command from the OMS home, and then restart the OMS. You will be prompted to enter the old and the new password.

```
<OMS_HOME>/bin/emctl config oms -change_repos_pwd
```

> **Note:** This command concurrently changes the passwords in both the OMS configuration and the database for these affected user accounts. Therefore, it is sufficient to run this command just once.

12. An encryption key is generated to encrypt sensitive data in the Management Repository. If this key is lost, all encrypted data in the Management Repository become unusable. Therefore, back up the Management Service configuration including the emkey, and maintain the backup on another host.

To back up the Management Service configuration including the emkey, run the following command:

```
<OMS_HOME>/bin/emctl exportconfig oms -dir <path_to_backup_location>
```

13. Before accessing the Enterprise Manager Cloud Control Console in a browser, install a security certificate from a trusted certification authority on the browser.

This it to ensure that the Enterprise Manager Cloud Control Console that you are accessing over HTTPS protocol is recognized as a genuine and secure Web site.

For instructions to install a security certificate on your browser and avoid security certificate alerts, refer to *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

7

Installing Oracle Management Agents

This chapter describes how you can install Oracle Management Agent (Management Agent). In particular, this chapter covers the following:

- Overview of Installing Management Agents Using Add Host Targets Wizard or EM CLI
- Before You Begin Installing Management Agents Using Add Host Targets Wizard or EM CLI
- Prerequisites for Installing Management Agents Using Add Host Targets Wizard or EM CLI
- Installing Management Agents Using Add Host Targets Wizard or EM CLI
- Installing Hybrid Cloud Gateway Agents and Hybrid Cloud Agents
- After Installing Management Agents Using Add Host Targets Wizard or EM CLI

7.1 Overview of Installing Management Agents Using Add Host Targets Wizard or EM CLI

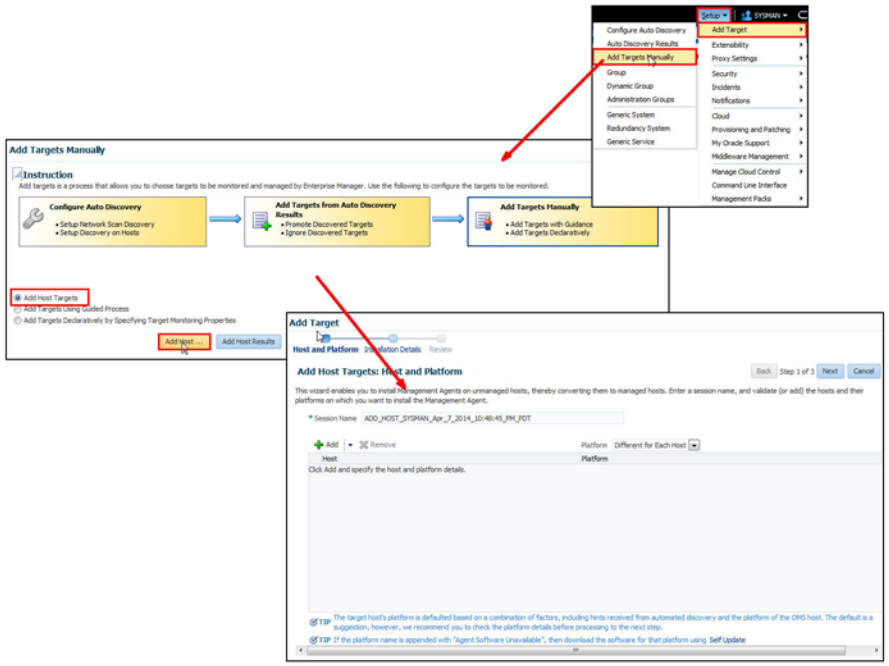
Oracle Management Agent (Management Agent) is one of the core components of Enterprise Manager Cloud Control that enables you to convert an unmanaged host to a managed host in the Enterprise Manager system. The Management Agent works in conjunction with the plug-ins to monitor the targets running on that managed host.

Therefore, at any point in time, if you want to monitor a target running on a host, ensure that you first convert that unmanaged host to a managed host by installing a Management Agent, and then manually discover the targets running on it to start monitoring them.

To install a Management Agent, use the Add Host Targets Wizard that is accessible from within the Enterprise Manager Cloud Control console, or use EM CLI. Oracle recommends that you use this wizard, or EM CLI, for the mass-deployment of Management Agents.

Figure 7–1 describes a method to access the Add Host Targets Wizard.

Figure 7–1 Add Host Targets Wizard

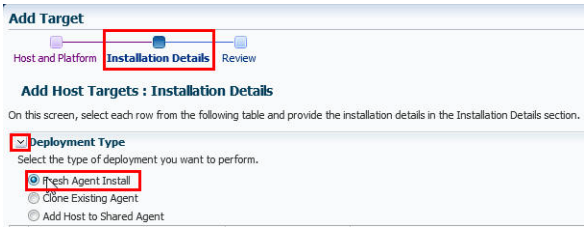


The Add Host Targets Wizard is an application that offers GUI-rich, interactive screens. To access it, do one of the following:

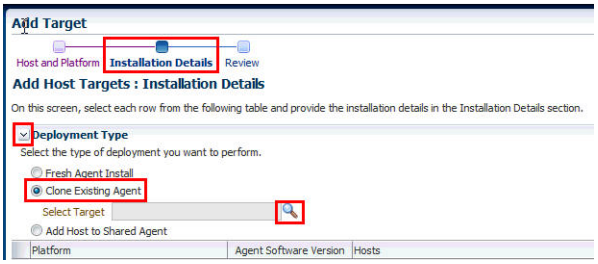
- From the **Setup** menu, select **Add Target**, then select **Add Targets Manually**. On the Add Targets Manually page, select **Add Host Targets** and click **Add Host**.
- From the **Setup** menu, select **Add Target**, then select **Auto Discovery Results**. On the Auto Discovery Results page, under the Servers, Storage and Network tab, select a host that you want to monitor from the displayed list, then click **Promote**.

The wizard enables you to do the following on multiple hosts across platforms with options to run preinstall and postinstall scripts:

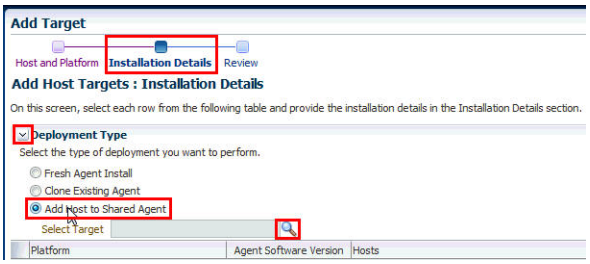
- Deploy a fresh Management Agent



- Clone an existing well-tested and patched Management Agent



- Install a Management Agent (called *Shared Agent*) using an existing, centrally shared Management Agent (called *Master Agent*)



> **Note:** This chapter only describes how you can deploy a fresh Management Agent using the Add Host Targets Wizard. For information on cloning an existing instance and deploying a Management Agent using a shared instance, refer to *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

To monitor a target, you need to add the target to Enterprise Manager Cloud Control either using the Auto Discovery Results page, the Add Targets Manually page, or the discovery wizards offered for the targets you want to monitor.

For information about discovering targets in Enterprise Manager Cloud Control, refer to the chapter on adding targets in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

When you install a standalone Management Agent on a host, you will see the following default contents in the agent base directory:

```
<agent_base_directory>
    |_____core
         |_____12.1.0.5.0
    |_____plugins
    |_____agent_inst
    |_____sbin
    |_____plugins.txt
    |_____plugins.txt.status
    |_____agentimage.properties
```

> **Note:** You can repoint your existing Management Agents to a new Oracle Management Service (OMS). For information on how to do this, see the Redirecting Oracle Management Agent to Another Oracle Management Service Appendix present in *Oracle Enterprise Manager Cloud Control Advanced Installation Guide.*
>
> When you repoint your existing Management Agents to a new OMS, you cannot move the targets monitored by the Management Agents, the target history, and the Management Agent history. The monitored targets and the history data is lost.

7.2 Before You Begin Installing Management Agents Using Add Host Targets Wizard or EM CLI

Before you begin installing a Management Agent using the Add Host Targets Wizard, or EM CLI, keep these points in mind:

- The Add Host Targets Wizard and EM CLI convert an unmanaged host to a managed host in the Enterprise Manager system by installing a 12.1.0.5.0 Management Agent.
- Oracle recommends you to use the Add Host Targets Wizard or EM CLI to mass-deploy Management Agents in your environment.
- To install a Management Agent on a host, you must download and apply the required version of the Management Agent software for the host platform, using Self Update. Only the Management Agent software for the OMS host platform is downloaded and applied by default.

  To access Self Update, from the **Setup** menu, select **Extensibility,** then select **Self Update.**

  For information on how to download and apply the Management Agent software for a platform, see Section 7.3.2.
- Oracle Management Agent 12*c* communicates only with Oracle Management Service 12*c* and not with any earlier release of Enterprise Manager.

  When you use the Add Host Targets Wizard of a 12.1.0.5.0 OMS, or EM CLI, you can install only the latest Management Agent version on a platform, for which the Management Agent software is downloaded and applied. For example, if the 12.1.0.5.0 Management Agent software for a particular platform is downloaded and applied, you can install only a 12.1.0.5.0 Management Agent on that platform, and not a 12.1.0.4.0 or a 12.1.0.3.0 Management Agent.

  For information about the compatibility between 12*c* releases of Management Agents and the OMS, see Table 6–2.
- If you have multiple hosts, sharing a common mounted drive, then install the Management Agents in two different phases:

  1. In the Add Host Targets Wizard, select the deployment type **Fresh Agent Install**, and install a Management Agent on the host where the drive is shared. Alternatively, you can select the deployment type **Clone Existing Agent**, and clone the Management Agent to the host where the drive is shared.

     For more information, refer to the chapter on cloning a Management Agent in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

  2. In the Add Host Targets Wizard, select the deployment type **Add Host to Shared Agent**, and install a Management Agent on all other hosts that access the shared, mounted drive. (Here, you will select the Management Agent you installed in the previous step as the master agent or shared agent.)

     For more information, refer to the chapter on installing a *Shared Agent* in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.
- If you have an Oracle RAC Cluster with multiple nodes, then you must install a Management Agent on each of the nodes separately. In other words, in the Add Host Targets Wizard, you must add each node explicitly as a destination host.
- In Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5.0), 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.*

- The Add Host Targets Wizard supports the `permissive` and `enforcing` options for Security-Enhanced Linux (SELinux).
- The Add Host Targets Wizard uses SSH to establish connectivity between Oracle Management Service (OMS) and the remote hosts where you want to install the Management Agents.
- Only SSH1 (SSH version 1) and SSH2 (SSH version 2) protocols offered by OpenSSH are supported for deploying a Management Agent.
- The Add Host Targets Wizard supports Named Credentials that enable you to use a set of credentials registered with a particular name specifically for this operation, by your administrator. This ensures an additional layer of security for your passwords because as an operator, you can only select the named credential, which is saved and stored by an administrator, and not know the actual user name and password associated with it.

  In case the named credential you select does not have the privileges to perform the installation, then you can set the named credential to run as another user (locked user account). In this case, the wizard logs in to the hosts using the named credential you select, but performs the installation using the locked user account you set.

  For example, you can create a named credential titled User_A (the user account that has remote login access), and set it to run as User_X (the Management Agent install user account for which `no direct login` is set) that has the required privileges. In this case, the wizard logs in to the hosts as User_A, but installs as User_X, using the privilege delegation setting (sudo or PowerBroker) specified in the named credential.

  The sudo, pbrun, sesu, and su privilege delegation tools are supported in Cloud Control.
- Named credentials support SSH public key authentication and password-based authentication. So you can use an existing SSH public key authentication without exposing your passwords.

  To set up SSH public key authentication for a named credential, follow these steps:

Note:

- If you have already set up SSH public key authentication for a named credential and the SSH keys are already created, then upload the SSH keys to Enterprise Manager, as mentioned in Step (4) of the following procedure.
- Enterprise Manager Cloud Control does not support the format of the SSH key that is generated using the Tectia SSH client. However, if you are generating the SSH key using the Tectia SSH client, then as a prerequisite, convert the format of that key to OpenSSH format. To do so, run the following command.

  ```
  ssh-keygen --import-private-key <input_private_key_
  filename> <output_filename> --key-format openssh2
  ```

  After converting the format, use the content of the output_ filename and upload it as a private key while registering it as a Named Credential in Enterprise Manager.

1. Navigate to the following location in the OMS home:

   ```
   $<OMS_HOME>/oui/prov/resources/scripts
   ```

   For example,

   ```
   /home/software/em/middleware/oms/oui/prov/resources/scripts
   ```

2. If the OMS host runs on Oracle Solaris, edit the `sshUserSetup.sh` script to change the following:

   ```
   "SunOS")  SSH="/usr/local/bin/ssh"

             SSH_KEYGEN="/usr/local/bin/ssh-keygen"
   ```

   to

   ```
   "SunOS")  SSH="/usr/bin/ssh"

             SSH_KEYGEN="/usr/bin/ssh-keygen"
   ```

3. If the OMS host runs on any Unix based operating system, run the `sshUserSetup.sh` script on the OMS host as the OMS user, and pass the Management Agent install user name and the fully qualified name of the target hosts:

   ```
   sshUserSetup.sh -setup -user <agent_install_user_name> -hosts
   "<target_hosts>"
   ```

   For example, `sshUserSetup.sh -setup -user oracle -hosts "abc1.example.com abc2.example.com abc3.example.com"`. Ensure that you use a space to separate the target host names.

   The following SSH keys are created:

   ```
   $HOME/.ssh/id_rsa
   $HOME/.ssh/id_rsa_pub
   ```

   Here, `$HOME` refers to the home directory of the OMS install user.

   If the OMS host runs on Microsoft Windows, install Cygwin on the OMS host (described in Chapter 5), then run the `sshUserSetupNT.sh` script on the OMS

host as the OMS user, and pass the Management Agent install user name and the fully qualified name of the target hosts:

```
sshUserSetupNT.sh -setup -user <agent_install_user_name> -hosts
<target_hosts>
```

4. Upload the SSH keys to Enterprise Manager.

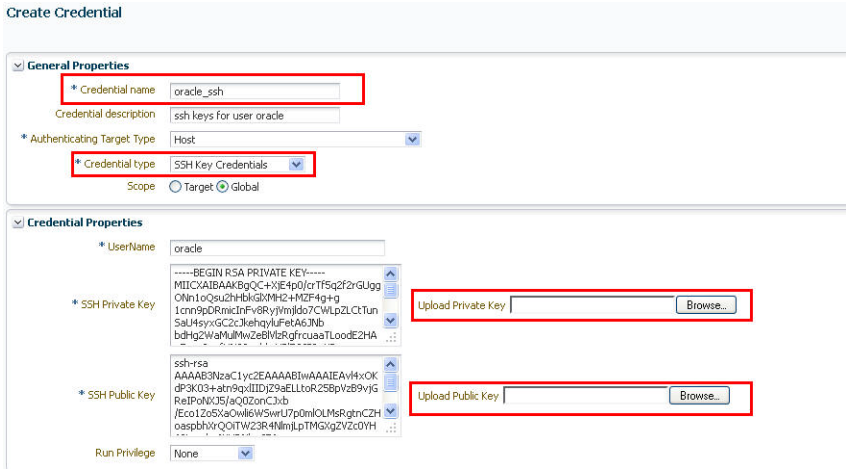
   From the **Setup** menu, select **Security,** then select **Named Credentials.** Click **Create.** For **Credential Name,** specify the name of the credential, for **Credential Type,** select **SSH Key Credentials,** and for **Scope,** select **Global.** If you do not select the **Global** option, you cannot use the SSH named credential to install Management Agents using the Add Host Targets Wizard.

   To upload one of the private SSH keys created, in the Credential Properties section, specify the location of the private SSH key as a value for the **Upload Private Key** field. Click **Save.**

   To upload one of the public SSH keys created, in the Credential Properties section, specify the location of the public SSH key as a value for the **Upload Public Key** field. Click **Save.**

   Figure 7–2 describes how to upload SSH keys to Enterprise Manager.

Figure 7–2 Uploading SSH Keys to Enterprise Manager



If you have already set up SSH public key authentication for a named credential, you can use the named credential while installing Management Agents using the Add Host Targets Wizard.

- You can mass deploy Management Agents on a number of hosts in a rolling manner, using the Add Host Targets Wizard or EM CLI. In this method, the deployment proceeds continuously from one deployment phase to another, after ignoring the failed hosts in each deployment phase. The deployment process does not stop when a host fails a deployment phase.

  To deploy Management Agents in a rolling manner, ensure that you set the `oracle.sysman.prov.agentpush.continueIgnoringFailedHost` property to `true` in the `$<OMS_HOME>/sysman/prov/agentpush/agentpush.properties` file, then use the Add Host Targets Wizard, or EM CLI to deploy the Management Agents.

- By default, the Add Host Targets Wizard configures only the following types of plug-ins:

  - All discovery plug-ins that were configured with the OMS from where the Management Agent software is being deployed.
  - Oracle Home discovery plug-in
  - Oracle Home monitoring plug-in
- You must have *read* privileges on the Oracle WebLogic Server's alert log directories for the Support Workbench (Incident) metrics to work properly. You must also ensure that the Management Agent that is monitoring this Oracle WebLogic Server target is running on the same host as the Oracle WebLogic Server.
- If you have a common mount point in your organization, then ensure that it is generic and ensure that you install the Management Agent in this generic mount point. This guideline helps when you upgrade your Management Agents to higher releases in the future within the same mount point, and not acquire new mount points each time.

  For example, have a mount point such as `/oracle/product/agent` and install the Management Agent in there so that it appears as `/oracle/product/agent/agent12c`. Do not install the Management Agent directly in the mount point because it breaks the upgrade path and causes problems with cleanup operations.
- 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 12c 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.

Note: Instead of installing a Management Agent using the Add Host Targets Wizard, or EM CLI, you can choose to install the Management Agent manually, in silent mode. For information on installing a Management Agent in silent mode, refer to *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

7.3 Prerequisites for Installing Management Agents Using Add Host Targets Wizard or EM CLI

This section describes the prerequisites you must meet before installing Management Agents using the Add Host Targets Wizard or EM CLI. In particular, it contains the following:

- Meeting the Generic Prerequisites for Installing Management Agents Using Add Host Targets Wizard or EM CLI
- Meeting the Management Agent Software Prerequisites for Installing Management Agents Using Add Host Targets Wizard or EM CLI

7.3.1 Meeting the Generic Prerequisites for Installing Management Agents Using Add Host Targets Wizard or EM CLI

Table 7–1 lists the generic prerequisites you must meet before installing Management Agents using the Add Host Targets Wizard or EM CLI.

Table 7–1 Prerequisites for Installing Oracle Management Agent

Requirement	Description
Hardware Requirements	Ensure that you meet the hard disk space and physical memory requirements as described in Chapter 2.
Software Requirements	*(For Microsoft Windows)* Ensure that you have installed Cygwin 1.7 on the destination host as described in Chapter 5. **Note:** While running `cygwin.bat` in Microsoft Windows Server 2008 and Microsoft Windows Vista, ensure that you invoke it in administrator mode. To do this, right-click the `cygwin.bat` file and select **Run as administrator.** If you do not want to install Cygwin to deploy Management Agents on Microsoft Windows hosts using the Add Host Targets Wizard or EM CLI, you can choose to deploy Management Agents on these hosts using the PsExec process utility. For information on how to deploy Management Agents on Microsoft Windows hosts using PsExec, see Appendix F.

Operating System Requirements	Ensure that you install the Management Agent only on certified operating systems as mentioned in the Enterprise Manager certification matrix available on *My Oracle Support*.
	
	To access the Enterprise Manager certification matrix, follow the steps outlined in Appendix E.
	
	For information about platforms receiving future support, refer to *My Oracle Support* note 793512.1.
	
	Note: If you use Oracle Solaris 10, then ensure that you have update 9 or higher installed. To verify whether it is installed, run the following command:
	
	`cat /etc/release`
	
	You should see the output similar to the following. Here, `s10s_u6` indicates that update 6, which is not a supported update level for installation, is installed.
	
	`Solaris 10 10/08 s10s_u6wos_07b SPARC`

File System Requirements	Ensure that the file system mounted on the destination host does not permit buffered writes.

File Descriptor Requirements	▪ Ensure that the maximum user process limit is set to 13312 or greater.
	
	To verify the current value set, run the following command:
	
	`ulimit -u`
	
	If the current value is not 13312 or greater, then contact your system administrator to set it to at least 13312.
	
	▪ Ensure that you set the soft limit of file descriptor to a minimum of 4096 and hard limit less then or equal to 16384.
	
	To verify the current value set, run the following commands:
	
	For Soft Limit:
	
	`/bin/sh -c "ulimit -n"`
	
	For Hard Limit:
	
	`/bin/sh -c "ulimit -Hn"`
	
	If the current value is not 4096 or greater, then as a *root* user, update the `/etc/security/limits.conf` file with the following entries:
	
	`<UID> soft nofile 4096`
	
	`<UID> hard nofile 16384`

Table 7–1 (Cont.) Prerequisites for Installing Oracle Management Agent

Requirement	Description
Package Requirements	Ensure that you install all the operating system-specific packages as described in Chapter 3.
User and Operating System Group Requirement	Ensure that you create the required operating system groups and users as described in Chapter 4. **Note:** If your enterprise has a policy against installing Management Agents using the OMS install operating system user account, you can use a different operating system user account to install Management Agents. However, ensure that the user account you use and the OMS install user account belong to the same primary group.
Privilege Requirements	Ensure that the Enterprise Manager user has the `CREATE_TARGET` privilege. If the Enterprise Manager user does not have this privilege, ensure that this privilege is granted to the user. Super administrators, such as the `sysman` user, have the `CREATE_TARGET` privilege by default.
Destination Host Requirements	Ensure that the destination hosts are accessible from the host where the OMS is running. If the destination host and the host on which OMS is running belong to different network domains, then ensure that you update the `/etc/hosts` file on the destination host to add a line with the IP address of that host, the fully qualified name of that host, and the short name of the host. For example, if the fully-qualified host name is `example.com` and the short name is `mypc`, then add the following line in the `/etc/hosts` file: `172.16.0.0  example.com  mypc`
Destination Host Credential Requirements	If all the destination hosts are of the same platform, then they must have the same set of credentials. For example, all the destination hosts running on Linux operating system must have the same set of credentials. The wizard installs the Management Agent using the same user account. If you have hosts running on the same operating system but with different credentials, then have two different deployment sessions.
Permission Requirements	■ Ensure that the agent base directory you specify is empty and has the *write* permission for the install user. ■ Ensure that the instance directory is empty and has the *write* permission for the install user.

Table 7–1 (Cont.) Prerequisites for Installing Oracle Management Agent

Requirement	Description

Destination Host Time Zone Requirements	Ensure that the time zones of the destination hosts have been set correctly. To verify the time zone of a destination host, log in to the OMS host, and run the following command:
	`ssh -l <install_user> <destination_host_name> /bin/sh -c 'echo $TZ'`
	If the time zone displayed is incorrect, log in to the destination host, and follow these steps:
	1. Run the following commands to set the time zone on the destination host:
	▪ For Korn shell:
	`TZ=<value>`
	`export TZ`
	▪ For Bourne shell or Bash shell:
	`export TZ=<value>`
	▪ For C shell:
	`setenv TZ <value>`
	For example, in the Bash shell, run the following command to set the time zone to America/New_York:
	`export TZ='America/New_York'`
	To set the time zone on a destination host that runs on Microsoft Windows, from the **Start** menu, select **Control Panel.** Click **Date and Time,** then select the **Time Zone** tab. Select your time zone from the displayed drop down list.
	To view a list of the time zones you can use, access the `supportedtzs.lst` file present in the `<AGENT_HOME>/sysman/admin` directory of the central agent (that is, the Management Agent installed on the OMS host).
	2. Restart the SSH daemon.
	If the destination host runs on a UNIX based operating system, run the following command:
	`sudo /etc/init.d/sshd restart`
	If the destination host runs on a Microsoft Windows operating system, run the following commands:
	`cygrunsrv -E sshd`
	`cygrunsrv -S sshd`
	3. Verify whether the SSH server can access the `TZ` environment variable by logging in to the OMS host, and running the following command:
	`ssh -l <install_user> <destination_host_name> /bin/sh -c 'echo $TZ'`
	Note: If you had ignored a prerequisite check warning about wrong time zone settings during the Management Agent install, you must set the correct time zone on the destination hosts after installing the Management Agents. For information on setting time zones post install, refer Section 7.6.

Table 7–1 (Cont.) Prerequisites for Installing Oracle Management Agent

Requirement	Description
sudo/pbrun/sesu/su SSH Requirements	*(Only for UNIX)* Ensure that you set the `oracle.sysman.prov.agentpush.enablePty` property to `true` in the `$<OMS_HOME>/sysman/prov/agentpush/agentpush.properties` file, if the privilege delegation tool you are using requires a pseudo terminal for remote command execution via SSH. Most privilege delegation tools such as pbrun, sesu, and su require a pseudo terminal for remote command execution, by default. Alternatively, you can use the `-enablePty` additional parameter while installing Management Agents using the Add Host Targets Wizard (as described in Section 7.4.1), or EM CLI (as described in Section 7.4.3). For more information about this parameter, see Section 7.4.4. **Note:** If you are using sudo as your privilege delegation tool, and you do not want to set the `oracle.sysman.prov.agentpush.enablePty` property to `true`, do one of the following: ■ Include `Defaults visiblepw` in the `/etc/sudoers` file, or enter the `sudo` command with the `-S` option for **Privileged Delegation Setting** on the Installation Details page. For information on how to access the Installation Details page, see Section 7.4. ■ Comment out `Defaults requiretty` in the `/etc/sudoers` file.

sudo/pbrun/sesu/su Requirements (for executing commands as the *root* user)	*(Only for UNIX)*
	■ Ensure that the installing user has the privileges to invoke the `id` command and the `agentdeployroot.sh` script as *root*. Grant the privileges in the configuration file of your privilege delegation tool.
	For example, if you are using sudo as your privilege delegation tool, include the following in the `/etc/sudoers` file to grant the required privileges:
	`<install_user> ALL=(root) /usr/bin/id, <agent_home>/*/agentdeployroot.sh`
	For example, `oracle ALL=(root) /usr/bin/id, /home/oracle/agentibd/*/agentdeployroot.sh`
	Here, `oracle` is the installing user, and `/home/oracle/agentibd` is the Management Agent home, that is, the agent base directory.
	■ You do not require the following entry in the `/etc/sudoers` file for installing a Management Agent. However, the entry is required for performing provisioning and patching operations in Enterprise Manager. Therefore, if you are removing this entry before installing a Management Agent, then ensure that you bring back the entry after installing the Management Agent.
	In Enterprise Manager Cloud Control 12c Release 2 (12.1.0.2), Release 3 (12.1.0.3), Release 4 (12.1.0.4) and Release 5 (12.1.0.5):
	`(root) /<AGENT_BASE_DIRECTORY>/sbin/nmosudo`
	In Enterprise Manager Cloud Control 12c Release 1 (12.1.0.1) [with Bundle Patch 1]:
	`(root) /<AGENT_INSTANCE_DIRECTORY>/bin/nmosudo`

Table 7–1 (Cont.) Prerequisites for Installing Oracle Management Agent

Requirement	Description
sudo/pbrun/sesu/su Requirements (for executing commands as the locked account user)	*(Only for UNIX)* Ensure that the installing user has the privileges to invoke `/bin/sh` as the locked account user. Grant the privileges in the configuration file of your privilege delegation tool. For example, if you are using sudo as your privilege delegation tool, include the following in the `/etc/sudoers` file to grant the required privileges: `login_user1 ALL=(oracle) /bin/sh` Here, `login_user1` is the SSH log in user, and `oracle` is the locked account and install user. If you do not want to grant privileges to the installing user to invoke `/bin/sh` as the locked account user, set the `oracle.sysman.prov.agentpush.pdpShellOutEnabled` property to `false`, and ensure that the installing user has the privileges to invoke `id, chmod, cp, mkdir, rm, tar, emctl, agentDeploy.sh, runInstaller,` and `unzip` as the locked account user. Grant the privileges in the configuration file of your privilege delegation tool. For example, if you are using sudo as your privilege delegation tool, include the following in the `/etc/sudoers` file to grant the required privileges: `login_user1 ALL=(oracle) /usr/bin/id, /bin/chmod, /bin/cp, /bin/mkdir, /bin/rm, /bin/tar, /home/oracle/agentibd/agent_inst/bin/emctl, /home/oracle/agentibd/*/agentDeploy.sh, /home/oracle/agentibd/*/prereq_stage/core/12.1.0.5.0/oui/bin/runInstaller, /home/oracle/agentibd/*/unzip, /home/oracle/agentibd/*/unzipTmp/unzip` Here, `login_user1` is the SSH log in user, `oracle` is the locked account and install user, and `/home/oracle/agentibd` is the agent base directory.
Locked Account Requirements	Ensure that the locked account user *(oracle)* has read permission on the home directory of the login user.

Default SSH Port Requirements	Ensure that the SSH daemon is running on the default port (that is, 22) on all the destination hosts. To verify the SSH port on a Unix host, run the following command:
	`netstat -anp | grep -i sshd`
	For example, the output of this command may be the following:
	`tcp 0 0 0.0.0.0:22 0.0.0.0:* LISTEN 3188/sshd`
	The above output indicates that the SSH daemon is running on port 22.
	Also, on a Unix host, you can run the following command to verify the SSH port:
	`cat /etc/ssh/sshd_config`
	For a Microsoft Windows host, the SSH port value is mentioned in the `C:\cygwin\etc\sshd_config` file.
	If the SSH port is a non-default port, that is, any port other than 22, then update the `SSH_PORT` property in the following file:
	`$<OMS_HOME>/oui/prov/resources/Paths.properties`

Table 7–1 (Cont.) Prerequisites for Installing Oracle Management Agent

Requirement	Description
PATH Environment Variable Requirements	On the destination host, ensure the following: ■ *(For Microsoft Windows)* Ensure that the Cygwin software location appears before other software locations in the `PATH` environment variable. After making it the first entry, restart the SSH daemon (sshd). Also, ensure that the `PATH` environment variable does not exceed 1024 characters. ■ (*For UNIX*) On the destination host, ensure that the SCP binaries (for example, /usr/bin/scp) are in the `PATH` environment variable.
`CLASSPATH` Environment Variable Requirements	Unset the `CLASSPATH` environment variable. You can always reset the variable to the original value after the installation is complete.
Software Availability Requirements	Ensure that the software of the Management Agent you want to install is downloaded and applied using Self Update. ■ If you want to install Oracle Management Agent 12*c* on a host that runs on the same platform as the one on which Oracle Management Service 12*c* is running, then the Management Agent software for that release and platform is downloaded and applied by default. Therefore, no action is required from your end. ■ If you want to install Oracle Management Agent 12*c* on a host that does not run on the same platform as the one on which Oracle Management Service 12*c* is running, then ensure that the Management Agent software for the intended platform is downloaded and applied using Self Update. For information about how to download and apply Management Agent software using Self Update, see Section 7.3.2.
Path Validation Requirements	Validate the path to all command locations as described in Appendix B.
Temporary Directory Space Requirements	Ensure that you allocate 400 MB of space for a temporary directory where the executables can be copied. By default, the temporary directory location set to the environment variable `TMP` or `TEMP` is honored. If both are set, then TEMP is honored. If none of them are set, then the following default values are honored: `/tmp` on UNIX hosts and `c:\Temp` on Microsoft Windows hosts.

Table 7–1 (Cont.) Prerequisites for Installing Oracle Management Agent

Requirement	Description
Agent Base Directory Requirements	■ Ensure that the agent base directory you provide is empty and has at least 1 GB of free space. If a previously run deployment session had failed for some reason, then you might see an ADATMP_<timestamp> subdirectory in the agent base directory. In this case, either delete the subdirectory and start a new deployment session, or retry the failed session from the Add Host Status page. ■ Ensure that the directory name does not contain any spaces. ■ The install user owns the agent base directory. The agent base directory and the parent directories of the agent base directory have read, write, and execute permissions for the install user. Ensure that the install user or the *root* user owns all the parent directories of the agent base directory, and that the parent directories have read and execute permissions for the install user group and all the other users. Also, ensure that the *root* user owns the root directory. For example, if the agent base directory is `/scratch/OracleHomes/agent`, and *oracle* is the install user, then the `/scratch/OracleHomes/agent` directory must be owned by *oracle*, directories `scratch` and `OracleHomes` must be owned by either *oracle* or the *root* user, and the root directory (`/`) must be owned by the *root* user. ■ *(For Microsoft Windows hosts)* Ensure that the agent base directory name does not exceed 68 characters. ■ If the agent base directory is mounted, then ensure that it is mounted with the `setuid` turned on.

Central Inventory (oraInventory) Requirements	■ Ensure that you allocate 100 MB of space for the Central Inventory.
	
	■ Ensure that you have *read*, *write*, and *execute* permissions on `oraInventory` on all remote hosts. If you do not have these permissions on the default inventory (typically specified by `/etc/oraInst.loc`) on any remote host, then ensure that you specify the path to an alternative inventory location by using one of the following options in the Additional Parameters field of the Add Host Targets Wizard. However, note that these parameters are supported only on UNIX platforms, and not on Microsoft Windows platforms.
	
	`INVENTORY_LOCATION=<absolute_path_to_inventory_directory>`
	
	`-invPtrLoc <absolute_path_to_oraInst.loc>`
	
	Ensure that you use `INVENTORY_LOCATION` only when the target host does not already have a central inventory.

Installing User Requirements	■ If the central inventory owner and the user installing the Management Agent are different, then ensure that they are part of the same group. ■ Also ensure that the inventory owner and the group to which the owner belongs have *read* and *write* permissions on the inventory directory. For example, if the inventory owner is *abc* and the user installing the Management Agent is *xyz*, then ensure that *abc* and *xyz* belong to the same group, and they have *read* and *write* access to the inventory.

Table 7–1 (Cont.) Prerequisites for Installing Oracle Management Agent

Requirement	Description
Agent User Account Permissions and Rights (For Microsoft Windows)	(*For Microsoft Windows*) If you are installing the Management Agent on a Microsoft Windows-based operating system, then ensure that the agent user account has permissions and rights to perform the following: ■ Act as part of the operating system. ■ Adjust memory quotas for a process. ■ Replace process level token. ■ Log on as a batch job. To verify whether the agent user has these rights, follow these steps: **1.** Launch the Local Security Policy. From the **Start** menu, click **Settings** and then select **Control Panel**. From the Control Panel window, select **Administrative Tools**, and from the Administrative Tools window, select **Local Security Policy**. **2.** In the Local Security Policy window, from the tree structure, expand **Local Policies**, and then expand **User Rights Assignment**.
Permissions for cmd.exe (For Microsoft Windows)	(*For Microsoft Windows*) If you are installing the Management Agent on a Microsoft Windows-based operating system, then ensure that you grant the `cmd.exe` program *Read* and *Execute* permissions for the user account that the batch job runs under. This is a restriction from Microsoft. For more information on this restriction and to understand how you can grant these permissions, access the following URL to Microsoft Web site: `http://support.microsoft.com/kb/867466/en-us`
Runtime Library File Requirements (For Microsoft Windows)	*(For Microsoft Windows)* If you are installing the Management Agent on a Microsoft Windows-based operating system, then ensure that the `Msvcp71.dll` and `Msvcr71.dll` runtime library files are present in `c:\windows\system32`.
Preinstallation/Postinstallation Scripts Requirements	Ensure that the preinstallation and postinstallation scripts that you want to run along with the installation are available either on the OMS host, destination hosts, or on a shared location accessible to the destination hosts.

Table 7–1 (Cont.) Prerequisites for Installing Oracle Management Agent

Requirement	Description
Browser Requirements	■ Ensure that you use a certified browser as mentioned in the Enterprise Manager certification matrix available on *My Oracle Support*. To access the Enterprise Manager certification matrix, follow the steps in Appendix E. ■ If you use Microsoft Internet Explorer 8 or 9, do the following: ■ Turn off the compatibility view mode. To do so, in Microsoft Internet Explorer, from the **Tools** menu, click **Compatibility View** to disable it if it is enabled. Also, click **Compatibility View Settings** and deregister the Enterprise Manager Cloud Control console URL. ■ Enable XMLHTTP. To do so, from the **Tools** menu, click **Internet Options**. Click the **Advanced** tab, and under the **Security** heading, select **Enable native XMLHTTP support** to enable it.

7.3.2 Meeting the Management Agent Software Prerequisites for Installing Management Agents Using Add Host Targets Wizard or EM CLI

To install a Management Agent on a host, the Management Agent software for the host platform must be downloaded and applied using Self Update.

This section describes how to download and apply the Management Agent software for different platforms using Self Update. In particular, it contains the following:

- Acquiring the Management Agent Software in Online Mode
- Acquiring the Management Agent Software in Offline Mode

> **Important:** The Management Agent software for the OMS host platform is downloaded and applied by default, so if the host on which you want to install a Management Agent runs on the same platform as that of the OMS host, you do not need to download and apply the Management Agent software for this platform.

7.3.2.1 Acquiring the Management Agent Software in Online Mode

If Enterprise Manager has access to My Oracle Support via the Internet, it is said to run in Online Mode.

To verify that Enterprise Manager is running in Online Mode, access the Offline Patching page. To access this page, from the **Setup** menu, select **Provisioning and Patching,** then select **Offline Patching.**

To download and apply the Management Agent software using Self Update when Enterprise Manager is running in Online Mode, follow these steps:

1. Ensure that you have set up Self Update.

For information on setting up Self Update, see *Oracle Enterprise Manager Cloud Control Administration Guide.*

2. From the **Setup** menu, select **Extensibility**, then select **Self Update**.
3. For **Type,** select **Agent Software,** then select **Open** from the **Actions** menu. The Agent Software Updates page appears to show the Management Agent software available for different platforms.
4. Select an update from the list of available updates. All entries other than the one that matches the platform of the OMS host should show their status as **Available**.
5. Click **Download**. The Schedule Download dialog opens.

   Note: The Download button is enabled only in the following cases:

   - You must have the privilege to download and apply in Self Update Console.
   - You must have selected at least one Management Agent software row in the table, and the Management Agent software must be in Available or Download Failed status.
   - You must have configured the Software Library.
   - You must have configured the Self Update staging area.
   - You must have enabled the online mode for Self Update and set the My Oracle Support credentials.

6. Select when to download the update. The following options are available:
   - Immediately
   - Later (specified time)
   - Whether or not to send a notification when the download is complete
7. Click **Select**. An Enterprise Manager job is created to download the Management Agent software to Software Library.

   Enterprise Manager starts downloading the archive from the Oracle Enterprise Manager store. Wait for the download to complete (when in offline mode, the system starts reading from the specified location).

   When the download is complete, Enterprise Manager displays the Confirmation page.
8. Once the download is complete, select the Management Agent, then click **Apply**. This step will stage the Management Agent software in Software Library and make it available to the Add Host Targets wizard, which you will use to install Management Agents on hosts.

7.3.2.2 Acquiring the Management Agent Software in Offline Mode

If Enterprise Manager is not connected to My Oracle Support via the Internet, it is said to run in Offline Mode.

To verify that Enterprise Manager is running in Offline Mode, access the Offline Patching page. To access this page, from the **Setup** menu, select **Provisioning and Patching,** then select **Offline Patching.**

To download and apply the Management Agent software using Self Update when Enterprise Manager is running in Offline Mode, follow these steps:

1. Ensure that you have set up Self Update.

   For information on setting up Self Update, see *Oracle Enterprise Manager Cloud Control Administration Guide.*

2. From the **Setup** menu, select **Extensibility**, then select **Self Update**.
3. On the Self Update home page, click **Check Updates**. A message is displayed that contains the URL to be accessed to download a catalog of all updates.
4. From an Internet-enabled computer, download the catalog file using the aforementioned URL.

   Note: Do not unzip the file.

5. Copy the downloaded file to either of the following:
   - To any host that has a Management Agent and EM CLI installed
   - To the Oracle Management Service (OMS) host (EM CLI is configured out of box on the OMS host machine, so no setup is required)
6. Navigate to `<OMS_HOME>` and log in to EM CLI, running the command as the install user, for example:

   ```
   ./emcli login -username=sysman
   ```

7. Synchronize EM CLI:

   ```
   ./emcli sync
   ```

8. Run the `emcli import_update_catalog` command to import the archive into the Oracle Management Service instance or the Management Agent you want to update. For example:

   ```
   ./emcli import_update_catalog -omslocal  -file=zip file absolute path
   ```

   Before running this command, ensure that you have set up Software Library in Cloud Control. For information on how to do this, see *Oracle Enterprise Manager Lifecycle Management Administrator's Guide.*

   Tip: For a multi-OMS setup, run `emcli help import_update_catalog` for more options.

9. Return to the Self Update home page and do a refresh to see a count of new updates in the Available Updates column.
10. For **Type,** select **Agent Software,** then select **Open** from the **Actions** menu. The Agent Software Updates page appears to show the Management Agent software available for different platforms.
11. Select an update from the list of available updates. All entries other than the one that matches the platform of the OMS host should show their status as **Available**.
12. Click **Download**. A message displays with a URL and instructions.
13. From an Internet-enabled computer, download the file from the URL displayed in Step 12. Do one of the following:

- Copy the file to a Management Agent host and follow the instructions displayed in Step 12.
- Copy the file to Oracle Management Service host and follow the instructions displayed in Step 12.

At this stage, the update will show up in a downloaded state in the Self Update home page.

14. Once the download is complete, select the Management Agent, then click **Apply**. This step will stage the Management Agent software in Software Library and make it available to the Add Host Targets wizard, which you will use to install Management Agents on hosts.

7.4 Installing Management Agents Using Add Host Targets Wizard or EM CLI

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

- Installing Management Agents Using Add Host Targets Wizard
- Format of Host List File
- Installing Management Agents Using EM CLI
- Supported Additional Parameters for Installing Management Agents Using Add Host Targets Wizard or EM CLI

Important: If the OMS host is running on Microsoft Windows, and the OMS software was installed in a drive other than `C:\`, then update the `SCRATCH_PATH` variable in `$OMS_HOME\oui\prov\resources\ssPaths_msplats.properties`.

For example, if the OMS software was installed in `D:\`, ensure that you update the `SCRATCH_PATH` variable to `D:\tmpada`

7.4.1 Installing Management Agents Using Add Host Targets Wizard

This section describes how to install 12*c* Management Agents using the Add Host Targets Wizard.

To install fresh Management Agents using the Add Host Targets Wizard, follow these steps:

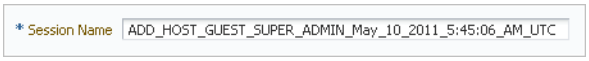
1. Ensure that you have downloaded and applied the Management Agent software for the platforms of the hosts on which you want to install Management Agents.

   For information on how to download and apply the Management Agent software for a platform, see Section 7.3.2.

Note: If you want to install a Management Agent on a host that is running on the Oracle Enterprise Linux 4.x **64-bit platform,** Red Hat Enterprise Linux 4.x **64-bit platform,** or the SUSE Linux Enterprise 10 **64-bit platform,** ensure that the **32-bit version of the Management Agent software for the platform** is downloaded and applied using Self Update.

---

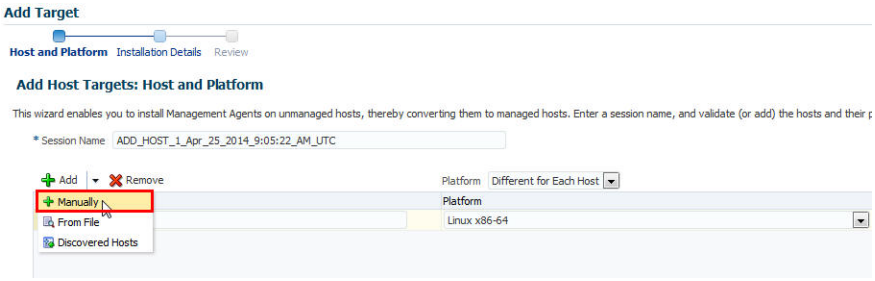
2. In Cloud Control, do one of the following:
   - From the **Setup** menu, select **Add Target**, then select **Auto Discovery Results**. On the Auto Discovery Results page, under the Servers, Storage and Network tab, select a host that you want to monitor from the displayed list, then click **Promote**.
   - From the **Setup** menu, select **Add Target**, then select **Add Targets Manually**. On the Add Targets Manually page, select **Add Host Targets** and click **Add Host**.
3. On the Host and Platform page, do the following:
   a. Accept the default name assigned for this session or enter a unique name of your choice. 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, `add_host_operation_1`.



   A unique deployment activity name enables you to save the installation details specified in this deployment session and reuse them in the future without having to enter all the details all over again in the new session.

   b. From the **Add** menu, select **Manually** to enter the fully qualified name and select the platform of the host on which you want to install the Management Agent.

   The host names that are retrieved from the system for the installation may include IP addresses and short names. However, it is recommended that you provide fully qualified host names, such as `foo.mydomain.com`, which persist over the life of the host targets. This is recommended for ease of maintenance and overall security.

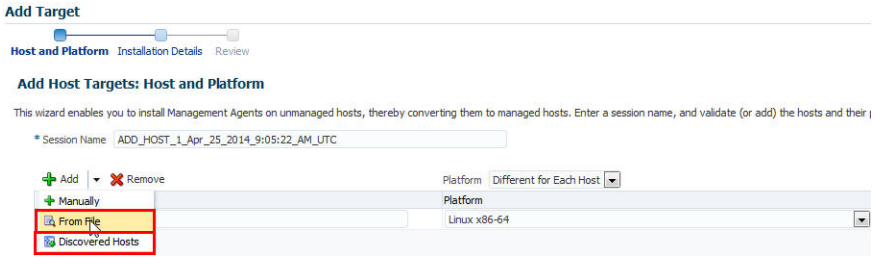


Note:

- Oracle recommends you to enter the fully qualified domain name of the host. For monitoring purpose, Enterprise Manager Cloud Control adds that host and the Management Agent with the exact name you enter here.
- You must enter only one host name per row. Entering multiple host names separated by a comma is not supported.
- You must ensure that the host name does not contain underscores('_').
- If the platform name is appended with *Agent Software Unavailable*, then it indicates that the software for that platform is not available on the OMS host, and that you must download and apply it using Self Update. To access Self Update, from the **Setup** menu, select **Extensibility**, then click **Self Update**.

  For more information on using Self Update to download and apply the latest software, see Section 7.3.2.

Alternatively, from the **Add** menu, you can select either **From File** to add the host names stored in a file, or **Discovered Hosts** to add the host names from a list of hosts discovered by Enterprise Manager. For information on how the host name entries must appear in the host file, see Section 7.4.2.



Note: When you select **Discovered Hosts** from the **Add** menu, and add hosts from a list of discovered hosts, the host's platform is automatically detected and displayed. The platform name is detected using a combination of factors, including hints received from automated discovery and the platform of the OMS host. This default platform name is a suggestion, so Oracle strongly recommends you to verify the platform details before proceeding to the next step.

If you are correcting the platform names, and if all the hosts run on the same platform, then set the platform for the first host in the table and from the **Platform** list, select **Same for All Hosts**. This will ensure that the platform name you selected for the first host is also set for the rest of the hosts in the table.

If you are correcting the platform names, and all the hosts run on different platforms, from the **Platform** list, select **Different for Each Host**. Select the correct platform for each host.

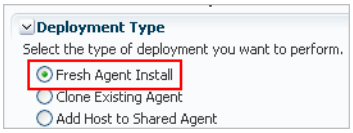
Note:

- If you reach this page (Host and Platform page) from the Auto Discovery Results page, then the hosts you selected on that page automatically appear in the table. In this case, you need to only validate the host names and their platforms.
- If you are installing a Management Agent on a platform that is different from the platform on which the OMS is running, then ensure that you have the software for that platform. If you do not have that software, then go to the Self Update console within Enterprise Manager Cloud Control, download the software, then apply it. For more information, see Section 7.3.2.

c. Click **Next**.

4. On the Installation Details page, do the following:

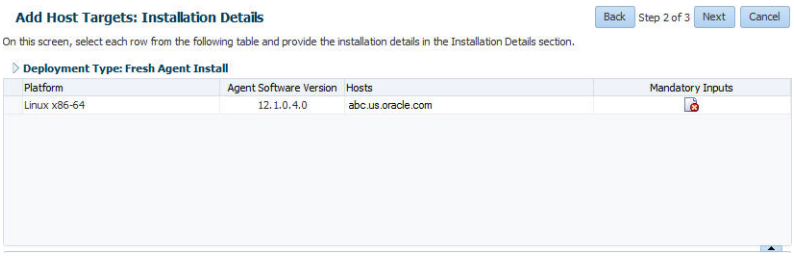
a. In the Deployment Type section, select **Fresh Agent Install**.



Note: If you have multiple hosts sharing a common mounted drive, then install the Management Agents in two different phases:

1. In the Add Host Targets Wizard, select the deployment type **Fresh Agent Install**, and install a Management Agent on the host where the drive is shared.
2. In the Add Host Targets Wizard, select the deployment type **Add Host to Shared Agent**, and install a Management Agent on all other hosts that access the shared, mounted drive. (Here, you will select the Management Agent you installed in the previous step as the master agent or shared agent.)

b. From the table, select the first row that indicates the hosts grouped by their common platform name.



c. In the Installation Details section, provide the installation details common to the hosts selected in Step 3 (b). For **Installation Base Directory**, enter the absolute path to the agent base directory where you want the software binaries, security files, and inventory files of the Management Agent to be copied.

For example, `/u01/app/Oracle/`

If the path you enter does not exist, the application creates a directory at the specified path, and copies the Management Agent software binaries, security files, and inventory files there.

Note: The Installation Base Directory is essentially the agent base directory. Ensure that the directory you provide is empty. If a previously run deployment session had failed for some reason, then you might see an ADATMP_<timestamp> subdirectory in the agent base directory. In this case, either delete the subdirectory and start a new deployment session, or retry the failed session from the Add Host Status page.

---

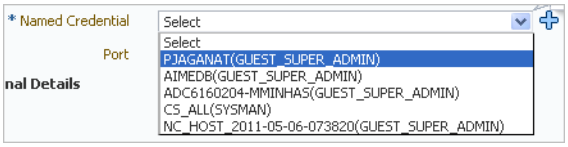
d. For **Instance Directory**, accept the default instance directory location or enter the absolute path to a directory of your choice where all Management Agent-related configuration files can be stored.

For example, `/u01/app/Oracle/agent_inst`

If you are entering a custom location, then ensure that the directory has write permission. Oracle recommends you to maintain the instance directory inside the agent base directory.

If the path you enter does not exist, the application creates a directory at the specified path, and stores all the Management Agent-related configuration files there.

e. From **Named Credential** list, select an appropriate profile whose credentials can be used for setting up the SSH connectivity between the OMS and the remote hosts, and for installing a Management Agent on each of the remote hosts.



Note:

- If you do not have a credential profile, or if you have one but do not see it in the **Named Credential** list, then click the plus icon against this list. In the Create New Named Credential window, enter the credentials and store them with an appropriate profile name so that it can be selected and used for installing the Management Agents. Also set the run privilege if you want to switch over from the Named Credential you are creating, to another user who has the privileges to perform the installation.
- If the plus icon is disabled against this list, then you do not have the privileges to create a profile with credentials. In this case, contact your administrator and either request him/her to grant you the privileges to create a new profile or request him/her to create a profile and grant you the access to view it in the **Named Credential** list.
- If you have manually set up SSH public key authentication between the OMS and the remote hosts for a named credential, as described in Section 7.2, you can select this credential from the **Named Credential** list.

f. For **Privileged Delegation Setting**, validate the Privilege Delegation setting to be used for running the root scripts. By default, it is set to the Privilege Delegation setting configured in Enterprise Manager Cloud Control.

For example, you can specify one of the following for the **Privileged Delegation Setting** field:

```
/usr/bin/sudo -u %RUNAS% %COMMAND%
/usr/bin/sudo -u -S %RUNAS% %COMMAND% (if a pseudo terminal is required for
remote command execution via SSH)
/usr/bin/sesu - %RUNAS% -c "%COMMAND%"
/usr/bin/pbrun %PROFILE% -u %RUNAS% %COMMAND%
/usr/bin/su - %RUNAS% -c "%COMMAND%"
```

If you leave the **Privileged Delegation Setting** field blank, the root scripts will not be run by the wizard; you will have to run them manually after the installation. For information about running them manually, see Section 7.6.

This setting will also be used for performing the installation as the user set in the Run As attribute of the selected Named Credential if you had set the user while creating that Named Credential.

Note: In the Privilege Delegation setting, the `%RUNAS%` is honored as the root user for running the root scripts and as the user set in the Run As attribute of the Named Credential for performing the installation.

g. For **Port**, accept the default port (3872) that is assigned for the Management Agent to communicate, or enter a port of your choice.

The custom port you enter must not be busy. If you are not sure, you can leave this field blank. Enterprise Manager Cloud Control automatically assigns the first available free port within the range of 1830 - 1849.

h. (Optional) In the Optional Details section, enter the absolute path to an accessible location where the preinstallation and postinstallation scripts you want to run are available. Note that only shell scripts are supported, and only one preinstallation or one postinstallation script can be specified.

   If you want to run the script as `root`, then select **Run as Root**. If the script is on the host where OMS is running and is not on the host where you want to install the Management Agent, then select **Script on OMS**. In this case, the script will be copied from the OMS host to the destination hosts, and then run on the destination hosts.

i. (Optional) For **Additional Parameters**, enter a whitespace-separate list of additional parameters that you want to pass during the installation. For a complete list of supported additional parameters, see Table 7–2.

   For example, if you want to provide the inventory pointer location file, then enter `-invPtrLoc` followed by the absolute path to the file location. However, note that this parameter is supported only on UNIX platforms, and not on Microsoft Windows platforms.

j. Repeat Step 3 (b) to Step 3 (i) for every other row you have in the table.

k. Click **Next**.

5. If you want to deploy Management Agents on the selected hosts in a rolling manner, such that the deployment proceeds continuously from one deployment phase to another, ignoring the failed hosts in each deployment phase, specify the following in the `$OMS_HOME/sysman/prov/agentpush/agentpush.properties` file:

   ```
   oracle.sysman.prov.agentpush.continueIgnoringFailedHost=true
   ```

   For more information about this deployment method, see Section 7.2.

6. On the Review page, review the details you have provided for the installation and do one of the following:

   - If you want to modify the details, then click **Back** repeatedly to reach the page where you want to make the changes.
   - If you want to cancel the deployment session for some reason, click **Cancel.** You are automatically taken to the Add Targets Manually page.
   - If you are satisfied with the details, then click **Deploy Agent** to install the Management Agent. You are automatically taken to the Add Host Status page that enables you to monitor the progress of the deployment session.

     If you want to cancel a running deployment session, then on the Add Host Targets page, click **Cancel.** Note that once you cancel the session, you cannot track or resume the session in any way. However, the currently launched commands on the remote hosts will continue to run until they are completed.

     To view the details or track the progress of all the Add Host sessions using the Add Host Targets Wizard, from the **Setup** menu, select **Add Target**, then click **Add Targets Manually**. On the Add Targets Manually page, select **Add Host Targets,** then click **Add Host Results**.

7. If a particular installation phase has failed or has a warning, review the details provided for each phase in the Agent Deployment Details section of the Add Host Status page, and do one of the following:

Note: To find the cause of a failure, review the log files. One log file is generated per host, so if you installed Management Agents on multiple hosts, then review all the log files. For information on how to access the log files, refer to *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*

- Fix the problem by reviewing the error description carefully, understanding its cause, and taking action as recommended by Oracle.
  - You can retry the deployment of Management Agents with the same installation details.

    To do so, on the Add Host Status page, click **Retry** and select **Retry Using Same Inputs.**
  - You can retry the deployment of Management Agents with modified installation details.

    To do so, on the Add Host Status page, click **Retry** and select **Update Inputs and Retry.**
- Ignore the warning or failure, and continue with the session if you prefer.
  - You can choose to proceed with the deployment of Management Agents only on those remote hosts that have successfully cleared the checks, and you can ignore the ones that have Warning or Failed status.

    To do so, on the Add Host Status page, click **Continue** and select **Continue, Ignoring Failed Hosts.**
  - You can choose to proceed with the deployment of Management Agents on all the hosts, including the ones that have Warning or Failed status.

    Note that choosing this option will ignore the prerequisites in order to allow the Management Agent installation to proceed. If you want to proceed with this option, you must ensure that all the prerequisites are met through manual methods. The practice of ignoring prerequisite checks must be done only with the help of Oracle Support, or with a clear understanding of the impact of bypassing these checks.

    To do so, on the Add Host Status page, click **Continue** and select **Continue, All Hosts**.

7.4.2 Format of Host List File

In the Add Host Targets Wizard, you can click **Load from File** to add the hosts listed in a file. However, ensure that the file you select has one of the following formats:

- Only the host name.

  For Example,

  ```
  host1.example.com

  host2.example.com
  ```

Note: If the host list file is in this format, ensure that you select the platform for each added host from the drop down list.

- The host name followed by the platform name.

  For Example,

  ```
  host1.example.com linux_x64
  ```

  ```
  host2.example.com aix
  ```

  The supported platform names are linux_x64, linux, solaris, hpunix, hpi, linux64_zseries, aix, linux_ppc64, windows_x64, solaris_x64, win32.

7.4.3 Installing Management Agents Using EM CLI

Important:

- Using EM CLI, you can install fresh Management Agents, install *Shared Agents*, and clone existing Management Agents.
- Using EM CLI, you can install fresh Management Agents only on a single platform in a single Add Host session. If you want to use EM CLI to install fresh Management Agents on different platforms, then you must create a separate Add Host session for each platform.

Note: If the output of the EM CLI verbs mentioned in this section is misaligned or is difficult to read, adjust your screen width by specifying an appropriate value for the `oracle.sysman.prov.agentpush.emcliScreenWidth` property in the `<OMS_HOME>/sysman/prov/agentpush/agentpush.properties` file.

To create an Add Host session and install fresh 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>
   ```

   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_targets` verb to obtain the list of unmanaged hosts:

   ```
   emcli get_targets -unmanaged -targets="%:host" -format=name:script
   ```

   Make a note of the unmanaged hosts on which you want to install a Management Agent.

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

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

4. Run the `list_add_host_platforms` verb to obtain a list of the platforms for which the Management Agent software is available in Software Library:

```
$<OMS_HOME>/bin/emcli list_add_host_platforms
                      [-all]
                      [-noheader]
                      [-script | -format]
```

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

For example, `$<OMS_HOME>/bin/emcli list_add_host_platforms -all`

Figure 7–3 displays the output of this command.

Figure 7–3 Output of list_add_host_platforms -all

```
Platform ID  Platform Name
226          Linux x86-64
23           Oracle Solaris on SPARC (64-bit) [Agent Software Unavailable]
46           Linux x86 [Agent Software Unavailable]
59           HP-UX PA-RISC (64-bit) [Agent Software Unavailable]
197          HP-UX Itanium [Agent Software Unavailable]
211          IBM S/390 Based Linux (31-bit) [Agent Software Unavailable]
212          IBM AIX on POWER Systems (64-bit) [Agent Software Unavailable]
227          IBM: Linux on POWER Systems [Agent Software Unavailable]
233          Microsoft Windows x64 (64-bit) [Agent Software Unavailable]
267          Oracle Solaris on x86-64 (64-bit) [Agent Software Unavailable]
912          Microsoft Windows (32-bit) [Agent Software Unavailable]
209          IBM: Linux on System z [Agent Software Unavailable]
```

If the Management Agent software for a platform on which you want to install a Management Agent is not available, download and apply it using Self Update. For information on how to download and apply the Management Agent software for a platform, see Section 7.3.2.

Note: If you want to install a Management Agent on a host that is running on the Oracle Enterprise Linux 4.x **64-bit platform,** Red Hat Enterprise Linux 4.x **64-bit platform,** or the SUSE Linux Enterprise 10 **64-bit platform,** ensure that the **32-bit version of the Management Agent software for the platform** is downloaded and applied using Self Update.

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

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

5. If you want to deploy Management Agents on the selected hosts in a rolling manner, such that the deployment proceeds continuously from one deployment phase to another, ignoring the failed hosts in each deployment phase, specify the following in the `$OMS_HOME/sysman/prov/agentpush/agentpush.properties` file:

   ```
   oracle.sysman.prov.agentpush.continueIgnoringFailedHost=true
   ```

   For more information about this deployment method, see Section 7.2.

6. Run the `submit_add_host` verb to submit the Add Host session and install Management Agents:

   ```
   $<OMS_HOME>/bin/emcli submit_add_host
                         -host_names=<list_of_hosts>
                         -platform=<platform_ID>
                         -installation_base_directory=<install_directory_of_agent>
                         -credential_name=<named_credential_for_agent_install>
                         [-credential_owner=<named_credential_owner>]
                         [-instance_directory=<agent_instance_directory>]
                         [-port=<agent_port>]
                         [-session_name=<add_host_session_name>]
                         [-deployment_type=<type_of_agent_deployment>]
   ```

```
[-privilege_delegation_setting=<privilege_delegation>]
[-additional_parameters=<additional_params_for_install>]
[-source_agent=<source_agent_for_cloned_agent_install>]
[-master_agent=<master_agent_for_shared_agent_install>]
[-properties_file=<properties_file_having_inputs>]
[-preinstallation_script=<pre_install_script>]
[-preinstallation_script_on_oms]
[-preinstallation_script_run_as_root]
[-postinstallation_script=<post_install_script>]
[-postinstallation_script_on_oms]
[-postinstallation_script_run_as_root]
[-wait_for_completion]
```

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

Important: You can install a *Shared Agent* and clone a Management Agent by specifying the `-deployment_type` option with the `submit_add_host` verb. To install a *Shared Agent*, specify `-deployment_type=SHARED`. To clone a Management Agent, specify `-deployment_type=CLONE`. By default, the `-deployment_type` option is set to `FRESH`, so if this option is not specified, a fresh Management Agent is installed on the selected host.

For example, `$<OMS_HOME>/bin/emcli submit_add_host -host_names=example.com -platform=226 -installation_base_directory=/opt/agent -credential_name=oracle -privilege_delegation_setting=sudo`

This example installs a fresh Management Agent on the host `example.com`, having the platform ID `226`, in the directory `/opt/agent`, using the named credential `oracle`.

The `-platform` parameter specifies the platform ID. Every platform has a unique platform ID associated with it. This association for various platforms is displayed in the output of the `list_add_host_platforms` verb, as shown in Figure 7–3.

The `-credential_name` parameter specifies the named credential that must be used to install Management Agents on the specified hosts. If you have not created a named credential, you can create one using the `create_named_credential` verb. For information on how to use this verb, refer *Oracle Enterprise Manager Command Line Interface.*

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

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

7. Run the `get_add_host_status` verb to view the status of the created Add Host session:

```
$<OMS_HOME>/bin/emcli get_add_host_status
                      -session_name
                      [-details]
                      [-show_only_failed_hosts]
                      [-host_name]
                      [-noheader]
                      [-script | -format]
```

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

For example, `$<OMS_HOME>/bin/emcli get_add_host_status -session_name=ADD_HOST_SYSMAN_Dec_27_2012_3:02:28_AM_PST`

This example displays the status of the `ADD_HOST_SYSMAN_Dec_17_2012_2:02:28_AM_PST` Add Host session.

To view the detailed Management Agent deployment status of a particular host, run the `get_add_host_status` verb with the `-host_name` parameter. For example:

```
$<OMS_HOME>/bin/emcli get_add_host_status -session_name=ADD_HOST_
SYSMAN_Dec_27_2012_3:02:28_AM_PST -host_name=example.com
```

This command also displays the location of the log file for the deployment of a Management Agent on the specified host. If the deployment failed, you can investigate the failure by reviewing the log files. One log file is generated per host.

Figure 7–4 displays a sample output of the command.

Figure 7–4 Output of emcli get_add_host_status

Alternatively, to know where the Management Agent log files are located, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*

Run the `list_add_host_sessions` verb to view the details or track the progress of all the Add Host sessions:

```
$<OMS_HOME>/bin/emcli list_add_host_sessions
                      [-host_name]
                      [-session_name]
                      [-match_all]
                      [-noheader]
                      [-script | -format]
```

For example, `$<OMS_HOME>/bin/emcli list_add_host_sessions -host_name=example.com`

This example displays all the Add Host sessions that the host `example.com` was a part of.

To view more information on the syntax and the usage of the `get_add_host_status` and the `list_add_host_sessions` verb, run the following commands:

```
$<OMS_HOME>/bin/emcli help get_add_host_status
$<OMS_HOME>/bin/emcli help list_add_host_sessions
```

8. If the output of the `get_add_host_status` EM CLI verb mentions that a particular installation phase has failed or has a warning, do one of the following:

   - Fix the problem by reviewing the error description carefully, understanding its cause, and taking action as recommended by Oracle.

– You can retry the deployment of Management Agents with the same installation details.

  To do so using EM CLI, use the `retry_add_host` verb, with the `-retry_using_same_inputs` option:

```
$<OMS_HOME>/bin/emcli retry_add_host
                      -session_name
                      -retry_using_same_inputs
                      [-wait_for_completion]
```

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

  For example, `$<OMS_HOME>/bin/emcli retry_add_host -session_name='ADD_HOST_SYSMAN_Apr_21_2013_8:02:28_AM_PST' -retry_using_same_inputs`

– You can retry the deployment of Management Agents with modified installation details.

  To do so using EM CLI, use the `retry_add_host` verb, with the `-update_inputs_and_retry` option:

```
$<OMS_HOME>/bin/emcli retry_add_host
                -session_name
                -update_inputs_and_retry
                [-host_names]
                [-platform]
                [-installation_base_directory]
                [-credential_name]
                [-credential_owner]
                [-instance_directory]
                [-port]
                [-deployment_type]
                [-privilege_delegation_setting]
                [-additional_parameters]
                [-source_agent]
                [-master_agent]
                [-preinstallation_script]
                [-preinstallation_script_on_oms]
                [-preinstallation_script_run_as_root]
                [-postinstallation_script]
                [-postinstallation_script_on_oms]
                [-postinstallation_script_run_as_root]
                [-wait_for_completion]
```

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

  For example, `$<OMS_HOME>/bin/emcli retry_add_host -session_name='ADD_HOST_SYSMAN_Apr_21_2013_8:02:28_AM_PST' -update_inputs_and_retry -credential_name=oracle2`

  This example retries the deployment of Management Agents for the `ADD_HOST_SYSMAN_Apr_21_2013_8:02:28_AM_PST` Add Host session, using the `oracle2` named credential.

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

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

- Ignore the warning or failure, and continue with the session if you prefer.

– You can choose to proceed with the deployment of Management Agents only on those remote hosts that have successfully cleared the checks, and you can ignore the ones that have Warning or Failed status.

  To do so using EM CLI, use the `continue_add_host` verb, with the `-continue_ignoring_failed_hosts` option:

```
$<OMS_HOME>/bin/emcli continue_add_host
                      -session_name
                      -continue_ignoring_failed_hosts
                      [-wait_for_completion]
```

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

  For example, `$<OMS_HOME>/bin/emcli continue_add_host -session_name='ADD_HOST_SYSMAN_Apr_21_2013_8:02:28_AM_PST' -continue_ignoring_failed_hosts`

– You can choose to proceed with the deployment of Management Agents on all the hosts, including the ones that have Warning or Failed status.

  Note that choosing this option will ignore the prerequisites in order to allow the Management Agent installation to proceed. If you want to proceed with this option, you must ensure that all the prerequisites are met through manual methods. The practice of ignoring prerequisite checks must be done only with the help of Oracle Support, or with a clear understanding of the impact of bypassing these checks.

  To do so using EM CLI, use the `continue_add_host` verb, with the `-continue_all_hosts` option:

```
$<OMS_HOME>/bin/emcli continue_add_host
                      -session_name
                      -continue_all_hosts
                      [-wait_for_completion]
```

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

  For example, `$<OMS_HOME>/bin/emcli continue_add_host -session_name='ADD_HOST_SYSMAN_Apr_21_2013_8:02:28_AM_PST' -continue_all_hosts`

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

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

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

7.4.4 Supported Additional Parameters for Installing Management Agents Using Add Host Targets Wizard or EM CLI

Table 7–2 lists the additional parameters supported for installing a new Management Agent using the Add Host Targets Wizard or EM CLI.

Note that all the parameters mentioned in this section are case sensitive.

Table 7–2 Supported Additional Parameters

Parameter	Description
INVENTORY_ LOCATION	Enter the absolute path to the Central Inventory (oraInventory). For example, `INVENTORY_LOCATION=$HOME/oraInventory` **Important:** ■ This parameter is supported only on Unix platforms, and not on Microsoft Windows platforms. ■ Ensure that you use this parameter only when no other Oracle product is installed on the remote host, and the Central Inventory pointer `/var/opt/oracle/oraInst.loc` (for Solaris and HP-UX platforms) or `/etc/oraInst.loc` (for other Unix platforms) does not exist. ■ If you use this parameter, ensure that you do not use the `-invPtrLoc` parameter.
-invPtrLoc	Enter the absolute path to the inventory file that has the location of the Central Inventory (oraInventory). For example, `-invPtrLoc /tmp/oraInst.loc` **Important:** ■ This parameter is supported only on Unix platforms, and not on Microsoft Windows platforms. ■ You can use this parameter even when another Oracle product is already installed on the remote host, and the Central Inventory pointer `/var/opt/oracle/oraInst.loc` (for Solaris and HP-UX platforms) or `/etc/oraInst.loc` (for other Unix platforms) exists. ■ If you use this parameter, ensure that you do not use the `INVENTORY_LOCATION` parameter.
-enablePty	Specify this parameter if the privilege delegation tool you are using requires a pseudo terminal for remote command execution via SSH. Most privilege delegation tools such as pbrun, sesu, and su require a pseudo terminal for remote command execution, by default. You do not need to specify this parameter if you have set the `oracle.sysman.prov.agentpush.enablePty` property to `true` in the `$<OMS_HOME>/sysman/prov/agentpush/agentpush.properties` file. Ensure that you do not pass this parameter if the Central Inventory exists.
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`.
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`.

Table 7–2 (Cont.) Supported Additional Parameters

Parameter	Description
s_agentSrvcName	*(Only for Microsoft Windows)* Enter a custom name for the Management Agent service. Every Management Agent appears as a service in Microsoft Windows, and every Management Agent has a default service name. If you want to assign a custom name to identify it, then use this parameter. For example, `s_agentSrvcName=agentsrvc1` **Note:** *(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.*
b_startAgent=false	Specify this parameter if you do not want the Management Agent to start automatically once it is installed and configured. If you do not specify this parameter, the Management Agent starts automatically once it is installed and configured.
b_secureAgent=false	Specify this parameter if you do not want the Management Agent to be secured after the install. If you do not specify this parameter, the Management Agent is secured automatically after the install. To secure the Management Agent manually after the install, run the following command: `<AGENT_BASE_DIRECTORY>/agent_inst/bin/emctl/ secure agent` If you specify this parameter, ensure that you also specify the OMS HTTP port, using the `EM_UPLOAD_PORT` parameter. For example, `b_secureAgent=false EM_UPLOAD_PORT=4899`

7.5 Installing Hybrid Cloud Gateway Agents and Hybrid Cloud Agents

With the introduction of Hybrid Cloud Management available with Enterprise Manager Cloud Control 12*c* Release 5 (12.1.0.5), Enterprise Manager Cloud Control now provides you with a single pane of glass for monitoring and managing both your on-premise and Oracle Cloud deployments, all from the same management console.

By deploying Hybrid Cloud Gateway Agents onto your on-premise Enterprise Manager system, and by deploying Hybrid Cloud Agents onto the Oracle Cloud virtual hosts serving your Oracle Cloud services, you will now be able to manage the Oracle Cloud targets just as you would any other.

For more information on Hybrid Cloud Gateway Agents and Hybrid Cloud Agents, and for instructions to deploy them, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

7.6 After Installing Management Agents Using Add Host Targets Wizard or EM CLI

After you install a Management Agent using the Add Host Targets Wizard or EM CLI, follow these steps:

1. Verify the installation on the Add Host Status page, or using the `get_add_host_status` EM CLI verb. Review the progress made on each of the phases of the deployment operation — **Initialization**, **Remote Prerequisite Check**, and **Agent Deployment**.

In the Add Host Targets Wizard, after you click **Deploy Agent** to install one or more Management Agents, you are automatically taken to the Add Host Status page.

For information on using the `get_add_host_status` EM CLI verb, see Section 7.4.3.

2. If required, manually verify the installation:

   a. Navigate to the Management Agent home and run the following command to see a message that confirms that the Management Agent is up and running:

   ```
   $<AGENT_INSTANCE_HOME>/bin/emctl status agent
   ```

   b. Navigate to the Management Agent home and run the following command to see a message that confirms that EMD upload completed successfully:

   ```
   $<AGENT_INSTANCE_HOME>/bin/emctl upload agent
   ```

   c. From the **Setup** menu, select **Manage Cloud Control,** then select **Agents.** Verify that the Management Agent you installed is up and running.

3. Verify whether all the plug-ins listed in `$<AGENT_BASE_DIRECTORY>/plugins.txt` were installed successfully. To do so, run the following command:

   ```
   $<AGENT_INSTANCE_HOME>/bin/emctl listplugins agent -type all
   ```

4. If you have restrictive Privilege Delegation Provider (PDP) configuration settings, enter the location of `nmosudo` in your PDP configuration file.

   Enterprise Manager supports PDPs such as SUDO and PowerBroker that enable administrators to restrict certain users from running certain commands.

   In Enterprise Manager Cloud Control 12*c* Release 2 (12.1.0.2), Release 3 (12.1.0.3), Release 4 (12.1.0.4), and Release 5 (12.1.0.5), `nmosudo` is located in the `sbin` directory, which is in the agent base directory. For example, `<AGENT_BASE_DIRECTORY>/sbin/nmosudo`. In Enterprise Manager Cloud Control 12*c* Release 1 (12.1.0.1) [with or without Bundle Patch 1], `nmosudo` is located in the agent instance directory. For example, `<AGENT_INSTANCE_DIRECTORY>/bin/nmosudo`.

   Therefore, when you install a 12.1.0.5 Management Agent, you must modify your PDP configuration file 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 *
   ```

5. (Only for UNIX Operating Systems) If you had ignored the prerequisite check warning about not having root privileges, SUDO/PBRUN binaries, or SUDO/PBRUN privileges, then manually run the following scripts as a *root* user from each of the hosts where the installation was done. If you do not have SUDO/PBRUN privileges, then request your Administrator who has the privileges to run these scripts.

   - If this is the first Oracle product you just installed on the host, then run the `orainstRoot.sh` script from the inventory location specified in the `oraInst.loc` file that is available in the Management Agent home.

     For example, if the inventory location specified in the `oraInst.loc` file is `$HOME/oraInventory`, then run the following command:

     ```
     $HOME/oraInventory/orainstRoot.sh
     ```

   - Run the `root.sh` script from the Management Agent home:

```
$<AGENT_HOME>/root.sh
```

6. If you had ignored a prerequisite check warning about wrong time zone settings, run the following command and follow the steps it displays:

   ```
   $<AGENT_INSTANCE_HOME>/bin/emctl resetTZ agent
   ```

7. By default, the host and the Management Agent get automatically added to the Enterprise Manager Cloud Control console for monitoring. None of the targets running on that host get automatically discovered and monitored.

   To monitor the other targets, you need to add them to Enterprise Manager Cloud Control either using the Auto Discovery Results page, the Add Targets Manually page, or the discovery wizards offered for the targets you want to monitor.

   For information about discovering targets in Enterprise Manager Cloud Control, refer to *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

8. If you installed a Management Agent on a host that has Oracle Fusion Applications deployed on it, the Management Agent must have access to a set of configuration files for the business metrics feature to function properly. If the Management Agent user is in the same group as the Oracle Fusion Applications install user, ensure that the following files have `640` access:

   ```
   <DOMAIN_HOME>/config/fmwconfig/jps-config-jse.xml
   <DOMAIN_HOME>/config/fmwconfig/policy-accessor-config.xml
   <DOMAIN_HOME>/config/fmwconfig/bootstrap/cwallet.sso
   ```

Note:

- If Oracle Management Agents 12c (12.1.0.x) hang frequently or do not respond on Solaris 9ux and 10ux operating systems, then refer to document ID 1427773.1 on My Oracle Support.
- To know the location where a Management Agent is deployed on a Microsoft Windows host, that is, the Management Agent Oracle home, access `<INVENTORY_LOCATION>\inventory.xml`, then search for `HOME NAME="agent12c2".` The value of the `LOC` parameter denotes the Management Agent Oracle home.

  For example, in the following line of `C:\Program Files\Oracle\inventory.xml, D:\agent12cr4\core\12.1.0.5.0` denotes the Management Agent Oracle home:

  ```
  <HOME NAME="agent12c2"
  LOC="D:\agent12cr4\core\12.1.0.5.0" TYPE="O" IDX="10">
  ```

- You can repoint your existing Management Agents to a new Oracle Management Service (OMS). For information on how to do this, see the Redirecting Oracle Management Agent to Another Oracle Management Service Appendix present in *Oracle Enterprise Manager Cloud Control Advanced Installation Guide.*

  When you repoint your existing Management Agents to a new OMS, you cannot move the targets monitored by the Management Agents, the target history, and the Management Agent history. The monitored targets and the history data is lost.

8

Adding Additional Oracle Management Services

This chapter describes how you can install an additional Oracle Management Service (OMS) to your existing Enterprise Manager Cloud Control environment. In particular, this chapter covers the following:

- Introduction to Adding an Additional Oracle Management Service
- Before You Begin Adding an Additional Oracle Management Service
- Prerequisites for Adding an Additional Oracle Management Service
- Adding an Additional Oracle Management Service
- Performing Postinstallation Tasks After Adding an Additional Oracle Management Service

---

Note: This chapter describes how you can install an additional OMS in interactive, graphical mode. If you want to perform the same operation in silent way, then refer to the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*

Note: On the source OMS, if you have deployed additional plug-ins that were not part of the Enterprise Manager software (DVD, or downloaded software), then follow the instructions outlined in *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

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.

8.1 Introduction to Adding an Additional Oracle Management Service

Oracle Management Service (OMS) is one of the core components of Enterprise Manager Cloud Control that orchestrates with Oracle Management Agents (Management Agents) and plug-ins to discover targets, monitor and manage them, and store the collected information in a repository for future reference and analysis.

When you install Enterprise Manager for the very first time, by default, the installer installs one OMS along with one Management Agent. While this default configuration

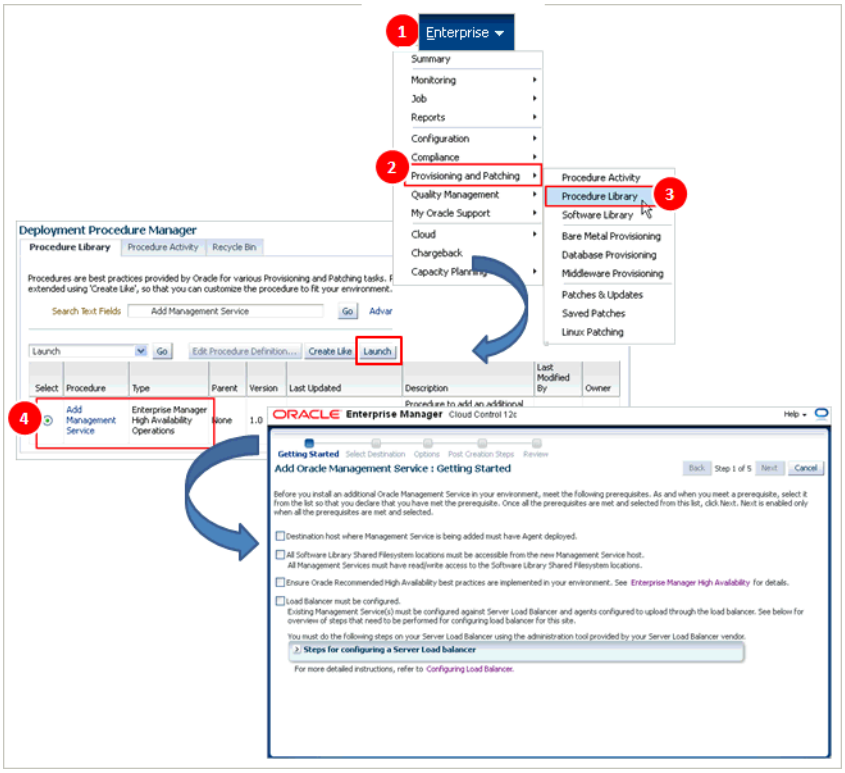
suits smaller environments, typically in larger production environments, you may have the need to install additional OMS instances to help reduce the load on a single OMS and improve the efficiency of the data flow.

> **Note:** You can have multiple OMS instances and still connect to just one Oracle Management Repository (Management Repository).

The Add Management Service deployment procedure helps you meet such high-availability requirements. The deployment procedure offers a wizard that enables you to install an additional Oracle Management Service 12*c* by cloning an existing OMS that is running on an AdminServer host. The entire Middleware home of the source OMS is cloned to the destination host. For information about the contents of the Middleware home of an OMS, see Section 6.1.

Figure 8–1 illustrates how you navigate to the Add Additional OMS Deployment wizard.

Figure 8–1 Add Additional OMS Deployment Procedure



> **Note:** If you are cloning the OMS from a complete Enterprise Manager installation, then the Management Agent that was installed with the Enterprise Manager system is not cloned to the destination host.

8.2 Before You Begin Adding an Additional Oracle Management Service

Before you begin adding an additional Oracle Management Service (OMS), keep these points in mind:

- You can clone only an existing, running Oracle Management Service 12*c* that is associated with an AdminServer host. The patches applied on the source OMS are automatically carried over to the cloned instance.
- You can clone only one OMS at a time and to only one destination host at a time. If you want to add multiple OMS instances, then you must repeat the installation procedure on each host.
- You can clone only when the source host and the destination host are running on the same operating system and architecture. For example, if the source host is a Linux 32-bit host, then the destination host must also be a Linux 32-bit host. Similarly, if the source host is a Linux 64-bit host, then the destination host must also be a Linux 64-bit host.
- All general purpose file systems, including OCFS2 and ACFS, are acceptable for storing Enterprise Manager Cloud Control 12*c* software binaries and OMS instance home files (configuration files in `gc_inst`). However, OCFS is not considered a general purpose file system, and therefore is not considered acceptable for this use.
- 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, see Section 8.5.
- 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`.
- If the source OMS (from where you are cloning the additional OMS) already has Oracle BI Publisher installed and configured, then Oracle BI Publisher is automatically configured on the additional OMS. Otherwise, you must manually configure Oracle BI Publisher on the source OMS as well as the additional OMS. For instructions, see the point on installing Oracle BI Publisher in Section 8.5.

  On Microsoft Windows, Oracle BI Publisher is not available on additional OMS instances.
- If JVM Diagnostics (JVMD) Engine was deployed on the source OMS host, then it is *not* carried over to the cloned additional OMS host. In this case, if you want JVMD Engine on the additional OMS host, then once the additional OMS is deployed, on that host you must manually deploy JVMD Engine.

  If JVMD Engine was not deployed on the source OMS host, but you now want JVMD Engine on the source OMS host as well as the additional OMS host, then you can do one of the following:

  – Deploy JVMD Engine on the source OMS host first, clone the OMS, and then deploy JVMD Engine on the cloned OMS host.

  – Clone the source OMS first, and then deploy JVMD Engine on the source OMS host as well as the cloned OMS host.

8.3 Prerequisites for Adding an Additional Oracle Management Service

Table 8–1 lists the prerequisites you must meet before adding an additional Oracle Management Service (OMS).

Table 8–1 Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description
Hardware Requirements	Ensure that you meet the hard disk space and physical memory requirements as described in Chapter 2.

Operating System Requirements	▪ Ensure that you install Enterprise Manager Cloud Control only on certified operating systems as mentioned in the Enterprise Manager certification matrix available on *My Oracle Support*.
	To access the Enterprise Manager certification matrix, follow the steps outlined in Appendix E.
	For information about platforms receiving future support, refer to *My Oracle Support* note 793512.1.
	Note: Solaris zones are not supported.
	▪ Ensure that the destination host (that is, the host on which you are installing an additional OMS) is running on the same operating system as that of the source host (that is, the host from where you are cloning the first OMS).
	Note: If you use Oracle Solaris 10, then ensure that you have update 9 or higher installed. To verify whether it is installed, run the following command:
	`cat /etc/release`
	You should see the output similar to the following. Here, `s10s_u6` indicates that update 6, which is not a suitable update level to support installation, is installed.
	`Solaris 10 10/08 s10s_u6wos_07b SPARC`

Package, Kernel Parameter, and Library Requirements	Ensure that you install all operating system-specific packages, kernel parameters, and libraries as described in Chapter 3.
Operating System Groups and Users Requirements	Ensure that you create the required operating system groups and users as described in Chapter 4.

Table 8–1 (Cont.) Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description

NFS Mount Point Location Requirements	■ If you are planning to install on an NFS-shared location, then do the following:
	■ Ensure that root squash is enabled with execute permission on that host where you want to perform the installation.
	■ Ensure that the Access Control List processing is disabled for the NFS mount point. In other words, the mount point must be defined with the `noacl` option in the `/etc/fstab` file. Otherwise, the installation can fail.
	To verify this, run the following command as the install user to check the contents of the `/etc/fstab` file. Verify if the mount point on which you plan to install Enterprise Manager has the `noacl` option set.
	`cat /etc/fstab`
	For example, in the following output, the mount point `/u01/app/share1` has the `noacl` option set. In this case, you are ready to proceed with the installation.
	`nas.example.com:/export/share1 /u01/app/share1 nfs rw,bg,rsize=32768,wsize=32768, hard,nointr,tcp,noacl,vers=3,timeo=600 0 0`
	If you do not have the `noacl` option set, then contact your System Administrator to make the required changes in the `/etc/fstab` file.
	■ If you are planning to install on an NFS-shared middleware location, and if that location is mounted with the option *concurrent I/O (CIO)*, which allows multiple reads and writes to a file at the same time, then the installation will fail reporting linking errors.
	If you verify the mounted file system, you will see the following CIO option enabled.
	`node mounted mounted over vfs date options`
	`/dev/host1 /host1/oracle jfs2 Feb 14 18:20 rw,cio,log=/dev/xd891loglv`
	If you have the CIO option enabled, then unmount the drive, disable the CIO option, and then re-mount the drive.

Table 8–1 (Cont.) Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description
Existing Oracle Management Service Requirements	Ensure that Oracle Management Service 12*c* Release 5 (12.1.0.5) is already installed and is available for cloning. Also ensure that the AdminServer on which the OMS is configured is up and running. Also ensure that it is not installed on a symlink. Installing in such a location may impact lifecycle operations such as patching and scaling out.
Existing Oracle Management Service Backup Requirements	Ensure that regular back-ups are scheduled for the existing Oracle Management Service 12*c* Release 5 (12.1.0.5) that you want to clone.
Existing High Availability Configuration Requirements	Ensure that you have met all Oracle-recommended high availability requirements in your environment. For more information, refer to the chapter on high availability requirements in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

Shared Storage Location Requirements	*(For UNIX Only)* If Oracle BI Publisher was configured on the first OMS, then configure a shared storage location that can act as a common location for storing the report catalog and associated management information for the first OMS and the additional OMS you are going to now install.
	■ Create a shared directory on any server, and ensure that it is visible on the host where you installed the first OMS and also on the host where the additional host resides.
	At install time, for the installation to be successful, you can reserve approximately 400 MB of hard disk space for the shared directory. However, Oracle recommends that you scale it to at least 10 GB eventually and ensure that it can be extended further in future because the space requirement increases over a period of time as you install additional plug-ins and create more reports.
	■ Configure the shared storage location by running the following command. Provide the path to the shared storage location you just created. Ensure that the shared location you provide is owned by the user account that was used for installing the first OMS. Also ensure that the user account has read and write permission to the shared location. You will be prompted for administrator user account password and SYSMAN account password.
	`emctl config oms -bip_shared_storage -cluster_volume <shared_location> -config_volume <shared_location>`
	For example,
	`emctl config oms -bip_shared_storage -cluster_volume /scratch/aime/examplehost/BIP/cluster -config_volume /scratch/aime/examplehost/BIP/config`

Existing Oracle Management Agent Requirements	Ensure that the destination host already has a Management Agent installed, and ensure that it is up and running. ■ If this OMS is being installed using an alias host name, ensure the Management Agent was installed using the alias host name. ■ If this Management Agent was manually installed on the destination host, then ensure that the installation was completed by running the `root.sh` script. Otherwise, the Add Management Service deployment procedure will not be able to run some scripts that require root permission.

Table 8–1 (Cont.) Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description

Status of Oracle Configuration Manager	*(Only for Microsoft Windows)* In the existing OMS, if Oracle Configuration Manager is configured, then make sure it is stopped from both the OMS home and the Web Tier home by following these steps.
	1. Navigate to the OMS home.
	`cd $<MIDDLEWARE_HOME>/oms/`
	2. Set the environment variable `ORACLE_CONFIG_HOME` to the following location:
	`$<OMS_INSTANCE_HOME>/em/EMGC_OMS1`
	For example,
	`set ORACLE_CONFIG_HOME=C:\win0224\emgc\gc_inst\em\EMGC_OMS1`
	3. Navigate to the following location:
	`$<MIDDLEWARE_HOME>/oms/ccr/bin`
	4. Stop OCM by running the following script:
	`emCCR.bat stop`
	5. Set the environment variable `ORACLE_CONFIG_HOME` to the following location:
	`$<OMS_INSTANCE_HOME>/WebTierIH1`
	For example,
	`set ORACLE_CONFIG_HOME=C:\win0224\emgc\gc_inst\WebTierIH1`
	6. Navigate to the following location:
	`$<MIDDLEWARE_HOME>/Oracle_WT/ccr/bin`
	7. Stop OCM by running the following script:
	`emCCR.bat stop`

Temporary Stage Directory Space Requirements on Source and Destination Hosts	Ensure that you have 8 GB of space on the source as well as the destination host for creating a temporary stage directory. The temporary directory created by default is `ADD_MANAGEMENT_SERVICE_<TimeStamp>`. The temporary stage directory on the source host is used for temporarily staging the files related to backup or cloning steps of the deployment procedure. The temporary stage directory on the destination host is used for temporarily staging the cloned image and other related files.
Shared Directory Space Requirements	If you choose to transfer the software and configuration files to a central, shared location, then ensure that you have 4 GB of space for that shared directory.
Middleware home Location Requirement	On the destination host, a Middleware home (absolute path) identical to the one on the source host is created, and then, the source OMS is cloned to that location. Ensure that this Middleware home does not already exist on the destination host. For example, if the Middleware home on the source host is `/home/john/Oracle/Middleware`, ensure that the same path does not already exist on the destination host.
Oracle Management Service Instance Base Location Space Requirements	Ensure that you have 1 GB of space on the destination host for the Oracle Management Service Instance Base directory where the configuration files of the OMS will be created.

Table 8–1 (Cont.) Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description
Management Agent Installation Status Requirements	*(Only for Microsoft Windows)* If the installation of a Management Agent using the Add Host Targets Wizard is in progress on the source OMS, then ensure that it is completed before you start cloning the OMS. To verify whether a Management Agent installation using the Add Host Targets Wizard is in progress, search for `.lck` files in the following location. Presence of such files indicates that there are installation operations in progress. `$<OMS_HOME>/sysman/prov/agentpush/`
Server Load Balancer Requirements	■ Ensure that you have installed a Server Load Balancer (SLB) in your network and configured it to work with the first OMS. All Management Agents communicating with the first OMS must be uploading data only via this SLB. If you have not configured the SLB yet to work with the first OMS, then configure it now. For information about configuring an SLB, refer to the chapter on high availability requirements in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*. ■ In order to configure your OMS instances in an active/active configuration behind an SLB, your SLB must meet the following requirements: (a) Supports multiple virtual server ports - Enterprise Manager typically requires that up to 4 ports are configured on the SLB (Secure Upload, Agent Registration, Secure Console, Unsecure Console). (b) Supports persistence - HTTP and HTTPS traffic between the browser and the OMS requires persistence. (c) Supports application monitoring - The SLB must be capable of monitoring the health of the OMS instances and detecting failures, so that requests will not be routed to OMSes that are not available.
SLB Pools and Their Association with the First OMS	On the SLB, using its administration console, create the following SLB pools and add the first OMS host to them: ■ Secure Upload Pool *(add the host using the port configured for the Secure Upload service)* ■ Agent Registration Pool *(add the host using the port configured for the Agent Registration service)* ■ Secure Console Pool *(add the host using the port configured for the Secured Console service)* ■ (Optional) Unsecure Console Pool *(add the host using the port configured for the Unsecured Console service)*

Table 8–1 (Cont.) Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description
Virtual Servers and Their Association with the SLB Pools	On the SLB, using its administration console, create the following virtual servers and associate them with the SLB pools. ■ Secure Upload Virtual Server with port 1159 *(associate it with Secure Upload Pool)* ■ Agent Virtual Server with port 4889 *(associate it with Agent Registration Pool)* ■ Secure Console Virtual Server with port 443 *(associate it with Secure Console Pool)* ■ (Optional) Unsecure Console Virtual Server with port 80 *(associate it with Unsecure Console Pool)* For instructions, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
SLB Monitors and Their Association with the First OMS	On the SLB, using its administration console, create the following SLB monitors and associate the first OMS host with them: ■ Secure Upload Monitor *(associate the host using the port configured for the Secure Upload service)* ■ Agent Registration Monitor *(associate the host using the port configured for the Agent Registration service)* ■ Secure Console Monitor *(associate the host using the port configured for the Secured Console service)* ■ (Optional) Unsecure Console Monitor *(associate the host using the port configured for the Unsecured Console service)*
Software Library Accessibility Requirements	Ensure that the directories where you have configured the Software Library are accessible (read/write) from the destination hosts. If you have configured an OMS Shared Storage location to use a local file system path, then you must migrate this location to another OMS Shared Storage location that uses a shared file system path. For instructions, refer to the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
Installing User Requirements	Ensure that you meet the following requirements: ■ (For UNIX only) The installation must NOT be run by a *root* user. ■ (For Microsoft Windows only) User must be part of the ORA-DBA group and have administrator permissions. ■ (For Microsoft Windows only) User must belong to the DBA group, and have permissions to perform the following: Act as part of the operating system, Create a token object, Log on as a batch job, and Adjust memory quotas for a process. To verify whether the agent user has these rights, from the Start menu, click **Settings** and then select **Control Panel**. From the Control Panel window, select **Administrative Tools**, and from the Administrative Tools window, select **Local Security Settings**. In the Local Security Settings window, from the tree structure, expand **Local Policies**, and then expand **User Rights Assignment**.

Table 8–1 (Cont.) Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description
Permission Requirements	Ensure that you are able to access and read/write in the following locations: ■ Oracle Middleware home Oracle Middleware home is a directory on the source host that contains the OMS you are cloning, the Oracle WebLogic Server home, the Web tier instance files, and so on. ■ Oracle Management Service Instance Base location Oracle Management Service Instance Base is a directory on the source host that contains configuration files related to the OMS. The instance base is typically under the parent directory of the Middleware home. ■ Source Staging location Source staging location is a location on the source host that is used for staging the cloned ZIP files before copying them to the destination host. ■ Destination Staging location Destination staging location is a location on the destination host that is used for staging the cloned ZIP files when they are copied over from the source host. ■ Temporary directory on the source host where the executables will be copied. For example, `/tmp` or `c:\Temp`.
Proximity Requirements	Ensure that the host on which the OMS is being installed and the host on which the Management Repository is being configured are located in close proximity to each other. Ideally, the round trip network latency between the two should be less than 1 millisecond.
Firewall Requirements	If you have a firewall in your environment, then refer to the chapter on configuring Enterprise Manager for firewalls in the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.
Unique Host Name and Static IP Address Requirements	Ensure that you check the network configuration to verify that the host on which you are installing resolves to a *unique* host name and a *static* IP address that are visible to other hosts in the network. **Note:** Oracle recommends that you use static IP address. If you use dynamic IP address, and if the host is rebooted, then the host might receive a new IP, and as a result, the OMS startup will fail.

Table 8–1 (Cont.) Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description
Central Inventory Requirements	■ Ensure that you allocate 100 MB of space for the central inventory directory. ■ For a typical non-HA environment, the Central Inventory (oraInventory) can be in a shared or non-shared location. If you use a shared location, then ensure that only one shared location is maintained per host, and no two hosts update the same shared location. One inventory file is meant only for one host, so it must not be shared and edited by other hosts. When you use the /etc/oraInst.loc file, ensure that the inventory location specified there is not pointing to such a location. If you have configured a shared location that is common for two or more hosts, then switch over to a non-shared location. ■ For a typical HA environment with primary and standby disaster recovery sites using storage replication and alias host names, the Central Inventory `(oraInventory)` for software installed on the shared storage using the alias host name should be located in a shared location that is common between the OMS host in the primary site and the OMS host in the standby site. This shared location should be located on the replicated storage so that the `oraInventory` can be accessed from the active site for software maintenance activities.

UMASK Value Requirements	Ensure that you set the default file mode creation mask (umask) to 022 in the shell startup file.
	For example:
	■ **Bash Shell**
	`$ . ./.bash_profile`
	■ **Bourne or Korn Shell**
	`$ . ./.profile`
	■ **C Shell**
	`% source ./.login`

File Descriptor Requirements	■ Ensure that the maximum user process limit is set to greater than 13312.
	To verify the current value set, run the following command:
	`ulimit -u`
	If the current value is not 13312 or greater, then contact your system administrator to set it to at least 13312.
	■ Ensure that you set the soft limit of file descriptor to a minimum of 4096 and hard limit less then or equal to 16384.
	To verify the current value set, run the following commands:
	For Soft Limit:
	`/bin/sh -c "ulimit -n"`
	For Hard Limit:
	`/bin/sh -c "ulimit -Hn"`
	If the current value is not 4096 or greater, then as a *root* user, update the `/etc/security/limits.conf` file with the following entries:
	`<UID> soft nofile 4096`
	`<UID> hard nofile 16384`

Table 8–1 (Cont.) Prerequisites for Adding an Additional Oracle Management Service

Requirement	Description

Host File Requirements	Ensure that the host name specified in the `/etc/hosts` file is unique, and ensure that it maps to the correct IP address of the host.
	
	Ensure that *localhost* is pingable and resolves to `127.0.0.1` (or resolves to `::1` for IPv6 hosts).
	
	The following is the recommended format of the `/etc/hosts` file:
	
	`<ip> <fully_qualified_host_name> <short_host_name>`
	
	For example,
	
	`127.0.0.1 localhost.localdomain localhost`
	
	`172.16.0.0 myhost.example.com myhost`
	
	According to RFC 952, the following are the assumptions: A *name* (Net, Host, Gateway, or Domain name) is a text string up to 24 characters drawn from the alphabet (A-Z), digits (0-9), minus sign (-), and period (.). Note that periods are only allowed when they serve to delimit components of *domain style names*. No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be an alpha character.
	
	Also, if DNS server is configured in your environment, then you should be able to use DNS to resolve the name of the host on which you want to install the OMS.
	
	For example, all these commands must return the same output:
	
	`nslookup myhost`
	
	`nslookup myhost.example.com`
	
	`nslookup 172.16.0.0`
	
	If alias host names are implemented in `/etc/hosts`, then it is not necessary to be able to use DNS to resolve the alias host name on which you want to install the OMS.

Browser Requirements	■ Ensure that you use a certified browser as mentioned in the Enterprise Manager certification matrix available on *My Oracle Support*. To access the Enterprise Manager certification matrix, follow the steps outlined in Appendix E. ■ If you use Microsoft Internet Explorer 8 or 9, do the following: ■ Turn off the compatibility view mode. To do so, in Microsoft Internet Explorer, from the **Tools** menu, click **Compatibility View** to disable it if it is enabled. Also, click **Compatibility View Settings** and deregister the Enterprise Manager Cloud Control console URL. ■ Enable XMLHTTP. To do so, from the **Tools** menu, click **Internet Options**. Click the **Advanced** tab, and under the **Security** heading, select **Enable native XMLHTTP support** to enable it.

8.4 Adding an Additional Oracle Management Service

To add an additional Oracle Management Service (OMS), follow these steps:

1. From the **Enterprise** menu, select **Provisioning and Patching**, then select **Procedure Library**.
2. On the Deployment Procedure Manager page, in the Procedure Library tab, from the table, select **Add Oracle Management Service**, and then, click **Launch**.
3. On the Getting Started page, complete the preinstallation tasks listed there. Once you are done, select each of the tasks you have completed, and then, click **Next**.
4. On the Select Destination page, do the following:
   a. For **Destination Host**, select or enter the name of the managed host (a host managed by the first OMS using a Management Agent) on which you want to install the additional OMS.

      For example, `myhost.example.com`

      Note: Do NOT enter the IP address of the managed host. Enter a fully qualified domain name that is registered in the DNS and is accessible from other network hosts, or enter an alias host name that is defined in the `/etc/hosts` file on all the OMS instances at this site.

   b. For **Destination Instance Base Location**, accept the default location to the OMS instance base directory or enter the absolute path to another location of your choice where OMS-related configuration files can be stored. As a best practice, this directory path should be the same as the directory path on the first OMS. Ensure that this directory has 100 MB of space. Also ensure that the directories and subdirectories you mention in the path already exist.

      For example, `/apps/john/oracle/prod`

   c. In the Source Credentials section and in the Destination Credentials section, select the credential type you want to use for accessing the source host. For more information, see Section 8.4.1.

   d. Click **Next**.
5. On the Options page, do the following:
   a. In the File Transfer Option section, select a suitable protocol to transfer the cloned ZIP files to a staging location. FTP is the default transfer mode.

      If you want to transfer the files to a shared, NFS-mounted network location, then you can select **Shared Directory**, and enter the absolute path to the shared location. Ensure that this shared directory has read/write access from source and destination hosts, and has 4 GB of space.

      For example, `/net/myhost.example.com/scratch/john`

Note:

- If you have an SFTP set up, then select **FTP** as the file transfer mode.
- If you choose to use a shared location as the file transfer mode, then ensure that the shared location has read/write permission and is accessible from the source host as well as the destination host.
- If you select **FTP,** then ensure that FTP software is installed on the source host as well as the destination host. Also ensure that your temporary location (`/tmp` on Unix) has at least 8 GB of space.
- If you select **HTTP(S),** then ensure that your temporary location (`/tmp` on Unix or `C:\Temp` on Microsoft Windows) has at least 8 GB of space.

  This location is used for archiving the software binaries and the configuration details of the source OMS. The archive is then copied over to the source staging location, and then transferred to the destination staging location eventually, as described in the next step.
- If the temporary location required for FTP and HTTP(S) options does not have 8 GB of space, then either increase the space as required, or provide another location that has 8 GB of space. To provide another location, do the following:

  1. From the **Targets** menu, select All Targets.
  2. On the All Targets page, click the name of the Management Agent that is running on the source OMS host.
  3. On the home page, from the **Agent** menu, select **Properties.**
  4. On the Properties page, from the **Show** list, select **Advanced Properties.**
  5. In the Add Custom Property section, for the **Name** field, enter `emStageDir`. And for the **Value** field, enter the absolute path the a temporary location that has at least 8 GB of space.

b. In the Staging Locations section, for **Source Staging**, enter a location on the source host where the cloned ZIP files can be created and placed temporarily. Ensure that this temporary directory has 8 GB of space.

For example, `/myhost.example.com/shared`

Similarly, for **Destination Staging**, enter a location on the destination host where the cloned ZIP files can be copied to temporarily. Ensure that this temporary directory has 8 GB of space.

For example, `/myhost.example.com/shared`

> **Note:** Once the OMS is installed on the destination host, the cloned ZIP files are automatically deleted from both the staging locations.

c. In the Destination Ports section, validate the ports displayed by default.

These default ports are based on the ports already assigned and used by the OMS that you are cloning. Oracle recommends you to use the same ports as your source OMS so that you have a homogeneous environment.

You can choose to retain the ports displayed by default or enter a custom port. Ensure that the custom port you enter is within the recommended range as shown in the **Recommended Port Range** column. If you want to check the availability of a custom port, then click **Check Ports**.

d. Click **Next**.

6. On the Post Creation Steps page, enter one or more e-mail IDs (separate by a comma) where the details of the postinstallation tasks to be performed can be sent, and then, click **Next**.

For your e-mail to work, you must have already configured the mail server. For instructions, see *Oracle Enterprise Manager Cloud Control Administrator Guide.*

7. On the Review page, review the details and click **Finish**.

> **Note:** If the installation fails, particularly in the *Install Homes* step, then before you retry installing the OMS, clean up the Middleware home on the destination host where the installation failed. To do so, on the destination host, do the following:
>
> 1. Invoke the installer from the following location:
>
> `<Middleware_Home>/oms/oui/bin/runInstaller`
>
> 2. In the installation wizard, on the My Oracle Support Details screen, click **Installed Products**.
>
> a. Select all plug-in homes and click **Remove**.
>
> b. Select the JDK home and click **Remove.**
>
> c. Select the Oracle WebTier home and click **Remove.**
>
> d. Select the OMS home and the Oracle Common directory, and click **Remove.**
>
> e. Exit the installer.
>
> 3. Delete the Middleware home directory.
> 4. Return to the *Add Management Service* deployment procedure that failed, and retry the *Install Homes* step.

8.4.1 Selecting Credentials

You can select one of the following credential types for accessing the source and the destination hosts:

Table 8–2 Selecting Credential Type

Credential Type	Description
Preferred Credential	Select this if you want to use the credentials that are already registered as preferred credentials with Enterprise Manager. In this case, from the **Preferred Credential Name** list, select either **Normal Host Credentials** or **Privileged Host Credentials** depending on the type of preferred credentials you want to use for accessing the host.
Named Credential	Select this if you want to use the credentials of a named profile created in Enterprise Manager. In this case, from the **Credential Name** list, select the profile whose credentials you want to use. On selection, you will see the credentials details. For more information on the credentials associated with the selected profile, click **More Details**. If you want to test connecting to the host with those credentials, click **Test**. **Note:** To view a visual demonstration on how to create and use named credentials, access the following URL and click **Begin Video.** https://apex.oracle.com/pls/apex/f?p=44785:24:0::NO:24:P24_CONTENT_ID,P24_PREV_PAGE:5460,1
New Credentials	Select this if you want to enter a new set of credentials that will override the preferred credentials or the named credentials registered with Enterprise Manager. In this case, enter the credentials you want to override with. If you want to register the new set of credentials with Enterprise Manager, then click **Save As**, and either accept the default profile name or enter a custom name for it. Further, if you want to save them as preferred credentials, then select **Set as Preferred Credentials**, and select an option to indicate whether they should be saved as normal credentials or privilege credentials. If you want to test connecting to the host with those credentials, click **Test.**

8.5 Performing Postinstallation Tasks After Adding an Additional Oracle Management Service

After you install the additional OMS, ensure that you do NOT create symlinks in the middleware home or in any of the homes within the middleware home. Also, follow these steps:

1. *(Applicable only if you had stopped the Oracle Configuration Manager as a prerequisite on Microsoft Windows)* Start Oracle Configuration Manager:

   a. Set the environment variable `ORACLE_CONFIG_HOME` to the following location:

   ```
   $<OMS_INSTANCE_HOME>/em/EMGC_OMS1
   ```

   For example,

   ```
   set ORACLE_CONFIG_HOME=/u01/software/oracle/gc_inst/em/EMGC_OMS1
   ```

   b. Navigate to the following location:

   ```
   $<MIDDLEWARE_HOME>/oms/ccr/bin
   ```

For example,

```
cd /u01/software/oracle/middleware/oms/ccr/bin
```

c. Start OCM by running the following script:

```
emCCR.bat start
```

d. Set the environment variable `ORACLE_CONFIG_HOME` to the following location:

```
$<OMS_INSTANCE_HOME>/WebTierIH1
```

For example,

```
set ORACLE_CONFIG_HOME=/u01/software/oracle/gc_inst/WebTierIH1
```

e. Navigate to the following location:

```
$<MIDDLEWARE_HOME>/Oracle_WT/ccr/bin
```

For example,

cd /u01/software/oracle/middleware/Oracle_WT/ccr/bin

f. Start OCM by running the following script:

```
emCCR.bat start
```

2. If you installed using a virtual host name for any of the following reasons, particularly for a high-availability configuration, then manually update the configuration files to replace the physical host name with the virtual host name that you used for installation.

- If you installed in a cold failover cluster (CFC).
- If you installed using a storage replication disaster recovery solution and chose the alias host name option.

To manually update the configuration files to replace the physical host name with the virtual host name that you used for installation, follow these steps:

a. For each OMS in the domain, access the following file from the OMS home, and change the ServerName parameter value from physical host name to virtual host name that you used for installation.

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

b. For the primary OMS, access the following file from the OMS home, and change the host from physical to virtual host (there will be an entry for each host in the domain).

```
<OMS_INSTANCE_HOME>/user_
projects/domains/GCDomain/opmn/topology.xml
```

3. *(Optional)* If you want the additional OMS to be configured behind the Server Load Balancer (SLB), then perform the following steps:

- Using the SLB's administration console, add the additional OMS host to the following SLB pools:
  - Secured Upload Pool *(add the host using the port configured for the Secured Upload service)*
  - *(Optional)* Agent Registration Pool *(add the host using the port configured for the Agent Registration service)*
  - Secure Console Pool *(add the host using the port configured for the Secure Console service)*

  - *(Optional)* Unsecure Console Pool *(add the host using the port configured for the Unsecure Console service)*

- Using the SLB's administration console, associate the additional OMS host with the following monitors:
  - Secure Upload Monitor *(associate the host using the port configured for the Secure Upload service)*
  - *(Optional)* Agent Registration Monitor *(associate the host using the port configured for the Agent Registration service)*
  - Secure Console Monitor *(associate the host using the port configured for the Secure Console service)*
  - (Optional) Unsecure Console Monitor *(associate the host using the port configured for the Unsecure Console service)*
- Secure the additional OMS and the Management Agent that is installed on the host where the additional OMS has been installed.
  - Secure the additional OMS. After securing it, restart the OMS.

    ```
    $<OMS_HOME>/bin/emctl secure oms -sysman_pwd <sysman_pwd> -reg_
    pwd <agent_reg_password> -host <host_name> -slb_port <slb_
    upload_port> -slb_console_port <slb_console_port> [-console
    -lock -lock_console]
    ```

    For example,

    ```
    /u01/software/oracle/middleware/oms/bin/emctl secure oms
    -sysman_pwd <password> -reg_pwd <password> -host example.com
    -secure_port 4904 -slb_port 4900 -slb_console_port 443 -console
    -lock -lock_console
    ```

  - Secure the Management Agent.

    ```
    $<AGENT_INSTANCE_HOME>/bin/emctl secure agent $AGD_REGISTRATIO_
    PWD –emdWalletSrcUrl <emd_wallet_source_url>
    ```

    For example,

    ```
    /u01/software/oracle/agent/agent_inst/bin/emctl secure agent
    $AGD_REGISTRATIO_PWD –emdWalletSrcUrl
    https://example.com:4900/em
    ```

  - Confirm the SLB repository URL in the output of the following command:

    ```
    $<AGENT_INSTANCE_HOME>/bin/emctl status agent
    ```

    For example,

    ```
    /u01/software/oracle/agent/agent_inst/bin/emctl status agent
    ```

Note: For information about configuring SLB, refer to the *Oracle Enterprise Manager Administration Guide*.

---

4. *(Only for UNIX Platforms)* Run `<OMS_HOME>/root.sh` as a *root* user on the destination host.
5. If you installed on an NFS-mounted drive and created the OMS instance base directory `(gc_inst)` on that NFS-mounted drive, then 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.

a. Stop the OMS:

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

b. 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
```

c. Search for sections related to the modules `mpm_prefork_module` and `mpm_worker_module`. In both these sections, modify the value for the `LockFile` parameter so that the path leads to a location on the local file system. If the directory does not already exist, then create it first, and then provide the path to that directory.

```
<IfModule mpm_prefork_module>
StartServers 5
MinSpareServers 5
MaxSpareServers 10
MaxClients 150
MaxRequestsPerChild 0
AcceptMutex fcntl
LockFile uo1/em/ohs_locks/http_lock
</IfModule>
....
<IfModule mpm_worker_module>
StartServers 2
MaxClients 150
MinSpareThreads 25
MaxSpareThreads 75
ThreadsPerChild 25
MaxRequestsPerChild 0
AcceptMutex fcntl
LockFile uo1/em/ohs_locks/http_lock
</IfModule>b
```

d. Save the changes.

e. Restart the OMS:

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

6. If the first OMS (from where you are cloning the additional OMS) already has Oracle BI Publisher installed and configured, then Oracle BI Publisher is automatically configured on the additional OMS. Therefore, you do not have to manually configure Oracle BI Publisher on the additional OMS.

Note: On Microsoft Windows, Oracle BI Publisher is not available on additional OMS instances.

However, if the first OMS has Oracle BI Publisher installed but not configured, then Oracle BI Publisher is not automatically configured on the additional OMS. If you want to configure Oracle BI Publisher on the additional OMS, then you must follow these steps:

a. Configure Oracle BI Publisher on the first OMS by running the following command from the OMS home:

```
<OMS_HOME>/bin/configureBIP
```

b. Configure a shared storage location for Oracle BI Publisher.

(i) Create a shared directory on any server, and ensure that it is visible on the host where you installed the source OMS and also on the host where you installed the additional OMS.

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

(ii) Configure the shared storage location by running the following command. Provide the path to the shared storage location you just created. Ensure that the shared location you provide is owned by the user account that was used for installing the first OMS. Also ensure that the user account has read and write permission to the shared location. You will be prompted for administrator user account password and SYSMAN account password.

```
emctl config oms -bip_shared_storage -cluster_volume <shared_
location> -config_volume <shared_location>
```

For example,

```
emctl config oms -bip_shared_storage -cluster_volume
/scratch/aime/examplehost/BIP/cluster -config_volume
/scratch/aime/examplehost/BIP/config
```

c. Configure Oracle BI Publisher on the additional OMS by running the following command from the OMS home:

```
<OMS_HOME>/bin/configureBIP -addBIP
```

7. By default, the following targets get automatically discovered and monitored in the Enterprise Manager Cloud Control Console:

- Oracle WebLogic Server, where the additional OMS is deployed
- Oracle Web Tier
- Application deployments, one for the Enterprise Manager Cloud Control console and one for the platform background services.
- Oracle Management Service
- Oracle Management Agent
- The host on which you installed Enterprise Manager Cloud Control

However, the other targets running on that host and other hosts do not get automatically discovered and monitored. To monitor the other targets, you need to add them to Enterprise Manager Cloud Control either using the Auto Discovery Results page, the Add Targets Manually page, or the discovery wizards offered for the targets you want to monitor.

For information about discovering targets in Enterprise Manager Cloud Control, refer to the chapter on adding targets in the *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

8. An encryption key is generated to encrypt sensitive data in the Management Repository. If this key is lost, all encrypted data in the Management Repository becomes unusable. Therefore, back up the Management Service configuration including the emkey, and maintain the backup on another host.

   To back up the Management Service configuration including the emkey, run the following command:

   <OMS_HOME>/bin/`emctl exportconfig oms -dir <path_to_backup_location>`

9. Before accessing the Enterprise Manager Cloud Control Console in a browser, install a security certificate from a trusted certification authority on the browser.

   This it to ensure that the Enterprise Manager Cloud Control Console that you are accessing over HTTPS protocol is recognized as a genuine and secure Web site.

   For instructions to install a security certificate on your browser and avoid security certificate alerts, refer to *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

9

Installing Application Dependency and Performance

This chapter describes how you can install Application Dependency and Performance (ADP) in the Enterprise Manager Cloud Control environment.

In particular, this chapter covers the following:

- Overview of Application Dependency and Performance
- Before you Begin Installing Application Dependency and Performance
- Prerequisites for Installing Application Dependency and Performance
- Installing Application Dependency and Performance
- After You Install Application Dependency and Performance

9.1 Overview of Application Dependency and Performance

Application Dependency and Performance (ADP) is one of the critical functionalities in Enterprise Manager Cloud Control that allows you to analyze Java EE, SOA, Portal, OSB, and ADF applications. It captures the complex relationships among various application building blocks in its application schema model - the core of the Oracle intelligent platform.

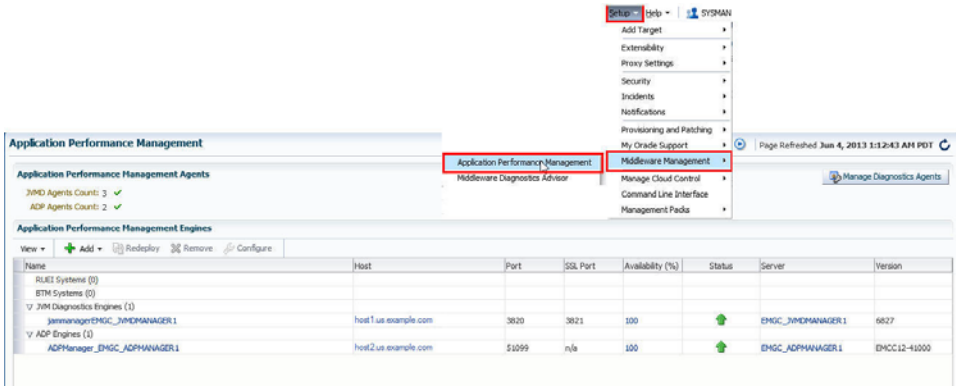
Therefore, to manage applications effectively and gain an understanding of the complex relationships among various business functions, their associated interconnected components, and the underlying runtime environments, you must deploy Application Dependency and Performance (ADP) Engine, and monitor the applications by installing ADP Agents.

To install ADP, use the Application Performance Management page that is accessible from the Enterprise Manager Cloud Control console. To access this page, from the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.

The Application Performance Management page enables you to deploy, upgrade, and remove ADP Engine and ADP Agents, and also monitor the health of the ADP Engine application in a reliable and efficient manner.

Figure 9–1 displays the Application Performance Management page.

Figure 9–1 Application Performance Management Page



You can use the Application Performance Management page for the following:

- Deploy, upgrade, and remove ADP Engines.
- Monitor the availability of all ADP Engines.
- Access information about ADP Engines such as the hosts to which the ADP Engines are deployed, their current status, the port on which they are running, their version, and so on.
- Deploy, upgrade, and remove ADP Agents.
- Know the number of reporting ADP Agents, and whether they must be upgraded or not.

9.2 Before you Begin Installing Application Dependency and Performance

Before you install Application Dependency and Performance, keep these points in mind.

For ADP Engine:

- The Weblogic Server on which you want to deploy ADP Engine must be up and running.
- Oracle recommends that you do not deploy other applications to the managed server on which the ADP Engine is deployed.

For ADP Agent:

- To deploy an ADP Agent, the target application server must be up and running.
- Ensure that at least one ADP Engine is up and running, and is in the active state, to deploy a ADP Agent.

9.3 Prerequisites for Installing Application Dependency and Performance

Ensure that you meet the following prerequisites:

- For information about ADP Engine hardware requirements, refer to "CPU, RAM, Heap Size, and Hard Disk Space Requirements for Oracle Management Service"
- The Cloud Control user has the `AD4J_ADMINISTRATOR` privilege.

- For information about the platforms supported by the ADP feature in Enterprise Manager Cloud Control, search the My Oracle Support knowledge base for *Platform Support List ADP* to locate the current certification article.
- Before deploying ADP Agent, ensure that you meet the following prerequisites:

Requirement	Releases
Oracle WebLogic Server	9.2.x 10.0.x 10.1.x 10.2.x 10.3.x 11*g*R1, 11*g*PS1, 11*g*PS2, 11*g*PS3
Oracle WebLogic Portal	9.2.x 10.0.x 10.1.x 10.2.x 10.3.x
Oracle Application Server	10.1.3.x
Oracle SOA Suite	10.1.3.x (on OC4J, WLS 9.2.x) **Note:** For SOA Suite 10*g*, at least JDK 1.5.0.6 must be in use, and the following values must be set for these JVM arguments: - `XX:MaxPermSize=256M (or higher)` - `Xms512M (or higher)` - `Xmx1024M (or higher)` 11*g*R1, 11*g*R1 PS1, PS2, PS3
Oracle Service Bus (OSB)	2.6 2.6.1 3 10*g*R3 11
Oracle Application Integration Architecture (AIA)	2.2.1 2.3

- If you want to deploy an ADP Agent on a WebLogic Server target of version 10.0.x or higher, ensure that you build `wlfullclient.jar` on the WebLogic Server target.

  For information on how to build `wlfullclient.jar` on a WebLogic Server target, see *Oracle Fusion Middleware Developing Stand-alone Clients for Oracle WebLogic Server.*

9.4 Installing Application Dependency and Performance

This section describes how to deploy ADP Engine on an OMS host, and ADP Agents using the Application Performance Management page. It consists of the following:

- Deploying an ADP Engine on an OMS Host

- Deploying ADP Agents Using Application Performance Management Page

9.4.1 Deploying an ADP Engine on an OMS Host

To deploy an ADP Engine on an Oracle Management Service (OMS) host, follow these steps:

1. From the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.
2. On the Application Performance Management page, from the **Add** menu, select Application Dependency and Performance Engine.
3. On the Deploy ADP Engine page, for **Host,** select the OMS host on which you want to create a Managed Server.

   Note: While deploying ADP Engine on an OMS host, the application creates a Managed Server on the host, then deploys ADP Engine on the created Managed Server. The created Managed Server is part of the Enterprise Manager WebLogic domain.

4. For **Managed Server Name,** enter a unique name for the Managed Server you want to create.

   For example, `EMGC_ADPMANAGER1`, `EMGC_ADPMANAGER2`, and so on.

   Note: It is recommended that you enter a name in the `EMGC_ADPMANAGER*` pattern.

5. For **Listen Port, SSL Listen Port, ADP Engine Registry Port, ADP Engine Java Provider Port,** and **ADP Engine Controller Port,** enter the port values you want to use. Ensure that the port values you enter are not already in use. By default, these fields are assigned the values 4200, 4201, 51099, 55003, and 55000 respectively.
6. Specify values for **Oracle WebLogic Administration Server Host Credentials** and **Oracle WebLogic Server Domain Credentials.** If the host on which you want to deploy ADP Engine is not running the Administration Server, you must also specify a value for **Oracle WebLogic Managed Server Host Credentials.**

   Oracle WebLogic Administration Server Host Credentials are the host credentials for the host on which the WebLogic Administration Server (for the Enterprise Manager WebLogic domain) is deployed. Oracle WebLogic Domain Credentials are the credentials for the Administration Server of the Enterprise Manager WebLogic domain. Oracle WebLogic Managed Server Host Credentials are the host credentials for the host on which the WebLogic Managed Server is deployed.
7. Click **Deploy** to submit a deployment job to the Enterprise Manager system.

   Note: When you click **Deploy,** you may receive a warning mentioning that the WebLogic domain is already in edit mode, and mentioning the number of unsaved changes and non active changes. If there are no unsaved or non active changes, or if you are sure that the changes will not affect the ADP Engine deployment, ignore this warning and proceed. The mentioned changes can be viewed from the WebLogic Administration console.

The ADP Engine Deployment Status page appears with a link to the job status. Click the link to view the status of the job that you submitted.

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

9.4.2 Deploying ADP Agents Using Application Performance Management Page

To deploy 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.**

   Note: If no active JVMD or ADP Engines are present, and no JVMD or ADP Agents are deployed, the **Manage Diagnostics Agents** button is disabled.

3. For **Operation,** ensure that **Deploy** is selected.

   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 discovered WebLogic Administration Servers and Managed Servers (part of all discovered WebLogic domains).

   Select the WebLogic Managed Servers on which you want to deploy ADP Agents. 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 **Deploy.**

   A job is created for ADP Agent deployment. Click the links to view the job progress. Once the ADP Agent deployment job is successful, you can verify the deployment by navigating to the Application Performance Management page, and viewing the Application Performance Management Agents section.

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

9.5 After You Install Application Dependency and Performance

This section describes the verification tasks you can perform after installing ADP Engines and ADP Agents. It consists of the following:

- Verifying the ADP Engine Installation
- Verifying the ADP Agent Installation

9.5.1 Verifying the ADP Engine Installation

After deploying ADP Engine, you can perform the following sanity checks to verify if ADP Engine has been installed successfully on the Managed Server.

- In Cloud Control, from the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.

  On the Application Performance Management page, the newly deployed ADP Engine must appear and it must be up and running.

- Perform these steps:

  1. In Cloud Control, from the **Targets** menu, select **Middleware**.
  2. From the **Middleware Features** menu, select **Application Dependency and Performance.**
  3. On the ADP home page, in the **Registration** tab, the Managed Server on which ADP Engine is deployed must appear.
  4. Select the ADP Engine name, then click **Test Connect** to ensure that ADP Engine is up and running.

9.5.2 Verifying the ADP Agent Installation

After deploying ADP Agents, perform the following steps to verify if the ADP Agents were installed on the Managed Servers successfully:

1. In Cloud Control, from the **Targets** menu, select **Middleware**.
2. On the Middleware page, from the **Middleware Features** menu, click **Application Dependency and Performance.**
3. In the Monitoring tab, expand the folder corresponding to the ADP Engine associated with the deployed ADP Agents.
4. Select the **Status** node in the navigation tree, then click the node. Do not expand it. Verify the **Agent Information** table for the Managed Servers on which you deployed ADP Agents.

Note: If you have not restarted the Managed Servers, then the EJB Deployed status should be **True,** and the Agent Installed status should be **False**.

Once you restart the Managed Servers, the Agent Status for those servers should be **Reporting**.

10

Installing JVM Diagnostics

This chapter describes how you can install Java Virtual Machine Diagnostics (JVMD) in the Enterprise Manager Cloud Control environment.

In particular, this chapter covers the following:

- Overview of Java Virtual Machine Diagnostics
- Before you Begin Installing JVM Diagnostics
- Prerequisites for Installing JVM Diagnostics
- Installing JVM Diagnostics
- After You Install JVM Diagnostics

10.1 Overview of Java Virtual Machine Diagnostics

Java Virtual Machine Diagnostics (JVMD) is one of the critical functionalities in Enterprise Manager Cloud Control that enables administrators to diagnose performance problems in Java applications in the production environment. By eliminating the need to reproduce problems, it reduces the time required to resolve these problems, thus improving application availability and performance.

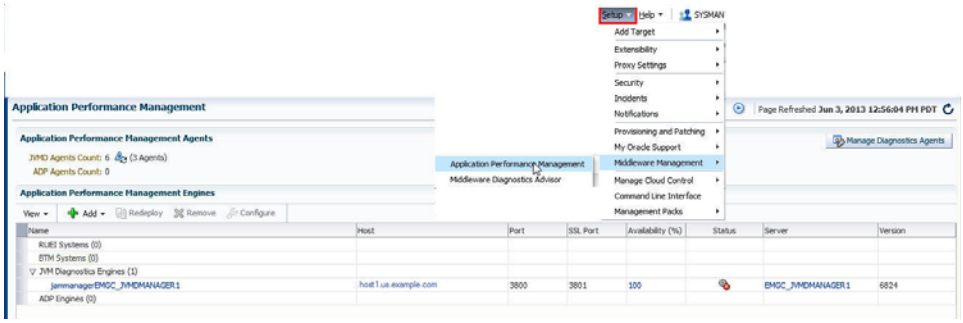
Therefore, to manage applications effectively and identify the root cause of performance problems in the production environment without having to reproduce them in the test or development environment, you must deploy JVMD Engine. The JVMD Engine runs as an Enterprise JavaBeans (EJB) Technology on a WebLogic Server.

The JVMD Agent is deployed on the targeted JVM (the one running a production WebLogic Server). It collects real-time data and transmits it to the JVM Diagnostics Engine. This data is stored in the Management Repository, and the collected information is displayed on Enterprise Manager Cloud Control console for monitoring purposes. The communication between the JVMD Engine and the JVMD Agent can be a secure (SSL) or non-secure connection.

To install JVMD, use the Application Performance Management page that is accessible from within the Enterprise Manager Cloud Control console. To access this page, from the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.

Figure 10–1 displays the Application Performance Management page.

Figure 10–1 Application Performance Management Page



The Application Performance Management page enables you to deploy, upgrade, and remove JVMD Engine and JVMD Agents, and monitor the health of the JVMD Engine application in a reliable and efficient manner.

You can use the Application Performance Management page for the following:

- Deploy, upgrade, and remove JVM Diagnostics Engines.
- Monitor the availability of all JVMD Engines.
- Access information about JVMD Engines such as the hosts to which the JVMD Engines are deployed, their current status, the port on which they are running, their version, and so on.
- Deploy, upgrade, and remove JVMD Agents.
- Know the number of reporting JVMD Agents, and whether they must be upgraded or not.

10.2 Before you Begin Installing JVM Diagnostics

Before you install JVM Diagnostics, keep these points in mind.

For JVMD Engine:

- The Weblogic Server on which you want to deploy JVMD Engine must be up and running.
- Oracle recommends that you do not deploy other applications to the managed server on which the JVMD Engine is deployed.
- If you plan to use JVMD in a multi-OMS setup, you can do either of the following:
  - Deploy JVMD Engine on an OMS host first, clone the OMS, and then deploy JVMD Engine on the additional OMS host.
  - Clone the OMS first, and then deploy JVMD Engine on the original and additional OMS hosts.

For JVMD Agents:

- To deploy a JVMD Agent, the target application server must be up and running.
- Ensure that at least one JVMD Engine is up and running, and is in the active state, to deploy a JVMD Agent.

10.3 Prerequisites for Installing JVM Diagnostics

Ensure that you meet the following prerequisites:

- For information about JVMD Engine hardware requirements, refer to Section 2.1.
- One JVM target is created per WebLogic managed server. Considering 2 active threads on an average per JVM, for better performance it is recommended that 3 JVMD engines would be required to support 2000-3000 targets.
- The JDK version required to deploy JVMD Agent is JDK 1.5 or higher.
- The Cloud Control user has the `AD4J_ADMINISTRATOR` privilege.
- Supported operating systems for JVMD Agents are:
  - Linux x86
  - Linux x86-64
  - Windows x86
  - Windows x86-64
  - Solaris x86
  - Solaris x86-64
  - Solaris SPARC
  - Solaris SPARC (64 bit)
  - AIX PowerPC (32 bit)
  - AIX PowerPC (64 bit)
  - JRVE
  - HP IA-64(32 bit)
  - HP IA-64(64 bit)
  - HP PA-RISC(32 bit)

10.4 Installing JVM Diagnostics

This section describes how to deploy JVMD Engine on an OMS host and JVMD Agents on monitored WebLogic domains. It consists of the following:

- Deploying JVMD Engine on an OMS Host
- Deploying JVMD Agents on Monitored WebLogic Domains

10.4.1 Deploying JVMD Engine on an OMS Host

To deploy JVMD Engine on an Oracle Management Service (OMS) host, follow these steps:

1. From the **Setup** menu, select **Middleware Management,** then select **Application Performance Management**.
2. On the Application Performance Management page, from the **Add** menu, select **JVM Diagnostics Engine**.
3. On the Deploy JVM Diagnostics Engine page, for **Host,** select the OMS host on which you want to create a Managed Server.

> **Note:** While deploying JVMD Engine on an OMS host, the application creates a Managed Server on the host, then deploys JVMD Engine on the created Managed Server. The created Managed Server is part of the Enterprise Manager WebLogic domain.

4. For **Managed Server Name,** enter a unique name for the Managed Server you want to create.

   For example, `EMGC_JVMDMANAGER1`, `EMGC_JVMDMANAGER2`, and so on.

   > **Note:** It is recommended that you enter a name in the `EMGC_JVMDMANAGER*` pattern.

5. For **Managed Server Listen Port** and **Managed Server SSL Listen Port,** enter the port values you want to use. Ensure that the port values you enter are not already in use. By default, these fields are assigned the values 3800 and 3801 respectively.
6. Specify values for **Oracle Management Server Host Credentials** and **Oracle WebLogic Domain Credentials.**

   Oracle Management Server Host Credentials are the host credentials that were used to deploy a Management Agent on the OMS host you selected. Oracle WebLogic Domain Credentials are the credentials for the Administration Server of the Enterprise Manager WebLogic domain.
7. Click **Deploy** to submit a deployment job to the Enterprise Manager job system.

   > **Note:** When you click **Deploy,** you may receive a warning mentioning that the WebLogic domain is already in edit mode, and mentioning the number of unsaved changes and non active changes. If there are no unsaved or non active changes, or if you are sure that the changes will not affect the JVMD Engine deployment, ignore this warning and proceed. The mentioned changes can be viewed from the WebLogic Administration console.

   The JVMD Engine Deployment Status page appears with a link to the job status. Click the link to view the status of the job that you submitted.

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

10.4.2 Deploying JVMD Agents on Monitored WebLogic Domains

This section describes how to deploy JVMD Agents on monitored WebLogic domains. For information on how to deploy JVMD Agents on application servers other than WebLogic Server, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide.*

To deploy 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.**

   Note: If no active JVMD or ADP Engines are present, and no JVMD or ADP Agents are deployed, the **Manage Diagnostics Agents** button is disabled.

3. For **Operation,** ensure that **Deploy** is selected.

   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 discovered WebLogic Administration Servers and Managed Servers (part of all discovered WebLogic domains).

   Select the WebLogic Managed Servers on which you want to deploy JVMD Agents. 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 JVMD Agents Configurations page, for each WebLogic domain, select a JVMD Engine for **Available JVMD Engines,** 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 **Deploy.**

   A job is created for JVMD Agent deployment. Click the links to view the job progress. Once the JVMD Agent deployment job is successful, you can verify the deployment by navigating to the Application Performance Management page, and viewing the Application Performance Management Agents section.

Note: While deploying a JVMD Agent, if the *Deploy HTTPDeployer On Target* job step fails due to an SSL handshake failure, or if you encounter any other error, refer *Oracle Enterprise Manager Cloud Control Advanced Installation Guide.*

10.5 After You Install JVM Diagnostics

This section describes the verification tasks you can perform after installing JVMD Engines and JVMD Agents. It consists of the following:

- Verifying JVMD Engine Installation
- Verifying JVMD Agent Installation

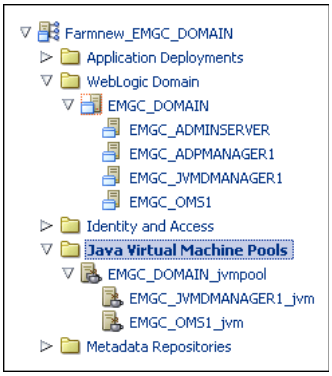
10.5.1 Verifying JVMD Engine Installation

After deploying JVMD Engine, to verify if JVMD Engine has been installed successfully on the Managed Server, from the **Setup** menu, select **Middleware Management,** then select **Application Performance Management.** On the Application Performance Management page, the newly deployed JVMD Engine must appear and it must be up and running.

10.5.2 Verifying JVMD Agent Installation

After deploying JVMD Agents, you can perform the following sanity checks to verify if the JVMD Agents were installed on the Managed Servers successfully:

- In Cloud Control, from the **Targets** menu, select **Middleware**. On the Middleware home page, select the domain where the JVMD agents were deployed. On the left hand pane, from the Target Navigation section, click **Java Virtual Machine Pools** to expand the menu. The JVMD targets must appear.



  Each of the targets corresponds to one of the Managed Servers chosen for JVMD Agent deployment. All these targets must be up and running.

- Log in to the WebLogic Administration console of the domain where the JVMD Agents were deployed. The target Managed Servers should have a new application having the name `javadiagnosticagent`, and this application should be up and running.

Part IV

Setting Up and Using Enterprise Manager Cloud Control

This part describes how you can set up and get started with Enterprise Manager Cloud Control. In particular, this part contains the following chapters:

- Chapter 11, "Setting Up and Using Enterprise Manager"

11

Setting Up and Using Enterprise Manager

Table 11–1 lists the steps you need to perform to set up and use Enterprise Manager.

Table 11–1 Setting Up and Using Enterprise Manager

Step	Task	Description	Procedure
Step 1	Verify Oracle Software Library Setup	Software Library is a repository that stores software entities such as software patches, virtual appliance images, reference gold images, application software, and their associated directive scripts. Verify if you have already configured Oracle Software Library while installing Enterprise Manager. If you have not, then configure a new Software Library.	*"Configuring Software Library Storage Location" section of Oracle Enterprise Manager Cloud Control Administrator's Guide*
Step 2	Verify My Oracle Support Connectivity	My Oracle Support connectivity enables you to view Service Request information, obtain Patch Recommendations, and download Management Plug-ins and other entities to the Software Library. Verify if you have connection to My Oracle Support.	1. From the **Setup** menu, select **My Oracle Support,** then select **Set Credentials.** 2. Enter the user name and password, click **Apply.**
Step 3	Download Oracle Management Agent Software	Management Agents help you monitor targets on hosts. Download the Management Agent software for various operating systems supported by Enterprise Manager Cloud Control, to the Software Library using Self Update Console.	*"Meeting Management Agent Software Prerequisites" section of Oracle Enterprise Manager Cloud Control Administrator's Guide*
Step 4	Download and Deploy Management Plug-Ins	Management Plug-ins are components that "plug in" to Cloud Control to provide various features and functionality. Download and deploy the latest versions of the Management Plug-ins you need.	*"Downloading Plug-ins" section, "Deploying Plug-ins to Oracle Management Service" section, and "Deploying Plug-ins on Oracle Management Agent" section of Oracle Enterprise Manager Cloud Control Administrator's Guide*
Step 5	Discover Targets	Discover and select the targets you want Enterprise Manager to monitor and manage. Enterprise Manager can scan your infrastructure for potential targets, or you can manually add your own.	*"Step 1: Discovering Unmanaged Hosts Using IP Scan" section of Oracle Enterprise Manager Cloud Control Administrator's Guide.* *"Step 4: Promoting Targets" section of Oracle Enterprise Manager Cloud Control Administrator's Guide.*

Table 11–1 (Cont.) Setting Up and Using Enterprise Manager

Step	Task	Description	Procedure
Step 6	Configure E-Mail Notifications	Notifications keep you informed when specific incidents, events, or problems arise. Configure the SMTP gateway to enable e-mail notifications to be sent for events and incidents.	*"Using Notifications" chapter of Oracle Enterprise Manager Cloud Control Administrator's Guide*
Step 7	Create Administrator Roles	A role is a collection of Enterprise Manager resource privileges, or target privileges, or both. Roles are assigned to administrator accounts, so that the access to Enterprise Manager is controlled. Create roles and assign appropriate privileges for your organization.	*"Enterprise Manager Authorization" section of Oracle Enterprise Manager Cloud Control Administrator's Guide*
Step 8	Create Administrator Accounts	An administrator is an authorized user who logs in and uses Enterprise Manager. Create administrator accounts and assign roles to them so that the access to Enterprise Manager is controlled.	*"Enterprise Manager Authorization" section of Oracle Enterprise Manager Cloud Control Administrator's Guide*

Part V

Appendix

This part contains additional information that pertain to Enterprise Manager installation. In particular, this part covers the following:

- Appendix A, "Overview of the EM Prerequisite Kit"
- Appendix B, "Validating Command Locations"
- Appendix C, "Setting Up the Proxy Configuration for Oracle Management Service"
- Appendix D, "Creating a Database Instance with Preconfigured Repository Using Database Templates"
- Appendix E, "Accessing the Enterprise Manager Certification Matrix"

A

Overview of the EM Prerequisite Kit

This appendix describes the Enterprise Manager Prerequisite Kit utility (EM Prerequisite Kit) that the installation wizard runs every time it installs or upgrades your Enterprise Manager. In particular, this appendix covers the following:

- About EM Prerequisite Kit
- Running the EM Prerequisite Kit
- Viewing the Results of the Prerequisite Checks Run by the EM Prerequisite Kit
- Viewing the Log Files Created by the EM Prerequisite Kit
- Repository Prerequisite Checks Run by the EM Prerequisite Kit

A.1 About EM Prerequisite Kit

The EM Prerequisite Kit is a command line utility that runs repository-related prerequisite checks in your environment to ensure that you meet all the repository requirements for installing or upgrading an Enterprise Manager system.

The kit not only runs the prerequisite checks but also takes corrective actions automatically, to the extent possible, when a prerequisite check fails. The kit also takes postrequisite steps automatically to revert the corrective actions taken and ensure that the system is back to how it was before installing or upgrading the Enterprise Manager system.

The EM Prerequisite Kit is run internally by the Enterprise Manager Installation Wizard while installing or upgrading an Enterprise Manager system. In addition, you can run the kit yourself beforehand to ensure that your environment meets all the repository-related requirements.

WARNING: If you plan to use a database instance that was created with a preconfigured Management Repository using the database templates offered by Oracle, then make sure you pass the following parameter while invoking the EM Prerequisite Kit.

```
-componentVariables repository:EXECUTE_CHECKS_NOSEED_DB_
FOUND:false
```

A.2 Running the EM Prerequisite Kit

This section describes the following ways of running the EM Prerequisite Kit:

- Running the EM Prerequisite Kit from the Software Kit (for fresh install) or from the OMS Home (for upgrade)

- Running the EM Prerequisite Kit Using EM CLI for Upgrade

A.2.1 Running the EM Prerequisite Kit from the Software Kit (for fresh install) or from the OMS Home (for upgrade)

Although the EM Prerequisite Kit is run internally by the Enterprise Manager Installation Wizard while installing or upgrading an Enterprise Manager system, you can choose to run the kit yourself beforehand to ensure that your environment meets all the repository-related requirements. This helps in detecting and fixing repository-related issues beforehand, thus enabling a much smoother installation or upgrade experience.

This section describes how you can run the EM Prerequisite Kit from the software Kit (DVD, downloaded location) for fresh installation, or from the OMS home for upgrade.

- Running the EM Prerequisite Kit from the Software Kit (for fresh install)
- Running the EM Prerequisite Kit from the OMS Home (for upgrade)
- Supported Additional Arguments for EM Prerequisite Kit

A.2.1.1 Running the EM Prerequisite Kit from the Software Kit (for fresh install)

The EM Prerequisite Kit is available in the following location of the software kit (DVD, downloaded software):

```
<DVD/SW_Download_Location>/install/requisites/bin/emprereqkit
```

Note: Ensure that the user running the EM Prerequisite Kit has write permission to the central inventory.

Note: On Microsoft Windows, run `emprereqkit.bat`.

To run the EM Prerequisite Kit, do one of the following:

- To view a list of repository requirements to be met without taking any corrective actions, run the EM Prerequisite Kit from the software kit (DVD, downloaded software) as `SYS` user with the following arguments. To learn about the other arguments that can be passed with the kit, see Section A.2.1.3.

  ```
  <DVD/SW_Download_Location>/install/requisites/bin/emprereqkit
  -executionType <install/upgrade/postrequisite/plugindeploy>
  -prerequisiteXMLRootDir <DVD/SW_Download_
  Location>/install/requisites/list/ -connectString <connect_string>
  -dbUser SYS -dbPassword <db_password> -dbRole sysdba -reposUser SYSMAN
  -showPrereqs
  ```

  For example,

  ```
  <DVD>/install/requisites/bin/emprereqkit -executionType install
  -prerequisiteXMLRootDir <DVD/SW_Download_
  Location>/install/requisites/list/ -connectString
  "(DESCRIPTION=(ADDRESS_
  LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=15044)))(CONNECT_
  DATA=(SID=sv505)))" -dbUser SYS -dbPassword mypwd -dbRole sysdba
  -reposUser SYSMAN -showPrereqs
  ```

- To run the prerequisite utility and also take corrective actions to meet the repository requirements, run the EM Prerequisite Kit from the software kit (DVD, downloaded software) as `SYS` user with the following additional arguments. To learn about the other arguments that can be passed with the kit, see Section A.2.1.3.

  ```
  <DVD/SW_Download_Location>/install/requisites/bin/emprereqkit
  -executionType <install/upgrade/postrequisite/plugindeploy>
  -prerequisiteXMLRootDir <DVD/SW_Download_
  Location>/install/requisites/list/ -connectString <connect_string>
  -dbUser SYS -dbPassword <db_password> -dbRole sysdba -reposUser SYSMAN
  -runPrerequisites -runCorrectiveActions
  ```

  For example,

  ```
  <DVD>/install/requisites/bin/emprereqkit -executionType install
  -prerequisiteXMLRootDir <DVD/SW_Download_
  Location>/install/requisites/list/ -connectString
  "(DESCRIPTION=(ADDRESS_
  LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=15044)))(CONNECT_
  DATA=(SID=sv505)))" -dbUser SYS -dbPassword mypwd -dbRole sysdba
  -reposUser SYSMAN -runPrerequisites -runCorrectiveActions
  ```

A.2.1.2 Running the EM Prerequisite Kit from the OMS Home (for upgrade)

Once the Enterprise Manager system is installed or upgraded, the EM Prerequisite Kit and all the other files and directories present in the `install/requisites/` directory of the software kit (DVD, downloaded software) are copied to the following location in the OMS home.

```
$<OMS_HOME>/install/requisites/bin/emprereqkit
```

Note: The default XML files related to the prerequisite checks, which are stored in the `install/requisites/list` directory on the software kit (DVD, downloaded software), are current at the time of the release of the product. However, after the release of the product, if a new prerequisite check is introduced or if an existing prerequisite check is updated, then you must do one of the following:

- Enable the Self Update functionality within Enterprise Manager Cloud Control so that the new or updated prerequisite XML files are automatically downloaded to the `$<OMS_HOME>/install/requisites/list` directory. To set up Self Update, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*. To download the updates, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.
- Manually download the new or updated prerequisite XML files from Oracle store to the `$<OMS_HOME>/install/requisites/list` directory.
- If you have XMLs for two higher versions (for example, for 12.1.0.4.0 and 12.1.0.5.0), then you can run the prerequisite checks for even one of them by passing the `-upgradeVersion` argument.

  For example,

```
$<OMS_HOME>/install/requisites/bin/emprereqkit
-executionType upgrade -prerequisiteXMLRootDir $ORACLE_
HOME/install/requisites/list/ -connectString
"(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=15044
)))(CONNECT_DATA=(SID=sv505)))" -dbUser SYS -dbPassword
mypwd -dbRole sysdba -reposUser SYSMAN -runPrerequisites
-runCorrectiveActions -upgradeVersion 12.1.0.5.0
```

A.2.1.3 Supported Additional Arguments for EM Prerequisite Kit

Table A–1 describes the additional arguments you can pass while invoking the EM Prerequisite Kit:

Table A–1 Arguments Supported by EM Prerequisite Kit

Option	Optional or Mandatory	Value Required?	Description	Example
`-configurationType`	Optional	Yes	Enables performing prerequisite checks for different repository configurations such as small, medium, and large. If you do not pass this option, then by default, the prerequisite checks are run for medium deployment size.	`$<OMS_HOME>/install/requisites/bin/emprereqkit -executionType install -prerequisiteXMLRootDir <prereq_xmlrootdir_location> -connectString <connect_string> -dbUser SYS -dbPassword <db_password> -dbRole sysdba -runPrerequisites -configurationType <configuration type ex: SMALL/MEDIUM/LARGE>`
`-executionType`	Mandatory	Yes	Specify the type of execution, which can be one of the following: ■ `install` ■ `upgrade` ■ `postrequisite`	`-executionType upgrade`

`-prerequisiteXMLRootDir`
OR
`-prerequisiteResourceLocs`
	Mandatory	Yes	Specify the absolute path to the location where the XML files related to the prerequisites are present. If you do not specify a location, the default location is `../list/`.
			If you use -prerequisiteResourceLocs, then pass a comma-separated list of prerequisite resource locations in the following format:
			`-prerequisiteResourceLocs "<plugin_id>=<prereq_location>, <plugin_id>=<prereq_location>, <platform>=<prereq_location>"`
				`-prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list`
				OR
				`-prerequisiteResourceLocs "oracle.sysman.db=/scratch/mwhps2/plugins/oracle.sysman.db.oms.plugin_12.1.0.5.0, platform=/scratch/mwhps2/oms"`

■ `-connectString <connectstring>`
■ `-dbHost <hostname> -dbPort <port> -dbSid <sid>`
	One of these options is mandatory	Yes	Specify the database details.	For example (connect string):
				`-connectString "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=15044)))(CONNECT_DATA=(SID=dbview)))"`
				For example (database details):
				`-dbHost example.com -dbPort 15044 -dbSid dbview`

`-dbUser`	Mandatory	Yes	Specify `SYS`. Also make sure you pass `-reposUser SYSMAN`.	`-dbUser SYS -reposUser SYSMAN`

Table A–1 (Cont.) Arguments Supported by EM Prerequisite Kit

Option	Optional or Mandatory	Value Required?	Description	Example
`-dbPassword`	Optional	Yes	Specify the password for the database user. If you do not pass this option, you will be prompted for a password.	`-dbPassword welcome1`
`-dbRole`	If `-dbUser` is `SYS`, then this option is mandatory. If `-dbUser` is any other user, then this option is optional.	Yes	Specify `sysdba`.	`-dbRole sysdba`
`-prereqResultLoc`	Optional	Yes	Create a directory where the results (in the form of XML files) of the prerequisite checks can be stored, and specify the path to that directory. If you do not pass this option, the results are stored in a default location which is the current directory. **Note:** If you specify details for a different database before completing all the actions, you will need to specify a different -prereqResultLoc.	`-prereqResultLoc /scratch/results`

Table A–1 (Cont.) Arguments Supported by EM Prerequisite Kit

Option	Optional or Mandatory	Value Required?	Description	Example

-showPrereqs	Optional	No	Lists the prerequisite checks to be run.	Example using dbHost, dbPort, and dbSid is:
				`$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -showPrereqs`
				Example using connectString is:
				`$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list -connectString "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=example.com)(PORT=15044)))(CONNECT_DATA=(SID=sv902)))" -dbUser SYS -dbPassword example_passwd -dbRole sysdba -showPrereqs`

Table A–1 (Cont.) Arguments Supported by EM Prerequisite Kit

Option	Optional or Mandatory	Value Required?	Description	Example
■ -showPrereqs ■ -runPrerequisites ■ -showCorrectiveActions ■ -runCorrectiveActions ■ -showPostCorrectiveActions ■ -runPostCorrectiveActions **(Important: These options must be passed in the sequence listed here. Do not change their order.)**	One of these options is mandatory.	No	■ -showPrereqs lists the prerequisite checks to be run. ■ -runPrerequisites runs the prerequisite checks and lists the ones that passed and failed. ■ -showCorrectiveActions lists the corrective actions that will be taken for the failed prerequisite checks. ■ -runCorrectiveActions takes corrective actions for the failed prerequisite checks. ■ -showPostCorrectiveActions lists the post-corrective actions that will be taken for the prerequisite checks for which corrective actions were taken. ■ -runPostCorrectiveActions takes post-corrective actions for the prerequisite checks for which corrective actions were taken. In other words, reverts to values that existed before corrective actions were taken. **Important:** If you passed -prereqResultLoc with -runPrerequisites, then pass -prereqResultLoc with the following options also, and specify the same custom location: -showCorrectiveActions -runCorrectiveActions -showPostCorrectiveActions -runPostCorrectiveActions **Note:** Show actions must be independent, that is, they should not be combined with any other action.	■ An example for -showPrereqs: $ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -showPrereqs ■ An example for -runPrerequisites: $ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -runPrerequisites ■ An example for -showCorrectiveActions: $ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -showCorrectiveActions ■ Example for -runCorrectiveActions: $ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -runCorrectiveActions ■ Example for -showPostCorrectiveActions: $ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -showPostCorrectiveActions ■ Example for -runPostCorrectiveActions $ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -runPostCorrectiveActions

Table A–1 (Cont.) Arguments Supported by EM Prerequisite Kit

Option	Optional or Mandatory	Value Required?	Description	Example
`-upgradeVersion`	Optional	Yes	The default XML files related to the prerequisite checks are current at the time of the release of the product. However, after the release of the product, if a new prerequisite check is introduced or if an existing prerequisite check is updated, then you can download the new or updated XMLs either manually or using Self Update. If you have XMLs for two higher versions (for example, for 12.1.0.4.0 and 12.1.0.5.0), then while upgrading, you can run the prerequisite checks for even one of them by passing the `-upgradeVersion` argument.	`-upgradeVersion 12.1.0.5.0`
`-logLoc`	Optional	Yes	Specify the absolute path to a directory where the logs of the execution of the EM Prerequisite Kit utility can be stored. The default location is `<prereqResultloc>/prerequisiteResults/log`.	`-logLoc /scratch/logs`
`-runOnlyFor`	Optional	Yes	Specify the components that must be selected instead of the XML files for checking the prerequisites. `{comp1|<version1>, comp2|<version2>}]` If there are two prerequisite XML files with the same component name, then the <version*> is used to select the correct one. This option is particularly useful when running the prerequisites for installing plug-ins.	`-runOnlyFor "repository|11.2.0.43"`
`-responseFile`	Optional	Yes	Specify the absolute path to a location where the response file is available.	`-responseFile /scratch/response.rsp`
`-contextName`	Optional	Yes	Specify a unique name for this run. If you do not specify this, a default name with the format `executionType_timestamp` is created.	`-contextName 11.2.0.1`

Table A–1 (Cont.) Arguments Supported by EM Prerequisite Kit

Option	Optional or Mandatory	Value Required?	Description	Example

`-componentVariables`	Optional	Yes	Specify the name and value of the component variable in the following format:
			`component_name:variable_name:variable_value`
			For example:
			`global:EM_REPOS_USER:sysman`
			You can pass as many component variables as you want, but ensure that you separate them by a comma.
			For example:
			`global:EM_REPOS_USER:sysman,repository:DB_VERSION:10.2.0.5.0`
				`-componentVariables global:EM_REPOS_USER:sysman`

`-logInDB`	Optional	Yes	Defaults to `true` and stores the result XMLs in the database. If you do not want to store them in the database, pass this option and specify `false`.	`-logInDB false`
`-stopExecOnFirstError`	Optional	No	Stops the utility the first time it encounters an error, and does not run the remaining prerequisites. **Note:** This action must be executed in combination with `runPrerequisites`.	`$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -prerequisiteXMLRootDir $ORACLE_HOME/install/requisites/list -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -runPrerequisites -stopExecOnFirstError`
`-list`	Optional *Must be passed as independent options; do not combine it any other option*	No	Organizes and lists the prerequisite check results *(stored in the database)* based on when it was run and the context.	`$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -list`

Table A–1 (Cont.) Arguments Supported by EM Prerequisite Kit

Option	Optional or Mandatory	Value Required?	Description	Example
`-export`	Optional *Must be passed as independent options; do not combine it any other option*	No	Copies the prerequisite check results (XML files) from the database to an external file system.	`$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -export`
`-purge`	Optional *Must be passed as independent options; do not combine it any other option*	No	Defaults to `false` and retains the result XMLs in the database. If you want to delete them from the database, pass this option.	`$ORACLE_HOME/install/requisites/bin/emprereqkit -executionType upgrade -dbHost example.com -dbPort 15044 -dbSid sv902 -dbUser SYS -dbPassword example_passwd -dbRole sysdba -purge`
`-help`	Optional	No	This option gives details of various parameters which can be passed to EM Prerequisite Kit.	`emprereqkit -help`

A.2.2 Running the EM Prerequisite Kit Using EM CLI for Upgrade

This section describes how you can run the EM Prerequisite Kit using Enterprise Manager Command Line Interface (EM CLI). However, at the moment, using EM CLI you can only view the list prerequisites and run the prerequisite checks for upgrade. In particular, this section covers the following:

- Viewing the EM Prerequisite Kit Prerequisite Checks Using EM CLI
- Running the EM Prerequisite Kit Prerequisite Checks Using EM CLI
- Description of the Parameters Passed While Running the EM Prerequisite Kit Using EM CLI

A.2.2.1 Viewing the EM Prerequisite Kit Prerequisite Checks Using EM CLI

To view a list of prerequisites, follow these steps:

1. Log in to EM CLI:

   ```
   emcli login -username=sysman
   ```

2. Synchronize EM CLI:

   ```
   emcli sync
   ```

3. List the prerequisites:

   ```
    $<OMS_HOME>/bin/emcli list_prerequisites
   -db_user=<database_user>
   -db_password=<database_password>
   -db_role=<database_role> (needed only when dbUser is SYS)
   -repos_user=<repository_user> (needed only when dbUser is SYS)
   -prerequisite_xml_root_dir=<absolute_path_to_all_prerequisite_XMLs>
   ```

```
[-prerequisite_resource_locs=<prereq_xml_location>]
[-log_loc=<absolute_path_to_log_file_location>]
[-upgrade_version=<EM_version_to_which_upgrade_is_being_done_eg_12.1.0.5>]
[-configuration_type=<configuration/deployment_type_eg_
MINI/SMALL/MEDIUM/LARGE>]
```

For example,

```
u01/software/oracle/middleware/oms/bin/emcli list_prerequisites
-db_user=SYS
-db_password=mypwd
-db_role=sysdba
-repos_user=SYSMAN
-prerequisite_xml_root_dir=$ORACLE_HOME/install/requisites/list
-upgrade_version=12.1.0.5.0
-configuration_type=MEDIUM
```

For any additional information, use `emcli help <verb_name>`.

A.2.2.2 Running the EM Prerequisite Kit Prerequisite Checks Using EM CLI

To run the prerequisite checks, follow these steps:

1. Log in to EM CLI:

   ```
   emcli login -username=sysman
   ```

2. Synchronize EM CLI:

   ```
   emcli sync
   ```

3. Run the prerequisites:

   ```
   $<OMS_HOME>/bin/emcli run_prerequisites
   -db_user=<database_user>
   -db_password=<database_password>
   -db_role=<database_role> (needed only when dbUser is SYS)
   -repos_user=<repository_user> (needed only when dbUser is SYS)
   -prerequisite_xml_root_dir=<absolute_path_to_all_prerequisite_XMLs>
   [-prerequisite_resource_locs=<prereq_xml_location>]
   [-log_loc=<absolute_path_to_log_file_location>]
   [-upgrade_version=<EM_version_to_which_upgrade_is_being_done_eg_12.1.0.5>]
   [-configuration_type=<configuration/deployment_type_eg_
   MINI/SMALL/MEDIUM/LARGE>]
   ```

   For example,

   ```
   u01/software/oracle/middleware/oms/bin/emcli run_prerequisites
   -db_user=SYS
   -db_password=mypwd
   -db_role=sysdba
   -repos_user=SYSMAN
   -prerequisite_xml_root_dir=$ORACLE_HOME/install/requisites/list
   -upgrade_version=12.1.0.5.0
   -configuration_type=MEDIUM
   ```

   For any additional information, use `emcli help <verb_name>`.

A.2.2.3 Description of the Parameters Passed While Running the EM Prerequisite Kit Using EM CLI

- **db_user**

Enter `SYS`. The connection to the database is established using this user account.

- **db_password**

  Enter the password for the SYS database user account.

- **db_role**

  Enter `sysdba`.

- **repos_user**

  Enter `SYSMAN`. The prerequisite checks will be run using this user account.

- **prerequisite_xml_root_dir**

  Enter the absolute path to the `requisites/list` directory where the XML files are available. The XML files may be in a subdirectory within the `requisites/list` directory, but make sure the path you enter leads only up to the `list` directory. The following is the location:

  `$<OMS_HOME>/install/requisites/list`

- **prerequisite_resource_locs**

  Enter the absolute path to the directory where the plug-in `.opar` files or the platform binaries, which contain the XML files for the prerequisite checks, are present. If you are entering the path to the plug-in `.opar` files, then make sure the you follow the format `plugin_id=<plugin_home>`.

- **log_loc**

  Enter the absolute path to a directory where the logs of the execution of the EM Prerequisite Kit can be stored.

- **upgrade_version**

  Enter the version of Enterprise Manager to which you are upgrading. For example, `12.1.0.5.0`.

- **configuration_type**

  Enter the deployment size—SMALL, MEDIUM, LARGE. For information on these deployment sizes, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Note:

- *(Only for Upgrade to Next Enterprise Manager Cloud Control Software Release)* You can download the latest version of EM Prerequisite Kit from the Self Update framework as follows:

  1. In Cloud Control, from the **Setup** menu, select **Extensibility**, and then select **Self Update.**
  2. On the Self Update page, download the new version of XMLs under the entity **EM Deployment Prerequisite Resources Updates**, if there are any available.

- Once you download and apply these updates, you cannot rollback to the previous version of XMLs.
- If you have XMLs for two higher versions (for example, for 12.1.0.4.0 and 12.1.0.5.0), then while upgrading, you can run the prerequisite checks for even one of them by passing the `-upgrade_version` argument.

  For example,

  ```
  $<OMS_HOME>/bin/emcli run_prerequisites
  -db_user=SYS
  -db_password=mypwd
  -db_role=sysdba
  -repos_user=SYSMAN
  -prerequisite_xml_root_dir=<OMS_HOME>/install/requisites/list/
  -upgrade_version=12.1.0.5.0
  ```

- When you run the prerequisite checks using these revised XMLs for your next deployment, the revised XMLs are copied to the Management Repository automatically. If the downloaded revised XMLs are more recent than the ones available on the DVD of next Enterprise Manager Cloud Control software release, then the Enterprise Manager Installation Wizard uses these revised XMLs directly from the Management Repository instead of the ones available on the DVD.
- Do not run multiple `emcli run_prerequisites` commands in parallel (from different EM CLI clients) to run the prerequisite checks with the downloaded revised XMLs and copy the XMLs to the Management Repository.

A.3 Viewing the Results of the Prerequisite Checks Run by the EM Prerequisite Kit

Every time the EM Prerequisite Kit is run, the results of the prerequisite checks run for a particular component are stored in an instance XML file. The instance XML file has the file name `<component>.xml`. The results are in the same format as the information stored in the prerequisite XML files. The only difference is the new column that indicates the actual result of the prerequisite check.

Table A–2 lists the instance file locations depending on how the EM Prerequisite Kit was invoked.

Table A–2 EM Prerequisite Kit Result File Location (Instance XML File)

invocation Type	Instance File Location[1]	Latest Instance File Location[2]
Manually Invoked	<prereqResultLoc>/resultXMLs/<time-stamp> **Note:** When you provide prereqResultLoc value, the result xml location is as mentioned above. Else, the result xml location is <Current Directory>/prerequisiteResults/resultXMLs/<time-stamp>	<prereqResultLoc>/resultXMLs/LATEST/ **Note:** When you provide prereqResultLoc value, the result xml location is as mentioned above. Else, the result xml location is <Current Directory>/prerequisiteResults/resultXMLs/LATEST
Automatically Invoked by the Enterprise Manager Cloud Control Installation Wizard	<MW_HOME>/.gcinstall_temp/resultXMLs/<time-stamp> **Note:** When you proceed through the installation wizard pages, EM Prerequisite Kit result XMLs are created in /tmp/OraInstall<timestamp>/emprereqkit/resultXMLs/<time-stamp>. When install begins, the /tmp/OraInstall<timestamp>/emprereqkit/resultXMLs/<time-stamp> result xmls are copied to <MWHOME>/.gcinstall_temp/resultXMLs/<time-stamp>.	<MW_HOME>/.gcinstall_temp/resultXMLs/LATEST **Note:** When you proceed through the installation wizard pages, EM Prerequisite Kit result xmls are created in /tmp/OraInstall<timestamp>/emprereqkit/p; resultXMLs/LATEST. When install begins, the /tmp/OraInstall<timestamp>/emprereqkit/ resultXMLs/LATEST result xmls are copied to <MW_HOME>/.gcinstall_temp/resultXMLs/LATEST

[1] Instance File Location refers to the <time-stamp> directory that is created dynamically by the utility every time the EM Prerequisite Kit is run. The instance file created here is retained until you decide to delete it.

[2] Latest Instance File Location refers to a single, standard location maintained for the latest instance file created when the EM Prerequisite Kit was last run. The instance file created here is overwritten every time the utility is run.

Note: The <prereqResultLoc> location refers to the location you enter for the -prereqResultLoc option while invoking the utility. If this option is not passed, then by default, the directory from where you invoke the utility is considered as the base directory, and a directory titled prerequisiteResults is dynamically created in it, and then the instance file is stored in it.

A.4 Viewing the Log Files Created by the EM Prerequisite Kit

Table A–3 lists all the log files that are created every time the EM Prerequisite Kit is run.

Table A–3 EM Prerequisite Kit Log Files

Log File Name	Description
emprereqkit.log	Contains information about every step taken or action performed by the kit
emprereqkit.err	Contains only the error and stacktrace of the exceptions occurred

Table A–3 (Cont.) EM Prerequisite Kit Log Files

Log File Name	Description
emprereqkit.out	Contains information about the status (pass or fail) of all the prerequisite checks that are run. It also contains detailed information regarding each prerequisite check.For example, prerequisite name, execution status, detailed recommendation (what queries are to be executed to correct the failed prerequisite), and so on.
<functional_area>.log	Contains information about the function area-specific prerequisite checks that are run. For example, repository.log that contains repository-specific performance-related prerequisite checks that are run. The repository.log is present in the <log location>/componentLog directory. For example, $OraInventory/logs/emdbprereqs/LATEST/componentLog/repository.log

Table A–4 lists the log file locations depending on how the EM Prerequisite Kit was invoked. This table lists the locations for all the log files except for the emprereqkit.out file. For emprereqkit.out file, see the note after the table.

Table A–4 EM Prerequisite Kit Log File Locations

invocation Type	Latest Log File Location[1]	Log File Location[2]
Manually Invoked	<logLoc>/LATEST **Note:** When you provide logLoc as the value, the log location is as mentioned above. Else, it is <Current Directory>/prerequisiteResults/log/LATEST	<logLoc>/<time-stamp> **Note:** When you provide logLoc as the value, the log location is as mentioned above. Else, it is <Current Directory>/prerequisiteResults/log/<time-stamp>
Automatically Invoked by the Enterprise Manager Cloud Control Installation Wizard	<MW_HOME>/.gcinstall_temp/LATEST **Note:** When you proceed through the installation wizard pages, EM Prerequisite Kit logs are created in either $OraInventory/logs/emdbprereqs/LATEST or /tmp/OraInstall<timestamp>/emdbprereqs/LATEST When install begins, the /tmp/OraInstall<timestamp>/emprereqkit logs are copied to <MW_HOME>/.gcinstall_temp/emprereq/LATEST	<MW_HOME>/.gcinstall_temp/<time-stamp> **Note:** When you proceed through the installation wizard pages, EM Prerequisite Kit logs are created in either $OraInventory/logs/emdbprereqs/<timestamp> or /tmp/OraInstall<timestamp>/emdbprereqs/<timestamp> When install begins, the /tmp/OraInstall<timestamp>/emdbprereqs/<time-stamp> logs are copied to <MW_HOME>/.gcinstall_temp/emprereq/<time-stamp>

[1] Latest Log File location refers to a single, standard location maintained for the latest log files created when the EM Prerequisite Kit was last run. The log files created here are overwritten every time the utility is run.

[2] Log File Location refers to the <time-stamp> directory that is created dynamically by the utility every time the EM Prerequisite Kit is run. The log file created here are retained until you decide to delete them.

Note: When the EM Prerequisite Kit is run manually, the log file `emprereqkit.out` is stored in `<prereqResultLoc>/log/<time-stamp>`. The latest log file is stored in `<prereqResultLoc>/log/LATEST/`.

When the EM Prerequisite Kit is run internally by the Enterprise Manager Cloud Control Installation Wizard, the log file `emprereqkit.out` is stored in `<MW_HOME>/.gcinstall_temp/log/<time-stamp>`. And the latest log file is stored in `<MW_HOME>/.gcinstall_temp/log/<LATEST>`.

A.5 Repository Prerequisite Checks Run by the EM Prerequisite Kit

Table A–5 describes all the repository prerequisites that the EM Prerequisites Kit checks. This section also describes how to manually check these prerequisites.

Table A–5 Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description
Basic Policy Requirements	Upgrade	No	Ensures that valid policy exists for MGMT_TARGETS. To manually verify this, run the following query: `select 'EM_TARGET_POLICY' from dual where not exists (select policy_name from dba_policies where object_owner=SYSMAN' and pf_owner='SYSMAN' and object_name='MGMT_TARGETS') )` The query must not return any rows.
Active Jobs Requirements	Upgrade	No	Ensures that there are no background DBMS jobs currently running in the Repository Database. To manually verify this, run the following query: `select count(*) FROM dba_jobs_running run_job,gv$session sess WHERE sess.sid=run_job.sid AND sess.schemaname='SYSMAN'` If the result of the query is 0 then there are no active DBMS jobs, if result is not 0 then wait for the active jobs to complete.
Checks if GVM Performance collection job is running	Upgrade	Yes	Ensures that the GVM Performance Metric Collection job is stopped and deleted. To manually verify if a job named `GVMPERFMETRICCOLL` exists, run the following query: `select count(*) from mgmt_job where job_name = 'GVMPERFMETRICCOLL' and job_type = 'UpdateGVMPerfMetric'` If it exists, then stop and delete.
Valid Reference Requirements	Upgrade	No	Ensures that all entries for `execution_id` in `MGMT_JOB_EXECUTION` either point to a valid entry in `MGMT_JOB_EXEC_SUMMARY`, or are NULL. To manually verify this, run the following query. The query must not return any rows. `SELECT COUNT(1) FROM MGMT_JOB_EXECUTION e WHERE NOT EXISTS (SELECT 1 FROM MGMT_JOB_EXEC_SUMMARY s WHERE s.execution_id = e.execution_id) AND execution_id IS NOT NULL`

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description
Job Type Uniqueness Requirements	Upgrade	No	Ensures that there are no duplicate entries in `MGMT_JOB_TYPE_INFO` for the following set of columns: `job_type, job_type_owner, major_version, minor_version1, minor_version2.` To manually verify this, run the following query. The query must not return any rows. `SELECT job_type FROM MGMT_JOB_TYPE_INFO GROUP BY job_type, job_type_owner, major_version, minor_version1, minor_version2 HAVING COUNT(1) > 1`
SQL Plan Baseline Capture Parameter Requirements	Install, Upgrade	No	Ensures that the parameter `optimizer_capture_sql_plan_baselines` is set to `FALSE` (or default). The SQL plan baseline capture must never be turned on for the Management Repository. Enterprise Manager heavily depends on updated CBO statistics. If stale CBO statistics exist, the SQL plan baseline capture could cause bad execution plans to be used for critical functionality.
Current Availability Index Requirements	Install, Upgrade	No	Ensures that the current availability index is renamed to the following: ■ If you are running the kit before upgrading from 10*g* Release 5 (10.2.0.5) or 11*g* Release 1 (11.1.0.1) to 12*c* Release X (12.1.0.X), then set the current availability index to `MGMT_CURRENT_AVAILABILITY_PK`. ■ If you are running the kit before upgrading from one 12*c* Release X (12.1.0.X) release to another 12*c* Release X (12.1.0.X) release, then set the current availability index to `EM_CURRENT_AVAILABILITY_PK`.
My Oracle Support User Name Size Requirements	Upgrade	No	Ensures that the My Oracle Support user name is not longer than 239 characters. If it is, then you cannot upgrade.
ARU User Name Size Requirements	Upgrade	No	Ensures that the ARU user name is not longer than 239 characters. If it is, you cannot upgrade.

DBMS Package Requirements	Install, Upgrade	No	Ensures that you compile the required DBMS packages.
			To manually compile the packages, log in to the database, where the Management Repository is configured, as SYS user, and run the following query to retrieve the list of invalid DBMS packages:
			`SELECT object_name, object_type FROM all_objects WHERE status = 'INVALID' AND object_name LIKE 'DBMS%'`
			If the package is invalid, run the following query:
			■ For package:
			`ALTER PACKAGE <PACKAGE_NAME> COMPILE`
			■ For package body:
			`ALTER PACKAGE <PACKAGE_NAME> COMPILE BODY`
			If the packages do not compile successfully, contact Oracle Support.

Snapshot Log Requirements	Upgrade	No	Ensures that the snapshot logs are deleted from the tables.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description

Connector Configuration Table Requirements	Upgrade	No	Ensures that there is no bad data in the connector configuration table. If there is any, then run the following query to clean the table.
			`delete from mgmt_cntr_config where connector_guid is null or connector_type_guid is null;`
			`commit;`

Compatible Instance Parameter Requirements	Install, Upgrade	No	Ensures that the compatible instance parameter is set to the same version value as the database instance of the Management Repository. Any other value might result in unexpected problems, poor performance, or both.

Primary Key and Foreign Key Requirements	Upgrade	No	Ensures that Primary Key and Foreign keys are not disabled.
			To manually verify this, run the following query:
			`select count(*) from (select constraint_name, table_name from DBA_CONSTRAINTS where owner = 'SYSMAN' and (constraint_type = 'P' or constraint_type = 'R') and status = 'DISABLED')`
			If the result is not 0, then use the following query to enable the constraint:
			`alter table SYSMAN.<TABLE_NAME> modify constraint <CONSTRAINT_NAME> enable`
			If the constraints cannot be enabled for any reason, contact Oracle Support.

Enable Queue Requirements	Upgrade	No	Ensures that queues are enabled in the Repository Database.
			To manually verify this, run the following query:
			`select count(*) from dba_queues where owner = 'SYSMAN' and queue_type like '%NORMAL_QUEUE%' and (enqueue_enabled like '%NO%' OR dequeue_enabled like '%NO%')`
			If result is not 0, use the following query to retrieve the list of disabled queue names:
			`select name, queue_table from dba_queues where owner = 'SYSMAN' and upper(queue_type) not like 'EXCEPTION_QUEUE' and (upper(enqueue_enabled) NOT LIKE '%YES%' OR upper(dequeue_enabled) NOT LIKE '%YES%'))`
			Execute the following SQL statement to enable the queue:
			`begin`
			`dbms_aqadm.start_queue('<disabled_queue_name>');`
			`end;`
			If the queue cannot be started, contact Oracle Support.

Trigger Requirements	Upgrade	No	Ensures that all the triggers in the Repository Database are not disabled. To manually verify this, run the following query: `select count(*) from (select trigger_name, trigger_type, table_name from DBA_TRIGGERS where table_owner = 'SYSMAN' and status = 'DISABLED')` If result is not 0, then enable the trigger.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description
SYSTEM tablespace requirement	Install and Upgrade	No	Ensures that the SYSTEM tablespace has at least one datafile set to autoextensible. To manually verify this, run the following query: `select count(*) from dba_data_files where tablespace_name = 'SYSTEM' and autoextensible = 'YES'` If the result is 0, then add a new datafile with the autoextend attribute to the SYSTEM tablespace so it has at least one listed in the DBA_DATA_FILES view with autoextensible equal to 'YES'. Contact Oracle Support if there are any errors
emkey requirement	Upgrade	No	Ensures that the emkey is copied to the repository. To manually verify this, run the following query: `select COUNT(*) from sysman.mgmt_repos_time_coefficient` If the result of the query is not 1, then copy the emkey.ora file from another OMS or backup machine to the ORACLE_HOME/sysman/config directory. Configure the emkey.ora file by running `emctl config emkey -copy_to_repos -sysman_pwd <sysman_pwd>`.

EM_USER_CONTEXT requirements	Upgrade	No	Ensures that EM_USER_CONTEXT is present in the repository.
			To manually verify this, run the following query:
			`select count(*) from dba_context where schema='SYSMAN' and upper(namespace)='EM_USER_CONTEXT'`
			If the query result is 0, check that the procedure SETEMUSERCONTEXT is valid by executing the following query:
			`select status from all_objects`
			where object_name='SETEMUSERCONTEXT' and owner='SYSMAN'
			The above query must return 'VALID'. Then run:
			`alter session set current_schema='SYSMAN';`
			Create or replace context EM_USER_CONTEXT using SETEMUSERCONTEXT;
			If the context cannot be created for any reason, contact Oracle Support.

Audit Master table requirement	Upgrade	No	Ensures that there are no abnormal conditions stored in the Audit Master Table. To manually verify this, run the following query: `select count(*) from sysman.mgmt_audit_master` If the query result is not 1 then, contact Oracle Support to analyze the Enterprise Manager repository before attempting to perform the patch/upgrade.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description

Exempt Access Policy requirement	Upgrade	No	Ensures that EXEMPT ACCESS POLICY is not granted directly to SYSMAN or indirectly grants to a role that is granted to SYSMAN.
			To manually verify this, run the following query:
			`select count(*) from dba_sys_privs where upper(privilege)='EXEMPT ACCESS POLICY' and (grantee = 'sysman' or grantee in (select distinct granted_role from dba_role_privs start with grantee='SYSMAN' connect by prior granted_role=grantee) or grantee = 'sysman')`
			If the result of the query is not 0, then revoke EXEMPT ACCESS POLICY from SYSMAN and the roles.
			For example:
			`revoke exempt access policy from SYSMAN`

max_enabled_roles init parameter requirement	Install and Upgrade	No	Ensures that the max_enabled_roles parameter value is set such that it contains at least 3 more than the flattened roles granted to SYS. To manually verify this, run the following query: `select 1 from DUAL where (select count(*) from v$instance where version like '9.%') = 0 or (select value from v$parameter where name like 'max_enabled_roles') > (select count(*) from dba_role_privs start with grantee='SYS' connect by prior granted_role=grantee)+2;` If the result of the query is not 1 then, increase the max_enabled_roles parameter to ensure it contains at least 3 more than the flattened roles granted to SYS. To modify max_enabled_roles, perform the following steps: **1.** Bring down all the OMS instances. **2.** Bring down the database cleanly. **3.** Modify the max_enabled_roles parameter in the init.ora or whichever is used by the database's initialization process. **4.** Bring up the database cleanly. **5.** Verify with v$parameter to ensure the parameter value is indeed increased.

PAF execution requirements	Upgrade	No	Ensures that no PAF executions are scheduled or running.
			To manually 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 manually 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>`

Secured Agent requirements	Upgrade	No	Ensures that all the agents are secured with latest CA. To know the list of agents to be secured, run the following command: `emcli get_ca_info -details`

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description
Pre-upgrade console patch requirements	Upgrade	No	Ensures that pre-upgrade patch is applied. To manually verify this, run the following query: `select count(*) from all_objects where object_name ='PRE_UPGC_MASTER_INFO' and object_type='TABLE' and owner='SYSMAN'` If the result of the query is not 1, then apply pre-upgrade Console patch before upgrading.
Global Stale percentage requirements	Install and Upgrade	No	Ensures that global stale percentage is in between 5 and 25. To manually verify this, run the following query: `select count(*) from dual where dbms_stats.get_prefs('STALE_PERCENT') between 5 and 25` The query result must be 1.

Account status requirements	Upgrade	No	Ensures that SYSMAN, MGMT_VIEW and ORACLE_OCM accounts are not locked or expired.
			To manually verify this, run the following queries:
			`select account_status from dba_users where username='SYSMAN';`
			`select account_status from dba_users where username='MGMT_VIEW';`
			`select account_status from dba_users where username='ORACLE_OCM';`
			The query result must be OPEN.

SYSMAN schema requirements	Upgrade	No	Ensures that SYSMAN schema is present for upgrade. To manually verify this, run the following query: `SELECT COUNT(*) FROM ALL_USERS WHERE USERNAME='SYSMAN'` The query result must be 1.
Redo Log size requirement	Install and Upgrade	No	Ensures that the size of the log file is equal or greater than following the values defined for different installation types and deployment options: ■ **Simple Installation:** 300 MB or greater. ■ **Advanced Installation:** **- Small:** 300 MB or greater **- Medium:** 600 MB or greater **- Large:** 1000 MB or greater To manually verify this, run the following query: `select min(bytes) from v$log`
Existing Database Not to Be in QUIESCE Mode	Install and Upgrade	No	Ensures that existing, certified Oracle Database is not in QUIESCE mode. To manually verify this, run the following SQL in the database in the SYS role: `select active_state from v$instance;` The result returned must be `NORMAL`.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description

Existing Database Not to Have Database Control (only for fresh install)	Fresh Install	No	Ensures that your existing, certified Oracle Database does NOT have Database Control SYSMAN schema. If it has, that is, if your existing database is configured with Database Control, then deconfigure it.
			To manually deconfigure the Database Control SYSMAN schema, follow these steps:
			1. Verify whether your database has Database Control SYSMAN schema.
			To do so, log in to the database as SYS user and run the following query:
			`SELECT COUNT(*) FROM ALL_USERS WHERE USERNAME='SYSMAN'`
			If the result of this query is 1, then the database has this schema, so deconfigure it.
			2. Before deconfiguring the Database Control, set the environment variable ORACLE_HOME to the Oracle home of the database, and ORACLE_SID to the SID of the database.
			For example, in bash shell, you can set them in the following way:
			`export ORACLE_HOME=/u01/app/oracle/product/11.2.0/dbhome_1`
			`export ORACLE_SID=orcl`
			3. Deconfigure the Database Control.
			To deconfigure Database Control for a standalone database, run the following command from the Oracle home of the database as the user who installed the database. If the command hangs, then restart the database and rerun the command.
			`$<ORACLE_HOME>/bin/emca -deconfig dbcontrol db -repos drop -SYS_PWD <sys pasword> -SYSMAN_PWD <sysman password>`
			To deconfigure Database Control for a Real Application Cluster (Oracle RAC) database, run the following command from the Oracle home of the database as the user who installed the database. If the command hangs, then restart the database and rerun the command.
			`$<ORACLE_HOME>/bin/emca -deconfig dbcontrol db -repos drop -cluster -SYS_PWD <sys pasword> -SYSMAN_PWD <sysman password>`
			Note: If the deconfigure operation hangs, then refer to My Oracle Support note 375946.1

Existing Database Not to Have SYSMAN and SYSMAN_MDS Schema	Fresh Install	No	Ensures that your existing, certified Oracle Database does NOT have the Enterprise Manager SYSMAN schema and the Metadata (MDS) schema already configured. These schemas can exist if you had configured the database for another Enterprise Manager installation in the past, and if you are now trying to reuse the same database for a new installation. To manually verify if the schemas are present and to drop them, run the following query: `SELECT COUNT(*) FROM ALL_USERS WHERE USERNAME IN ('SYSMAN','SYSMAN_MDS');` If the result of this query is 1, then the database has these schemas. In this case, drop the schemas and deinstall the Enterprise Manager software that had created these schemas. For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description
Database Initialization Parameters Requirements	Install and Upgrade except db_block_size which applies only to install.	No	Ensures that you have correctly set the database initialization parameters. For information about the database initialization parameters to be set for various deployment sizes, refer to the *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.
Fine-Grained Access Control Requirements	Upgrade	No	Ensures that the fine-grained access control option is set to TRUE in the existing, certified Oracle Database so that the Management Repository can be created. To manually verify this, run the following command: `select value from v$option where parameter = 'Fine-grained access control';`

UNDO Tablespace Size Requirements	Install and Upgrade	No	Ensures that the UNDO tablespace has a minimum space of 200 MB.
			To manually verify this, run the following query:
			`SELECT SUM(DECODE(autoextensible,'YES',200*1024*1024+1,bytes)) total`
			`FROM dba_data_files f, dba_tablespaces s`
			`WHERE s.contents = 'UNDO'`
			`AND s.tablespace_name = f.tablespace_name;`
			Note: The result of this query is in bytes.
			If the minimum space is less than 200 MB, then set it to 200 MB by running the following command:
			`alter database datafile <location datafile> resize 200M;`

UNDO Tablespace and Temporary Tablespace Settings Requirements	Install and Upgrade	No	Ensures that the UNDO tablespace and the TEMP tablespace are autoextensible in the existing, certified Oracle Database.
			To manually verify this, run the following command:
			`select count(*) from dba_temp_files where tablespace_name='TEMP' and AUTOEXTENSIBLE <> 'YES';`
			`select count(*) from dba_data_files where tablespace_name='UNDOTBS' and AUTOEXTENSIBLE <> 'YES';`
			If the result of the query is 0, then the tablespace is autoextensible. If the result it not 0, then refer to Oracle Database Administrator's Guide available at the following location to make the tablespace autoextensible.
			http://www.oracle.com/technology/documentation/database.html

Archive Logging Settings Requirements	Install and Upgrade	No	(Recommended) Ensures that you turn on archive logging in the existing, certified Oracle Database for any environment where continuity of data is important. To manually verify this, run the following command in the SYS role: `select log_mode from v$database;` The result returned must be `ARCHIVELOG`.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description
Tablespace-Related Hard Disk Space Requirements	Install	No	Ensures that you allocate a minimum of 200 MB hard disk space for the following tablespaces: - Management Tablespace (mgmt.dbf) - Configuration Data Tablespace (mgmt_ecm_depot1.dbf) - JVM Diagnostics Data Tablespace (mgmt_deepdive.dbf) Oracle also recommends that you keep the auto-extend feature enabled for the tablespace data files. Note that the space requirement increases as the number of monitored targets increase, along with the input/output performance demands on the storage devices.
Existing Management Repository	Upgrade	No	Ensures that the existing, certified Oracle Database, which houses the Management Repository, already has a Management Repository configured, and that the Management Repository is compatible with Oracle Management Service 11*g* Release 1 (11.1).
Database Partitioning Requirements	Install and Upgrade	No	Ensures that the existing, certified Oracle Database has the Partitioning Option enabled (therefore, ensure that you install it into Oracle Database Enterprise Edition.) Installing and using the partitioning option in the Enterprise Manager repository does not add costs to customers when used solely by Enterprise Manager. To manually verify this, connect to the database as SYSDBA and run the following query: `select value from v$option where parameter = 'Partitioning';` The result of this query should be VALUE=TRUE. No additional partitioning license is required for the database that houses the Management Repository.

Database Partition Maintenance Requirements	Upgrade	No	Checks if the partitions have been created in the database.
			If the Enterprise Manager system that you are about to upgrade was shut down for a long period of time, then you will not have partitions created in the existing, certified Oracle Database, which houses the Management Repository, to load new data. Therefore, under such circumstances, to manually create the partitions, follow these steps:
			1. Log in to the database as SYSMAN and run the following command:
			`execute emd_maintenance.analyze_emd_schema('SYSMAN');`
			`commit;`
			2. Restart the OMS from its Oracle home:
			`$<ORACLE_HOME>/bin/emctl start oms`

Database and Listener Status Requirements	Install	No	Ensures that the existing, certified Oracle Database and its listener are running.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description

Valid Objects Requirements	Install, Upgrade, and Post requisite	No	Ensures that you do have only valid SYSMAN and SYS objects in the existing, certified Oracle Database.
			■ To manually verify whether there are only valid SYSMAN objects, log in to the database as SYS and run the following command:
			`select object_name, object_type from all_objects where owner='SYSMAN' and status <> 'VALID';`
			The command must return 0 rows. However, if it returns one or more rows, then you have some invalid objects, and to turn them valid, run the following command as SYSMAN:
			`@admin_recompile_invalid.sql SYSMAN`
			Run this command again to ensure that all SYSMAN objects are valid. If you still have invalid SYSMAN objects, then contact Oracle Support.
			Note: The admin_recompile_invalid.sql script is in the following location of the Oracle home of the OMS:
			`<ORACLE_HOME>/sysman/admin/emdrep/sql/core/latest/admin`
			■ To manually verify whether there are only valid SYS objects, log in to the database as SYS and run the following command:
			`select object_name, object_type from all_objects where status<>'VALID' and object_name like 'DBMS%';`
			The command must return 0 rows. However, if it returns one or more rows, then you have some invalid objects, and to turn them valid, recompile them by running the following command:
			`alter <object type> <object name> compile;`
			For example, if the object_type is mypackage and the object_name is foo, then run the following command:
			`alter mypackage foo compile;`
			Run this command again to ensure that all the packages are valid. If you still have invalid packages, then contact Oracle Support.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description

DBMS Jobs and DBMS Scheduler Status Requirements	Install and Upgrade	Yes	Ensures that you stop the DBMS Jobs and the DBMS Scheduler in the existing, certified Oracle Database.
			To manually stop the jobs and the scheduler, log in to the database as SYS:
			1. Write down the value of job_queue_processes by running the following command:
			`select a.instance_name as sid, b.value as jobqueue from gv$instance a, gv$parameter b where a.inst_id = b.inst_id and b.name='job_queue_processes';`
			2. Stop the DBMS JOBS and DBMS scheduler by running the following command:
			`execute emd_maintenance.remove_em_dbms_jobs;`
			`alter system set job_queue_processes=0 SID='*';`
			`commit;`
			Note: This will allow the currently running jobs to finish, but will not allow any new jobs to be started.
			3. Ensure that there are no active jobs by running the following:
			`select l.id2 job, l.sid, to_char(last_date, 'DD-MON-YYYY:HH24.MI.SS') last_date, to_char(this_date, 'DD-MON-YYYY:HH24.MI.SS') this_date, l.inst_id instance from sys.job$ j, gv$lock l where l.type = 'JQ' and j.job (+) = l.id2 order by 5, 4;`

Gather Statistics Job Status Requirements	Install and Upgrade	Yes	Ensures that you stop the Gather Statistics job that is running in the existing, certified Oracle Database.
			To manually stop the job, log in to the database as SYS and run the following commands:
			For Oracle Database 10*g* (10.2.0.4) or higher:
			`execute dbms_scheduler.disable('GATHER_STATS_JOB',TRUE);`
			`execute dbms_scheduler.stop_job('GATHER_STATS_JOB',TRUE);`
			For Oracle Database 11*g* (11.1.0.7) or higher:
			`execute dbms_auto_task_admin.disable('auto optimizer stats collection',null,null);`

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description

User Privilege Requirements	Upgrade	No	Ensures that SYSMAN and DBSNMP users have EXECUTE privileges to access the DBMS_RANDOM package in the existing, certified Oracle Database.
			To manually verify whether the users have EXECUTE privileges, run the following query. When you run this query for the SYSMAN user, the <user_account_name> must be SYSMAN, and when you run it for the DBSNMP user, the <user_account_name> must be DBSNMP.
			`SQL> CONNECT AS SYS;`
			`SQL> SELECT grantee, grantor, owner, table_name`
			`FROM DBA_TAB_PRIVS`
			`WHERE table_name = 'DBMS_RANDOM'`
			`AND privilege = 'EXECUTE'`
			`AND grantee IN`
			`(`
			`SELECT DISTINCT granted_role`
			`FROM DBA_ROLE_PRIVS`
			`START WITH grantee = '<user_account_name>'`
			`CONNECT BY PRIOR granted_role=grantee`
			`UNION ALL`
			`SELECT '<user_account_name>'`
			`FROM dual`
			`WHERE ROWNUM = 1`
			`UNION ALL`
			`SELECT 'PUBLIC'`
			`FROM dual`
			`WHERE ROWNUM = 1`
			`)`
			If these users do not have EXECUTE privileges, then grant them the privileges by running the following command. When you run this command for granting the privileges for the SYSMAN user, the <user_account_name> must be SYSMAN, and when you run it for the DBSNMP user, the <user_account_name> must be DBSNMP.
			`SQL> GRANT EXECUTE ON DBMS_RANDOM TO <user_account_name>;`

Environment Variable Setting Requirements	Install	No	Ensures that the environment variable ORACLE_HOME is set to the Oracle home of the OMS.
			For example, in Cshell, set it in the following way:
			`setenv ORACLE_HOME /home/OraHomes/oms10g`
			For example, in bash shell, set it in the following way:
			`export ORACLE_HOME= /home/OraHomes/oms10g`

SUDO Configuration Requirements	Install	No	Ensures that you configure SUDO in your environment. If you are unable to do so or if you have already upgraded any of the core components (OMS or Management Agent) without configuring SUDO, then follow the workaround described in My Oracle Support note 789363.1.
User-Defined Metric Script Definition Requirement	Upgrade	No	If you have any user-defined metric scripts in the Oracle home of a Management Agent that you are upgrading, then checks if you have manually copied all those scripts to another directory outside any Oracle home, and then updated the user-defined metric definitions to reflect the new script location. This is because, after the Management Agent is upgraded, the user-defined metric scripts are not automatically copied to the new Oracle home.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description
TEMP Tablespace Group requirement	Upgrade/Install	No	Ensures that there is no tablespace group name called TEMP already existing. If it does, then ensure that you rename it to a different name before installing or upgrade Enterprise Manager. You can always revert to the original name after you finish installing or upgrading. To manually verify this, log in to the database as SYS user, and run the following query: `select count(*) group_name from DBA_TABLESPACE_GROUPS where UPPER(group_name)='TEMP'` The result of the above query should not be 0.
SYSMAN_OPSS account status requirement	Upgrade	No	Ensures that SYSMAN_OPSS account is not locked. To manually verify this, log in to the database as SYS user and run the following query: `select account_status from dba_users where username='SYSMAN_OPSS'` SYSMAN_OPSS account status should be unlocked and unexpired
Global Name requirement	Upgrade(2-system upgrade only)	No	Ensures that Global names of old and new database are not same. To manually verify this, log in to the database as SYS user and run the following query: `select count(1) from global_name where global_name=(select property_value from SYSMAN.pre_upgc_master_info where upper(property_name)=upper('oldReposGlobalName') and rownum=1) and exists (select 1 from ${EM_REPOS_USER}.pre_upgc_master_info where upper(property_name)=upper('upgrade_type') and upper(property_value) =upper('TWO_SYSTEM')) and exists (select 1 from SYSMAN.pre_upgc_master_info where upper(property_name)=upper('oldReposGlobalNames') and rownum=1 and upper(property_value)='TRUE')` The result of the above query should be 0, if not then change global-names in old repository to a temporary name as this repository/Enterprise Manager would cease to exist after upgrade; or change GLOBAL_NAME of new repository.
Database Edition Requirements	Install	No	Ensures that you are using Oracle Enterprise Database edition to install Enterprise Manager. To manually verify this, log in to the database as SYS user and run the following query: `select count(1) from PRODUCT_COMPONENT_VERSION where PRODUCT like '%Oracle Database%' and instr(PRODUCT,'Enterprise Edition')>0` The result of the above query should not be 0.

Table A–5 (Cont.) Repository Prerequisites

Prerequisite	Applies to Install/Upgrade	Automatic	Description

Existing database not to have previous Enterprise Manager's details in schema_version_registry table	Install	No	Ensures that existing database does not have previous Enterprise Manager's details in schema_version_registry table.
			To manually verify this, log in to the database as SYS user and run the following query:
			`select count(1) from SCHEMA_VERSION_REGISTRY where comp_name in ('Authorization Policy Manager','Metadata Services','Oracle Platform Security Services')`
			If the result of the above query is not 0 then delete the entries from SCHEMA_VERSION_REGISTRY using the following query:
			`Delete from SCHEMA_VERSION_REGISTRY where comp_name in ('Authorization Policy Manager','Metadata Services','Oracle Platform Security Services');`
			`commit;`

Existing database Not to have tablespaces of previous Enterprise Manager	Install	No	Ensures that your existing, certified Oracle Database does not have tablespaces of previous Enterprise Manager. To manually verify if the database contains such table spaces, run the following query: `select count(1) from dba_tablespaces where TABLESPACE_NAME in ('MGMT_ECM_DEPOT_TS','MGMT_TABLESPACE','MGMT_AD4J_TS')` If the result of the above query is not 0, then you can drop these table spaces otherwise new Enterprise Manager will reuse it.
Existing database not to have public synonym on the tables owned by any of the following Enterprise Manager Repository schemas: SYSMAN', SYSMAN_MDS,MGMT_VIEW,'SYSMAN_BIP,'SYSMAN_APM,BIP,SYSMAN_OPSS and SYSMAN_RO	Install	No	Ensures that your existing, certified Oracle Database does NOT have any public synonyms on the tables owned by any of the following schemas: SYSMAN', SYSMAN_MDS,MGMT_VIEW,'SYSMAN_BIP,'SYSMAN_APM,BIP,SYSMAN_OPSS and SYSMAN_RO To manually verify whether your database has the public synonyms owned by Enterprise Manager database schemas, log in to the database as SYS user and run the following query: `select count(1) from dba_synonyms where table_owner in ('SYSMAN','SYSMAN_MDS','MGMT_VIEW','SYSMAN_BIP','SYSMAN_APM','BIP','SYSMAN_OPSS','SYSMAN_RO')` If the result of this query is not 0, then the database has these public synonyms, so drop them and deinstall the Enterprise Manager software that had created these schemas. For instructions, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

B

Validating Command Locations

This chapter describes what property files and the command locations within them you need to validate before installing a standalone Oracle Management Agent (Management Agent). In particular, this chapter covers the following:

- Overview of Property Files
- Validating Command Locations

B.1 Overview of Property Files

Every time you install a Management Agent, the property files mentioned in the `platformInfo.properties` file are loaded with default locations to commands that are required for successfully running certain Application Programming Interfaces (APIs). For example, the `scp` executable. This section describes the property files mentioned in the `platformInfo.properties` file.

Table B–1 describes the property files loaded from the `platformInfo.properties` file.

Table B–1 Property Files Loaded from platformInfo.properties File

Loading Order	Property File Name	Type	Description
1	`Paths.properties`	Generic	Contains arguments that need to be passed every time the commands listed in this file are run.
2	`sPaths.properties`	Generic	Contains paths for all the commands that need to be run, regardless of the operating system.
3	`ssPaths_<platform>.properties`	Operating System-Specific	Contains commands that need to be run for a particular operating system. For example, `ssPaths_linux_zseries64.properties`. On Microsoft Windows, the path to the Cygwin binaries is hardcoded in the ssPaths_msplats.properties file. If you install Cygwin in a location other than c:\cygwin (default location), it can cause the Management Agent installation to fail. To resolve this issue, you must either install Cygwin in the default directory (c:\cygwin), or update this properties file with the correct path to the Cygwin binaries.
4	`userPaths.properties`	Generic	Contains variables that are used to specify the command paths. You must uncomment the variables that you want to use and specify appropriate values.

Keep in mind the following points:

- The property files mentioned in the `platformInfo.properties` file are loaded one-by-one in ascending order. This means that command locations you specify in the last file that is loaded will override the values you specified for the same key in the previously loaded property file.

  For example, `spaths.properties` is loaded before `ssPaths.properties`. So if the default location for the `scp` executable in `sPaths.properties` file is `/usr/local/bin/scp`, and if location for the same executable in the `ssPaths.properties` file is `/usr/bin/scp`, then the value in the latter file takes precedence over the former file.

- If you want to include other command variables, then you can do one of the following:
  - Specify the additional command variables in `sPaths.properties`, `ssPaths_<platform>.properties`, or `userPaths.properties`.
  - Create a new property file with additional command variables. Then, mention the name of this new property file in `platforminfo.properties`.

B.2 Validating Command Locations

The default command locations specified in the property files can vary between hosts and operating systems. Therefore, it is important to verify the command locations before you install a Management Agent.

To validate the command locations, follow these steps:

1. Access the `platformInfo.properties` file from the following location of the OMS home, and make note of the property files you need to validate for your platform:

   `$<OMS_HOME>/oui/prov/resources`

2. *(Not required if the OMS host runs on Microsoft Windows)* Access each of the property files you noted in Step (1), and verify that the command locations mentioned for the following variables map to valid locations on the OMS host:
   - `SSH_PATH`
   - `SCP_PATH`
   - `SH_PATH`
3. Access each of the property files you noted in Step (1), and verify that the command locations mentioned for the following variables also map to valid locations on the destination host:
   - `SCP_PATH`
   - `SH_PATH`
   - `SSH_PATH`
   - `CHMOD_PATH`
   - `MKDIR_PATH`
   - `RM_PATH`
   - `LS_PATH`

C

Setting Up the Proxy Configuration for Oracle Management Service

If you have a proxy server running on the host where Oracle Management Service (OMS) is installed, then set up the proxy server settings in Enterprise Manager Cloud Control, so that it can use the settings to connect to My Oracle Support and communicate with its Oracle Management Agents (Management Agents).

This appendix describes the following:

- Setting Up the Proxy Settings for My Oracle Support
- Setting Up the Proxy Settings for Oracle Management Agents
- Enabling Oracle Management Service to Access My Oracle Support When a Firewall Is Configured

C.1 Setting Up the Proxy Settings for My Oracle Support

To set up the proxy server settings for My Oracle Support, do the following:

1. From the **Setup** menu, select **Proxy Settings,** then select **My Oracle Support.**
2. On the Proxy Settings for My Oracle Support page, select **Manual Proxy Configuration.**
3. Select **Password/Advanced Setup,** and enter the proxy server host (HTTPS), port, realm, user name, and password. Only HTTPS Protocol is supported. Also note that NTLM proxy is not currently supported.
4. Click **Apply**.

Note: As a next step, you must set up the My Oracle Support credentials. To do so, follow these steps:

1. From the **Setup** menu, select **My Oracle Support,** then select **Set Credentials.**
2. Enter the user name and password, click **Apply.**

Note: Beginning with Enterprise Manager Cloud Control 12c Release 3 (12.1.0.3), My Oracle Suppot 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.

C.2 Setting Up the Proxy Settings for Oracle Management Agents

To set up the proxy server settings for Management Agents, do the following:

1. From the **Setup** menu, select **Proxy Settings,** then select **Agents.**
2. On the Proxy Settings for Agents page, select **Manual Proxy Configuration,** and enter the proxy server host (HTTPS and HTTP), port, realm, user name, and password

   Note: Only HTTP and HTTPS protocols are supported. NTLM proxy is not currently supported.

3. To verify if a Management Agent is reachable, in the Test URL section, enter a Management Agent URL, and click **Test.** Make sure the URL contains the protocol used (HTTP or HTTPS).
4. Click **Apply**.

The proxy server settings you specify are registered in the Management Repository. However, in case of multiple OMS environment, after you set up the proxy server settings for one OMS, restart other OMS instances to ensure that the proxy server settings registered for communicating with the Management Agents are propogated across all OMS instances.

C.3 Enabling Oracle Management Service to Access My Oracle Support When a Firewall Is Configured

To understand 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*.

D

Creating a Database Instance with Preconfigured Repository Using Database Templates

While installing Enterprise Manager Cloud Control, you must provide the details of a database where Oracle Management Repository (Management Repository) can be configured to store all Enterprise Manager-related data. Although the Enterprise Manager Cloud Control Installation Wizard is capable of configuring the Management Repository in the specified database, you can optionally choose to preconfigure the Management Repository in your database beforehand. This saves installation time.

To preconfigure the Management Repository in your database, use the database templates offered by Oracle. These database templates first create a database instance, and then preconfigure the Management Repository in it. The templates preconfigure the Management Repository with database parameters that are required for each deployment size—small, medium, and large.

To create a database instance with a preconfigured Oracle Management Repository using the database templates offered by Oracle, follow these steps:

1. Install Oracle Database 12c Release 1 (12.1.0.2) software on the host where you want to create the database.

   Oracle recommends a software-only installation, although you can perform a normal, regular database installation and then invoke Database Configuration Assistant to use the template.

   For instructions, refer to the Oracle Database Installation Guide available at:

   http://www.oracle.com/technetwork/database/enterprise-edition/documentation/index.html

2. From the following Oracle Technology Network (OTN) URL, download the `12.1.0.2_Database_Template_for_EM12_1_0_5_<platform>.zip` file specific to the platform on which you have installed Oracle Database 12*c* Release 1 (12.1.0.2). This ZIP file will work only with Oracle Database 12*c* Release 1 (12.1.0.2).

   http://www.oracle.com/technetwork/oem/enterprise-manager/downloads/index.html

   Caution: Make sure that the `12.1.0.2_Database_Template_for_EM12_1_0_5_<platform>.zip` file is used only for Enterprise Manager Cloud Control 12c Release 5 (12.1.0.5). Do NOT use it for any earlier release of Enterprise Manager Cloud Control.

3. Extract the 12.1.0.2_Database_Template_for_EM12_1_0_5_<platform>.zip file to the following location on the database host.

   $<DB_HOME>/assistants/dbca/templates

   For example,

   /u01/software/oracle/database/dbhome_1/assistants/dbca/templates

   Table D–1 lists the contents of the 12.1.0.2_Database_Template_for_EM12_1_0_5_<platform>.zip file:

Table D–1 Contents of 12.1.0.2_Database_Template_for_EM12_1_0_5_<platform>.zip

File Name	Description
12.1.0.2_Database_Template_for_EM12_1_0_5_Large_deployment.dbc	The .dbc file for large deployments.
12.1.0.2_Database_Template_for_EM12_1_0_5_Medium_deployment.dbc	The .dbc file for medium deployments.
12.1.0.2_Database_Template_for_EM12_1_0_5_Small_deployment.dbc	The .dbc file for small deployments.
DB12.1.0.2_EM_Seed_database.ctl	The .ctl file required by the .dbc file .
DB12.1.0.2_EM_Seed_database.dfb	The .dbf file required by the .dbc file .
set_repo_param_12.1.0.2_Database_SQL_for_EM12_1_0_5_Large_deployment.sql	The .sql file for setting database parameters and converting the Management Repository to support large deployments.
set_rrepo_param_12.1.0.2_Database_SQL_for_EM12_1_0_5_Medium_deployment.sql	The .sql file for setting database parameters and converting the Management Repository to support medium deployments.
set_repo_param_12.1.0.2_Database_SQL_for_EM12_1_0_5_Small_deployment.sql	The .sql file for setting database parameters and converting the Management Repository to support small deployments.
shpool_12.1.0.2_Database_SQL_for_EM12_1_0_5.sql	The .sql file required by the .dbc file for setting shared pool size as per the requirement.

4. Create the database by running Oracle Database Configuration Assistant from <DB_HOME>/bin/dbca. On the Database Templates screen, select the template that matches the deployment size of your choice.

> **Caution:** Large deployment is not supported on Linux 32-bit operating systems.

> **WARNING: When you run Oracle Database Configuration Assistant to create the database, on the Management Options screen, by default the *Configure Enterprise Manager (EM) Database Express* option is selected. Make sure you DESELECT it.**
>
> **This option creates DB Control objects in the database. If you select this option, then you will not be able to use the database because it will contain both DB Control objects and Cloud Control objects. The only way to overcome this issue is to re-create the database, and then proceed.**

WARNING: When you run Oracle Database Configuration Assistant to create the database, on the Database Content screen, by default the *Run the following scripts* option is selected to run the `shpool` script. The script sets the shared pool in the database. Make sure you RETAIN THE SELECTION. Do not deselect it.

Note: While creating the database, if you see any option in the Oracle Database Configuration Assistant to unlock accounts, then ignore that option. Do not unlock any account while creating the database. These accounts will be automatically unlocked and set with a password you enter, by the Enterprise Manager Cloud Control Installation Wizard when you install Enterprise Manager Cloud Control. Therefore, there is no need to unlock them now while creating the database.

Note: For information about the configuration assistants run by the Enterprise Manager Cloud Control Installation Wizard when a database preconfigured with a Management Repository is used, see *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

E

Accessing the Enterprise Manager Certification Matrix

To access the Enterprise Manager certification matrix, follow these steps:

1. Log in to My Oracle Support.
2. Click the **Certifications** tab.
3. On the Certifications page, in the **Certification Search** region, from the **Product** list, select one of the following:
   - **Enterprise Manager Base Platform - OMS,** to view the certification for OMS.
   - **Enterprise Manager Base Platform - Agent,** to view the certification for Management Agent.
4. From the **Release** list, select **12.1.0.5.0,** and click **Search.**

> **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.

F

Installing Management Agents on Microsoft Windows Target Hosts Without Using Cygwin

Installing Management Agents on Microsoft Windows target hosts using the Add Host Targets Wizard or EM CLI requires you to install Cygwin on each of the hosts, as a prerequisite. If your OMS is of version 12.1.0.3, 12.1.0.4, or 12.1.0.5 and if you do not want to install Cygwin on these hosts, you can install the PsExec utility instead, and use it to install Management Agents on the Microsoft Windows target hosts. This appendix describes how to perform this task. It consists of the following sections:

- Installing Management Agents Using PsExec when the OMS Platform is Unix-based
- Installing Management Agents Using PsExec when the OMS Platform is Microsoft Windows

F.1 Installing Management Agents Using PsExec when the OMS Platform is Unix-based

Important: To install Management Agents on Microsoft Windows target hosts using PsExec when the OMS platform is Unix-based, you need a Microsoft Windows staging host server. Hence, ensure that a Microsoft Windows host that you can use as a staging server exists in your enterprise.

To install the PsExec utility, and use it to install Management Agents on Microsoft Windows target hosts when the OMS host runs on a Unix-based operating system, follow these steps:

1. Download the PsExec utility onto the Microsoft Windows staging host server from the following URL:

   `http://technet.microsoft.com/en-us/sysinternals/bb897553.aspx`

   Extract the contents of the zip file to a particular directory.

   Downloading the PsExec utility is a one-time activity. The PsExec utility must be downloaded only onto the Microsoft Windows staging host server, and need not be downloaded onto the Microsoft Windows target hosts.

2. Run the following command from the command prompt to verify that the PsExec utility is functioning properly:

   ```
   psexec calc
   ```

If the PsExec utility is functioning properly, the Microsoft Windows Calculator application will start up.

3. Follow these steps to ensure that the required Management Agent software is present on the Microsoft Windows staging host server:

   1. Run the following command from the OMS host to obtain the list of platforms for which the Management Agent software is downloaded and applied:

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

      If the required Microsoft Windows platform does not appear in this list, download and apply the Management Agent software for this platform using Self Update. For information on how to do this, see Section 7.3.2.

   2. Download the Management Agent software onto the Microsoft Windows staging host server, and unzip it. To perform this task, use one of these methods:

      Method 1: Downloading the Software Using EM CLI from the OMS Host, and Transferring It Using an FTP Client

      Download the Management Agent software to a temporary directory on the OMS host, then transfer the software to the staging host using WinSCP, or any other FTP client. To download the Management Agent software to a temporary directory on the OMS host, run the following command from the OMS host:

      ```
      $<OMS_HOME>/bin/emcli get_agentimage -destination=<download_
      directory> -platform="<platform>" -version=<version>
      ```

      After transferring the zip file to the staging host, verify its size and its checksum value to ensure that the entire zip file was transferred. Unzip the zip file. Set the `ZIP_LOC` environment variable to `$OMS_HOME/bin/zip`, which is the location of the ZIP utility on the OMS host.

      Method 2: Downloading the Software Using EM CLI from the Staging Host

      Download EM CLI onto the staging host server.

      For information on how to do this, see the 'Downloading and Deploying EM CLI' chapter in *Oracle Enterprise Manager Command Line Interface.*

      After downloading EM CLI onto the staging host, ensure that you connect the client to the OMS. For information on how to do this, see the 'Connecting the EM CLI Client to OMS' section in the chapter referenced above.

      Download the Management Agent software onto the staging host server by running the following command:

      ```
      <emcli_install_location>\emcli get_agentimage
      -destination=<download_directory> -platform="<platform>"
      -version=<version>
      ```

      Unzip the Management Agent software zip file.

      Important: This step (downloading the required Management Agent software onto the staging host) is a one-time activity. Once the required Management Agent software is downloaded onto the staging host, it can be reused to deploy Management Agents on any number of Microsoft Windows target hosts.

      ---

4. Download the `agentDeployPsExec.bat` script onto the staging host, from the following location:

   `$OMS_HOME/sysman/prov/agentpush/scripts/agentDeployPsExec.bat`

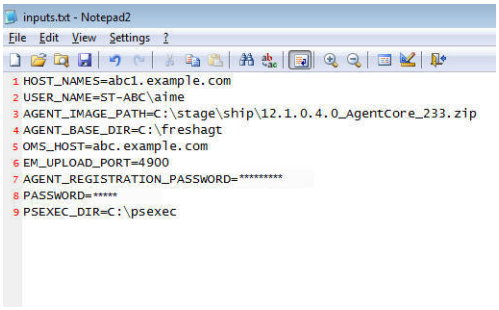
5. Create a response file to specify the Management Agent install inputs. Table F–1 lists the mandatory parameters that you must include, and the optional parameters that you can include in the response file.

Table F–1 Creating a Response File for Installing Management Agents Using PsExec

Parameter	Description
HOST_NAMES	*(Mandatory)* Use this parameter to specify the names of the Microsoft Windows target hosts on which you want to install Management Agents. Use a colon (:) as a separator between the host names.
USER_NAME	*(Mandatory)* Use this parameter to specify the target host login user name.
PASSWORD	*(Mandatory)* Use this parameter to specify the target host login password.
PSEXEC_DIR	*(Mandatory)* Use this parameter to specify the absolute path to the location where you downloaded and extracted the PsExec utility.
AGENT_IMAGE_PATH	*(Mandatory)* Use this parameter to specify the absolute path to the location where you unzipped the Management Agent software zip file.
AGENT_BASE_DIR	*(Mandatory)* Use this parameter to specify the location of the Management Agent install base directory.
AGENT_REGISTRATION_PASSWORD	*(Mandatory)* Use this parameter to specify the password for registering new Management Agents that join the Enterprise Manager system.
EM_UPLOAD_PORT	*(Mandatory)* Use this parameter to specify the upload port (HTTP or HTTPS) for communicating with the OMS.
OMS_HOST	*(Mandatory)* Use this parameter to specify the name of the OMS host.
REMOTE_SYS_DIR	*(Mandatory)* Use this parameter to specify the directory that the PsExec utility must use internally to copy or transfer files. Ensure that this parameter is set to `C:\Windows` or `C:\Windows\System32`
ADDITIONAL_PARAMETERS	*(Optional)* Use this parameter to specify the list of additional parameters that you want to use. Separate the parameters using a colon.
PROPERTIES_FILE	*(Optional)* Use this parameter to specify the absolute path to the properties file.
LOG_LOC	*(Optional)* Use this parameter to specify the location of the Management Agent deployment logs.

Figure F–1 displays a sample response file.

Figure F–1 Sample Response File for Installing Management Agents Using PsExec



6. If you have set the `PERL5LIB` environment variable on the staging host, delete it. You can set this environment variable again after installing the Management Agents.
7. Run the following command from the staging host to install Management Agents on the selected Microsoft Windows target hosts:

   ```
   C:\<location_of_downloaded_psexec_script>\agentDeployPsExec.bat
   PROPERTIES_FILE=<absolute_path_to_response_file>
   ```

   For example, `C:\stage\agentDeployPsExec.bat PROPERTIES_FILE=C:\stage\input.txt`

   Note: The Management Agent install log files are created in the location you specified for the `LOG_LOC` response file parameter. If you didn't specify the `LOG_LOC` parameter in the response file, the log files are created in the directory that contains the `agentDeployPsExec.bat` script.

F.2 Installing Management Agents Using PsExec when the OMS Platform is Microsoft Windows

Important:

- To install Management Agents on Microsoft Windows hosts using PsExec when the OMS platform is Microsoft Windows, you do not need a separate Microsoft Windows staging host server.
- If the OMS software was installed in a drive other than `C:\`, then update the `SCRATCH_PATH` variable in `$OMS_HOME\oui\prov\resources\ssPaths_msplats.properties`.

  For example, if the OMS software was installed in `D:\`, ensure that you update the `SCRATCH_PATH` variable to `D:\tmpada`

To install the PsExec utility, and use it to install Management Agents on Microsoft Windows hosts when the OMS host runs on Microsoft Windows, follow these steps:

1. Download the PsExec utility onto the OMS host from the following URL:

   http://technet.microsoft.com/en-us/sysinternals/bb897553.aspx

   Extract the contents of the zip file to a particular directory.

Downloading the PsExec utility is a one-time activity. The PsExec utility must be downloaded only onto the OMS host, and need not be downloaded onto the Microsoft Windows target hosts.

2. Run the following command from the command prompt to verify that the PsExec utility is functioning properly:

   ```
   psexec calc
   ```

   If the PsExec utility is functioning properly, the Microsoft Windows Calculator application will start up.

3. Follow these steps to ensure that the required Management Agent software is present on the OMS host:

   1. Run the following command to obtain the list of platforms for which the Management Agent software is downloaded and applied:

      ```
      $<OMS_HOME>\bin\emcli get_supported_platforms
      ```

      If the required Microsoft Windows platform does not appear in this list, download and apply the Management Agent software for this platform using Self Update. For information on how to do this, see Section 7.3.2.

   2. Download the Management Agent software to a temporary directory on the OMS host:

      ```
      $<OMS_HOME>\bin\emcli get_agentimage -destination=<download_
      directory> -platform="<platform>" -version=<version>
      ```

      For example,

      ```
      .\emcli get_agentimage -destination=C:\temp -platform="Microsoft
      Windows x64 (64-bit)" -version=12.1.0.5.0
      ```

      Unzip the Management Agent software zip file. Set the `ZIP_LOC` environment variable to `$OMS_HOME\bin\zip`, which is the location of the ZIP utility on the OMS host.

      Important: This step (downloading the required Management Agent software onto the OMS host) is a one-time activity. Once the required Management Agent software is downloaded onto the OMS host, it can be reused to deploy Management Agents on any number of Microsoft Windows target hosts.

      ---

4. Create a response file to specify the Management Agent install inputs. Table F–1 lists the mandatory parameters that you must include, and the optional parameters that you can include in the response file.

   Figure F–1 displays a sample response file.

5. If you have set the `PERL5LIB` environment variable on the OMS host, delete it. You can set this environment variable again after installing the Management Agents.

6. Run the following command from the OMS host to install Management Agents on the selected Microsoft Windows hosts:

   ```
   $<OMS_HOME>\sysman\prov\agentpush\scripts\agentDeployPsExec.bat
   PROPERTIES_FILE=<absolute_path_to_response_file>
   ```

For example,

```
D:\u01\oracle\sysman\prov\agentpush\scripts\agentDeployPsExec.bat
PROPERTIES_FILE=C:\stage\input.txt
```

Note: The Management Agent install log files are created in the location you specified for the `LOG_LOC` response file parameter. If you didn't specify the `LOG_LOC` parameter in the response file, the log files are created in the directory that contains the `agentDeployPsExec.bat` script.

G

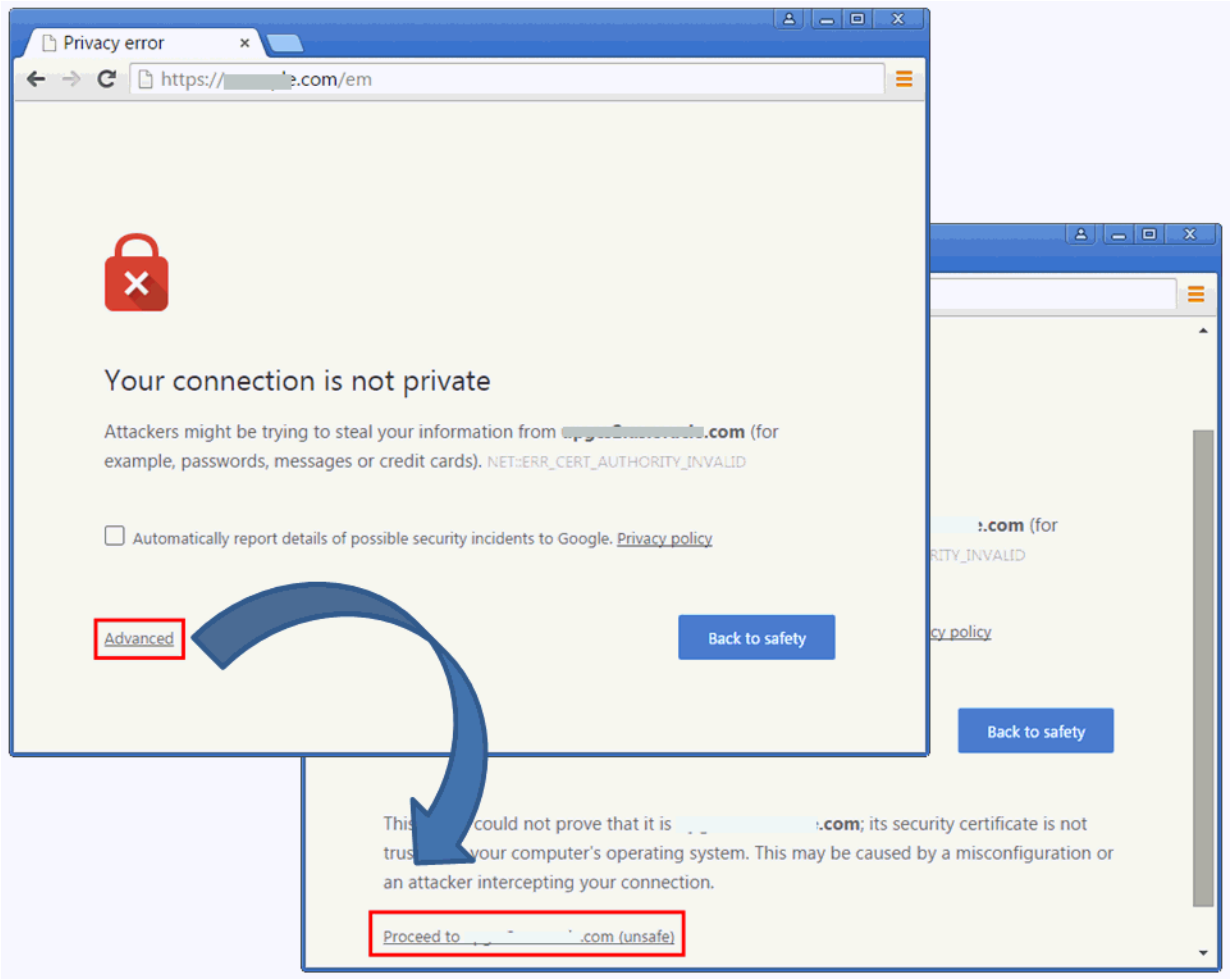
Installing Browser Certificates

When you connect to Enterprise Manager via HTTPS, the OMS presents your browser with a certificate to verify the identity of the OMS. This certificate has been verified by a third party that your computer trusts. When a Web browser encounters an untrusted certificate, it generates security alert messages. The security alert dialog boxes appear because Enterprise Manager Framework Security is enabled, but you have not secured your Web tier properly.

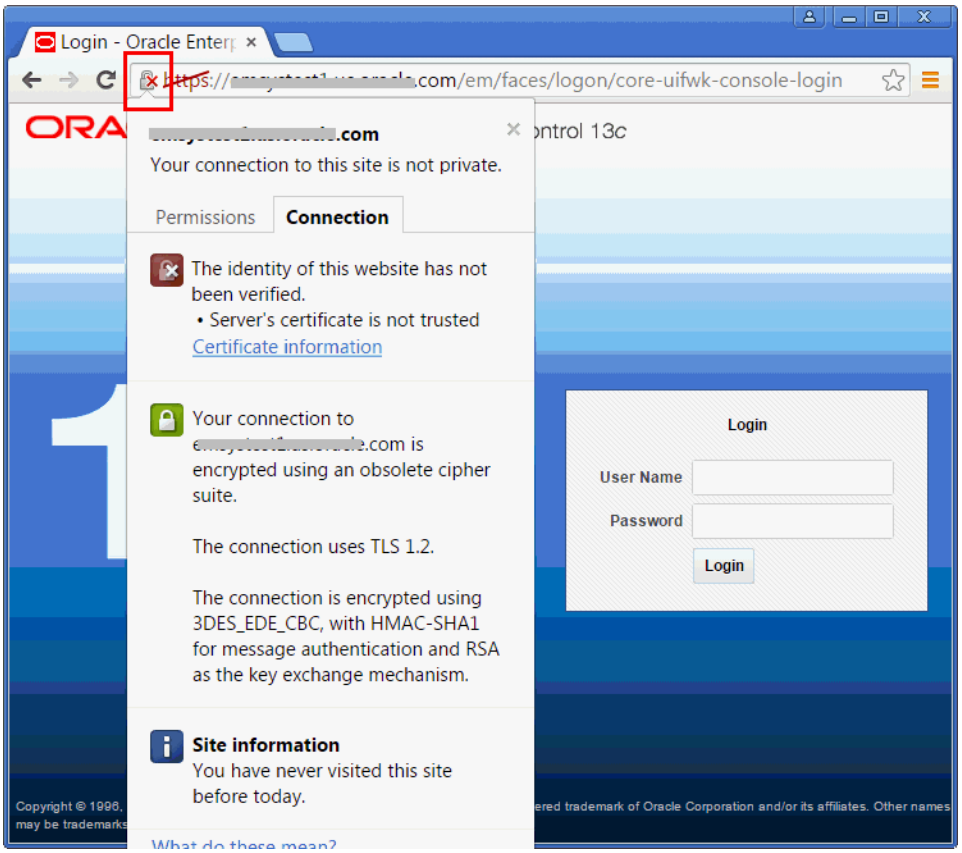
Oracle requires that you import these browser certificates to the browser's list of trusted root certificates to eliminate the certificate security alerts in future browser sessions. This appendix describes how you can do so for Google Chrome version 44+.

To import browser certificates to Google Chrome version 44+, follow these steps:

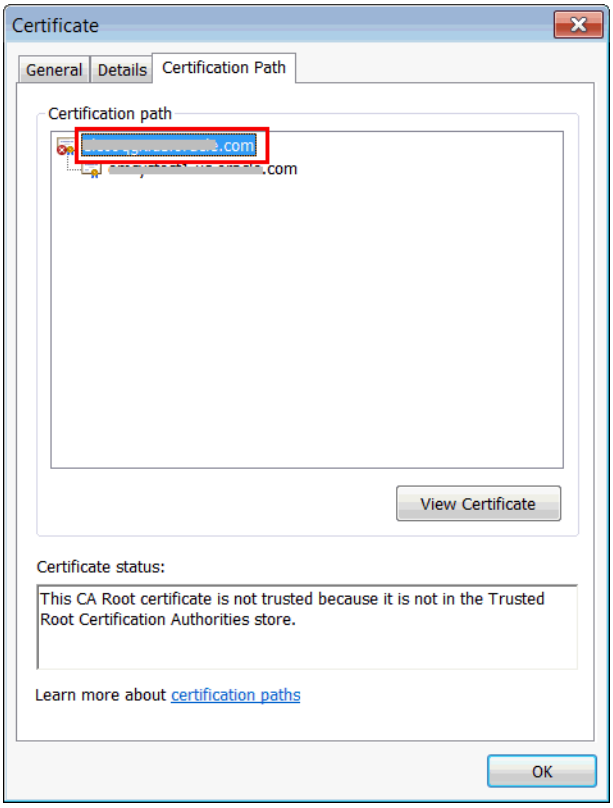
1. On the Privacy error page, click **Advanced.** Then click **Proceed to <host_name> (unsafe).**



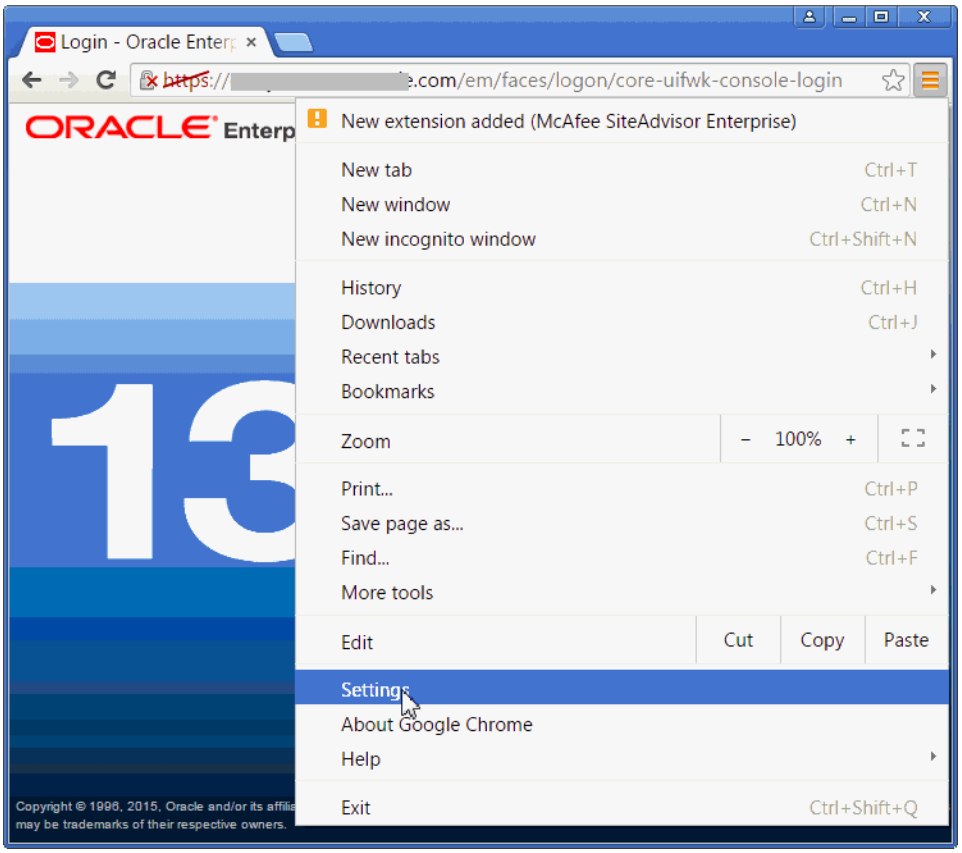
2. In the address bar of the Enterprise Manager Cloud Control Login page, click the red cross mark on the lock icon next to https.



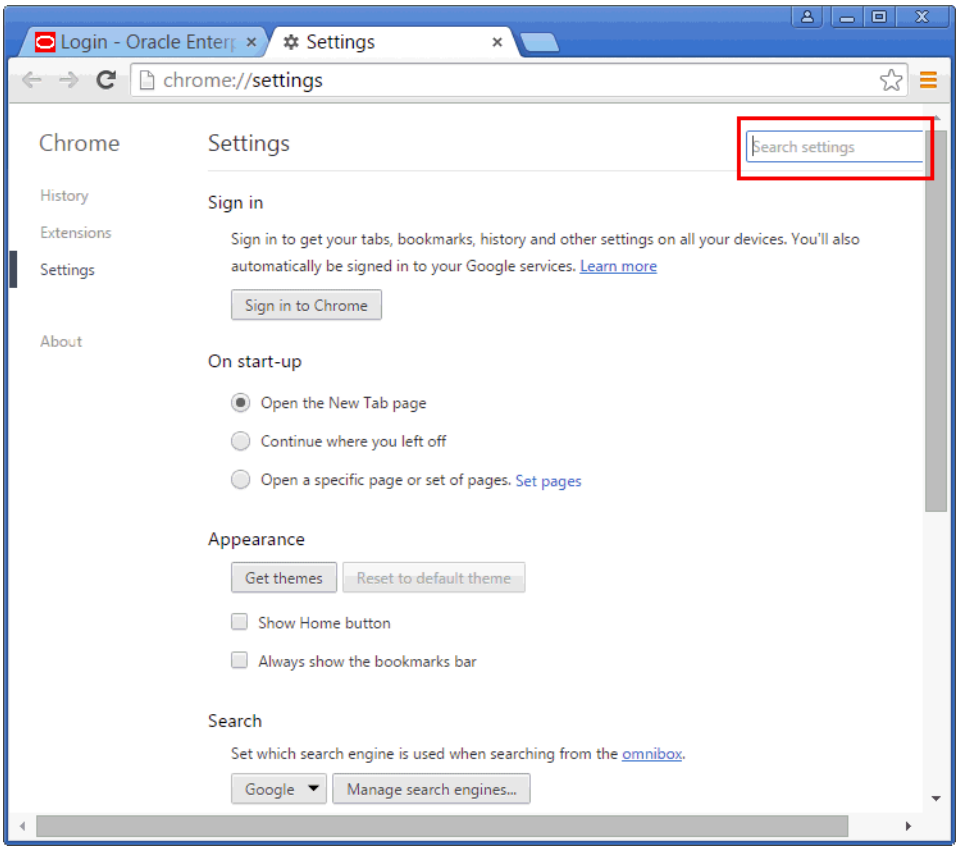
3. In the pop-up, in the Connection tab, click **Certificate Information.**
4. In the Certificate dialog, click the **Certification Path** tab.
5. Select the root node in the list of certificate paths.



6. Click **View Certificate.**
7. In the second Certificate dialog, click the **Details** tab.
8. Click **Copy to File.**
9. In the Certificate Export Wizard, accept the default settings, enter a meaningful certificate name to export it to your local system, and click **Finish.** Now the certificate is exported successfully.
10. In the Certificate Export Wizard success message, click **OK.**
11. In the second Certificate dialog, click **OK.**
12. In the first Certificate dialog, click **OK.**
13. From the browser's menu, select **Settings.**



14. On the Settings page, in the top-right **Search settings** field, enter `Certificates`.



15. In the HTTPS/SSL section, click **Manage certificates.**
16. In the Certificate dialog, click the **Trusted Root Certification Authorities** tab.
17. Click **Import...**
18. In the Certificate Import Wizard, click **Next,** then select the certificate you exported in Step (9), accept the default settings, and then click **Finish.**
19. In the Security Warning dialog, click **Yes.**
20. In the Certificate Import Wizard success message, click **OK.**
21. In the Certificates dialog, click **Close.**
22. Restart the browser.
23. Now when you navigate to the Enterprise Manager Cloud Control Login page, you should see a green lock icon next to https in the address bar.

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