Oracle® Audit Vault

Agent Installation Guide

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Oracle Audit Vault Agent Installation Guide, 10*g* Release 2 (10.2.2)

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Contents

3 Installing Oracle Audit Vault Agent

4 Removing Oracle Audit Vault Agent Software

Index

List of Examples

List of Tables

Preface

Oracle Audit Vault Agent Installation Guide explains how to prepare for, install, and configure Oracle Audit Vault Agents. It provides specific instructions for the operating system and Oracle software technology components that Audit Vault Agent requires.

Audience

This document is intended for Oracle database administrators (DBAs) and system administrators, as well as those who are involved in the installation of Oracle Audit Vault and its related components.

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Related Documents

For more information, refer to the following documents:

- *Oracle Audit Vault Release Notes*
- *Oracle Audit Vault Server Installation Guide for Linux x86*
- *Oracle Audit Vault Server Installation Guide for Microsoft Windows (32-Bit)*
- *Oracle Audit Vault Server Installation Guide for Solaris Operating System (SPARC 64-Bit)*
- *Oracle Audit Vault Server Installation Guide for HP-UX PA-RISC (64-Bit)*
- *Oracle Audit Vault Server Installation Guide for AIX 5L Based Systems (64-Bit)*
- *Oracle Audit Vault Server Installation Guide for Linux x86-64*
- *Oracle Audit Vault Server Installation Guide for HP-UX Itanium*
- *Oracle Audit Vault Licensing Information*
- *Oracle Audit Vault Administrator's Guide*
- *Oracle Audit Vault Auditor's Guide*
- *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide for Linux*
- *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide for Solaris Operating System*
- *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide for HP-UX*
- *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide for AIX Based Systems*
- *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Administration and Deployment Guide*
- *Oracle Database Vault Installation Guide for Linux x86*
- *Oracle Database Vault Installation Guide for Solaris Operating System (SPARC 64-Bit)*
- *Oracle Database Vault Installation Guide for HP-UX PA-RISC (64-Bit)*
- *Oracle Database Vault Installation Guide for AIX 5L Based Systems (64-Bit)*
- *Oracle Database Vault Installation Guide for Linux x86-64*
- *Oracle Database Vault Installation Guide for HP-UX Itanium*
- *Oracle Database Vault Administrator's Guide*

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.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Overview of Oracle Audit Vault Agent Installation

Oracle Audit Vault is a powerful enterprisewide audit solution that efficiently consolidates, detects, monitors, alerts, and reports on audit data for security auditing and compliance. Oracle Audit Vault provides the ability to consolidate audit data and critical events into a centralized and secure audit warehouse.

This chapter provides an overview of the Oracle Audit Vault Agent installation process. This chapter includes the following sections:

1.1 Audit Vault Agent Installation Methods

You can choose different installation methods to install Oracle Audit Vault, as follows:

1.1.1 Interactive Installation Methods

When you use the interactive method to install Oracle Audit Vault Agent, Oracle Universal Installer displays a series of screens that enable you to specify all of the required information to install the Oracle Audit Vault Agent software.

1.1.2 Automated Installation Methods Using Response Files

Oracle Audit Vault provides a response file template for Audit Vault Agent (`avagent.rsp`). The response template file can be found in the `<AV installer location>/response` directory on the Audit Vault Agent installation media.

When you start Oracle Universal Installer and specify a response file, you can automate all of the Oracle Audit Vault Agent installation. These automated installation methods are useful if you need to perform multiple installations on similarly configured systems or if the system where you want to install the software does not have X Window system software installed.

Oracle Universal Installer runs in silent mode if you use a response file that specifies all required information. None of the Oracle Universal Installer screens are displayed and all interaction (standard output and error messages) and installation logs appear on the command line.

See Also: Section 3.3 for information about performing an Audit Vault silent installation. "Installing Oracle Products" in *Oracle Universal Installer and OPatch User's Guide* for more information about installing using response files

1.2 Audit Vault Agent Installation Environment

The Audit Vault Agent includes Oracle Containers for J2EE (OC4J) and Instant Client components, and is deployed within its own directory. The agent can be installed on the same system as the Audit Vault Server, or on the same system that hosts the source of audit logs, or on a third, independent system. Where you deploy the agent will depend on the hardware resources available and on the requirements from the specific audit data collectors that must run within the agent. As a best practice, the Oracle Audit Vault Agent should be installed on each host system to be audited. The DBAUD and REDO collectors do not place any restrictions on the deployment of the agent; they can be deployed anywhere depending on your requirements. However, the OSAUD collector needs local access to the disk that stores the audit trail files written by the source database. Therefore, it must be deployed on a host system that mounts these disks locally, not across the network.

The agent communicates with the Audit Vault Server to receive some configuration information and to send audit data for storage. This communication channel is based on the Oracle Call Interface (OCI). Immediately following installation, password-based authentication is used to secure this channel. Administrators can further secure this channel after installation by using the HTTPS protocol to encrypt data. In this case, X.509 certificates, which must be provided by the administrator, are used for authentication.

The agent also communicates with the Audit Vault Console to exchange management information, such as starting and stopping collectors, and collecting performance metrics. This communication channel is HTTP-based. If X.509 certificates are provided, this channel can be further secured to use HTTPS encryption and mutual authentication with the Audit Vault Console.

1.3 Installation Considerations

This section contains information that you should consider before deciding how to install this product. It includes the following topics:

- Hardware and Software Considerations
- Multiple Oracle Homes

1.3.1 Hardware and Software Considerations

The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site is available at

`https://metalink.oracle.com`

If you do not have a current Oracle Support Services contract, then you can access the same information at

`http://www.oracle.com/technology/support/metalink/content.html`

1.3.2 Multiple Oracle Homes

This product supports multiple Oracle homes. This means that you can install this release of the software more than once on the same system, in different Oracle home directories.

2

Oracle Audit Vault Agent Preinstallation Requirements

This chapter describes Oracle Audit Vault Agent preinstallation requirements. This chapter includes the following sections:

- Preinstallation Requirements for Linux and UNIX-Based Platforms
- Preinstallation Requirements for the Windows 32-Bit Platform
- Oracle Audit Vault Agent Hardware and Software Certification

2.1 Preinstallation Requirements for Linux and UNIX-Based Platforms

This section describes the following preinstallation tasks:

- Becoming Familiar with the Features of Oracle Audit Vault
- Logging In to the System as the root User
- Preinstallation Requirements for Linux x86
- Preinstallation Requirements for Linux x86-64
- Preinstallation Requirements for Solaris Operating System (SPARC 64-Bit)
- Preinstallation Requirements for HP-UX PA-RISC (64-Bit)
- Preinstallation Requirements for AIX 5L Based Systems
- Preinstallation Requirements for HP-UX Itanium
- Creating the Required Operating System Group and User
- Identifying the Required Software Directories
- Identifying or Creating an Oracle Base Directory
- Setting the DISPLAY Environment Variable

2.1.1 Becoming Familiar with the Features of Oracle Audit Vault

To plan the installation process, you must be familiar with the features of Oracle Audit Vault. *Oracle Audit Vault Administrator's Guide* discusses the basic features of Oracle Audit Vault.

2.1.2 Logging In to the System as the root User

Before you install the Oracle software, you must complete several tasks described in the sections that follow as the `root` user. Log in to your system as the `root` user.

2.1.3 Preinstallation Requirements for Linux x86

This section describes the following preinstallation tasks:

- Checking the Hardware Requirements for Linux x86
- Checking the Operating System Requirements for Linux x86

2.1.3.1 Checking the Hardware Requirements for Linux x86

The system must meet the following minimum hardware requirements:

- At least 512 MB of available physical memory (RAM)
- Swap space of 1024 MB or twice the size of RAM
- Audit Vault Agent installation disk space requirements of 473 MB (includes 49MB temporary) of disk space for the Audit Vault Agent software files in the Oracle Base

To ensure that the system meets these requirements, perform the following tasks.

1. To determine the physical RAM size, enter the following command:

   ```
   # grep MemTotal /proc/meminfo
   ```

   If the size of the physical RAM installed in the system is less than the required size, then you must install more memory before continuing.

2. To determine the size of the configured swap space, enter the following command:

   ```
   # grep SwapTotal /proc/meminfo
   ```

   If necessary, see your operating system documentation for information about how to configure additional swap space.

3. To determine the available RAM and swap space, enter the following command:

   ```
   # free
   ```

   Note: Oracle recommends that you take multiple readings for the available RAM and swap space before determining a value. This is because the available RAM and swap space keep changing depending on the user interactions with the computer.

4. To determine the amount of disk space available in the `/tmp` directory, enter the following command:

   ```
   # df -k /tmp
   ```

   If there is less than 400 MB of disk space available in the `/tmp` directory, then complete one of the following steps:

   - Delete unnecessary files from the `/tmp` directory to meet the disk space requirement.
   - Set the `TEMP` and `TMPDIR` environment variables when setting the environment of the `oracle` users.
   - Extend the file system that contains the `/tmp` directory. If necessary, contact your system administrator for information about extending file systems.

5. To determine the amount of free disk space on the system, enter the following command:

```
# df -k
```

6. To determine whether the system architecture can run the software, enter the following command:

```
# grep "model name" /proc/cpuinfo
```

Note: This command displays the processor type. Verify that the processor architecture matches the Oracle software release that you want to install. If you do not see the expected output, then you cannot install the software on this system.

2.1.3.2 Checking the Operating System Requirements for Linux x86

Depending on the products that you intend to install, verify that the software listed in Table 2–1 is installed on the system. The procedure following Table 2–1 describes how to verify whether these requirements are addressed.

Note: Oracle Universal Installer performs checks on your system to verify that it meets the listed requirements. To ensure that these checks pass, verify the requirements before you start Oracle Universal Installer.

Note: The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site is available at

`https://metalink.oracle.com`

If you do not have a current Oracle Support Services contract, then you can access the same information at

`http://www.oracle.com/technology/support/metalink/content.html`

Table 2–1 Operating System, Kernel Version, and Packages Requirements

Item	Requirement
Operating system	One of the following operating system versions: ■ Red Hat Enterprise Linux 3.0 (Update 3 or later) ■ Red Hat Enterprise Linux 4.0 ■ SUSE Linux Enterprise Server 9.0 ■ Asianux 2.0 The operating system requirements are the same as those for Oracle Database 10*g* release 2. If Oracle Database 10*g* release 2 is installed, then your system automatically meets these requirements.

Table 2–1 (Cont.) Operating System, Kernel Version, and Packages Requirements

Item	Requirement
Kernel version	The system must be running the following kernel version (or a later version): **Red Hat Enterprise Linux 3.0:** 2.4.21-27.EL **Note:** This is the default kernel version. **Red Hat Enterprise Linux 4.0 and Asianux 2.0:** 2.6.9-5.0.5.EL **SUSE Linux Enterprise Server 9.0:** 2.6.5-7.97 The kernel version requirements are the same as those for Oracle Database 10*g* release 2. If Oracle Database 10*g* release 2 is installed, then your system automatically meets the kernel version requirements.

Table 2–1 (Cont.) Operating System, Kernel Version, and Packages Requirements

Item	Requirement
Packages	The following packages (or later versions) must be installed: **Red Hat Enterprise Linux 3.0:** make-3.79.1 binutils-2.14 gcc-3.2.3-34 glibc-2.3.2-95.20 compat-db-4.0.14-5 compat-gcc-7.3-2.96.128 compat-gcc-c++-7.3-2.96.128 compat-libstdc++-7.3-2.96.128 compat-libstdc++-devel-7.3-2.96.128 openmotif21-2.1.30-8 setarch-1.3-1 libaio-0.3.96 **Red Hat Enterprise Linux 4.0:** binutils-2.15.92.0.2-13.EL4 compat-libstdc++296-2.96-132.7.2 compat-db-4.1.25-9 control-center-2.8.0-12 gcc-3.4.3-22.1.EL4 gcc-c++-3.4.3-22.1.EL4 glibc-2.3.4-2.9 glibc-common-2.3.4-2.9 gnome-libs-1.4.1.2.90-44.1 libstdc++-3.4.3-22.1 libstdc++-devel-3.4.3.22 make-3.80-5 pdksh-5.2.14-30 sysstat-5.0.5-1 xscreensaver-4.18-5.rhel4.2 setarch-1.6-1 **SUSE Linux Enterprise Server 9:** binutils-2.15.90.0.1.1-32.5 gcc-3.3.3-43.24 gcc-c++-3.3.3-43.24 glibc-2.3.3-98.28 gnome-libs-1.4.1.7-671.1 libstdc++-3.3.3-43.24 libstdc++-devel-3.3.3-43.24 make-3.80-184.1 pdksh-5.2.14-780.1 sysstat-5.0.1-35.1 xscreensaver-4.16-2.6

Table 2–1 (Cont.) Operating System, Kernel Version, and Packages Requirements

Item	Requirement
PL/SQL native compilation, Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK)	Intel C++ Compiler 8.1 or later and the version of GNU C and C++ compilers listed previously for the distribution are supported for use with these products. **Note:** Intel C++ Compiler v8.1 or later is supported. However, it is not required for installation. On Red Hat Enterprise Linux 3, Oracle C++ Call Interface (OCCI) is supported with version 3.2 of the GNU C++ compiler. This is the default compiler version. OCCI is also supported with Intel Compiler v8.1 with GCC 3.2.3 standard template libraries. Oracle XML Developer's Kit is not supported with GCC on Red Hat Linux 4.0. It is supported only with Intel C++ Compiler (ICC). On Red Hat Enterprise Linux 4.0, OCCI does not support GCC 3.4.3. To use OCCI on Red Hat Enterprise Linux 4.0, you must install GCC 3.2.3.
Oracle JDBC/OCI Drivers	You can use the following optional JDK version with the Oracle JDBC/OCI drivers; however, it is not required for the installation: ■ Sun JDK 1.5.0 (64-bit) ■ Sun JDK 1.5.0 (32-bit) ■ Sun JDK 1.4.2_09 (32-bit)

To ensure that the system meets these requirements, perform the following tasks.

1. To determine which distribution and version of Linux is installed, enter the following command:

```
# cat /etc/issue
```

> **Note:** Only the distributions and versions listed in the previous table are supported. Do not install the software on other versions of Linux.

2. To determine whether the required kernel is installed, enter the following command:

```
# uname -r
```

The following is sample output obtained by running this command on a Red Hat Enterprise Linux 3.0 system:

```
2.4.21-15.EL
```

In this example, the output shows the kernel version (`2.4.21`) and errata level (`15.EL`) on the system.

If the kernel version does not meet the requirement specified earlier in this section, then contact your operating system vendor for information about obtaining and installing kernel updates.

3. To determine whether the required packages are installed, enter commands similar to the following:

```
# rpm -q package_name
```

If a package is not installed, then install it from your Linux distribution media or download the required package version from the Web site of your Linux vendor.

2.1.4 Preinstallation Requirements for Linux x86-64

This section describes the following preinstallation tasks:

- Checking the Hardware Requirements for Linux x86-64
- Checking the Operating System Requirements for Linux x86-64

2.1.4.1 Checking the Hardware Requirements for Linux x86-64

The system must meet the following minimum hardware requirements:

- At least 512 MB of available physical memory (RAM)
- Swap space of 1024 MB or twice the size of RAM
- 400 MB of disk space in the `/tmp` directory
- 1 GB of disk space is required for the Oracle Audit Vault Agent software.

To ensure that the system meets these requirements, perform the following tasks.

1. To determine the physical RAM size, enter the following command:

   ```
   # grep MemTotal /proc/meminfo
   ```

   If the size of the physical RAM is less than the required size, then you must install more memory before continuing.

2. To determine the size of the configured swap space, enter the following command:

   ```
   # grep SwapTotal /proc/meminfo
   ```

   If necessary, refer to the operating system documentation for information about how to configure additional swap space.

3. To determine the available RAM and swap space, enter the following command:

   ```
   # free
   ```

   Note: Oracle recommends that you take multiple values for the available RAM and swap space before determining a value. This is because the available RAM and swap space keep changing depending on the user interactions with the computer.

4. To determine the amount of disk space available in the `/tmp` directory, enter the following command:

   ```
   # df -k /tmp
   ```

   If there is less than 400 MB of free disk space available in the `/tmp` directory, then complete one of the following steps:

   - Delete unnecessary files from the `/tmp` directory to meet the disk space requirement.
   - Set the `TEMP` and `TMPDIR` environment variables when setting the `oracle` user's environment.

- Extend the file system that contains the `/tmp` directory. If necessary, contact your system administrator for information about extending file systems.

5. To determine the amount of free disk space on the system, enter the following command:

```
# df -k
```

6. To determine whether the system architecture can run the software, enter the following command:

```
# grep "model name" /proc/cpuinfo
```

Note: This command displays the processor type. Verify that the processor architecture matches the Oracle software release that you want to install. If you do not see the expected output, then you cannot install the software on this system.

2.1.4.2 Checking the Operating System Requirements for Linux x86-64

Depending on the products that you intend to install, verify that the following software is installed on the system. The procedure following the table describes how to verify whether these requirements are addressed.

Note: Oracle Universal Installer performs checks on your system to verify that it meets the listed requirements. To ensure that these checks pass, verify the requirements before you start Oracle Universal Installer.

Note: The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site is available at

`https://metalink.oracle.com`

If you do not have a current Oracle Support Services contract, then you can access the same information at

`http://www.oracle.com/technology/support/metalink/content.html`

Item	Requirement
Operating system	One of the following operating system versions: ■ Red Hat Enterprise Linux AS/ES 3.0 (Update 4 or later) ■ Red Hat Enterprise Linux AS/ES 4.0 (Update 1 or later) ■ SUSE Linux Enterprise Server 9.0 with SP2 or later

Item	Requirement
Kernel version	The system must be running the following kernel version (or a later version): **Red Hat Enterprise Linux 3.0:** 2.4.21-27.EL **Note:** This is the default kernel version. **Red Hat Enterprise Linux 4.0:** 2.6.9-11.EL **SUSE Linux Enterprise Server 9.0:** 2.6.5-7.201

Item	Requirement
Packages	The following packages (or later versions) must be installed: **Red Hat Enterprise Linux 3.0:** make-3.79.1-17 compat-db 4.0.14-5.1 control-center-2.2.0.1-13 gcc-3.2.3-47 gcc-c++-3.2.3-47 gdb-6.1post-1.20040607.52 glibc-2.3.2-95.30 glibc-common-2.3.2-95.30 glibc-devel-2.3.2-95.30 glibc-devel-2.3.2-95.20 (32 bit) compat-db-4.0.14-5 compat-gcc-7.3-2.96.128 compat-gcc-c++-7.3-2.96.128 compat-libstdc++-7.3-2.96.128 compat-libstdc++-devel-7.3-2.96.128 gnome-libs-1.4.1.2.90-34.2 (32 bit) libstdc++-3.2.3-47 libstdc++-devel-3.2.3-47 openmotif-2.2.3-3.RHEL3 sysstat-5.0.5-5.rhel3 setarch-1.3-1 libaio-0.3.96-3 libaio-devel-0.3.96-3 **Red Hat Enterprise Linux 4.0:** binutils-2.15.92.0.2-10.EL4 compat-db-4.1.25-9 control-center-2.8.0-12 gcc-3.4.3-9.EL4 gcc-c++-3.4.3-9.EL4 glibc-2.3.4-2 glibc-common-2.3.4-2 gnome-libs-1.4.1.2.90-44.1 libstdc++-3.4.3-9.EL4 libstdc++-devel-3.4.3-9.EL4 make-3.80-5 pdksh-5.2.14-30 sysstat-5.0.5-1 xscreensaver-4.18-5.rhel4.2 **SUSE Linux Enterprise Server 9:** binutils-2.15.90.0.1.1-32.5 gcc-3.3.3-43.24 gcc-c++-3.3.3-43.24 glibc-2.3.3-98.28 gnome-libs-1.4.1.7-671.1 libstdc++-3.3.3-43.24 libstdc++-devel-3.3.3-43.24 make-3.80-184.1 pdksh-5.2.14-780.1 sysstat-5.0.1-35.1 xscreensaver-4.16-2.6

Item	Requirement
PL/SQL native compilation, Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK)	Intel C++ Compiler 8.1 or later and the version of GNU C and C++ compilers listed previously for the distribution are supported for use with these products. **Note:** Intel C++ Compiler v8.1 or later is supported. However, it is not required for installation. On Red Hat Enterprise Linux 3, Oracle C++ Call Interface (OCCI) is supported with version 3.2 of the GNU C++ compiler. This is the default compiler version. OCCI is also supported with Intel Compiler v8.1 with GCC 3.2.3 standard template libraries. Oracle XML Developer's Kit is not supported with GCC on Red Hat Linux 4.0. It is supported only with Intel C++ Compiler (ICC). On Red Hat Enterprise Linux 4.0, OCCI does not support GCC 3.4.3. To use OCCI on Red Hat Enterprise Linux 4.0, you must install GCC 3.2.3.
Oracle JDBC/OCI Drivers	You can use the following optional JDK version with the Oracle JDBC/OCI drivers; however, it is not required for the installation: ■ Sun JDK 1.5.0 (64-bit) ■ Sun JDK 1.5.0 (32-bit) ■ Sun JDK 1.4.2_09 (32-bit)

To ensure that the system meets these requirements, perform the following tasks.

1. To determine which distribution and version of Linux is installed, enter the following command:

   ```
   # cat /proc/version
   ```

   Note: Only the distributions and versions listed in the previous table are supported. Do not install the software on other versions of Linux.

2. To determine whether the required kernel is installed, enter the following command:

   ```
   # uname -r
   ```

   The following is sample output displayed by running this command on a Red Hat Enterprise Linux 3.0 system:

   ```
   2.4.21-27.EL
   ```

   In this example, the output shows the kernel version (`2.4.27`) and errata level (`27.EL`) on the system.

   If the kernel version does not meet the requirement specified earlier in this section, then contact your operating system vendor for information about obtaining and installing kernel updates.

3. To determine whether the required packages are installed, enter commands similar to the following:

   ```
   # rpm -q package_name
   ```

   If a package is not installed, then install it from your Linux distribution media or download the required package version from the Web site of your Linux vendor.

2.1.5 Preinstallation Requirements for Solaris Operating System (SPARC 64-Bit)

This section describes the following preinstallation tasks:

- Checking the Hardware Requirements for Solaris Operating System (SPARC 64-Bit)
- Checking the Operating System Requirements for Solaris Operating Systems (SPARC 64-Bit)

2.1.5.1 Checking the Hardware Requirements for Solaris Operating System (SPARC 64-Bit)

The system must meet the following minimum hardware requirements:

- At least 512 MB of available physical memory (RAM)
- Swap space of 1024 MB or twice the size of RAM
- 400 MB of disk space in the `/tmp` directory
- 1 GB of disk space for the Audit Vault Agent software

To ensure that the system meets these requirements, perform the following tasks.

1. To determine the physical RAM size, enter the following command:

   ```
   # /usr/sbin/prtconf | grep "Memory size"
   ```

   If the size of the physical RAM is less than the required size, then you must install more memory before continuing.

2. To determine the size of the configured swap space, enter the following command:

   ```
   # /usr/sbin/swap -s
   ```

   If necessary, refer to the operating system documentation for information about how to configure additional swap space.

3. To determine the amount of disk space available in the `/tmp` directory, enter the following command:

   ```
   # df -k /tmp
   # df -h /tmp (on Solaris 10)
   ```

   If there is less than 400 MB of free disk space available in the `/tmp` directory, then complete one of the following steps:

   - Delete unnecessary files from the `/tmp` directory to meet the disk space requirement.
   - Set the `TMP` and `TMPDIR` environment variables when setting the `oracle` user's environment.
   - Extend the file system that contains the `/tmp` directory. If necessary, contact your system administrator for information about extending file systems.

4. To determine the amount of free disk space on the system, enter the following command:

   ```
   # df -k
   # df -h (on Solaris 10)
   ```

5. To determine whether the system architecture can run the software, enter the following command:

```
# /bin/isainfo -kv
```

Note: The following is the expected output of this command:

```
64-bit sparcv9 kernel modules
```

If you do not see the expected output, then you cannot install the software on this system.

2.1.5.2 Checking the Operating System Requirements for Solaris Operating Systems (SPARC 64-Bit)

Verify that the following software is installed on the system. The procedure following the table describes how to verify whether these requirements are addressed.

Note: Oracle Universal Installer performs checks on your system to verify that it meets the listed requirements. To ensure that these checks pass, verify the requirements before you start Oracle Universal Installer.

Note: The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site is available at

https://metalink.oracle.com

If you do not have a current Oracle Support Services contract, then you can access the same information at

http://www.oracle.com/technology/support/metalink/content.html

Item	Requirement
Operating system	One of the following 64-bit operating system versions: ■ Solaris 9 Update 6 or later ■ Solaris 10

Item	Requirement
Packages	SUNWarc SUNWbtool SUNWhea SUNWlibm SUNWlibms SUNWsprot SUNWtoo SUNWi1of SUNWi1cs SUNWi15cs SUNWxwfnt SUNWsprox **Note:** SUNWsprox package is not supported on Solaris 10. You may also require additional font packages for Java, depending on your locale. Refer to the following Web site for more information http://java.sun.com/j2se/1.4.2/font-requirements.html

To ensure that the system meets these requirements, perform the following tasks.

1. To determine which version of Solaris is installed, enter the following command:

```
# uname -r
5.9
```

   In this example, the version shown is Solaris 9 (5.9). If necessary, refer to your operating system documentation for information about upgrading the operating system.

2. To determine whether the required packages are installed, enter a command similar to the following:

```
# pkginfo -i SUNWarc SUNWbtool SUNWhea SUNWlibm SUNWlibms SUNWsprot \
 SUNWsprox SUNWtoo SUNWi1of SUNWi1cs SUNWi15cs SUNWxwfnt
```

   If a package is not installed, then install it. Refer to your operating system or software documentation for information about installing packages.

3. You can use the following command to verify the update level of the operating system:

```
$ cat /etc/release
Solaris 9 4/03 s9s_u3wos_
```

   In this example, in the output of the command, _u3 refers to update 3 of Solaris 9.

In addition, you must verify that the following patches are installed on the system. The procedure following the table describes how to check these requirements.

> **Note:** There may be more recent versions of the patches listed installed on the system. If a listed patch is not installed, then determine whether a more recent version is installed before installing the version listed.

Installation Type or Product	Requirement
All installations	**Patches for Solaris 9:** ■ 112233-11, SunOS 5.9: Kernel Patch ■ 111722-04, SunOS 5.9: Math Library (libm) patch The following additional patches are required for Numa Systems: ■ 115675-01, SunOS 5.9: liblgrp API ■ 113471-08, SunOS 5.9: Miscellaneous SunOS Commands Patch ■ 115675-01, SunOS 5.9: /usr/lib/liblgrp.so Patch

Note: The following patches are not required for silent installations:

- 108652-66, X11 6.4.1: Xsun patch
- 108773-18, SunOS 5.8: IIIM and X I/O Method patch
- 108921-16, CDE 1.4: dtwm patch

To determine whether an operating system patch is installed, enter a command similar to the following:

```
# /usr/sbin/patchadd -p | grep patch_number(without version number)
```

For example, to determine if any version of the 111713 patch is installed, use the following command:

```
# /usr/sbin/patchadd -p | grep 111713
```

If an operating system patch is not installed, then download it from the following Web site and install it:

`http://sunsolve.sun.com`

2.1.6 Preinstallation Requirements for HP-UX PA-RISC (64-Bit)

This section describes the following preinstallation tasks:

- Checking the Hardware Requirements for HP-UX PA-RISC (64-Bit)
- Checking the Operating System Requirements for HP-UX PA-RISC (64-Bit)

2.1.6.1 Checking the Hardware Requirements for HP-UX PA-RISC (64-Bit)

The system must meet the following minimum hardware requirements:

- At least 512 MB of available physical memory (RAM)
- Swap space of 1024 MB or twice the size of RAM
- 400 MB of disk space in the `/tmp` directory
- 1.5 GB of disk space for the Oracle Audit Vault Agent software

To ensure that the system meets these requirements, perform the following tasks.

1. To determine the physical RAM size, enter the following command:

```
# grep "Physical:" /var/adm/syslog/syslog.log
```

If the size of the physical RAM is less than the required size, then you must install more memory before continuing.

2. To determine the size of the configured swap space, enter the following command:

```
# /usr/sbin/swapinfo -a
```

If necessary, refer to the operating system documentation for information about how to configure additional swap space.

3. To determine the amount of disk space available in the `/tmp` directory, enter the following command:

```
# bdf /tmp
```

If there is less than 400 MB of free disk space available in the `/tmp` directory, then complete one of the following steps:

- Delete unnecessary files from the `/tmp` directory to meet the disk space requirement.
- Set the `TMP` and `TMPDIR` environment variables when setting the `oracle` user's environment.
- Extend the file system that contains the `/tmp` directory. If necessary, contact your system administrator for information about extending file systems.

4. To determine the amount of free disk space on the system, enter the following command:

```
# bdf
```

5. To determine whether the system architecture can run the software, enter the following command:

```
# /bin/getconf KERNEL_BITS
```

Note: The expected output of this command is 64. If you do not see the expected output, then you cannot install the software on this system.

2.1.6.2 Checking the Operating System Requirements for HP-UX PA-RISC (64-Bit)

Verify that the following software is installed on the system. The procedure following the table describes how to verify whether these requirements are addressed.

Note: Oracle Universal Installer performs checks on your system to verify that it meets the listed requirements. To ensure that these checks pass, verify the requirements before you start Oracle Universal Installer.

Note: The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site is available at

`https://metalink.oracle.com`

If you do not have a current Oracle Support Services contract, then you can access the same information at

`http://www.oracle.com/technology/support/metalink/content.html`

Item	Requirement
Operating system	Operating system version: HP-UX 11i V1 (11.11) PA-RISC HP-UX 11i v2 (11.23)
Oracle Spatial	HP-UX Developer's Toolkit - X11 and Imake: **Note:** This software is required only to build the sample programs.

Oracle Messaging Gateway	Oracle Messaging Gateway supports the integration of Oracle Streams Advanced Queuing (AQ) with the following software:
	■ IBM WebSphere MQ V5.3, client and server:
	`MQSERIES.MQM-CL-HPUX`
	`MQSERIES.MQM-SERVER`
	■ TIBCO Rendezvous 7.2

PL/SQL native compilation	One of the following: HP C Compiler (B.11.11.12) GCC compiler GCC 3.4.0 (64-Bit)
Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK)	HP C/ANSI C Compiler (C.05.50) HP aC++ Compiler (C.05.50)
Oracle JDBC/OCI Drivers	You can use the following optional Java SDK versions with the Oracle JDBC/OCI drivers; however, they are not required for the installation: ■ Java SDK 1.3.1.16 with the JNDI extension ■ Java SDK 1.2.2.09 ■ Java SDK 1.4.2.08 ■ Java SDK 5.0 **Note:** Java SDK 1.4.2 is installed with this release.

To ensure that the system meets these requirements, perform the following tasks.

1. To determine which version of HP-UX is installed, enter the following command:

```
# uname -a
HP-UX hostname B.11.11 U 9000/800 109444686 unlimited-user license
```

In this example, the version of HP-UX 11i is 11.11.

2. To determine whether a bundle, product, or file set is installed, enter a command similar to the following, where *level* is `bundle`, `product`, or `fileset`:

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

If a required bundle, product, or file set is not installed, then you must install it. Refer to your operating system or software documentation for information about installing products.

In addition, you must verify that the following patches are installed on the system. The procedure following the table describes how to check these requirements.

Note: There may be more recent versions of the patches listed installed on the system. If a listed patch is not installed, then determine whether a more recent version is installed before installing the version listed.

Installation Type or Product	Requirement
All installations	Quality Pack bundle: HP-UX 11i Quality Pack (GOLDQPK11i), Dec 2004 or later: `GOLDQPK11i`
All installations	**Patches for HP-UX 11i V1 (11.11):** ■ PHNE_31097: ONC/NFS general release/performance patch ■ PHSS_31221: HP aC++ -AA runtime libraries (aCC A.03.60) **Patches for HP-UX 11i V2 (11.23):** ■ PHSS_31849: linker + fdp cumulative patch ■ PHSS_31852: aC++ Runtime (PA A.03.61)
All installations	**Patches for JDK on HP-UX 11i V1 (11.11):** ■ PHSS_30970: ld(1) and linker tools cumulative patch **Note:** Refer to the following Web site for information about additional patches that may be required by JDK 1.4.2: `http://www.hp.com/products1/unix/java/patches/index.html`
PL/SQL native compilation, Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK)	**Patches for HP-UX 11i V1 (11.11):** ■ PHSS_32508: HP aC++ Compiler (A.03.63) ■ PHSS_32509: ANSI C Compiler B.11.11.12 cumulative patch ■ PHSS_32510: +O4/PBO Compiler B.11.11.12 cumulative patch **Patches for HP-UX 11i V2 (11.23):** ■ PHSS_32511: HP aC++ Compiler (A.03.63) ■ PHSS_32512: ANSI C Compiler B.11.11.12 cumulative patch ■ PHSS_32513: +O4/PBO Compiler B.11.11.12 cumulative patch
Oracle Messaging Gateway	Corrective service diskettes (CSDs) for WebSphere MQ: ■ CSD05 or later for WebSphere MQ V5.3

To ensure that the system meets these requirements, perform the following tasks.

1. On PA-RISC systems only, enter the following command to determine whether the HP-UX 11i Quality Pack is installed:

   ```
   # /usr/sbin/swlist -l bundle | grep GOLD
   ```

   If the Quality Pack is not installed or if the date is before June 2003, then download the latest Quality Pack from the following Web site and install it:

   http://www.hp.com/go/softwareinfo/SUPPORT_PLUS

2. To determine whether a patch is installed, enter a command similar to the following:

   ```
   # /usr/sbin/swlist -l patch | grep PHSS_28880
   ```

   Alternatively, to list all installed patches, enter the following command:

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

   If a required patch is not installed, then download it from the following Web site and install it:

   http://itresourcecenter.hp.com

   If the Web site shows a more recent version of the patch, then download and install that version.

3. If you require a Fix Pack (formerly a CSD) for WebSphere MQ, then refer to the following Web site for download and installation information:

   http://www.ibm.com/software/integration/wmq/support/

Creating Required Symbolic Links

Note: This task is required only if the Motif 2.1 Development Environment package (X11MotifDevKit.MOTIF21-PRG) is not installed.

To enable you to successfully relink Oracle products after installing this software, enter the following commands to create the required X library symbolic links in the `/usr/lib` directory:

```
# cd /usr/lib
# ln -s libX11.3 libX11.sl
# ln -s libXIE.2 libXIE.sl
# ln -s libXext.3 libXext.sl
# ln -s libXhp11.3 libXhp11.sl
# ln -s libXi.3 libXi.sl
# ln -s libXm.4 libXm.sl
# ln -s libXp.2 libXp.sl
# ln -s libXt.3 libXt.sl
# ln -s libXtst.2 libXtst.sl
```

2.1.7 Preinstallation Requirements for AIX 5L Based Systems

This section describes the following preinstallation tasks:

- Checking the Hardware Requirements for AIX 5L Based Systems

- Checking the Operating System Requirements for AIX 5L Based Systems

2.1.7.1 Checking the Hardware Requirements for AIX 5L Based Systems

The system must meet the following minimum hardware requirements:

- At least 512 MB of available physical memory (RAM)
- Swap space of 1024 MB or twice the size of RAM
- 400 MB of disk space in the `/tmp` directory
- Up to 1.5 GB of disk space required for the Oracle Audit Vault Agent software.

To ensure that the system meets these requirements, perform the following tasks.

1. To determine the physical RAM size, enter the following command:

   ```
   # /usr/sbin/lsattr -E -l sys0 -a realmem
   ```

   If the size of the physical RAM is less than the required size, then you must install more memory before continuing.

2. To determine the size of the configured swap space, enter the following command:

   ```
   # /usr/sbin/lsps -a
   ```

   If necessary, refer to the operating system documentation for information about how to configure additional swap space.

3. To determine the amount of disk space available in the `/tmp` directory, enter the following command:

   ```
   # df -k /tmp
   ```

   If there is less than 400 MB of free disk space available in the `/tmp` directory, then complete one of the following steps:

   - Delete unnecessary files from the `/tmp` directory to meet the disk space requirement.
   - Set the `TMP` and `TMPDIR` environment variables when setting the `oracle` user's environment.
   - Extend the file system that contains the `/tmp` directory. If necessary, contact your system administrator for information about extending file systems.

4. To determine the amount of free disk space on the system, enter the following command:

   ```
   # df -k
   ```

5. To determine whether the system architecture can run the software, enter the following command:

   ```
   # /usr/bin/getconf HARDWARE_BITMODE
   64
   ```

   Note: The expected output of this command is 64. If you do not see the expected output, then you cannot install the software on this system.

2.1.7.2 Checking the Operating System Requirements for AIX 5L Based Systems

Depending on the products that you intend to install, verify that the following software is installed on the system. The procedure following the table describes how to verify whether these requirements are addressed.

Note: Oracle Universal Installer performs checks on your system to verify that it meets the listed requirements. To ensure that these checks pass, verify the requirements before you start Oracle Universal Installer.

Note: The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site is available at

`https://metalink.oracle.com`

If you do not have a current Oracle Support Services contract, then you can access the same information at

`http://www.oracle.com/technology/support/metalink/content.html`

Item	Requirement
Operating system	The following operating system versions and maintenance level are required: AIX 5L version 5.2, Maintenance Level 04 or later AIX 5L version 5.3, Maintenance Level 02 or later

Operating system file sets:	The following operating system file sets are required:
	`bos.adt.base`
	`bos.adt.lib`
	`bos.adt.libm`
	`bos.perf.libperfstat`
	`bos.perf.perfstat`
	`bos.perf.proctools`
	`xlC.aix50.rte:7.0.0.4 or later`
	`xlC.rte:7.0.0.1 or later`

PL/SQL native compilation	One of the following: ■ IBM XL C/C++ Enterprise Edition V7.0 for AIX PTF (7.0.0.2) ■ GCC 3.3.2 **Note:** If you do not install the IBM XL C/C++ Enterprise Edition V7.0 compiler, you must install the IBM XL C/C++ Enterprise Edition V7.0 for AIX Runtime Environment Component. The runtime environment file sets can be downloaded with no license requirements from `http://www-1.ibm.com/support/docview.wss?uid=swg24009788`

Item	Requirement
Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK)	■ May 2005 XL C/C++ Enterprise Edition V7.0 for AIX PTF (7.0.0.2) You can download this software from http://www-1.ibm.com/support/docview.wss?uid=swg24009787 **Note:** If you do not install the IBM XL C/C++ Enterprise Edition V7.0 compiler, you must install the IBM XL C/C++ Enterprise Edition V7.0 for AIX Runtime Environment Component. The runtime environment file sets can be downloaded with no license requirements from http://www-1.ibm.com/support/docview.wss?uid=swg24009788
Oracle JDBC/OCI Drivers	You can use the following optional IBM JDK versions with the Oracle JDBC/OCI drivers; however, they are not required for the installation: ■ JDK 1.4.2 (64-bit) ■ JDK 1.3.1.11 (32-bit) ■ JDK 1.2.2.18 **Note:** IBM JDK 1.4.2 (32-bit) is installed with this release.

Oracle Messaging Gateway	IBM WebSphere MQ V5.3, client and server:
	`mqm.Client.Bnd`
	`mqm.Server.Bnd`

To ensure that the system meets these requirements, perform the following tasks.

1. To determine the version of AIX installed, enter the following command:

   ```
   # oslevel -r
   ```

   If the operating system version is lower than AIX 5.2.0.0 Maintenance Level 1 (5200-01), then upgrade your operating system to this level. AIX 5L version 5.2 maintenance packages are available at

   http://www-912.ibm.com/eserver/support/fixes/

2. To determine whether the required file sets are installed and committed, enter a command similar to the following:

   ```
   # lslpp -l bos.adt.base bos.adt.lib bos.adt.libm bos.perf.perfstat \
    bos.perf.libperfstat bos.perf.proctools
   ```

   If a file set is not installed and committed, then install it. Refer to your operating system or software documentation for information about installing file sets.

In addition, you must verify that the following patches are installed on the system. The procedure following the table describes how to check these requirements.

Note: There may be more recent versions of the patches listed installed on the system. If a listed patch is not installed, then determine whether a more recent version is installed before installing the version listed.

Installation Type or Product	Requirement
All installations	Authorized Problem Analysis Reports (APARs) for AIX 5L v5.2 ML 04: ■ IY63133: large percentage of CPU time spent in ldata_balance routine ■ IY64978: deadlock with concurrent renaming and unlinking under JFS ■ IY63366: dlsym returns null even for valid symbol in AIX520 ML-4 ■ IY64691: chvg -b can cause corruption and crash ■ IY64737: AIO can hang in knotunlock ■ IY65001: mklvcopy on a striped lv is failing to update lvcb
All installations	Authorized Problem Analysis Reports (APARs) for AIX 5L v5.3 ML 02: ■ IY58143: REQUIRED UPDATE FOR AIX 5.3 ■ IY59386: libdepend.mk files are all empty ■ IY60930: Unable to delete network routes ■ IY66513: LDR_CNTRL turns on undesirable option when initialized with incorrect value ■ IY70159: krtl relocation problem ■ IY68989: eFix for write to mapped space hangs
PL/SQL native compilation, Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK)	May 2005 XL C/C++ Enterprise Edition V7.0 for AIX PTF (7.0.0.2): ■ IY64361: Exception in putdiag_no_handler() when -O is specified ■ IY65361: May 2005 XL C Enterprise Edition V7.0 for AIX PTF ■ IY65362: MAY 2005 XL C/C++ Enterprise Edition V7 for AIX
Oracle JDBC/OCI Drivers	**Note:** These APARs are required only if you are using the associated JDK version. APAR required for JDK 1.4.2 (64-bit): ■ IY63533: DK 1.4.2 64-bit SR1 caix64142-20040917 APARs required for JDK 1.3.1.11 (32-bit): ■ IY58350: SDK 1.3.1 32-BIT SR7P: CA131IFX-20040721A ■ IY65305: JAVA142 32-BIT PTF: CA142IFX-20041203 APAR required for JDK 1.2.2.18: ■ IY40034: SDK 1.2.2 PTF: CA122-20030115
Oracle Messaging Gateway	Fix Packs (formerly Corrective service diskettes (CSDs)) for WebSphere MQ: CSD03 or later for WebSphere MQ V5.3 FP 9

To ensure that the system meets these requirements, perform the following tasks.

1. To determine whether an APAR is installed, enter a command similar to the following:

```
# /usr/sbin/instfix -i -k "IY63133 IY64978 IY63366 IY64691 IY65001 IY64737 \
  IY64361 IY65305 IY58350 IY63533"
```

If an APAR is not installed, then download it from the following Web site and install it:

http://www-912.ibm.com/eserver/support/fixes/

2. If you require a Fix pack (formerly CSD) for WebSphere MQ, then refer to the following Web site for download and installation information:

   http://www.ibm.com/software/integration/wmq/support/

2.1.8 Preinstallation Requirements for HP-UX Itanium

This section describes the following preinstallation tasks:

- Checking the Hardware Requirements for HP-UX Itanium
- Checking the Operating System Requirements for HP-UX Itanium

2.1.8.1 Checking the Hardware Requirements for HP-UX Itanium

The system must meet the following minimum hardware requirements:

- At least 512 MB of available physical memory (RAM)
- Swap space of 1024 MB or twice the size of RAM
- 400 MB of disk space in the `/tmp` directory
- 1.5 GB of disk space for the Oracle Audit Vault Agent software

To ensure that the system meets these requirements, perform the following tasks.

1. To determine the physical RAM size, enter the following command:

   ```
   # /usr/contrib/bin/machinfo  | grep -i Memory
   ```

   If the size of the physical RAM is less than the required size, then you must install more memory before continuing.

2. To determine the size of the configured swap space, enter the following command:

   ```
   # /usr/sbin/swapinfo -a
   ```

   If necessary, refer to the operating system documentation for information about how to configure additional swap space.

3. To determine the amount of disk space available in the `/tmp` directory, enter the following command:

   ```
   # bdf /tmp
   ```

   If there is less than 400 MB of free disk space available in the `/tmp` directory, then complete one of the following steps:

   - Delete unnecessary files from the `/tmp` directory to meet the disk space requirement.
   - Set the `TMP` and `TMPDIR` environment variables when setting the `oracle` user's environment.
   - Extend the file system that contains the `/tmp` directory. If necessary, contact your system administrator for information about extending file systems.

4. To determine the amount of free disk space on the system, enter the following command:

   ```
   # bdf
   ```

5. To determine whether the system architecture can run the software, enter the following command:

```
# /bin/getconf KERNEL_BITS
```

Note: The expected output of this command is 64. If you do not see the expected output, then you cannot install the software on this system.

2.1.8.2 Checking the Operating System Requirements for HP-UX Itanium

Verify that the following software, or a later version, is installed on the system. The procedure following the table describes how to verify whether these requirements are addressed.

Note: Oracle Universal Installer performs checks on your system to verify that it meets the listed requirements. To ensure that these checks pass, verify the requirements before you start Oracle Universal Installer.

Note: The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. The Oracle*MetaLink* Web site is available at

https://metalink.oracle.com

If you do not have a current Oracle Support Services contract, then you can access the same information at

http://www.oracle.com/technology/support/metalink/content.html

Item	Requirement
Operating system	Operating system version: HP-UX 11i v2 (11.23)
PL/SQL native compilation	One of the following: ■ HP C/ANSI C Compiler (A.06.00) ■ GCC compiler GCC 3.4.2 **Note**: The GCC compiler is supported only for PL/SQL native compilation.
Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK)	HP C/ANSI C Compiler (A.06.00) HP aC++ Compiler (A.06.00)

Item	Requirement
Oracle JDBC/OCI Drivers	You can use the following optional Java SDK versions with the Oracle JDBC/OCI drivers; however, they are not required for the installation: ■ HP JDK 1.5.0 (5.0) ■ HP JDK 1.4.2.07 ■ HP JDK 1.3.1.16 **Note:** Java SDK 1.4.2_07 is installed with this release.

To ensure that the system meets these requirements, perform the following tasks.

1. To determine which version of HP-UX is installed, enter the following command:

```
# uname -a
HP-UX hostname B.11.23 ia64 109444686 unlimited-user license
```

   In this example, the version of HP-UX 11i is 11.23.

2. To determine whether a bundle, product, or file set is installed, enter a command similar to the following, where *level* is `bundle`, `product`, or `fileset`:

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

   If a required bundle, product, or file set is not installed, then you must install it. Refer to your operating system or software documentation for information about installing products.

In addition, you must verify that the following patches, or their later versions, are installed on the system. The procedure following the table describes how to check these requirements.

> **Note:** There may be more recent versions of the patches listed installed on the system. If a listed patch is not installed, then determine whether a more recent version is installed before installing the version listed.

Installation Type or Product	Requirement
All installations	The following operating system patches: ■ BUNDLE11i B.11.23.0409.3: Patch Bundle for HP-UX 11i V2 **Note:** You must have the August 2004 version of BUNDLE11i B.11.23.0408.1 for HP-UX 11i v2 on your system prior to updating to the HP-UX 11i v2 September 2004 or later release. ■ PHCO 32426: Reboot(1M) cumulative patch ■ PHKL 32646: wsio.h header file patch ■ PHKL 32632: Message Signaled Interrupts (MSI and MSI-X) ■ PHKL 32645: SIO (IO) subsystem MSI/MSI-X/WC Patch ■ PHKL 33552: VM Copy on write data corruption fix ■ PHSS_31850: 11.23 assembler patch ■ PHSS_31851: 11.23 Integrity Unwind Library ■ PHSS_31854: 11.23 milli cumulative patch ■ PHSS_31855: 11.23 aC++ Runtime (IA: A.05.60, PA A.03.60) ■ PHSS_33275: s700_800 11.23 linker + fdp cumulative patch ■ PHSS_33276: 11.23 Math Library Cumulative Patch
All installations	The following JDK patches: ■ PHCO_31553: s700_800 11.23 pthread library cumulative patch ■ PHKL_31500: s700_800 11.23 sept04 base patch ■ PHSS_32213: s700_800 11.23 aries cumulative patch **Note:** For information about additional patches that may be required by JDK 1.4.2, see http://www.hp.com/products1/unix/java/patches/index.html
PL/SQL native compilation, Pro*C/C++, Oracle Call Interface, Oracle C++ Call Interface, Oracle XML Developer's Kit (XDK)	The following C and C++ patches: ■ PHSS_33278: aC++ Compiler ■ PHSS_33279: aC++ Compiler ■ PHSS_33277: HP C Compiler ■ PHSS_33279: HP C Compiler

To determine whether a patch is installed, enter a command similar to the following:

```
# /usr/sbin/swlist -l patch | grep PHSS_33279
```

Alternatively, to list all installed patches, enter the following command:

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

If a required patch is not installed, then download it from the following Web site and install it:

http://itresourcecenter.hp.com

If the Web site shows a more recent version of the patch, then download and install that version.

Creating Required Symbolic Links

> **Note:** This task is required only if the Motif 2.1 Development Environment package (X11MotifDevKit.MOTIF21-PRG) is not installed.

To enable you to successfully relink Oracle products after installing this software, enter the following commands to create the required X library symbolic links in the `/usr/lib` directory:

```
# cd /usr/lib
# ln -s libX11.3 libX11.sl
# ln -s libXIE.2 libXIE.sl
# ln -s libXext.3 libXext.sl
# ln -s libXhp11.3 libXhp11.sl
# ln -s libXi.3 libXi.sl
# ln -s libXm.4 libXm.sl
# ln -s libXp.2 libXp.sl
# ln -s libXt.3 libXt.sl
# ln -s libXtst.2 libXtst.sl
```

2.1.9 Creating the Required Operating System Group and User

Depending on whether or not this is the first time Oracle software is being installed on this system and on the products that you are installing, you may need to create the following operating system group and user:

- The Oracle Inventory group (`oinstall`)

  You must create this group the first time you install Oracle software on the system. The usual name chosen for this group is `oinstall`. This group owns the Oracle inventory, which 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 new Oracle software. The following sections describe how to identify an existing Oracle Inventory group.

- 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 software installed during the installation. This user must have the Oracle Inventory group as its primary group. It must also have the OSDBA and OSOPER groups as secondary groups.

  > **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. However, you can choose to create different Oracle software owner users, OSDBA groups, and OSOPER groups (other than `oracle`, `dba`, and `oper`) for separate

installations. By using different groups for different installations, members of these different groups have DBA privileges only on the associated databases, rather than on all databases on the system.

> **See Also:** *Oracle Database Administrator's Guide* for more information about the OSDBA group and the `SYSDBA` and `SYSOPER` privileges

> **Note:** The following topics describe how to create local users and groups. As an alternative to creating local users and groups, you could 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 see your operating system documentation.

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

- Creating the Oracle Inventory Group
- Creating the Oracle Software Owner User

2.1.9.1 Creating the Oracle Inventory Group

You must create the Oracle Inventory group if it does not already exist. The following topics 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 Exists

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

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

For Linux x86

```
# more /etc/oraInst.loc
```

For SPARC (64-Bit)

```
#more /var/opt/oracle/oraInst.loc
```

For HP-UX PA-RISC (64-Bit)

```
#more /var/opt/oracle/oraInst.loc
```

For AIX 5L Based Systems

```
# more /etc/oraInst.loc
```

For Linux x86-64

```
# more /etc/oraInst.loc
```

For HP-UX Itanium

```
#more /var/opt/oracle/oraInst.loc
```

If the output of this command shows the `oinstall` group name, then the group already exists.

If the `oraInst.loc` file exists, then the output from this command is similar to the following:

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

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

Creating the Oracle Inventory Group on All Systems Except AIX 5L Based Systems

If the `oraInst.loc` file does not exist, then create the Oracle Inventory group by entering the following command:

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

Creating the Oracle Inventory Group on AIX 5L Based Systems

If the `oraInst.loc` file does not exist, then create the Oracle Inventory group by using the following procedure:

1. Enter the following command:

   ```
   # smit security
   ```

2. Choose the appropriate menu items to create the `oinstall` group.
3. Press **F10** to exit.

2.1.9.2 Creating the Oracle Software Owner User

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 a different group membership, to give database administrative privileges to those groups in a new Oracle installation

2.1.9.2.1 Determining Whether an Oracle Software Owner User Exists To determine whether an Oracle software owner user named `oracle` exists, enter the following command:

For Linux x86

```
# id oracle
```

For SPARC (64-Bit)

```
# id -a oracle
```

For HP-UX PA-RISC (64-Bit)

```
# id oracle
```

For AIX 5L Based Systems

```
# id oracle
```

For Linux x86-64

```
# id oracle
```

For HP-UX Itanium

```
# id oracle
```

If the `oracle` user exists, then the output from this command is similar to the following:

```
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. If you want to use the existing user, then ensure that the primary group of the user is the Oracle Inventory group and that it is a member of the appropriate OSDBA and OSOPER groups.

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

Refer to one of the following sections for more information:

- To modify an existing user, see Section 2.1.9.2.3.
- To create a user, refer to the following section.

2.1.9.2.2 Creating an Oracle Software Owner User If the Oracle software owner user does not exist or if you need a new Oracle software owner user, then create it as follows. 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 -G dba[,oper] oracle
   ```

   In this command:

   - The `-g` option specifies the primary group, which must be the Oracle Inventory group, for example, `oinstall`.
   - The `-G` option specifies the secondary groups, which must include the OSDBA group and, if required, the OSOPER group, (for example, `dba` or `dba`, `oper`).

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

   ```
   # passwd oracle
   ```

See Section 2.1.9.3 to continue.

2.1.9.2.3 Modifying an Oracle Software Owner User If the `oracle` user exists, but its primary group is not `oinstall` or it is not a member of the appropriate OSDBA or OSOPER groups, then enter a command similar to the following to modify it. Specify the primary group using the `-g` option and any required secondary group using the `-G` option:

```
# /usr/sbin/usermod -g oinstall -G dba[,oper] oracle
```

See Section 2.1.9.3 to continue.

2.1.9.2.4 Creating an Oracle Software Owner User for AIX 5L Based Systems If the Oracle software owner user does not exist or if you require a new Oracle software owner user, then create it as follows. In the following procedure, use the user name `oracle` unless a user with that name already exists.

1. Enter the following command:

   ```
   # smit security
   ```

2. Choose the appropriate menu items to create the `oracle` user, specifying the following information:
   - In the **Primary GROUP** field, specify the Oracle Inventory group, for example `oinstall`.
   - In the **Group SET** field, specify the OSDBA group and if required, the OSOPER group, (for example, `dba` or `dba,oper`).

   Note: The UID for the `oracle` user must be less than 65536.

3. Press **F10** to exit.
4. Set the password of the `oracle` user:

   ```
   # passwd oracle
   ```

See Section 2.1.9.3 to continue.

2.1.9.2.5 Modifying an Oracle Software Owner User on AIX 5L Based Systems If the `oracle` user exists, but its primary group is not `oinstall` or it is not a member of the appropriate OSDBA or OSOPER groups, then you can modify it as follows:

1. Enter the following command:

   ```
   # smit security
   ```

2. Choose the appropriate menu items to modify the `oracle` user.
3. In the **Primary GROUP** field, specify the Oracle Inventory group, for example `oinstall`.
4. In the **Group SET** field, specify the required secondary groups, for example, `dba` and `oper`.
5. Press **F10** to exit.

See Section 2.1.9.3 to continue.

2.1.9.3 Verifying That the User nobody Exists

Before installing the software, perform the following procedure to verify that the `nobody` user exists on the system:

1. To determine whether the user exists, enter the following command:

   ```
   # id nobody
   ```

   If this command displays information about the `nobody` user, then you do not have to create that user.

2. If the `nobody` user does not exist, then enter the following command to create it:

   ```
   # /usr/sbin/useradd nobody
   ```

For AIX 5L Based Systems

```
# smit security
```

Specify the appropriate options to create an unprivileged `nobody` user, then press **F10** to exit.

2.1.10 Identifying the Required Software Directories

You must identify or create the following directories for the Oracle software:

- Oracle Base Directory
- Oracle Inventory Directory
- Oracle Home Directory

2.1.10.1 Oracle Base Directory

The Oracle base directory is a top-level directory for Oracle software installations. On Linux and UNIX-based systems, the Optimal Flexible Architecture (OFA) guidelines recommend that you use a path similar to the following for the Oracle base directory:

```
/mount_point/app/oracle_sw_owner
```

In this example:

- *`mount_point`* is the mount point directory for the file system that will contain the Oracle software.

  The examples in this guide use `/u01` for the mount point directory. However, you could choose another mount point directory, such as `/oracle` or `/opt/oracle`.

- *`oracle_sw_owner`* is the operating system user name of the Oracle software owner, for example, `oracle`.

You can use the same Oracle base directory for more than one installation, or you can create separate Oracle base directories for different installations. If different operating system users install Oracle software on the same system, then each user must create a separate Oracle base directory. The following example Oracle base directories could all exist on the same system:

```
/u01/app/oracle
/u01/app/orauser
/opt/oracle/app/oracle
```

The following sections describe how to identify existing Oracle base directories that may be suitable for your installation and how to create an Oracle base directory if necessary.

Regardless of whether you create an Oracle base directory or decide to use an existing one, you must set the `ORACLE_BASE` environment variable to specify the full path to this directory.

2.1.10.2 Oracle Inventory Directory

The Oracle Inventory directory (`oraInventory`) stores an inventory of all software installed on the system. It is required by, and shared by, all Oracle software installations on a single system. The first time you install Oracle software on a system, Oracle Universal Installer prompts you to specify the path to this directory. Oracle recommends that you choose the following path:

```
oracle_base/oraInventory
```

Oracle Universal Installer creates the directory that you specify and sets the correct owner, group, and permissions for it. You do not need to create it.

> **Note:** All Oracle software installations rely on this directory. Ensure that you back it up regularly.
>
> Do not delete this directory unless you have completely removed all Oracle software from the system.

2.1.10.3 Oracle Home Directory

The Oracle home directory is the directory where you choose to install the software for a particular Oracle product. You must install different Oracle products, or different releases of the same Oracle product, in separate Oracle home directories. When you run Oracle Universal Installer, it prompts you to specify the path to this directory and a name that identifies it. The directory that you specify must be a subdirectory of the Oracle base directory. Oracle recommends that you specify a path similar to the following for the Oracle home directory:

```
oracle_base/product/10.2.2/av_1
```

Oracle Universal Installer creates the directory path that you specify under the Oracle base directory. It also sets the correct owner, group, and permissions on it. You do not need to create this directory.

2.1.11 Identifying or Creating an Oracle Base Directory

Before starting the installation, you must either identify an existing Oracle base directory or if required, create one. This section contains the following topics:

- Identifying an Existing Oracle Base Directory
- Creating an Oracle Base Directory

> **Note:** You can choose to create an Oracle base directory, even if other Oracle base directories exist on the system.

2.1.11.1 Identifying an Existing Oracle Base Directory

Existing Oracle base directories may not have paths that comply with Optimal Flexible Architecture (OFA) guidelines. However, if you identify an existing Oracle Inventory directory or existing Oracle home directories, then you can usually identify the Oracle base directories, as follows:

- To identify an existing Oracle Inventory directory

  Enter the following command to view the contents of the `oraInst.loc` file:

  For Linux x86

  ```
  # more /etc/oraInst.loc
  ```

  For SPARC (64-Bit)

  ```
  # more /var/opt/oracle/oraInst.loc
  ```

  For HP-UX PA-RISC (64-Bit)

  ```
  # more /var/opt/oracle/oraInst.loc
  ```

For AIX 5L Based Systems

```
# more /etc/oraInst.loc
```

For Linux x86-64

```
# more /etc/oraInst.loc
```

For HP-UX Itanium

```
# more /var/opt/oracle/oraInst.loc
```

If the `oraInst.loc` file exists, then the output from this command is similar to the following:

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

The `inventory_loc` parameter identifies the Oracle Inventory directory (`oraInventory`). The parent directory of the `oraInventory` directory is typically an Oracle base directory. In the previous example, `/u01/app/oracle` is an Oracle base directory.

- To identify existing Oracle home directories

  Enter the following command to view the contents of the `oratab` file:

  For Linux x86

  ```
  # more /etc/oratab
  ```

  For SPARC (64-Bit)

  ```
  # more /var/opt/oracle/oratab
  ```

  For HP-UX PA-RISC (64-Bit)

  ```
  # more /etc/oratab
  ```

  For AIX 5L Based Systems

  ```
  # more /etc/oratab
  ```

  For Linux x86-64

  ```
  # more /etc/oratab
  ```

  For HP-UX Itanium

  ```
  # more /etc/oratab
  ```

  If the `oratab` file exists, then it contains lines similar to the following:

  ```
  *:/u03/app/oracle/product/1.0.0/db_1:N
  *:/opt/orauser/infra_904:N
  *:/oracle/9.2.0:N
  ```

  The directory paths specified on each line identify Oracle base directories. Directory paths that end with the user name of the Oracle software owner that you want to use are valid choices for an Oracle base directory. If you intend to use the `oracle` user to install the software, then you could choose one of the following directories from the previous example:

  ```
  /u03/app/oracle
  ```

```
/oracle
```

Note: If possible, choose a directory path similar to the first (`/u03/app/oracle`). This path complies with the OFA guidelines.

Before deciding to use an existing Oracle base directory for this installation, ensure that it satisfies the following conditions:

- It should not be on the same file system as the operating system.
- It must have sufficient free disk space as described in the hardware requirements section of each respective platform.

  To determine the free disk space on the file system where the Oracle base directory is located, enter the following command:

  For Linux x86

  ```
  # df -h oracle_base_path
  ```

  For SPARC (64-Bit)

  ```
  # df -k oracle_base_path
  ```

  For HP-UX PA-RISC (64-Bit)

  ```
  # df -k oracle_base_path
  ```

  For AIX 5L Based Systems

  ```
  # df -k oracle_base_path
  ```

  For Linux x86-64

  ```
  # df -h oracle_base_path
  ```

  For HP-UX Itanium

  ```
  # bdf oracle_base_path
  ```

If an Oracle base directory does not exist on the system or if you want to create an Oracle base directory, then complete the steps in Section 2.1.11.2.

2.1.11.2 Creating an Oracle Base Directory

Before you create an Oracle base directory, you must identify an appropriate file system with sufficient free disk space, as indicated in Section 2.1.3.1.

To identify an appropriate file system:

1. Use the `df -k` or `bdf` command to determine the free disk space on each mounted file system.
2. From the display, identify a file system that has appropriate free space.
3. Note the name of the mount point directory for the file system that you identified.

To create the Oracle base directory and specify the correct owner, group, and permissions for it:

1. Enter commands similar to the following to create the recommended subdirectories in the mount point directory that you identified, and set the appropriate owner, group, and permissions on them:

```
# mkdir -p /mount_point/app/oracle_sw_owner
# chown -R oracle:oinstall /mount_point/app/oracle_sw_owner
# chmod -R 775 /mount_point/app/oracle_sw_owner
```

For example, if the mount point you identify is `/u01` and `oracle` is the user name of the Oracle software owner, then the recommended Oracle base directory path is:

```
/u01/app/oracle
```

2. When you configure the environment of the `oracle` user (see Section 2.1.9), set the `ORACLE_BASE` environment variable to specify the Oracle base directory that you created.

2.1.12 Setting the DISPLAY Environment Variable

Before you begin the Audit Vault Agent installation, you should check to see that the `DISPLAY` environment variable is set to a proper value. For example, for the Bourne, Bash, or Korn shell, you would enter the following commands, where `myhost.us.oracle.com` is your host name:

```
$ DISPLAY=myhost.us.oracle.com:1.0
$ export DISPLAY
```

For example, for the C shell, you would enter the following command, where `myhost.us.oracle.com` is your host name:

```
% setenv DISPLAY myhost.us.oracle.com:1.0
```

2.2 Preinstallation Requirements for the Windows 32-Bit Platform

This section describes the following preinstallation tasks:

- Becoming Familiar with the Features of Oracle Audit Vault
- Understanding Installation Differences Between the Windows and UNIX Systems
- Checking the Hardware Requirements for the Windows 32-Bit Platform
- Checking the Software Requirements for the Windows 32-Bit Platform

2.2.1 Becoming Familiar with the Features of Oracle Audit Vault

Before you plan the installation process, you need to become familiar with the features of Oracle Audit Vault. *Oracle Audit Vault Administrator's Guide* discusses the basic features of Oracle Audit Vault.

2.2.2 Understanding Installation Differences Between the Windows and UNIX Systems

If you are experienced with installing Oracle components in UNIX environments, note that many manual setup tasks required on UNIX are not required on Windows. The key differences between UNIX and Windows installations are:

- Startup and shutdown services

  With Windows, Oracle Universal Installer creates and sets startup and shutdown services at installation time. With UNIX systems, administrators are responsible for creating these services.

- Environment variables

With Windows, Oracle Universal Installer sets environment variables such as `PATH`, `ORACLE_BASE`, `ORACLE_HOME`, and `ORACLE_SID` in the registry. In UNIX systems, you must manually set these environment variables.

- DBA account for database administrators

  With Windows, Oracle Universal Installer creates the `ORA_DBA` group. In UNIX systems, you must create the DBA account manually

- Account for running Oracle Universal Installer

  With Windows, you log in with Administrator privileges. You do not need a separate account. With UNIX systems, you must create this account manually.

See Also: "Oracle Database Windows/UNIX Differences" appendix of *Oracle Database Platform Guide for Microsoft Windows (32-Bit)*

2.2.3 Checking the Hardware Requirements for the Windows 32-Bit Platform

Table 2–2 lists the required hardware components for Oracle Audit Vault Agent.

Table 2–2 Hardware Requirements

Requirement	Minimum Value
Physical memory (RAM)	128 MB minimum, 512 MB recommended
Virtual memory	Double the amount of RAM
Hard disk space	397 MB (includes 42 MB temporary)
Video adapter	256 colors
Processor	550 MHz minimum

2.2.3.1 Hard Disk Space Requirements

This section lists system requirements for Windows platforms that use the NT File System (NTFS) file systems. FAT32 space requirements are slightly larger. Oracle recommends installing Oracle components on NTFS.

The NTFS system requirements listed in this section are more accurate than the hard disk values reported by the Oracle Universal Installer Summary window. The Summary window does not include the space required to create a database or the size of compressed files that are expanded on the hard drive.

The hard disk requirements for Oracle Database Client components include space required to install Java Runtime Environment (JRE) and Oracle Universal Installer on the partition where the operating system is installed. If sufficient space is not detected, then the installation fails and an error message appears.

Table 2–3 lists the space requirements for NTFS.

Table 2–3 Disk Space Requirements for NTFS

TEMP Space	Oracle Home	Total
42 MB	355 MB	397 MB

See Also: "NTFS File System and Windows Registry Permissions" in *Oracle Database Platform Guide for Microsoft Windows (32-Bit)*

To ensure that the system meets these requirements, follow these steps:

1. Determine the physical RAM size. For a computer using Windows 2003, for example, open **System** in the Windows Control Panel and select the **General** tab. If the size of the physical RAM installed in the system is less than the required size, then you must install more memory before continuing.
2. Determine the size of the configured virtual memory (also known as paging file size). For a computer using Windows 2003, for example, open **System** in the Control Panel, select the **Advanced** tab, and click **Settings** in the **Performance** section. Then select the **Advanced** tab. The virtual memory is listed in the **Virtual Memory** section.

   If necessary, see your operating system documentation for information about how to configure additional virtual memory.
3. Determine the amount of free disk space on the system. For a computer using Windows 2003, for example, open **My Computer**, right-click the drive where the Oracle software is to be installed, and choose **Properties**.
4. Determine the amount of disk space available in the `temp` directory. This is equivalent to the total amount of free disk space, minus what will be needed for the Oracle software to be installed.

   If less than 100 MB of disk space is available in the `temp` directory, then delete all unnecessary files. If the `temp` disk space is still less than 100 MB, then set the `TEMP` or `TMP` environment variable to point to a different hard drive. For a computer using Windows 2003, for example, open **System** in the Control Panel, select the **Advanced** tab, and click **Environment Variables**.

2.2.4 Checking the Software Requirements for the Windows 32-Bit Platform

Table 2–4 lists the software requirements for Oracle Audit Vault Agent.

Table 2–4 Software Requirements

Requirement	Value
System architecture	Processor: Intel (x86) For additional information, visit the Oracle*MetaLink* at `https://metalink.oracle.com`
Operating system	Oracle Audit Vault Agent for Windows is supported on the following operating systems: ■ Windows 2000 with service pack 1 or later. All editions, including Terminal Services and Microsoft Windows 2000 MultiLanguage Edition (MLE), are supported. ■ Windows Server 2003 - all editions ■ Windows XP Professional service pack 1 Windows NT is not supported. Windows Multilingual User Interface Pack is supported on Windows Server 2003, and Windows XP Professional.
Network protocol	The Oracle Net foundation layer uses Oracle protocol support to communicate with the following industry-standard network protocols: ■ TCP/IP ■ TCP/IP with Secure Sockets Layer (SSL) ■ Named Pipes

2.3 Oracle Audit Vault Agent Hardware and Software Certification

The platform-specific hardware and software requirements included in this installation guide were current at the time this guide was published. However, because new platforms and operating system software versions might be certified after this guide is published, review the certification matrix on the Oracle*MetaLink* Web site for the most up-to-date list of certified hardware platforms and operating system versions. This Web site also provides compatible client an database versions, patches, and workaround information for bugs. The Oracle*MetaLink* Web site is available at the following URL:

`https://metalink.oracle.com/`

You must register online before using Oracle*MetaLink*. After logging in, select **Certify & Availability** from the left-hand column. From the Product Lifecycle page, select the **Certifications** button. Other Product Lifecycle options include **Product Availability**, **Desupport Notices**, and **Alerts**.

3

Installing Oracle Audit Vault Agent

This chapter includes the major steps required to install Oracle Audit Vault Agent.

This chapter includes the following sections:

3.1 Audit Vault Agent Preinstallation

Before you begin the Audit Vault Agent installation as described in Section 3.2.2, you must create an Audit Vault Agent user and add this agent user to Audit Vault database. Perform the following steps to complete these tasks.

1. Create a user in the Audit Vault database to represent the Audit Vault Agent.

   a. Set the Audit Vault environment variables (`ORACLE_HOME`, `ORACLE_SID`, `PATH`, `LD_LIBRARY_PATH` (for Linux x86, Linux x86-64, and Solaris SPARC_64), `SHLIB_PATH` (for HP-UX), or `LIBPATH` (for AIX), as applicable, or use the `coraenv` or `oraenv` scripts located in the server home `bin` directory (`$ORACLE_HOME/bin`) to perform this operation. Set `ORACLE_HOME` to point to the Audit Vault Server home. Set `ORACLE_SID` to the database name for a single instance installation (`av` is the default database name) or for an Oracle Real Application Clusters (Oracle RAC) installation, set it to the instance name. Set `PATH` to include `$ORACLE_HOME/bin`.

   b. Log in to SQL*Plus as the Oracle Database Vault Account Manager.

      For the Basic installation, log in as follows:

      ```
      sqlplus /nolog
      SQL> connect <avadmin user name>dva
      Enter password: <dv_acctmgr user password>
      Connected.
      SQL>
      ```

      For the Advanced installation, log in as follows:

      ```
      sqlplus /molog
      SQL> connect <dv_acctmgr user name>
      Enter password: <dv_acctmgr user password>
      Connected.
      SQL>
      ```

c. Create the Audit Vault Agent user

```
SQL> create user <avagent user name> identified by <avagent password>;
SQL> exit
```

2. Add or register the Oracle Audit Vault Agent at Oracle Audit Vault Server.

   Run the following AVCA `add_agent` command, as shown in Example 3–1.

Example 3–1 Running the AVCA add_agent Command to Add the Created av_agent User to Audit Vault

```
avca add_agent -agentname <avagent name> [-agentdesc <agent description>]
-agenthost <name of host where agent will be installed>
-agentusr <avagent user name>
```

For example:

```
avca add_agent -agentname agent1 -agenthost machine2.us.oracle.com
-agentusr agentuser
```

The command arguments are as follows:

- `-agentname`: The name of the agent, with no spaces. The agent name must be unique to the Oracle Audit Vault Server. You cannot reuse an agent name for another agent name on the same server, even after the deinstallation of a previously installed agent. Oracle Audit Vault does not delete agent names that are dropped; it disables the agent name and retains the agent name in its metadata.

  You should write this name down. You will enter it as part of the agent installation on the Agent Details page.

- `-agentdesc`: A description of the agent.

  This is optional.

- `-agenthost`: The host name where the agent is installed, for example, `machine2.us.mycompany.com`.

- `-agentusr`: The user name for the agent that you created previously in Step 1c.

  You will enter this user name and password as part of the agent installation on the Agent Details page.

Provide this agent user name, agent password, and agent name to the Audit Vault administrator who plans to install the Oracle Audit Vault Agent software described in Section 3.2.2.

3.2 Audit Vault Agent Installation

This section describes the following topics:

- Audit Vault Agent Installation Details
- Performing the Agent Installation
- Configuring the Audit Vault Agent to Connect to Oracle RAC Audit Vault in Failover Mode

3.2.1 Audit Vault Agent Installation Details

This section provides an overview of information specific to the installation detail screens for the Audit Vault Agent installation.

3.2.1.1 Audit Vault Agent Name

Audit Vault Agent Name – The name of the agent can be a maximum of 255 characters. The agent name is required.

3.2.1.2 Audit Vault Agent Home

Audit Vault Agent Home – Specify or browse to find the path to the Audit Vault Agent home where you want to install Oracle Audit Vault Agent. The path must contain only alphanumeric characters (letters and numbers). The path is required.

Only the special characters shown in Table 3–1 are allowed.

Table 3–1 Special Characters Allowed in the Audit Vault Home Name

Symbol	Character Name
\	Backslash
/	Slash
-	hyphen
_	Underscore
.	Period
:	Colon

3.2.1.3 Audit Vault Agent Account

Audit Vault Agent installation prompts for the account name and password of the Audit Vault Agent user created in Step 1 in Section 3.1.

Agent User Name – This user account is granted the `AV_AGENT` role. This user manages agents and collectors by starting, stopping, and resetting them. The agent user name is required.

Agent User Password – The password for the Audit Vault Agent user account. The password is required.

3.2.1.4 Connect String

The Audit Vault Server connect string takes the form `hostname:port:service name`, where these three items are delimited by the colon (:) character. This connect string will be used to configure the connectivity of the agent to the Audit Vault Server database. The host name represents the system where the Audit Vault Server resides. The listener port number and service name information are needed to access the Audit Vault Server database.

These three components must be in the following order, and information for each component must be provided: host name, listener port, and service name.

The host name cannot contain any space characters. The host name is required.

The listener port number must have a value between 0 and 65535. The listener port number is required. The Audit Vault Server listener port number can be determined by issuing the following command in the Audit Vault Server home:

```
lsnrctl status
```

The structure of the service name is *<db_name>.<db_domain>*. The *<db_name>* portion is the Audit Vault name specified during the Audit Vault Server installation. The *<db_domain>* is the domain name portion of the full host name for the system where the Audit Vault Server is installed.

3.2.2 Performing the Agent Installation

The steps to perform an Audit Vault Agent Installation are as follows:

1. Run Oracle Universal Installer (OUI) to install Oracle Audit Vault Agent. You should run the installer as the software owner account that owns the current `ORACLE_HOME` environment. This is normally the `oracle` account.

   For Linux and UNIX-based systems, log in as the `oracle` user. Alternatively, switch user to `oracle` using the `su -` command. Change your current directory to the directory that contains the installation files. Start Oracle Universal Installer from the Oracle Audit Vault Agent package.

   For Linux and UNIX-based systems:

   ```
   cd <directory containing the Oracle Audit Vault Agent installation files>
   ./runInstaller
   ```

   For Windows systems, locate the directory containing the Oracle Audit Vault Agent installation files for Windows, then double-click `setup.exe` to start Oracle Universal Installer.

2. Specify the following information on the **Agent Details** page, then click **Next**:

   a. **Audit Vault Agent Name** – The name of the agent (created in Step 2 of Section 3.1)

   b. **Audit Vault Agent Home** – Specify or browse to find the path to the Audit Vault Agent home where you want to install Oracle Audit Vault Agent

   c. **Agent User Name** – The account name of the Audit Vault Agent User (created in Step 1c of Section 3.1).

   d. **Agent User Password** – The password for the Audit Vault Agent user account (created in Step 1c of Section 3.1).

   e. Specify the Audit Vault Server **Connect String** that takes the form *hostname:port:service name* in that order using a (:) colon delimiter between each item, for example: `machine2.us.company.com:1521:av.us.oracle.com`.

      See Section 3.2.1.4 for more information about the Audit Vault Server connect string.

   See Section 3.2.1 for more information about specifying the Audit Vault information.

3. Review the installation prerequisite checks on the **Prerequisite Check** page. This is when all installation prerequisite checks are performed and the results are displayed. Verify that all prerequisite checks succeed, then click **Next**.

   Oracle Universal Installer checks the system to verify that it is configured correctly to run Oracle software. If you have completed all of the preinstallation steps in this guide, all of the checks should pass.

   If a check fails, then review the cause of the failure listed for that check on the screen. If possible, rectify the problem and rerun the check. Alternatively, if you

are satisfied that your system meets the requirements, then you can select the check box for the failed check to manually verify the requirement.

4. On the installation **Summary** page, review the installation summary information. After reviewing this installation information, click **Install** to begin the installation procedure.

5. Provide information or run scripts as the `root` user when prompted by Oracle Universal Installer. If you need assistance during installation, click **Help**. If you encounter problems during installation, then examine the Oracle Universal Installer actions recorded in the installation log file. The log file is located in the `cfgtoollogs/oui` directory, in the following location:

   For Linux and UNIX-based systems:

   `$ORACLE_HOME/cfgtoollogs/oui/installActions`*`date_time`*`.log`

   For Windows systems:

   `ORACLE_HOME\cfgtoollogs\oui\installActions`*`date_time`*`.log`

6. After the installation completes, on the **Exit** page, click **Exit**. Then, on the **Confirmation** message box, click **Yes** to exit Oracle Universal Installer.

For Linux and UNIX-based platforms, the system should show that the oc4j process for the agent is running. This process can be checked using the `ps` command on the command line. For example, from the Audit Vault Agent home, run the following command:

```
ps -ef|grep oc4j
```

For Windows, a Windows service named `Oracle Audit Vault Agent - <agent name>` is created, where *`<agent name>`* is the name of the agent installed. This service is in a `Stopped` state. This is just a "bootstrap service"; it is not the agent itself, but rather a service used to start the agent. This bootstrap service completes its task of starting the agent and then shuts itself down, so it will never be seen in a running state. The agent process, identified as `avoscoll.exe`, should be running and can be checked by looking at the process list in Task Manager.

See *Oracle Audit Vault Administrator's Guide* for more information about adding a source, adding a collector, and managing and monitoring the Audit Vault system.

3.2.3 Configuring the Audit Vault Agent to Connect to Oracle RAC Audit Vault in Failover Mode

For the agent to be able to fail over across the Oracle RAC Audit Vault nodes, you must establish the proper configuration.

Update the contents of the `<Agent_home>/network/admin/tnsnames.ora` file as follows:

```
<AV SID> = (DESCRIPTION = (ENABLE = BROKEN)(ADDRESS = (PROTOCOL = TCP)
HOST = <VIP address of node1>)(PORT = <listener port>))
(ADDRESS = (PROTOCOL = TCP)(HOST = <VIP address of node2>)
(PORT = <listener port>))(LOAD_BALANCE = yes)
(CONNECT_DATA = (SERVICE_NAME = <AV GDN>)
(FAILOVER_MODE=(TYPE=select)(METHOD=basic)(RETRIES=20)(DELAY=15))))
```

3.3 Performing a Silent Installation Using a Response File

Follow these brief steps to perform a silent installation using a response file:

1. Make sure all prerequisites are met for the installation of Audit Vault Agent.
2. Prepare the Audit Vault Agent response file. A template response file can be found at `<AV agent installer location>/response/avagent.rsp` on Linux and UNIX-based systems at the Audit Vault Agent installation media and at `<AV agent installer location>\response\avagent.rsp` on Windows systems at the Audit Vault Agent installation media.

   Prepare the response file by entering values in the first part of the response file for all parameters, then save the file. Do not edit any values in the second part of the response file.
3. Invoke Oracle Universal Installer using the following options:

   For Linux and UNIX-based systems:

   ```
   ./runInstaller -silent -responseFile <Path of response file>
   ```

   For Windows systems:

   ```
   setup.exe -silent -responseFile <Path of response file>
   ```

   In this example:

   `Path of response file` identifies the full path of the response file.

   `-silent` runs Oracle Universal Installer in silent mode and suppresses the Welcome window.

   For more information about these options, see Section 1.1.2. For general information about these options and about how to complete an installation using these response files, see the platform specific Oracle Database installation guides and *Oracle Database Oracle Clusterware and Oracle Real Application Clusters Installation Guide for Linux* and "Installing Oracle Products" in *Oracle Universal Installer and OPatch User's Guide* for more information about installing and using response files.

3.4 Audit Vault Administrator Tasks

After Audit Vault Server and Audit Vault Agent installation is complete, see *Oracle Audit Vault Administrator's Guide* for some Audit Vault Administration tasks to perform to ensure that additional security for communication is in place, to set up collectors, and to manage and to monitor the audit data collection system.

4

Removing Oracle Audit Vault Agent Software

This chapter describes the process of removing Audit Vault Agent software. It contains the following sections:

- Removing Audit Vault Agent Software

  This section describes general instructions for all Linux and UNIX-based systems and Windows systems.

- For Windows Systems: Manually Remove the Remaining Oracle Audit Vault Agent Components

  This section describes specific instructions for Windows systems about manually removing the remaining registry keys, environment variables, Start menu options, and directories.

4.1 Removing Audit Vault Agent Software

Use the following procedure to uninstall the Oracle Audit Vault Agent software:

1. Use the Audit Vault Control (AVCTL) commands documented in *Oracle Audit Vault Administrator's Guide* to stop all collectors (`stop_collector`) running on the agent, and then to stop the agent itself (`stop_agent`).
2. Use the AVCTL `stop_oc4j` command to stop the OC4J agent. For example:

   ```
   avctl stop_oc4j
   ```

3. For Windows systems, you must first stop the Oracle Windows services before removing Oracle components or removing any registry entries.

   See Also: Your Microsoft online Help for more information about stopping services

   To stop Windows services:

   a. Open the Windows **Services** utility: From the **Start** menu, choose **Programs**, then **Administrative Tools**, then **Services**.

   b. If the Oracle service named `Oracle Audit Vault Agent - agent name` exists and has the status *Started*, then select this service, and click **Stop**.

   c. Exit **Services**.

4. For Linux and UNIX-based systems, and Windows systems, uninstall the Oracle Audit Vault Agent software by running the following command in the home directory of the Agent. For example:

For Linux and UNIX-based systems:

```
$ $ORACLE_HOME/oui/bin/runInstaller
```

For Windows systems:

```
<ORACLE_HOME>\oui\bin\setup.exe
```

As an alternative for Windows systems, start Oracle Universal Installer: From the **Start** menu, select **Programs**, then **Oracle Agent - HOME_NAME**, then **Oracle Installation Products**, and then **Universal Installer**.

For Linux and UNIX-based systems, and Windows systems, the **Welcome** window for Oracle Universal Installer appears.

5. Click **Deinstall Products** to bring up the Oracle Inventory screen.

   Select the Oracle home directory and the products that you want to remove by selecting the desired check boxes, then click **Remove**. The **Confirmation** window appears. Click **Yes** to remove the selected components.

   After the Audit Vault Agent components are removed from your system, the **Oracle Inventory** page appears without the removed components. Click **Close** to close the **Oracle Inventory** page. Click **Cancel** to exit Oracle Universal Installer. Click **Yes** to confirm that you want to exit.

6. Clean up the old Oracle directories.

   On systems where Oracle Audit Vault Agent is the only Oracle software installed, navigate to the directory for `oracle`, and remove the directory.

   For Linux and UNIX-based systems, use the `rm -r` command.

   Otherwise, delete the Oracle Audit Vault Agent home.

   For Linux and UNIX-based systems, issue the following command to confirm there is no other Oracle home installed.

   ```
   $ grep 'HOME NAME' OraInventory/ContentsXML/Inventory.xml
   ```

   For Windows systems, you must manually remove remaining registry keys, environment variables, Start menu options, and directories. See Section 4.2 for details.

4.2 For Windows Systems: Manually Remove the Remaining Oracle Audit Vault Agent Components

Oracle Universal Installer does not remove all Oracle Audit Vault Agent components. After using Oracle Universal Installer to remove Oracle Audit Vault Agent components, you must manually remove the remaining registry keys, environment variables, Start menu options, and directories.

This section contains these topics:

- Removing Oracle Audit Vault Agent Keys from the Registry Editor on Windows
- Updating the PATH Environment Variable Path
- Removing Oracle Audit Vault Agent from the Start Menu
- Removing Oracle Audit Vault Agent Directories

Note: In rare situations, you might want to correct serious system problems by completely removing Oracle Audit Vault Agent components manually from the computer without first deinstalling Oracle Audit Vault Agent with Oracle Universal Installer. Do this only as a last resort, and only if you want to remove all Oracle Audit Vault Agent components from your system.

4.2.1 Removing Oracle Audit Vault Agent Keys from the Registry Editor on Windows

Oracle Universal Installer does not delete all services created by Oracle Net Configuration Assistant. In addition, it does not delete several other registry keys. You must remove any existing registry keys manually by following the instructions in one of the following sections:

- Removing Only the Oracle Audit Vault Agent Service Registry Key
- Removing Only the Oracle Audit Vault Agent Registry Keys

Caution: Use Microsoft Registry Editor at your own risk. Incorrectly using the Registry Editor can cause serious problems and might require you to reinstall your operating system.

4.2.1.1 Removing Only the Oracle Audit Vault Agent Service Registry Key

To remove only the Oracle Audit Vault Agent Service registry entry (if it exists):

1. Log in as a member of the Administrators group.
2. Ensure that you first follow the instructions in Step 3 in Section 4.1 about stopping Oracle Windows services before removing Oracle Audit Vault Agent components.
3. From the **Start** menu, choose **Run**, and then enter the following command:

   ```
   regedit
   ```

4. Go to `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services` and delete the `Oracle Audit Vault Agent - agent name` registry entry.

   When you ran Oracle Universal Installer to deinstall Oracle Audit Vault Agent, it deleted all other Oracle Net services.
5. Exit the Registry Editor.
6. Restart your computer.

4.2.1.2 Removing Only the Oracle Audit Vault Agent Registry Keys

To remove the Oracle Audit Vault Agent registry keys from a computer (if any exist):

Caution: These instructions remove *only* the Oracle Audit Vault Agent components, services, and registry entries from your computer. Exercise extreme care when removing registry entries. Removing incorrect entries can break your system. Any database files under *ORACLE_BASE*`\`*ORACLE_HOME*`\Oracle Audit Vault Agent` *Name* should be deleted only after completing these instructions.

1. Log in as a member of the Administrators group.

2. Ensure that you first follow the instructions in Step 3 in Section 4.1 about stopping Oracle Audit Vault Agent Windows service before removing the Oracle Audit Vault Agent components.
3. From the **Start** menu, choose **Run**, and enter the following command:

   ```
   regedit
   ```

4. Go to `HKEY_LOCAL_MACHINE\SOFTWARE`.
5. Delete the `ORACLE` key named `KEY_`*`AgentHOME_NAME`*, similar to KEY_ OraAV10g_home1.
6. Exit the Registry Editor.
7. Restart your computer.

4.2.2 Updating the PATH Environment Variable Path

Check the `PATH` environment variable and remove any Oracle entries.

1. Display **System** in the Control Panel.
2. Select the **Advanced** tab and then click **Environment Variables**.
3. Select the system variable `PATH` and edit it to remove any Oracle entries.

   For example, remove Oracle entries that contain *`ORACLE_BASE`*`\`*`ORACLE_HOME`* in the `Path` variable. You may see a `Path` variable that contains entries similar to the following:

   ```
   ORACLE_BASE\ORACLE_HOME\product\10.2.2\av_agent_1\bin
   ```

4. Save any changes and exit **System**.

4.2.3 Removing Oracle Audit Vault Agent from the Start Menu

Check the **Start** menu for any Oracle Audit Vault Agent entries and remove them.

Follow these steps:

1. Select **Start**, then **Programs**, then **Oracle -** ***Agent HOME_NAME***.
2. Right-click **Oracle -** ***Agent HOME_NAME***, and from the menu, select **Delete**.

You can also remove Oracle Audit Vault Agent menu entries by using the following method:

1. Right-click the **Start** button to display the shortcut menu.
2. Select the **Explore All Users** option.
3. Under Documents and Settings, expand the `\Start Menu\Programs` folder.
4. Right-click and delete the **Oracle -** ***Agent HOME_NAME*** folder.

4.2.4 Removing Oracle Audit Vault Agent Directories

After removing all Oracle Audit Vault Agent registry keys and restarting the computer, delete any existing Oracle Audit Vault Agent directories and files.

1. Using My Computer or Windows Explorer, delete the *`SYSTEM_DRIVE`*`:\program files\oracle` directory.
2. Using My Computer or Windows Explorer, delete the Oracle Audit Vault *`ORACLE_BASE`* directory on your hard drive.

Index

P

Q

R

S

T

U

V

W

X