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Oracle Application Server Installation Guide 10*g* Release 2 (10.1.2) for Linux x86

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Preface

The *Oracle Application Server Installation Guide* covers requirements, new features in the Oracle Universal Installer, Oracle Application Server concepts that affect installation, installation procedures, and troubleshooting tips. In addition, this guide also provides some sample topologies for installing and running Oracle Application Server.

Intended Audience

This guide is intended for users who perform system administration operations, such as creating users and groups, adding users to groups, and installing operating system patches on the computer where Oracle Application Server is going to be installed. Users who are installing Oracle Application Server need root access to run some scripts.

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Related Documents

For additional information, refer to the following manuals:

- *Oracle Application Server Administrator's Guide*
- *Oracle Application Server Concepts*
- *Oracle Application Server High Availability 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.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Summary of Installation Steps

Oracle Application Server is an integrated and powerful product. To optimize its capabilities, you should take time to read this guide so that you and the product get off on the right foot.

This chapter provides an overview of the steps to install Oracle Application Server. The other chapters in this guide describe the steps in detail.

The steps for installing Oracle Application Server are:

1. Read the following documents for the most current information about Oracle Application Server:
   - *Oracle Application Server Release Notes*

     You can find the latest version of the release notes on Oracle Technology Network at:

     `http://www.oracle.com/technology/documentation`
2. Check that the computers where you want to run Oracle Application Server meet the requirements. This includes:
   - Section 4.2, "System Requirements"
   - Section 4.3, "Software Requirements"
   - Section 4.4, "Kernel Parameters"
   - Section 4.5, "Set Shell Limits for the oracle User"
   - Section 4.6, "Ports"
   - Section 4.7, "Operating System Groups"
   - Section 4.8, "Operating System User"
   - Section 4.9, "Environment Variables"
   - Section 4.10, "The /etc/hosts File"
   - Section 4.11, "Network Topics"
3. Read Chapter 5, "Things You Should Know Before Starting the Installation" to get a big picture of how the different parts of Oracle Application Server work together. This chapter describes the OracleAS Infrastructure, Oracle Application Server middle tiers, where you can install them, and what values the installer expects on some of the installation screens.
4. Read Chapter 6, "Installing OracleAS Infrastructure" and Chapter 7, "Installing Middle Tiers" to get details on the main parts of Oracle Application Server.

5. If you want to run Oracle Application Server in high availability environments such as OracleAS Cold Failover Cluster or OracleAS Disaster Recovery, read Chapter 10, "Installing in High Availability Environments: Overview".
6. Learn about recommended topologies. You can install Oracle Application Server on multiple computers to improve scalability, availability, security, and performance. Chapter 15, "Recommended Topologies" describes the recommended development and deployment topologies.
7. Install Oracle Application Server (infrastructure and/or middle tiers). Follow the appropriate procedures in Chapter 6, "Installing OracleAS Infrastructure" and Chapter 7, "Installing Middle Tiers".
8. After you install Oracle Application Server, access the Welcome page and run some demos to ensure that the installation was successful.

2

What's New in the Installation

This chapter describes new features in the Oracle Universal Installer. To see a list of new features in the product itself, visit the Oracle Technology Network site at:

`http://www.oracle.com/technology`

Contents:

- Section 2.1, "OracleAS Metadata Repository Uses Oracle Database 10g"
- Section 2.2, "Support for More High Availability Environments"
- Section 2.3, "Support for Oracle Internet Directory Replication"
- Section 2.4, "New Screen for Specifying the staticports.ini File"
- Section 2.5, "Additional Tool for Deinstallation"
- Section 2.6, "Changed Option Name in Select Configuration Options Screen for J2EE and Web Cache"
- Section 2.7, "Recording Feature for Silent Installations"
- Section 2.8, "Generating Installation Statistics"
- Section 2.9, "Change in the Default Port Range"
- Section 2.10, "New Element for Specifying Port Numbers for CORBA Communication"
- Section 2.11, "Cloning OracleAS Forms and Reports Services Instances"

2.1 OracleAS Metadata Repository Uses Oracle Database 10*g*

In 10*g* (9.0.4), the installer created an Oracle9*i* Release 1 (9.0.1.5) database and loaded the OracleAS Metadata Repository in that database.

In this release, the installer creates an Oracle Database 10*g* (10.1.0.4.2) for the OracleAS Metadata Repository.

To configure this database during installation, the installer displays these new screens:

- Specify Database Configuration Options
- Specify Database Schema Passwords

For details, see Section 6.29, "Install Fragment: Database Screens".

2.2 Support for More High Availability Environments

In this release, Oracle Application Server supports the following high availability environments:

- OracleAS Cold Failover Cluster
- OracleAS Cluster (Identity Management)
- OracleAS Disaster Recovery

In addition, for each environment, you can distribute the OracleAS Metadata Repository and Oracle Identity Management components over several computers. In earlier releases, you had to install all the components on the same computer.

There are also new screens related to high availability.

For details, see:

- Chapter 10, "Installing in High Availability Environments: Overview"
- Chapter 11, "Installing in High Availability Environments: OracleAS Cold Failover Cluster"
- Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)"
- Chapter 13, "Installing in High Availability Environments: OracleAS Disaster Recovery"

2.3 Support for Oracle Internet Directory Replication

In this release, you can install the master Oracle Internet Directory, as well as Oracle Internet Directory replicas using the installer.

During installation, you select the type of replication that you want:

- Fan-out Replication (which is also called LDAP Replication)
- Multimaster Replication (which is also called Advanced Replication)

For details, see Chapter 9, "Installing Oracle Internet Directory in Replicated Mode".

2.4 New Screen for Specifying the staticports.ini File

In 10*g* (9.0.4), if you wanted components to use custom ports, you created a `staticports.ini` file to map components and port numbers, and when you started the installer, you used a command-line option to specify the file.

In this release, you specify the `staticports.ini` file in the new "Select Port Configuration Options" screen in the installer. You do not use the command-line options to specify the file.

For details, see Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)".

2.5 Additional Tool for Deinstallation

In this release, there is a new tool called the Deconfig tool which removes entries from Oracle Internet Directory and the OracleAS Metadata Repository. You run this tool before you deinstall an Oracle Application Server instance using the installer.

For details, see Section E.1, "New Tool: Deconfig Tool".

2.6 Changed Option Name in Select Configuration Options Screen for J2EE and Web Cache

In 10*g* (9.0.4), the Select Configuration Options screen contained these options:

- OracleAS File-Based Cluster
- OracleAS Database-Based Cluster

In this release, these options have been replaced by the "OracleAS Farm Repository" option because the installer does not create a cluster for the instance. The installer places the instance in a farm, but does not place it in a cluster. If you want, you can cluster it after installation.

For details, see Section 7.4, "Configuration Options for the J2EE and Web Cache Middle Tier".

2.7 Recording Feature for Silent Installations

The installer has a record mode, in which it saves your inputs to a response file. You can then use the generated response file to install Oracle Application Server on different computers using the same values.

For details, see Section B.5.2, "Creating Response Files by Using the Record Mode in the Installer".

2.8 Generating Installation Statistics

The installer provides command line options for monitoring resources used for installation. The following options are supported:

Table 2–1 Installer Options for Generating Installation Statistics

Option	Description
`-printtime`	Use this option to get information about the time taken for the installation. The installer writes the information in the following file: *`oraInventory`*`/logs/time`*`timestamp`*`.log` *`oraInventory`* specifies the location of your `oraInventory` directory. You can look in the `/etc/oraInst.loc` file to find out where this directory is on your computer.
`-printmemory`	Use this option to get information about the memory used for the installation. The installer writes the information in the following file: *`oraInventory`*`/logs/memory`*`timestamp`*`.log` *`oraInventory`* specifies the location of your `oraInventory` directory. You can look in the `/etc/oraInst.loc` file to find out where this directory is on your computer.
`-printdiskusage`	Use this option to get information about the disk space used for the installation. The installer writes the information in the following file: *`oraInventory`*`/logs/diskusage`*`timestamp`*`.log` *`oraInventory`* specifies the location of your `oraInventory` directory. You can look in the `/etc/oraInst.loc` file to find out where this directory is on your computer.

For example, the following command provides information about all three items:

```
runInstaller -printtime -printmemory -printdiskusage
```

2.9 Change in the Default Port Range

The default port ranges for the following components have changed:

- Oracle Internet Directory
- OracleAS Certificate Authority
- Oracle Application Server Containers for J2EE
- Oracle Enterprise Manager 10*g* Application Server Control Console
- Oracle Application Server Web Cache

For details, see Appendix C, "Default Port Numbers".

2.10 New Element for Specifying Port Numbers for CORBA Communication

Oracle Reports 10*g* Release 2 (10.1.2) introduces the `ORBPorts` element in the server configuration file to allow you to explicitly specify the port numbers used by Reports Server and engines for communication through CORBA. You can specify either a range of ports or individual ports separated by commas. For example:

```
<ORBPorts value="15000-15010"/>     (Range of values)
<ORBPorts value="15000,16000,17000,18000"/>    (Comma-separated values)
```

> **Note:** The `ORBPorts` element should be defined only if the TCP port filtering has been enabled on the server where Reports Server is running. If port filtering is enabled, and a few ports can be opened for Reports Server, then use `ORBPorts` to specify them in the server configuration file for Reports Server and engine communication. If any of the ports are not available, Reports Server or engines may fail to start and an error displays.

By default, the `ORBPorts` element is not present in the server configuration file. If this element is missing, Reports Server chooses a random port for CORBA communication. For more information about the `ORBPorts` element, see the chapter "Configuring OracleAS Reports Services" in the *Oracle Application Server Reports Services Publishing Reports to the Web* manual.

2.11 Cloning OracleAS Forms and Reports Services Instances

Cloning is the process of copying an existing installation to a different location while preserving its configuration. In this release, cloning an installation of OracleAS Forms and Reports Services instance is possible. For more information about cloning, refer to *Oracle Application Server Administrator's Guide*.

3

Compatibility with Earlier Releases

For information about compatibility with earlier releases, refer to the *Oracle Application Server Upgrade and Compatibility Guide*.

4

Requirements

Before installing Oracle Application Server, ensure that your computer meets the requirements described in this chapter.

Table 4–1 Sections in This Chapter

Section	Highlights
Section 4.1, "Using OracleMetaLink to Obtain the Latest Oracle Application Server Hardware and Software Requirements"	Describes how to find the most current requirements for Oracle Application Server 10*g* Release 2 (10.1.2).
Section 4.2, "System Requirements"	Lists requirements such as supported operating systems, processor speed, memory, disk space, and swap space.
Section 4.3, "Software Requirements"	Lists the software requirements for different versions of Linux x86
Section 4.4, "Kernel Parameters"	Lists required values for kernel parameters
Section 4.6, "Ports"	Describes how to configure components to use ports other than the default ports.
Section 4.7, "Operating System Groups"	Describes why the operating system user who installs Oracle Application Server should belong to certain operating system groups.
Section 4.8, "Operating System User"	Describes why you should create an operating system user to install Oracle Application Server.
Section 4.9, "Environment Variables"	Describes how to set or unset environment variables required for installation.
Section 4.10, "The /etc/hosts File"	Describes how the installer uses the information in the `hosts` file. This section also describes how to specify the same information without editing the file.
Section 4.11, "Network Topics"	Describes network issues such as installing Oracle Application Server on a remote computer, using a remote CD-ROM/DVD drive, or installing from a hard disk.
Section 4.12, "Prerequisite Checks Performed by the Installer"	Lists the items checked by the installer, such as length of the Oracle home name and whether or not the Oracle home directory already contains another Oracle product.

4.1 Using Oracle*MetaLink* to Obtain the Latest Oracle Application Server Hardware and Software Requirements

The Oracle Application Server 10g (10.1.2.0.2) hardware and software requirements included in this guide were accurate at the time this manual was released to manufacturing. For the most up-to-date information about hardware and software requirements, refer to Oracle*MetaLink*:

http://metalink.oracle.com/

After logging into Oracle*MetaLink*, click **Certify and Availability**. From the resulting Web page, you can view the latest certifications by product, platform, and product availability.

4.2 System Requirements

Table 4–2 lists the system requirements for running Oracle Application Server. The installer checks many of these requirements at the start of the installation process and warns you if any of them is not met. To save time, you can manually check only the ones that are not checked by the installer. Refer to Table 4–2 to see which requirements are not checked by the installer.

You can also run the system checks performed by the installer without doing an installation, by running the `runInstaller` command as shown. The `runInstaller` command is on the Oracle Application Server CD-ROM (Disk 1) or DVD (in the `application_server` directory).

CD-ROM:

```
prompt> mount_point/1012disk1/runInstaller -executeSysPrereqs
```

DVD:

```
prompt> mount_point/application_server/runInstaller -executeSysPrereqs
```

The results are displayed on the screen as well as written to a log file. For more information about the types of checks performed, refer to Section 4.12, "Prerequisite Checks Performed by the Installer".

Table 4–2 System Requirements

Item	Requirement
Network	You can install Oracle Application Server on a computer that is connected to a network, or on a "standalone" computer (not connected to the network). If you are installing Oracle Application Server on a standalone computer, you can connect the computer to a network after installation. You have to perform some configuration tasks when you connect it to the network. Refer to *Oracle Application Server Administrator's Guide* for details. **Checked by Installer:** No
IP	The computer's IP address can be static or allocated using DHCP. If you later change the IP configuration, then refer to *Oracle Application Server 10g Administrator's Guide* for information on reconfiguring Oracle Application Server. Refer to Section 4.11.1, "Installing on a DHCP Host" for additional requirements. **Checked by Installer:** No
Hostname	Ensure that your hostnames are not longer than 255 characters.
Processor type	Pentium (32-bit) You can check the processor type by using the following command: `# grep "model name" /proc/cpuinfo` **Checked by Installer:** No

Table 4–2 (Cont.) System Requirements

Item	Requirement
Processor speed	450 MHz or faster You can check the processor speed by using the following command: `# grep "cpu MHz"`
Memory	The memory requirements provided for the various installation types represents enough physical memory to install and run Oracle Application Server. However, for most production sites, you should configure at least 1 GB of physical memory. For sites with substantial traffic, increasing the amount of memory further may improve your performance. For Java applications, you should either increase the maximum heap allocated to the OC4J processes, or configure additional OC4J processes to utilize this memory. Refer to *Oracle Application Server Performance Guide* for details. To determine the optimal amount of memory for your installation, the best practice is to load test your site. Resource requirements can vary substantially for different applications and different usage patterns. In addition, some operating system utilities for monitoring memory can overstate memory usage (partially due to the representation of 7shared memory). The preferred method for determining memory requirements is to monitor the improvement in performance resulting from the addition of physical memory in your load test. Refer to your platform vendor documentation for information on how to configure memory and processor resources for testing purposes. OracleAS Infrastructure: ■ OracleAS Metadata Repository and Identity Management: 1 GB ■ Identity Management only: 1 GB ■ OracleAS Metadata Repository only: 1 GB Oracle Application Server middle tier: ■ J2EE and Web Cache: 512 MB ■ Portal and Wireless: 1 GB ■ Business Intelligence: 1 GB OracleAS Developer Kits: 256 MB, but 512 MB recommended **Notes:** ■ The installer checks the amount of memory on your computer and will warn you if your computer does not meet the minimum memory requirements. ■ These values assume you are running only one Oracle Application Server instance per computer. If you plan to run multiple instances on the same computer, refer to Section 4.2.1, "Memory Requirements for Running Multiple Instances on the Same Computer". To determine the amount of memory, run the following command: `prompt> **grep MemTotal /proc/meminfo**` **Checked by Installer:** Yes

Table 4–2 (Cont.) System Requirements

Item	Requirement

Available Memory	In addition to the total memory requirement (refer to previous row), you also need to check that your computer has enough available memory during installation.
	`# free`
	The output is as follows:
	`total used free shared buffers cached`
	`Mem: 3734420 3655240 79180 142584 217192 2153260`
	`-/+ buffers/cache: 1284788 2449632`
	`Swap: 4193608 872528 3321080`
	The available memory shows up under the free column on the first line.
	Checked by Installer: No

Disk space	OracleAS Infrastructure: ■ OracleAS Metadata Repository and Oracle Identity Management: 3.7 GB You can install the data files for the OracleAS Metadata Repository database on a disk that is different from the disk where you are installing OracleAS Infrastructure. If you do this, make sure the disk for the data files has at least 1.3 GB of free space. ■ Oracle Identity Management only: 1.3 GB ■ OracleAS Metadata Repository only: 3.7 GB Oracle Application Server middle tier: ■ J2EE and Web Cache: 900 MB ■ Portal and Wireless: 1.2 GB ■ Business Intelligence and Forms: 2 GB OracleAS Developer Kits: 710 MB The installer may display inaccurate disk space requirement figures. Refer to these values for disk space requirements. To determine the amount of free disk space, use the `df` command: `prompt> df -k dir` Replace *dir* with the Oracle home directory or with the parent directory if the Oracle home directory does not exist yet. For example, if you plan to install Oracle Application Server in `/opt/oracle/infra`, you can replace *dir* with `/opt/oracle` or `/opt/oracle/infra`. **Checked by Installer:** No
Space in `/tmp` or directory	400 MB To determine the amount of free disk space in the `/tmp` directory, use the `df` command: `prompt> df -k /tmp` If the `/tmp` directory does not have enough free space, you can specify a different directory by setting the TMP or TMPDIR environment variable. Refer to Section 4.9.5, "TMP and TMPDIR" for details. **Checked by Installer:** Yes

Table 4–2 (Cont.) System Requirements

Item	Requirement
Swap space	1.5 GB of available swap space To determine the amount of available swap space, run the following command: `prompt> grep SwapTotal /proc/meminfo` If necessary, refer to your operating system documentation for information about how to configure additional swap space. **Checked by Installer:** Yes
Monitor	256 color display To determine your monitor's display capabilities, run the following command: `prompt> /usr/X11R6/bin/xdpyinfo` Look for the "depths" line. You need a depth of at least 8 (bits per pixel). **Checked by Installer:** Yes
Supported browsers	Oracle Enterprise Manager 10*g* is supported on the following browsers: ■ Netscape 7.2 ■ Mozilla 1.7. You can download Mozilla from http://www.mozilla.org. ■ Firefox 1.0.4. You can download Firefox from http://www.mozilla.org. ■ Safari 1.2 (on Apple Macintosh computers) For the most current list of supported browsers, check the Oracle*MetaLink* site: http://metalink.oracle.com **Checked by Installer:** No. However, if you access Oracle Enterprise Manager 10*g* using a non-supported browser, you will get a warning message.

4.2.1 Memory Requirements for Running Multiple Instances on the Same Computer

If you plan to run OracleAS Infrastructure and a middle tier on the same computer, ensure the computer meets the memory requirements listed in Table 4–3.

Note that these values have been tested against a small number of users. If you have many users, you might have to increase the amount of memory.

Table 4–3 Memory Requirements for Running Multiple Instances on the Same Computer

Description	Memory
OracleAS Infrastructure plus J2EE and Web Cache	1 GB
OracleAS Infrastructure plus Portal and Wireless	1.5 GB
OracleAS Infrastructure plus Business Intelligence and Forms	1.5 GB

4.2.2 Installing from the Console or X Windows

If you are performing the installation from the console or X Windows, then add the following line to the `/etc/pamd.d/xdm` file:

```
session required pam_limits.so
```

4.2.3 Tips for Reducing Memory Usage

If you need to reduce memory consumption:

- Configure only the components that you need.
- Choose the smallest middle-tier type that contains the components that you need.
- After installation, start up only the components that you need. Refer to *Oracle Application Server Administrator's Guide* for details.
- Run Application Server Control only when you need to administer an instance. In most cases, you do not need Application Server Control running all the time.

  If you are running multiple Oracle Application Server instances on one computer, each Application Server Control can consume a lot of memory. Running Application Server Control only when you need it can free up memory for other components.
- Configure Application Server Control so that it can manage multiple instances. Refer to *Oracle Application Server Administrator's Guide* for details.

4.3 Software Requirements

Depending on your distribution of Linux, refer to one of the following sections for information on checking the software requirements:

- Section 4.3.1, "Software Requirements for Red Hat Enterprise Linux AS/ES 2.1 Systems"
- Section 4.3.2, "Software Requirements for Red Hat Enterprise Linux AS/ES 3.0 Systems"
- Section 4.3.3, "Software Requirements for Red Hat Enterprise Linux AS/ES 4.0 Systems"
- Section 4.3.4, "Software Requirements for SUSE Linux Enterprise Server 8 Systems"
- Section 4.3.5, "Software Requirements for SUSE Linux Enterprise Server 9 Systems"
- Section 4.3.6, "Certification on Linux x86-64"

Oracle does not support customized kernels or modules not supported by the Linux vendor.

You can install Oracle Application Server 10*g* Release 2 (10.1.2) on a Linux system that is not on a network and you can install Oracle Application Server 10*g* Release 2 (10.1.2) on a Linux system that is configured to use DHCP. If you want to install Oracle Application Server on a computer that is not on a network you must configure the computer to use either a static IP address or a loopback IP address. Configure the computer to resolve the hostname of the computer to either a static IP address or a loopback IP address.

4.3.1 Software Requirements for Red Hat Enterprise Linux AS/ES 2.1 Systems

Table 4–4 lists the software requirements for Red Hat Enterprise Linux AS/ES 2.1 systems and the procedure that follows the table describes how to ensure your system meets these requirements and any additional requirements for installing Oracle Application Server.

Note: Oracle Application Server 10*g* Release 2 (10.1.2) is certified with the following Operating System specific software. For the most current list of supported Operating System specific software, for example JDK version, Operating System version, check Oracle*MetaLink*:

http://metalink.oracle.com

Table 4–4 Software Requirements for Red Hat Enterprise Linux AS/ES 2.1 Systems

Item	Requirement
Operating System	Red Hat Enterprise Linux AS/ES 2.1 For more information on Red Hat, refer to: http://www.redhat.com
Red Hat Update	Update 5
Red Hat Patches	Errata 49 kernel or a higher errata patch approved by Red Hat For example, one of the following, depending on the type of Red Hat installation: ■ kernel-2.4.9-e.49 ■ kernel-smp-2.4.9-e.49 ■ kernel-enterprise-2.4.9-e.49
Software packages (check that these versions or higher versions are installed)	glibc-2.2.4-32.17 glibc-common-2.2.4-32.17 gcc-2.96-128.7.2 gcc-c++-2.96-128.7.2 pdksh-5.2.14-22 openmotif-2.1.30-12 sysstat-4.0.1-15.2.1as compat-glibc-6.2-2.1.3.2 compat-libstdc++-6.2-2.9.0.16 libstdc++-2.96-128.7.2 gnome-libs-1.2.13-16 binutils-2.11.90.0.8-12.4 make-3.79.1-8 db1-1.85-7 db3-3.3.11-5

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

1. Log in as the `root` user.
2. To determine which distribution and version of Linux is installed, run the following command:

```
# cat /etc/issue
Red Hat Linux Advanced Server release 2.1AS/\m (Pensacola)
```

Note: Red Hat Enterprise Linux AS/ES 2.1, 3.0, 4.0, and SUSE Linux Enterprise Server 8 and 9 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle*MetaLink*:

http://metalink.oracle.com

3. To check that Update 5 is installed:

```
# cat /etc/redhat-release
Red Hat Linux Advanced Server release 2.1AS/\m (Pensacola Update 5)
```

If Update 5 is installed, errata 49 is installed and all the required software packages are installed.

4. To determine which version of the Linux kernel is installed, run the following command

```
# uname -r
kernel-smp-2.4.9-e.49
```

In this example, the version shown is 2.4.9 with errata 49. If necessary, refer to your operating system documentation for information on upgrading the kernel.

For more information on Red Hat patches, refer to:

http://www.redhat.com

5. To determine whether any other package is installed, run a command similar to the following:

```
# rpm -q package_name
```

If a package is missing, download it and install it using the following command:

```
# rpm -i package_name
```

When installing a package, make sure you are using the correct architecture and optimization rpm file. To check the architecture of an rpm file, run the following command:

```
# rpm -q package_name --queryformat "%{arch}\n"
```

In the following example, the glibc rpm file is suitable for an Intel architecture

```
# rpm -q glibc --queryformat "%{arch}\n"
i686
```

4.3.2 Software Requirements for Red Hat Enterprise Linux AS/ES 3.0 Systems

Table 4–5 lists the software requirements for Red Hat Enterprise Linux AS/ES 3.0 systems and the procedure that follows the table describes how to ensure your system meets these requirements and any additional requirements for installing Oracle Application Server.

Note: Red Hat Enterprise Linux AS/ES 2.1, 3.0, 4.0, and SUSE Linux Enterprise Server 8 and 9 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle*MetaLink*:

http://metalink.oracle.com

Table 4–5 Software Requirements for Red Hat Enterprise Linux AS/ES 3.0 Systems

Item	Requirement
Operating System	Red Hat Enterprise Linux AS/ES 3.0 For more information on Red Hat, refer to: http://www.redhat.com The minimum supported kernel versions are: ■ kernel-2.4.21-20.EL ■ kernel-smp-2.4.21-20.EL ■ kernel-hugemem-2.4.21-20.EL
Red Hat Update	Update 3
Software packages (check that these versions or higher versions are installed)	glibc-2.3.2-95.27 glibc-common-2.3.2-95.27 binutils-2.14.90.0.4-35 compat-glibc-7.x-2.2.4.32.6 compat-libstdc++-7.3-2.96.128 compat-libstdc++-devel-7.3-2.96.128 gcc-3.2.3-42 gcc-c++-3.2.3-42 libstdc++-3.2.3-42 libstdc++-devel-3.2.3-42 openmotif21-2.1.30-8 pdksh-5.2.14-21 setarch-1.3-1 make-3.79.1-17 gnome-libs-1.4.1.2.90-34.1 gnome-libs-devel-1.4.1.2.90-34.1 sysstat-4.0.7-4.EL3.3 compat-db-4.0.14-5 **Note:** ■ For Red Hat Enterprise Linux AS/ES 3.0, the equivalent version of openmotif 2.1.30-8 is openmotif21-2.1.30-8. The openmotif21-2.1.30-8 package can be installed from disk number 3 of the Red Hat Enterprise Linux AS/ES 3.0 distribution by entering: $ rpm -ivh openmotif21-2.1.30-8 ■ The gnome-libs-1.4.1.2.90-34.1 and gnome-libs-devel-1.4.1.2.90-34.1 packages are applicable for Red Hat Enterprise Linux AS/ES 3.0 only.

Table 4–5 (Cont.) Software Requirements for Red Hat Enterprise Linux AS/ES 3.0

Item	Requirement

64-bit Certification	Red Hat Enterprise Linux AS/ES 3.0, Update 3 or higher, is certified on AMD64 and Intel EM64T. The following packages (or higher versions) are required:
	`glibc-2.3.2-95.27.x86_64.rpm`
	`glibc-3.2.3-95.27.i686.rpm (32-bit)`
	`glibc-devel-3.2.3-95.27.x86_64.rpm`
	`glibc-devel-3.2.3-95.27.i386.rpm (32-bit)`
	`gcc-3.2.3-20.x86_64.rpm`
	`libgcc-3.2.3-20.x86_64.rpm`
	`libgcc-3.2.3-20.i386.rpm (32-bit)`
	`setarch-1.3-1.x86_64.rpm`
	`pdksh-5.2.14-21.x86_64.rpm`
	`openmotif21-2.1.30-8.i386.rpm`
	`compat-glibc-7.x-2.2.4.32.5.i386.rpm (32-bit)`
	`compat-gcc-7.3-2.96.122.i386.rpm`
	`sysstat-4.0.7-4.x86_64.rpm`
	`gnome-libs-1.4.1.2.90-34.1.i386.rpm (32-bit)`
	`compat-db-4.0.14-5.1.i386.rpm (32-bit)`
	
	Note the following:
	■ To install 32-bit packages on a 64-bit system, you may need to use the `--force` option and the `--nodeps` option of the `rpm` utility.
	■ Always use 32-bit shell emulation, use the following command before running the installer and any other Oracle Application Server commands or scripts:
	`# linux32 bash`

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

1. Log in as the `root` user.
2. To determine which distribution and version of Linux is installed, run the following command:

```
# cat /etc/issue
Red Hat Enterprise Linux AS release 3 (Taroon)
```

> **Note:** Red Hat Enterprise Linux AS/ES 2.1, 3.0, 4.0, and SUSE Linux Enterprise Server 8 and 9 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle*MetaLink*:
>
> http://metalink.oracle.com

3. To check that Update 3 is installed:

```
# cat /etc/redhat-release
Red Hat Enterprise Linux AS release 3 (Taroon Update 3)
```

4. To determine whether any other package is installed, run a command similar to the following:

```
# rpm -q package_name
```

If a package is missing, download it and install it using the following command:

```
# rpm -i package_name
```

When installing a package, make sure you are using the correct architecture and optimization rpm file. To check the architecture of an rpm file, run the following command:

```
# rpm -q package_name --queryformat "%{arch}\n"
```

In the following example, the glibc rpm file is suitable for an Intel architecture

```
# rpm -q glibc --queryformat "%{arch}\n"
i686
```

5. If the `hugemem` kernel is used, set the architecture using following command:

```
prompt> setarch i386
```

4.3.3 Software Requirements for Red Hat Enterprise Linux AS/ES 4.0 Systems

Table 4–5 lists the software requirements for Red Hat Enterprise Linux AS/ES 4.0. The procedure that follows the table describes how to ensure that your system meets these requirements and any additional requirements for installing Oracle Application Server.

Note: Red Hat Enterprise Linux AS/ES 2.1, 3.0, 4.0, and SUSE Linux Enterprise Server 8 and 9 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle*MetaLink*:

`http://metalink.oracle.com`

Table 4–6 Software Requirements for Red Hat Enterprise Linux AS/ES 4.0 Systems

Item	Requirements
Operating System	Red Hat Enterprise Linux AS/ES 4.0 For more information on Red Hat, refer to: `http://www.redhat.com` The minimum supported kernel versions are: ■ kernel-2.6.9-11.EL ■ kernel-smp-2.6.9-11.EL ■ kernel-hugemem-2.6.9-11.EL
Red Hat Update	Update 1

Table 4–6 (Cont.) Software Requirements for Red Hat Enterprise Linux AS/ES 4.0

Item	Requirements
Software packages (check that these versions or higher versions are installed)	glibc-2.3.4-2.9 glibc-common-2.3.4-2.9 binutils-2.15.92.0.2-13 compat-libstdc++-296-2.96-132.7.2 gcc-3.4.3-22.1 gcc-c++-3.4.3-22.1 libstdc++-3.4.3-22.1 libstdc++-devel-3.4.3-22.1 openmotif21-2.1.30-11.RHEL4.4 pdksh-5.2.14-30 setarch-1.6-1 make-3.80-5 gnome-libs-1.4.1.2.90-44.1 sysstat-5.0.5-1 compat-db-4.1.25-9 control-center-2.8.0-12 xscreensaver-4.18-5.rhel4.2
64-bit Certification	For latest status on Red Hat Enterprise Linux AS/ES 4.0 (64-bit) certification on AMD64 and Intel EM64T, check the Certification status on Oracle Meta*link*: http://metalink.oracle.com

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

1. Log in as the `root` user.
2. To determine which distribution and version of Linux is installed, run the following command:

```
# cat /etc/issue
Red Hat Enterprise Linux AS release 4 (Nahant Update 1)
```

3. To check that Update 1 is installed:

```
# cat /etc/redhat-release
Red Hat Enterprise Linux AS release 4 (Nahant Update 1)
```

4. To determine whether any other package is installed, run a command similar to the following:

```
# rpm -q package_name
```

If a package is missing, download it and install it using the following command:

```
# rpm -i package_name
```

When installing a package, make sure you are using the correct architecture and optimization rpm file. To check the architecture of an rpm file, run the following command:

```
# rpm -q package_name --queryformat "%{arch}\n"
```

In the following example, the `glibc` rpm file is suitable for an Intel architecture

```
# rpm -q glibc --queryformat "%{arch}\n"
i686
```

5. If the `hugemem` kernel is used, set the architecture using following command:

```
prompt> setarch i386
```

4.3.4 Software Requirements for SUSE Linux Enterprise Server 8 Systems

Table 4–7 lists the software requirements for SUSE Linux Enterprise Server 8 systems and the procedure that follows the table describes how to ensure your system meets these requirements and any additional requirements for installing Oracle Application Server.

> **Note:** Oracle Application Server 10*g* Release 2 (10.1.2) is certified with the following Operating System specific software. For the most current list of supported Operating System specific software, for example JDK version, Operating System version, check Oracle*MetaLink*:
>
> http://metalink.oracle.com

Table 4–7 Software Requirements for SUSE Linux Enterprise Server 8 Systems

Item	Requirement
Operating System	SUSE Linux Enterprise Server 8 For more information on SUSE Linux Enterprise Server, refer to: http://www.suse.com SP3 is certified for Oracle Application Server 10*g* Release 2 (10.1.2). For SUSE Linux Enterprise Server 8 SP3, the minimum supported kernel versions are: ■ k_smp-2.4.21-138 ■ k_deflt-2.4.21-138 ■ k_psmp-2.4.21-138
Software packages (check that these versions or higher versions are installed)	glibc-2.2.2-124 gcc-3.2.2-38 gcc-c++-3.2.2-38 pdksh-5.2.14 openmotif-2.1.30MLI4 sysstat-4.0.3 libstdc++-3.2.2 make-3.79.1-407 binutils-2.12.90.0.15-50 compat-2003.1.10-0

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

1. Log in as the `root` user.
2. To determine which distribution and version of Linux is installed, run the following command:

```
prompt> cat /etc/issue
Welcome to SUSE Linux Enterprise Server 8 (i586) - Kernel \r (\l)
```

> **Note:** Red Hat Enterprise Linux AS/ES 2.1, 3.0, 4.0, and SUSE Linux Enterprise Server 8 and 9 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle*MetaLink*:
>
> http://metalink.oracle.com

3. To determine the service pack version, run the following command:

```
prompt> uname -r
k_smp-2.4.21-138
```

   If the kernel version contains the string 2.4.21, SP3 is installed. SP3 is certified for Oracle Application Server *10g* Release 2 (10.1.2).

4. To determine whether any other package is installed, run a command similar to the following:

```
prompt> rpm -q package_name
```

   If a package is missing, download it and install it using the following command:

```
prompt> rpm -i package_name
```

   When installing a package, make sure you are using the correct architecture and optimization rpm file. To check the architecture of an rpm file, run the following command:

```
prompt> rpm -q package_name --queryformat "%{arch}\n"
```

   In the following example, the glibc rpm file is suitable for an Intel architecture

```
prompt> rpm -q glibc --queryformat "%{arch}\n"
i686
```

5. Create the following symbolic link for the Perl executable if it does not already exist:

```
prompt> ln -sf /usr/bin/perl /usr/local/bin/perl
```

6. Create the following symbolic link for the `fuser` executable if it does not already exist:

```
prompt> ln -sf /bin/fuser /sbin/fuser
```

7. If the `orarun` package was installed on a SUSE Linux Enterprise Server system, complete the following steps as the `oracle` user to reset the environment:

   a. Run the following commands:

```
prompt> cd /etc/profile.d
prompt> mv oracle.csh oracle.csh.bak
prompt> mv oracle.sh oracle.sh.bak
prompt> mv alljava.sh alljava.sh.bak
prompt> mv alljava.csh alljava.csh.bak
```

   b. Use any text editor to comment out the following line from the `$HOME/.profile` file:

```
. ./.oracle
```

   c. Log out of the `oracle` user account.

d. Log into the `oracle` user account for the changes to take effect.

8. If any Java packages are installed on the system, unset the Java environment variables, for example JAVA_HOME.

> **Note:** Oracle recommends that you do not install any of the Java packages supplied with the SUSE Linux Enterprise Server distribution.

9. Check the `/etc/services` file to make sure that the following port ranges are available on the system:

- ports 3060-3129 required for Oracle Internet Directory
- ports 3130-3199 required for Oracle Internet Directory (SSL)
- ports 1812-1829 required for Oracle Enterprise Manager 10*g* (console)
- ports 1830-1849 required for Oracle Enterprise Manager 10*g* (agent)
- ports 1850-1869 required for Oracle Enterprise Manager 10*g* (RMI)

If necessary, remove entries from the `/etc/services` file and restart the system. To remove the entries, you can use the perl script included in the `utils/3167528/` directory of CD-ROM Disk 1 and in the `application_server/utils/3167528/` directory on the . Run the script as the `root` user. This script is also available as patch 3167528. This patch is available from:

`http://metalink.oracle.com`

If these ports are not available, the associated configuration assistants will fail during the installation.

10. If you use Network Information Service (NIS):

a. Make sure that the following line exists in the `/etc/yp.conf` file:

```
hostname.domainname broadcast
```

b. Make sure that the following line exists in the `/etc/nsswitch.conf` file:

```
hosts: files nis dns
```

11. Make sure that the `localhost` entry in the `/etc/hosts` file is an IPv4 entry. If the IP entry for `localhost` is IPv6 format, installation cannot succeed. The following example shows an IPv6 entry:

```
# special IPv6 addresses
::1             localhost ipv6-localhost ipv6-loopback
::1             ipv6-localhost ipv6-loopback
```

To correct this example `/etc/hosts` file, comment the localhost entry as follows:

```
# special IPv6 addresses
# ::1             localhost ipv6-localhost ipv6-loopback
# ::1             ipv6-localhost ipv6-loopback
```

To comment the entries, you can use the perl script included in the `utils/4015045/` directory of CD-ROM Disk 1 and in the `application_server/utils/4015045/` directory on the DVD. Run the script as the `root` user. This script is also available as patch 4015045. This patch is available from:

`http://metalink.oracle.com`

4.3.5 Software Requirements for SUSE Linux Enterprise Server 9 Systems

Table 4–8 lists the software requirements for SUSE Linux Enterprise Server 9 systems. The procedure after the table describes how to ensure that the system meets these requirements and any additional installation requirements.

Note: Oracle Application Server 10*g* Release 2 (10.1.2) is certified with the following Operating System specific software. For the most current list of supported Operating System specific software, for example JDK version, Operating System version, check Oracle*MetaLink*:

`http://metalink.oracle.com`

Table 4–8 Software Requirements for SUSE Linux Enterprise Server 9 Systems

Item	Requirement
Operating System	SUSE Linux Enterprise Server 9. For more information on SUSE Linux Enterprise Server, refer to http://www.suse.com. The minimum supported kernel versions are: ■ kernel-bigsmp-2.6.5-7.97 ■ kernel-default-2.6.5-7.97 ■ kernel-smp-2.6.5-7.97
Software packages (check that these versions or higher versions are installed)	glibc-2.3.3-98.28 gcc-3.3.3-43.24 gcc-c++-3.3.3-43.24 libstdc++-3.3.3-43.24 libstdc++-devel-3.3.3-43.24 openmotif21-libs-2.1.30MLI4-119.1 pdksh-5.2.14-780.1 make-3.80-184.1 gnome-libs-1.4.1.7-671.1 gnome-libs-devel-1.4.1.7-671.1 sysstat-5.0.1-35.1 binutils-2.15.90.0.1.1-32.5 db1-1.85-85.1 compat-2004.7.1-1.2

Table 4–8 (Cont.) Software Requirements for SUSE Linux Enterprise Server 9 Systems

Item	Requirement
64-bit Certification	SUSE Linux Enterprise Server is certified on AMD64 and Intel EM64T. The following packages (or higher versions) are required: glibc-2.3.3-98.28.x86_64.rpm glibc-32bit-9-200407011233.x86_64.rpm glibc-devel-32bit-9-200407011229.x86_64.rpm gcc-3.3.3-43.24.x86_64.rpm gcc-c++-3.3.3-43.24.x86_64.rpm libstdc++-3.3.3-43.24.x86_64.rpm libstdc++-devel-3.3.3-43.24.x86_64.rpm libstdc++-devel-32bit-9-200407011229.x86_64.rpm gnome-libs-1.4.1.7-671.1.x86_64.rpm gnome-libs-devel-1.4.1.7-671.1.x86_64.rpm gnome-libs-32bit-9-200407011229.x86_64.rpm binutils-2.15.90.0.1.1-32.5.x86_64.rpm binutils-32bit-9-200407011229.x86_64.rpm compat-32bit-9-200407011229.x86_64.rpm compat-sles8-1.3-93.3.x86_64.rpm compat-2004.7.1-1.2.x86_64.rpm pdksh-5.2.14-780.1.x86_64.rpm make-3.80-184.1.x86_64.rpm sysstat-5.0.1-35.1.x86_64.rpm perl-32bit-9-200407011229.x86_64.rpm libaio-devel-32bit-9-200407011229.x86_64.rpm XFree86-devel-32bit-9-200407011229.x86_64.rpm linux32-1.0-341.1.x86_64.rpm db-32bit-9-200407011229.x86_64.rpm db1-32bit-9-200407011229.x86_64.rpm compat-32bit-9-200407011229.x86_64.rpm openmotif21-libs-2.1.30MLI4-119.1 Always use 32-bit shell emulation, use the following command before running the installer and any other Oracle Application Server commands or scripts: # linux32 bash

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

1. Log in as the `root` user.
2. To determine which distribution and version of Linux is installed, run the following command:

```
prompt> cat /etc/issue
Welcome to SuSE Linux 9.0 (i686) - Kernel \r (\l).
```

> **Note:** Red Hat Enterprise Linux AS/ES 2.1, 3.0, and 4.0, and SUSE Linux Enterprise Server 8 and 9 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle*MetaLink*:
>
> http://metalink.oracle.com

3. To determine the kernel version, run the following command:

```
prompt> uname -r
kernel-bigsmp-2.6.5-7.97
```

4. To determine whether any other package is installed, run a command similar to the following:

   ```
   prompt> rpm -q package_name
   ```

   If a package is missing, download it and install it using the following command:

   ```
   prompt> rpm -i package_name
   ```

   When installing a package, make sure you are using the correct architecture and optimization rpm file. To check the architecture of an rpm file, run the following command:

   ```
   prompt> rpm -q package_name --queryformat "%{arch}\n"
   ```

   In the following example, the glibc rpm file is suitable for an Intel architecture

   ```
   prompt> rpm -q glibc --queryformat "%{arch}\n"
   i686
   ```

5. Create the following symbolic link for the Perl executable if it does not already exist:

   ```
   prompt> ln -sf /usr/bin/perl /usr/local/bin/perl
   ```

6. Create the following symbolic link for the `fuser` executable if it does not already exist:

   ```
   prompt> ln -sf /bin/fuser /sbin/fuser
   ```

7. If the `orarun` package was installed on a SUSE Linux Enterprise Server system, complete the following steps as the `oracle` user to reset the environment:

   a. Run the following commands:

      ```
      prompt> cd /etc/profile.d
      prompt> mv oracle.csh oracle.csh.bak
      prompt> mv oracle.sh oracle.sh.bak
      prompt> mv alljava.sh alljava.sh.bak
      prompt> mv alljava.csh alljava.csh.bak
      ```

   b. Use any text editor to comment out the following line from the `$HOME/.profile` file:

      ```
      . ./.oracle
      ```

   c. Log out of the `oracle` user account.

   d. Log into the `oracle` user account for the changes to take effect.

8. If any Java packages are installed on the system, unset the Java environment variables, for example JAVA_HOME.

Note: Oracle recommends that you do not install any of the Java packages supplied with the SUSE Linux Enterprise Server distribution.

---

9. Check the `/etc/services` file to make sure that the following port ranges are available on the system:
   - ports 3060-3129 required for Oracle Internet Directory
   - ports 3130-3199 required for Oracle Internet Directory (SSL)
   - ports 1812-1829 required for Oracle Enterprise Manager 10*g* (console)
   - ports 1830-1849 required for Oracle Enterprise Manager 10*g* (agent)
   - ports 1850-1869 required for Oracle Enterprise Manager 10*g* (RMI)

   If necessary, removDVDe entries from the `/etc/services` file and restart the system. To remove the entries, you can use the perl script included in the `utils/3167528/` directory of CD-ROM Disk 1 and in the `application_server/utils/3167528/` directory on the DVD. Run the script as the `root` user. This script is also available as patch 3167528. This patch is available from:

   `http://metalink.oracle.com`

   If these ports are not available, the associated configuration assistants will fail during the installation.

10. If you use Network Information Service (NIS):
    a. Make sure that the following line exists in the `/etc/yp.conf` file:

       hostname.domainname `broadcast`

    b. Make sure that the following line exists in the `/etc/nsswitch.conf` file:

       ```
       hosts: files nis dns
       ```

11. Make sure that the `localhost` entry in the `/etc/hosts` file is an IPv4 entry. If the IP entry for `localhost` is IPv6 format, installation cannot succeed. The following example shows an IPv6 entry:

    ```
    # special IPv6 addresses
    ::1             localhost ipv6-localhost ipv6-loopback
    ::1             ipv6-localhost ipv6-loopback
    ```

    To correct this example `/etc/hosts` file, comment the `localhost` entry as follows:

    ```
    # special IPv6 addresses
    # ::1             localhost ipv6-localhost ipv6-loopback
    # ::1             ipv6-localhost ipv6-loopback
    ```

    To comment the entries, you can use the perl script included in the `utils/4015045/` directory of CD-ROM Disk 1 and in the `application_server/utils/4015045/` directory on the DVD. Run the script as the `root` user. This script is also available as patch 4015045. This patch is available from:

    `http://metalink.oracle.com`

4.3.6 Certification on Linux x86-64

Oracle Application Server 10*g* Release 2 (10.1.2) is certified to run as a 32-bit application on the following Linux x86-64 platforms:

- Section 4.3.6.1, "Red Hat Enterprise Linux AS/ES 3.0, Update 3 or higher (AMD64 / Intel EM64T)"

- Section 4.3.6.2, "SUSE LINUX Enterprise Server 9 (AMD64 / Intel EM64T)"

4.3.6.1 Red Hat Enterprise Linux AS/ES 3.0, Update 3 or higher (AMD64 / Intel EM64T)

All the documentation for Red Hat Enterprise Linux AS/E 3.0 included in *Oracle Application Server Installation Guide* guide is applicable for Linux x86-64, including the requirements, kernel parameter requirements, and mandatory preinstallation checks. The steps are also applicable to Linux 86-64. In addition to those requirements, note the following:

- Instead of the packages listed in *Oracle Application Server Installation Guide* guide, the following packages (or higher versions) are required:
  - glibc-2.3.2-95.27.x86_64.rpm
  - glibc-3.2.3-95.27.i686.rpm (32-bit)
  - glibc-devel-3.2.3-95.27.x86_64.rpm
  - glibc-devel-3.2.3-95.27.i386.rpm (32-bit)
  - gcc-3.2.3-20.x86_64.rpm
  - libgcc-3.2.3-20.x86_64.rpm
  - libgcc-3.2.3-20.i386.rpm (32-bit)
  - setarch-1.3-1.x86_64.rpm
  - pdksh-5.2.14-21.x86_64.rpm
  - openmotif21-2.1.30-8.i386.rpm
  - compat-glibc-7.x-2.2.4.32.5.i386.rpm (32-bit)
  - compat-gcc-7.3-2.96.122.i386.rpm
  - sysstat-4.0.7-4.x86_64.rpm
  - gnome-libs-1.4.1.2.90-34.1.i386.rpm (32-bit)
  - compat-db-4.0.14-5.1.i386.rpm (32-bit)
- To install 32-bit packages on a 64-bit system, you may need to use the `--force` option and the `--nodeps` option of the `rpm` utility.
- Always use 32-bit shell emulation, use the following command before running the installer and any other Oracle Application Server commands or scripts:

```
# linux32 bash
```

4.3.6.2 SUSE LINUX Enterprise Server 9 (AMD64 / Intel EM64T)

All the documentation for SUSE LINUX Enterprise Server 9 included in *Oracle Application Server Installation Guide* guide is applicable for Linux x86-64, including the requirements, kernel parameter requirements, and mandatory preinstallation checks. The steps are also applicable to Linux 86-64. In addition to those requirements, note the following:

- Instead of the packages listed in *Oracle Application Server Installation Guide* guide, the following packages (or higher versions) are required:
  - glibc-2.3.3-98.28.x86_64.rpm
  - glibc-32bit-9-200407011233.x86_64.rpm

  - glibc-devel-32bit-9-200407011229.x86_64.rpm
  - gcc-3.3.3-43.24.x86_64.rpm
  - gcc-3.2.3-20.x86_64.rpm
  - gcc-c++-3.3.3-43.24.x86_64.rpm
  - libgcc-3.2.3-20.i386.rpm (32-bit)
  - libstdc++-3.3.3-43.24.x86_64.rpm
  - libstdc++-devel-3.3.3-43.24.x86_64.rpm
  - libstdc++-devel-32bit-9-200407011229.x86_64.rpm
  - gnome-libs-1.4.1.7-671.1.x86_64.rpm
  - gnome-libs-devel-1.4.1.7-671.1.x86_64.rpm
  - gnome-libs-32bit-9-200407011229.x86_64.rpm
  - binutils-2.15.90.0.1.1-32.5.x86_64.rpm
  - binutils-32bit-9-200407011229.x86_64.rpm
  - compat-32bit-9-200407011229.x86_64.rpm
  - compat-sles8-1.3-93.3.x86_64.rpm
  - compat-2004.7.1-1.2.x86_64.rpm
  - pdksh-5.2.14-780.1.x86_64.rpm
  - make-3.80-184.1.x86_64.rpm
  - sysstat-5.0.1-35.1.x86_64.rpm
  - perl-32bit-9-200407011229.x86_64.rpm
  - libaio-devel-32bit-9-200407011229.x86_64.rpm
  - XFree86-devel-32bit-9-200407011229.x86_64.rpm
  - linux32-1.0-341.1.x86_64.rpm
  - db-32bit-9-200407011229.x86_64.rpm
  - db1-32bit-9-200407011229.x86_64.rpm
  - compat-32bit-9-200407011229.x86_64.rpm

- Always use 32-bit shell emulation, use the following command before running the installer and any other Oracle Application Server commands or scripts:

```
# linux32 bash
```

4.4 Kernel Parameters

The computers on which you plan to install OracleAS Metadata Repository or OracleAS Web Cache require their kernel parameters to be set to the minimum values listed in the following sections:

- Section 4.4.1, "Kernel Parameter Settings for OracleAS Web Cache"
- Section 4.4.2, "Kernel Parameter Settings for OracleAS Metadata Repository"

4.4.1 Kernel Parameter Settings for OracleAS Web Cache

This section applies if you are installing OracleAS Web Cache:

- If you are installing the J2EE and Web Cache middle tier, the OracleAS Web Cache component is optional.
- If you are installing the Portal and Wireless middle tier, the OracleAS Web Cache component is always installed.

Complete the following tasks to set the kernel parameters for OracleAS Web Cache:

1. Run the following command to check that the `nofile` kernel parameter is set to at least 65536:

   ```
   prompt> ulimit -Hn
   ```

2. If the command returns a value less than 65536, add this line to the `/etc/security/limits.conf` file (use a text editor to edit the file):

   ```
   *       hard    nofile  65536
   ```

   You need to be the `root` user to edit the `/etc/security/limits.conf` file.

3. Restart the computer for the new value to take effect.

4.4.2 Kernel Parameter Settings for OracleAS Metadata Repository

Verify that the kernel parameters shown in the following table are set either to the formula shown, or to values greater than or equal to the recommended value shown. The procedures following the table describe how to verify and set the values.

> **Note:** The Linux threads model creates a process for each thread. Oracle Application Server is highly multi-threaded to improve performance. On Linux, this requires that the kernel can handle many hundreds of processes.

Parameter	Value	File
semmsl semmns semopm semmni	256 32000 100 142	`/proc/sys/kernel/sem`
shmall	2097152	`/proc/sys/kernel/shmall`
shmmax	2147483648	`/proc/sys/kernel/shmmax`
shmmni	4096	`/proc/sys/kernel/shmmni`
msgmax	8192	`/proc/sys/kernel/msgmax`
msgmnb	65535	`/proc/sys/kernel/msgmnb`
msgmni	2878	`/proc/sys/kernel/msgmni`
file-max	131072	`/proc/sys/fs/file-max`
ip_local_port_range	10000 65000	`/proc/sys/net/ipv4/ip_local_port_range`

Note:

- The `semmns` parameter should be set to the sum of the PROCESSES initialization parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database.
- If the current value for any parameter is higher than the value listed in this table, do not change the value of that parameter.

To view the current value specified for these kernel parameters, and to change them if necessary, follow these steps:

1. Run commands similar to the following to view the current values of the kernel parameters:

Note: Make a note of the current values and identify any values that you must change.

Parameter	Command
semmsl, semmns, semopm, and semmni	`# /sbin/sysctl -a | grep sem` This command displays the value of the semaphore parameters in the order listed.
shmall, shmmax, and semmni	`# /sbin/sysctl -a | grep shm`
msgmax, msgmnb, and msgmni	`# /sbin/sysctl -a | grep msg`
file-max	`# /sbin/sysctl -a | grep file-max`
ip_local_port_range	`# /sbin/sysctl -a | grep ip_local_port_range` This command displays a range of port numbers.

2. If the value of any kernel parameter is different from the recommended value, complete the following steps:

   a. Using any text editor, create or edit the `/etc/sysctl.conf` file and add or edit lines similar to the following:

Note: Include lines only for the kernel parameter values that you want to change. For the semaphore parameters (`kernel.sem`), you must specify all four values. However, if any of the current values are larger than the recommended value, specify the larger value.

```
kernel.shmall = 2097152
kernel.shmmax = 2147483648
kernel.shmmni = 4096
# semaphores: semmsl, semmns, semopm, semmni
kernel.sem = 256 32000 100 142
fs.file-max = 131072
net.ipv4.ip_local_port_range = 10000 65000
kernel.msgmni = 2878
kernel.msgmax = 8192
```

```
kernel.msgmnb = 65535
```

By specifying the values in the `/etc/sysctl.conf` file, they persist when you restart the system.

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

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

Review the output from this command to verify that the values are correct. If the values are incorrect, edit the `/etc/sysctl.conf` file, then run this command again.

c. On SUSE Linux Enterprise Server only, run the following command to cause the system to read the `/etc/sysctl.conf` file when it restarts:

```
# chkconfig boot.sysctl on
```

4.5 Set Shell Limits for the oracle User

To improve the performance of the software on Linux systems, you must increase the following shell limits for the `oracle` user, depending on the user's default shell:

Bourne or Bash Shell Limit	Korn Shell Limit	C or tcsh Shell Limit	Hard Limit
nofile	nofile	descriptors	65536
noproc	processes	maxproc	16384

To increase the shell limits:

1. Add the following lines to `/etc/security/limits.conf` file:

```
*        soft   nproc         2047
*        hard   nproc         16384
*        soft   nofile        2048
*        hard   nofile        65536
```

2. Add the following line to the `/etc/pam.d/login` file, if it does not already exist:

```
session    required     /lib/security/pam_limits.so
```

3. Depending on the `oracle` user's default shell, make the following changes to the default shell start-up file:

- For the Bourne, Bash, or Korn shell, add the following lines to the `/etc/profile` file:

```
if [ $USER = "oracle" ]; then
        if [ $SHELL = "/bin/ksh" ]; then
              ulimit -p 16384
              ulimit -n 65536
        else
              ulimit -u 16384 -n 65536
        fi
fi
```

- For the C or tcsh shell, add the following lines to the `/etc/csh.login` file:

```
if ( $USER == "oracle" ) then
        limit maxproc 16384
        limit descriptors 65536
endif
```

4.6 Ports

Many Oracle Application Server components, such as Oracle HTTP Server, OracleAS Web Cache, and Oracle Enterprise Manager 10*g*, use ports. You can have the installer assign default port numbers, or use port numbers that you specify.

- Section 4.6.1, "Checking If a Port Is in Use"
- Section 4.6.2, "Using Default Port Numbers"
- Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)"
- Section 4.6.4, "If Port 1521 Is in Use"

Why the Default Port for Oracle HTTP Server Is Port 7777 and Not Port 80

By default, the installer configures Oracle HTTP Server to use port 7777, not port 80. Port 7777 is the default port because on UNIX, components that use port numbers lower than 1024 require additional steps to be performed as the `root` user before the components can run. Because the installer does not have root access, it has to use a port greater than 1024.

If you want Oracle HTTP Server to use a different port, such as port 80, use the "static ports" feature, which enables you to specify port numbers for components. Although you can change the port number after installation, it is easier to set the port number during installation.

4.6.1 Checking If a Port Is in Use

To check if a port is being used, you can run the `netstat` command as follows:

```
prompt> netstat -an | grep portnum
```

4.6.2 Using Default Port Numbers

If you want to use the default port numbers for components, you do not have to do anything. Refer to Appendix C, "Default Port Numbers" for a list of the default port numbers and ranges. Make sure that at least one port is available in the port range for each component. If the installer is unable to find a free port in the range, the installation will fail.

Note:

- In the default configuration of the `/etc/services` file includes ports 389 and 636 (for LDAP and LDAP/SSL). These happen to be the default ports for Oracle Internet Directory. This means that if you want to use these port numbers for Oracle Internet Directory, you must either delete or comment out these lines in the `/etc/services` file. To comment out a line, add a # at the beginning of the line, as shown:

```
# ldap   389/tcp   # Lightweight Directory Access Protocol
# ldap   389/udp   # Lightweight Directory Access Protocol
# ldaps  636/tcp   # LDAP protocol over TLS/SSL (was sldap)
# ldaps  636/udp   # LDAP protocol over TLS/SSL (was sldap)
```

  If you do not comment out or remove the lines from `/etc/services`, then the installer will not assign ports 389 and 636. It assigns a number from the port number range for Oracle Internet Directory. Refer to Appendix C, "Default Port Numbers" for a list of default port numbers.

- The installer will not assign port numbers that are specified in the `/etc/services` file. If you do not want the installer to assign a specific port number, then add the port number to the `/etc/services` file. For example, if you want to reserve port 7777 for an application, you can add something like the following line to `/etc/services`:

```
myApplication      7777/tcp
```

  The installer will not assign port 7777 to any component if this line exists in the `/etc/services` file.

4.6.3 Using Custom Port Numbers (the "Static Ports" Feature)

To instruct the installer to assign custom port numbers for components:

1. Create a file containing the component names and port numbers. Section 4.6.3.1, "Format of the staticports.ini File" describes the file format. This file is typically called the `staticports.ini` file, but you can name it anything you want.
2. In the installer, on the Specify Port Configuration Options screen, select **Manual** and enter the *full path* to the `staticports.ini` file.

   If you do not specify the full path to the file, the installer will not be able to find the file. The installer will then assign default ports for all the components, and it will do this without displaying any warning.

Difference from Previous Release: In 10*g* (9.0.4), you used command-line options to specify the `staticports.ini` file. In this release, you specify the file in the new Specify Port Configuration Options screen.

4.6.3.1 Format of the staticports.ini File

The `staticports.ini` file has the following format. Replace *port_num* with the port number that you want to use for the component.

```
# J2EE and Web Cache
```

```
Oracle HTTP Server port = port_num
Oracle HTTP Server Listen port = port_num
Oracle HTTP Server SSL port = port_num
Oracle HTTP Server Listen (SSL) port = port_num
Oracle HTTP Server Diagnostic port = port_num
Java Object Cache port = port_num
DCM Java Object Cache port = port_num
DCM Discovery port = port_num
Oracle Notification Server Request port = port_num
Oracle Notification Server Local port = port_num
Oracle Notification Server Remote port = port_num
Application Server Control port = port_num
Application Server Control RMI port = port_num
Oracle Management Agent port = port_num
Web Cache HTTP Listen port = port_num
Web Cache HTTP Listen (SSL) port = port_num
Web Cache Administration port = port_num
Web Cache Invalidation port = port_num
Web Cache Statistics port = port_num
Log Loader port = port_num
ASG port = port_num

# Business Intelligence and Forms
Reports Services SQL*Net port = port_num
Reports Services discoveryService port = port_num
Reports Services bridge port = port_num

# Infrastructure
Oracle Internet Directory port = port_num
Oracle Internet Directory (SSL) port = port_num
Oracle Certificate Authority SSL Server Authentication port = port_num
Oracle Certificate Authority SSL Mutual Authentication port = port_num
Ultra Search HTTP port number = port_num
```

The easiest way to create the file is to use the `staticports.ini` file on the CD-ROM (Disk 1) or DVD as a template:

1. Copy the `staticports.ini` file from the CD-ROM or DVD to your hard disk.

Table 4–9 Location of the staticports.ini File on CD-ROM and DVD

Media	Location of staticports.ini File
CD-ROM	Disk 1: *mount_point*`/1012disk1/stage/Response/staticports.ini`
DVD	*mount_point*`/application_server/stage/Response/staticports.ini`

2. Edit the local copy (the file on the hard disk) to include the desired port numbers.

   You do not need to specify port numbers for all components in the `staticports.ini` file. If a component is not listed in the file, the installer uses the default port number for that component.

   You cannot change the port used by the OracleAS Metadata Repository (port 1521) during installation, but you can do so after installation. Refer to *Oracle Application Server Administrator's Guide* for details.

   The following example sets the Application Server Control port and some OracleAS Web Cache ports. For components not specified, the installer will assign the default port numbers.

   ```
   Application Server Control port = 2000
   ```

```
Web Cache Administration port = 2001
Web Cache Invalidation port = 2002
Web Cache Statistics port = 2003
```

When installation is complete, you can check the `ORACLE_HOME/install/portlist.ini` file to refer to the assigned ports.

Tips on Choosing Port Numbers

Following are some guidelines for choosing port numbers:

- Port numbers cannot be greater than 65535.
- If you use a port number less than 1024 for a component, you must run the component as the root user.
- If you use a port number less than 1024 for a component, the installer will not be able to start up the component at the end of installation. You may need to configure the component first before you can start it up. Refer to the corresponding component documentation for details.
- You still have to comment out ports 389 and 636 in the `/etc/services` file if you want to use these port numbers for Oracle Internet Directory.

  Refer to the Note on page 4-28 for details.
- If you plan to set port numbers for Oracle HTTP Server and OracleAS Web Cache, be sure you read Section 4.6.3.3, "Ports for Oracle HTTP Server and OracleAS Web Cache".

The installer verifies that the ports specified in the file are available by checking memory. This means that it can only detect ports that are being used by running processes. It does not look in configuration files to determine which ports an application is using.

If the installer detects that a specified port is not available, it displays an alert. The installer will not assign a port that is not available. To fix this:

1. Edit the `staticports.ini` file to specify a different port, or shut down the application that is using the port.
2. Click **Retry**. The installer re-reads the `staticports.ini` file and verifies the entries in the file again.

Using portlist.ini as the staticports.ini File

The `staticports.ini` file uses the same format as the `ORACLE_HOME/install/portlist.ini` file, which is created *after* an Oracle Application Server installation. If you have installed Oracle Application Server and you want to use the same port numbers in another installation, you can use the `portlist.ini` file from the first installation as the `staticports.ini` file for subsequent installations.

However, note this difference: in `staticports.ini`, the line "`Oracle Management Agent port`" corresponds to "`Enterprise Manager Agent port`" in `portlist.ini`.

4.6.3.2 Error Conditions that Will Cause the Installer to Use Default Ports Instead of Specified Ports

Check your `staticports.ini` file carefully because a mistake can cause the installer to use default ports without displaying any warning. Here are some things that you should check:

- If you specify the same port for more than one component, the installer will use the specified port for the first component, but for the other components, it will use the components' default ports. The installer does not warn you if you have specified the same port for multiple components.
- If you specify different ports for one component on multiple lines, the installer assigns the default port for the component. The installer does not warn you if you have specified different ports for one component.
- If you specify the same port for one component on multiple lines, the installer assigns the default port for the component. The installer does not warn you if you have specified the same port on multiple lines.
- If you have syntax errors in the `staticports.ini` file (for example, if you omitted the = character for a line), the installer ignores the line. For the components specified on such lines, the installer assigns the default ports. The installer does not display a warning for lines with syntax errors.
- If you misspell a component name, the installer assigns the default port for the component. Names of components in the file are case sensitive. The installer does not display a warning for lines with unrecognized names.
- If you specify a non-numeric value for the port number, the installer ignores the line and assigns the default port number for the component. It does this without displaying any warning.
- If you specify a relative path to the `staticports.ini` file (for example, "`./staticports.ini`" or just "`staticports.ini`"), the installer will not find the file. The installer continues without displaying a warning and it will assign default ports to all components. You must specify a full path to the `staticports.ini` file.

4.6.3.3 Ports for Oracle HTTP Server and OracleAS Web Cache

Be sure you understand the following when setting ports for these components.

In the `httpd.conf` file for Oracle HTTP Server, the `Port` and the `Listen` directives specify the ports used by OracleAS Web Cache and Oracle HTTP Server. The correct lines in the `staticports.ini` file for setting these ports depend on which components you are configuring.

If You Are Configuring OracleAS Web Cache and Oracle HTTP Server

1. Set the port for OracleAS Web Cache.

   OracleAS Web Cache uses the port specified by the `Port` directive (Figure 4–1). To set this port, use this line in the `staticports.ini` file:

   ```
   Web Cache HTTP Listen port = port_number
   ```

   To configure the SSL port for OracleAS Web Cache, use the following line:

   ```
   Web Cache HTTP Listen (SSL) port = port_number
   ```

   You cannot set the port number using the "Oracle HTTP Server port" line in this case. If your `staticports.ini` file contains both "Oracle HTTP Server port" and "Web Cache HTTP Listen port", the "Oracle HTTP Server port" line is ignored. For example, if you have these lines in `staticports.ini`:

   ```
   Web Cache HTTP Listen port = 7979
   Oracle HTTP Server port = 8080
   ```

the `Port` directive would be set to 7979.

2. Set the port for Oracle HTTP Server.

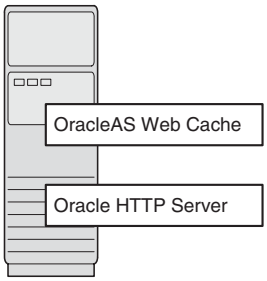
   Oracle HTTP Server uses the port specified by the `Listen` directive. To set this port, use this line in the `staticports.ini` file:

   ```
   Oracle HTTP Server Listen port = port_number
   ```

   To configure the SSL Listen port, use the following line:

   ```
   Oracle HTTP Server Listen (SSL) port = port_number
   ```

Figure 4–1 Configuring Both OracleAS Web Cache and Oracle HTTP Server



Uses this directive in the httpd.conf file	Line in staticports.ini to set the value for the directive
`Port`	`Web Cache HTTP Listen port`
`Listen`	`Oracle HTTP Server Listen port`

If You Are Configuring Oracle HTTP Server Only (no OracleAS Web Cache)

If you are configuring Oracle HTTP Server only, then Oracle HTTP Server uses both `Port` and `Listen` directives (Figure 4–2). In this case, you must set both directives to use the same port number.

To set these ports, use the "Oracle HTTP Server port" and "Oracle HTTP Server Listen port" lines in the `staticports.ini` file. For example:

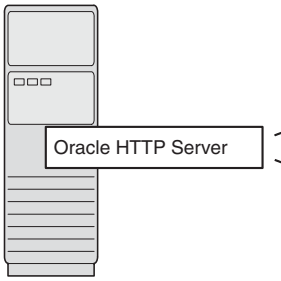
```
Oracle HTTP Server port = 8080
Oracle HTTP Server Listen port = 8080
```

To set the SSL version of these ports, use the following lines. As in the non-SSL version, the port numbers must be the same.

```
Oracle HTTP Server SSL port = 443
Oracle HTTP Server Listen (SSL) port = 443
```

If you also specify the Web Cache lines in `staticports.ini`, they will be ignored because you are not configuring OracleAS Web Cache.

Figure 4–2 Configuring Only Oracle HTTP Server



Uses this directive in the httpd.conf file	Line in staticports.ini to set the value for the directive
`Port`	`Oracle HTTP Server port`
`Listen`	`Oracle HTTP Server Listen port`

Note: You must specify the same port number for both directives.

4.6.3.4 Examples

This section describes some common scenarios for using `staticports.ini`.

- Configure Oracle HTTP Server to Use Ports 80 and 443 With OracleAS Web Cache as the Front-End
- Configure Oracle HTTP Server to Use Ports 80 and 443 Without OracleAS Web Cache

Configure Oracle HTTP Server to Use Ports 80 and 443 With OracleAS Web Cache as the Front-End

In this scenario, create a `staticports.ini` file that includes the following lines:

```
Web Cache HTTP Listen port = 80
Oracle HTTP Server Listen port = 81
Web Cache HTTP Listen (SSL) port = 443
Oracle HTTP Server Listen (SSL) port = 444
```

The ports for Oracle HTTP Server Listen and SSL Listen can be any available port. The example uses ports 81 and 444. These port numbers do not have to be less than 1024. If you select port numbers less than 1024, you have to start up Oracle HTTP Server and OracleAS Web Cache as the root user.

Note: Because you are using ports less than 1024, you have to configure Oracle HTTP Server and OracleAS Web Cache to run as the root user. You can perform the configuration during installation or after installation.

- If you want to do the configuration during installation, you must follow the steps listed in Section 7.17, "Install Fragment: The Last Few Screens of the Installation" after running `root.sh` but before clicking **OK**. You run `root.sh` near the end of the installation.
- You can choose to perform the configuration after installation, but note that the installer will not be able to start up the components (because they are not yet configured).

For details, refer to these guides: *Oracle HTTP Server Administrator's Guide* and *Oracle Application Server Web Cache Administrator's Guide*.

Configure Oracle HTTP Server to Use Ports 80 and 443 Without OracleAS Web Cache

In this scenario, create a `staticports.ini` file that includes the following lines:

```
Oracle HTTP Server port = 80
Oracle HTTP Server Listen port = 80
Oracle HTTP Server SSL port = 443
Oracle HTTP Server Listen (SSL) port = 443
```

Note: Because you are using ports less than 1024, you have to configure Oracle HTTP Server to run as the root user. Refer to the Note on page 4-33 for details.

4.6.4 If Port 1521 Is in Use

The installer configures port 1521 for the OracleAS Metadata Repository listener (version 10.1.0.3). This port cannot be changed through the `staticports.ini` file.

> **Note:** If your computer has a listener that uses the IPC protocol with the EXTPROC key, you should change the key to have some other value. This is because the OracleAS Metadata Repository listener requires access to the EXTPROC key.

If port 1521 on your computer is already in use by an existing application, such as Oracle database listener or some other application, you might have to take some action before running the installer. Refer to the following sections for details.

- Section 4.6.4.1, "If Port 1521 Is In Use by an Existing Oracle Database"
- Section 4.6.4.2, "If Port 1521 Is In Use by Some Other Application"

4.6.4.1 If Port 1521 Is In Use by an Existing Oracle Database

If you are installing a new database for the OracleAS Metadata Repository on a computer that is already running an Oracle database, ensure that the listeners for both databases do not conflict.

You might be able to use the same listener for both the existing database and the OracleAS Metadata Repository database. You have to consider the version of the existing listener as well as the port number. Table 4–10 shows scenarios and outcomes.

You can change the OracleAS Metadata Repository listener to use a different port after installation. Refer to *Oracle Application Server Administrator's Guide* for details.

Table 4–10 Scenarios and Outcomes if You Have an Existing Database on the Computer Where You Want to Install the OracleAS Metadata Repository

Version of the Existing Listener	Existing Listener Uses Port 1521	Existing Listener Uses a Port Other Than 1521
Earlier than 10.1.0.2	You need two listeners: one for the existing database and one for the OracleAS Metadata Repository. Refer to Scenario 1: Existing Listener Uses Port 1521 and Listener Version Is Earlier Than 10.1.0.2.	You need two listeners: one for the existing database and one for the OracleAS Metadata Repository. Refer to Scenario 3: Existing Listener Uses a Port Other Than 1521.
10.1.0.2 or later	The existing listener supports both the existing database and the OracleAS Metadata Repository. Refer to Scenario 2: Existing Listener Uses Port 1521 and Listener Version Is 10.1.0.2 or Later	You need two listeners: one for the existing database and one for the OracleAS Metadata Repository. Refer to Scenario 3: Existing Listener Uses a Port Other Than 1521.

To check the listener version, run the following command:

```
prompt> $ORACLE_HOME/bin/lsnrctl VERSION
```

where `ORACLE_HOME` is the home directory for your database.

You can also use the same command to check the listener port.

Here is an example of the command's output:

```
prompt> lsnrctl VERSION
```

```
LSNRCTL for UNIX: Version 10.1.0.4.2 - Production on 12-JUL-2005 16:08:16

Copyright (c) 1991, 2004, Oracle Corporation.  All rights reserved.

Connecting to
(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=test-lin.us.oracle.com)(PORT=1521)))
TNSLSNR for UNIX: Version 10.1.0.4.2 - Production
        TNS for UNIX: Version 10.1.0.4.0 - Production
        Unix Domain Socket IPC NT Protocol Adaptor for UNIX: Version 10.1.0.4.0 -
Production
        Oracle Bequeath NT Protocol Adapter for UNIX: Version 10.1.0.4.0 -
Production
The command completed successfully
```

Scenario 1: Existing Listener Uses Port 1521 and Listener Version Is Earlier Than 10.1.0.2

Listeners earlier than version 10.1.0.2 are **not compatible** with the OracleAS Metadata Repository from this Oracle Application Server release. What you need to do is to install the OracleAS Metadata Repository, which installs a version 10.1.0.3 listener. You can then use this new listener to service your existing database and the OracleAS Metadata Repository database.

1. Stop the existing listener before you install the OracleAS Metadata Repository.

   ```
   prompt> $ORACLE_HOME/bin/lsnrctl stop
   ```

   ORACLE_HOME is the home directory for your existing database.

   If you do not stop the existing listener, the installation will fail.

2. Install the OracleAS Metadata Repository.

   Refer to any of the procedures that install an OracleAS Metadata Repository in Chapter 6, "Installing OracleAS Infrastructure" (for example, Section 6.20, "Installing OracleAS Infrastructure" or Section 6.21, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory").

3. Update the configuration file of the new listener, as necessary. The name of the listener configuration file is `listener.ora`, located in the `ORACLE_HOME/network/admin` directory.

   a. Check network address entries in the existing listener's configuration file.

      If the existing listener's configuration file contains only the following network addresses:

      * TCP Port 1521
      * IPC key EXTPROC

      you do not have to edit the OracleAS Metadata Repository listener's configuration file for network addresses.

      If the configuration file contains other network addresses, you need to add them to the OracleAS Metadata Repository listener's configuration file.

   b. Check SID_DESC entries in the existing listener's configuration file.

      If the existing listener's configuration file contains SID_DESC entries for the existing database, you need to add these entries to the OracleAS Metadata Repository listener's configuration file.

c. **Do not start the existing listener** (version earlier than 10.1.0.2). Now that the new listener supports both databases, you do not need to run the existing listener any more.

Note: Step c is very important. You only need to run one listener (the new listener) to support both databases.

Scenario 2: Existing Listener Uses Port 1521 and Listener Version Is 10.1.0.2 or Later

The existing listener will support both the existing database and the OracleAS Metadata Repository. The installer will perform this configuration automatically.

The listener can be running during installation.

Scenario 3: Existing Listener Uses a Port Other Than 1521

You will end up running two listeners: one for the existing database and one for the OracleAS Metadata Repository, regardless of the version of the existing listener.

The existing listener can be running during installation, because it is not using port 1521.

4.6.4.2 If Port 1521 Is In Use by Some Other Application

If you have some other application listening on port 1521, you need to reconfigure it to listen on a different port. If that is not possible, shut it down while you install the OracleAS Metadata Repository. After installation, you can reconfigure the OracleAS Metadata Repository to use a port other than 1521. Refer to *Oracle Application Server Administrator's Guide* for instructions on how to do this.

4.7 Operating System Groups

You need to create operating system groups in these situations:

- If you plan to install Oracle Application Server on a computer that does not have Oracle products, create a group to own the "inventory" directory. Refer to Section 4.7.1, "Create a Group for the Inventory Directory".
- If you plan to install the OracleAS Metadata Repository in a new database (that is, one created by the installer), create groups for database administrators. Refer to Section 4.7.2, "Create Groups for Database Administrators".

To create a local operating system group:

Run the following command to create the `oinstall` group:

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

For more information about operating system users and groups, refer to your operating system documentation or contact your system administrator.

4.7.1 Create a Group for the Inventory Directory

If you plan to install Oracle Application Server on a computer that does not have Oracle products, create a group to own the inventory directory. The installer writes its files in the inventory directory to keep track of the Oracle products installed on the computer.

This guide uses the name `oinstall` for this operating system group.

By having a separate group for the inventory directory, you allow different users to install Oracle products on the computer. Users need write permission for the inventory directory. They can achieve this by belonging to the `oinstall` group.

For the first time installation of any Oracle product on a computer, the installer displays a screen where you enter a group name for the inventory directory, and a screen where you enter the location of the inventory directory.

The default name of the inventory directory is `oraInventory`.

If you are unsure if there is already an inventory directory on the computer, look in the `/etc/oraInst.loc` file. This file lists the location of the inventory directory and the group who owns it. If the file does not exist, the computer does not have Oracle products installed on it.

4.7.2 Create Groups for Database Administrators

This section applies only if you plan to install the OracleAS Metadata Repository in a new database created by the installer.

When the database is not mounted and database authentication is unavailable, the database uses operating system groups to determine user privileges. The database recognizes these groups and privileges:

Table 4–11 Privileges for the OSDBA and OSOPER Groups

Group	Description
OSDBA	This is the database administrator group. Users in this group are granted SYSDBA privileges.
OSOPER	Users in this group are granted SYSOPER privileges, which comprise privileges required for basic maintenance. These include database startup and shutdown, and other privileges required for database operation. SYSOPER privileges are a subset of SYSDBA privileges.

You need to create operating system groups for these groups.

If you want an operating system group called `dba` to have SYSDBA privileges:

1. Create the `dba` group.
2. Ensure that the user running the installer is a member of the `dba` group.

If you want a different operating system group to have SYSDBA privileges, or if you want to associate SYSDBA and SYSOPER privileges with different groups, ensure the user running the installer does not belong to the `dba` group.

If the user running the installer does not belong to the `dba` group, the installer displays a screen where you can enter the names of groups to have the database administrator privileges. The screen has two fields: one for the OSDBA group and one for the OSOPER group (refer to Table 4–11). You can enter the same operating system group for both fields.

4.8 Operating System User

Create an operating system user to install and upgrade Oracle products. This guide refers to this user as the `oracle` user. The `oracle` user running the installer must have write permission for these directories:

- the Oracle home directory, which contains files for the product you are installing

- the inventory directory, which is used by the installer for all Oracle products

If the computer contains other Oracle products, you might already have a user for this purpose. Look in the `/etc/oraInst.loc` file. This file lists the location of the inventory directory and the group who owns it. If the file does not exist, the computer does not have Oracle products installed on it.

If you do not already have a user for installing Oracle products, create a user with the following properties:

Table 4–12 Properties of the Operating System User Who Runs the Installer

Item	Description
Login name	You can use any name for the user. This guide refers to the user as the `oracle` user.
Group identifier	The primary group of the `oracle` user must have write permission for the `oraInventory` directory. Refer to Section 4.7.1, "Create a Group for the Inventory Directory" for more information about this group. You can use any name for the group. This guide uses the name `oinstall`.
Home directory	The home directory for the `oracle` user can be consistent with the home directories of other users.
Login shell	The default login shell can be the C, Bourne, or Korn shell.

Note: Use the `oracle` user only for installing and running Oracle products. Do not use root as the `oracle` user.

To create a local operating system user:

1. To create the `oracle` user, run 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
   ```

To check which groups an operating system user belongs to, run the `groups` command with the name of the user. For example:

```
prompt> groups oracle
```

For more information about operating system users and groups, refer to your operating system documentation or contact your system administrator.

4.9 Environment Variables

The operating system user who will be installing Oracle Application Server needs to set (or unset) the following environment variables.

Table 4–13 summarizes whether you set or unset an environment variable.

Table 4–13 Environment Variable Summary

Environment variable	Set or Unset
ORACLE_HOME and ORACLE_SID	Must not be set.
PATH, CLASSPATH, and Shared Library Path Environment Variables	Must not contain references to directories in any Oracle home directories
DISPLAY	Set it to the monitor where you want to the installer window to appear.
TMP and TMPDIR	Optional. If unset, defaults to `/tmp`.
TNS_ADMIN	Must not be set.
ORA_NLS	Must not be set.
LD_BIND_NOW	Must not be set.

4.9.1 Environment Variable Tips

Here are some tips when working with environment variables:

- If you set environment variables in the `.profile` file, they might not be read. To ensure environment variables are set to the correct values, check their values in the shell where you will be running the installer.
- To check the value of environment variables, use the `env` command. This displays all the currently defined environment variables and their values.

```
% env
```

- If you use the `su` command to switch users (for example, switching from the root user to the `oracle` user), check the environment variables when you are the new user because the environment variables might not be passed to the new user. This can happen even if you run `su` with the `-` parameter (`su - user`).

```
# /* root user */
# su - oracle
% env
```

4.9.2 ORACLE_HOME and ORACLE_SID

These environment variables must not be set.

4.9.3 PATH, CLASSPATH, and Shared Library Path Environment Variables

Edit your PATH, CLASSPATH, and LD_LIBRARY_PATH environment variables so that they do not reference any Oracle home directories.

4.9.4 DISPLAY

Set the DISPLAY environment variable to point to the X server that will display the installer. The format of the DISPLAY environment variable is:

```
hostname:display_number.screen_number
```

Example (C shell):

```
% setenv DISPLAY test.mydomain.com:0.0
```

Example (Bourne or Korn shell):

```
$ DISPLAY=test.mydomain.com:0.0; export DISPLAY
```

You can test the display by running the xclock program:

```
$ xclock &
```

Oracle Application Server requires a running X server during installation only. The frame buffer X server installed with your operating system requires that you remain logged in and have the frame buffer running during installation. If you do not wish to do this, then you must use a virtual frame buffer, such as X Virtual Frame Buffer (XVFB) or Virtual Network Computing (VNC).

For information about obtaining and installing XVFB or other virtual frame buffer solutions, search for "frame buffer" on the Oracle Technology Network site. You can access the site at:

http://www.oracle.com/technology

4.9.5 TMP and TMPDIR

The installer uses a temporary directory for swap space. The installer checks for the TMP and TMPDIR environment variables to locate the temporary directory. If this environment variable does not exist, the installer uses the `/tmp` directory.

If you want the installer to use a temporary directory other than `/tmp`, set the TMP and TMPDIR environment variables to the full path of an alternate directory. The `oracle` user must have right permission for this directory and the directory must meet the requirements listed in Table 4–2.

Example (C shell):

```
% setenv TMP /tmp2
% setenv TMPDIR /tmp2
```

Example (Bourne or Korn shell):

```
$ TMP=/tmp2; export TMP
$ TMPDIR=/tmp2; export TMPDIR
```

If you do not set this environment variable, and the default directory does not have enough space, then the installer displays an error message that says the environment variable is not set. You can either set the environment variable to point to a different directory or free up enough space in the default directory. In either case, you have to restart the installation.

4.9.6 TNS_ADMIN

This section describes two requirements:

- The TNS_ADMIN environment variable must not be set. If set, it can cause errors during installation. Section G.2.11, "Database Configuration Assistant (DBCA) Failures" shows such an error.
- The `/etc` directory must not contain a `tnsnames.ora` file.

These requirements are necessary to prevent conflicts between the Net configuration files for different Oracle products.

If you need to set TNS_ADMIN or if you have the `tnsnames.ora` file in `/etc`, do the following steps before installing Oracle Application Server.

1. If you have the `tnsnames.ora` file in `/etc`, move the file from these directories to a different directory. Alternatively, you can rename the file.
2. Make sure the TNS_ADMIN environment variable is not set.

   Example (C shell):

   ```
   % unsetenv TNS_ADMIN
   ```

   Example (Bourne or Korn shell):

   ```
   $ unset TNS_ADMIN
   ```

After installation, you can merge the contents of the newly created `tnsnames.ora` file with your existing `tnsnames.ora` file.

4.9.7 ORA_NLS

To make sure that the Oracle Application Server installation completes successfully, unset this environment variable.

Example:

```
$ unset ORA_NLS
```

4.9.8 LD_BIND_NOW

To make sure that the Oracle Application Server installation completes successfully, unset this environment variable.

Example:

```
$ unset LD_BIND_NOW
```

4.10 The /etc/hosts File

Although the contents of the `/etc/hosts` file affect these items:

- Section 4.10.1, "Location of the Default Oracle Identity Management Realm"
- Section 4.10.2, "Hostname for OracleAS Single Sign-On"

the installer provides alternative methods for you to enter the values that you want without editing the `hosts` file. Refer to the following subsections for details.

4.10.1 Location of the Default Oracle Identity Management Realm

The installer reads the `hosts` file to construct the location of the default Oracle Identity Management realm. It displays this location in the "Specify Namespace in Internet Directory" screen.

The `hosts` file should use the following format:

```
ip_address   fully_qualified_hostname   short_hostname
```

Example:

```
123.45.67.89   primaryHost.mydomain.com   primaryHost
```

In the preceding example, the location of the default Oracle Identity Management realm would look like "dc=mydomain,dc=com".

If the file uses a different format, the installer displays an incorrect value in the screen. For example, if the hosts file contains:

```
123.45.67.89   primaryHost   primaryHost.mydomain.com  <--- incorrect format
```

the installer would display "dc=primaryHost,dc=com" as the default Oracle Identity Management realm. This is probably not the value that you want for the default Oracle Identity Management realm.

> **Tip:** If you need the hosts file to use a different format, you can edit the file to use the required format, perform the installation, then revert the file back to its original format after installation.
>
> If you are unable, or unwilling, to edit the hosts file, you can enter the desired value for the default Oracle Identity Management realm in the Custom Namespace field on the "Specify Namespace in Internet Directory" screen.

4.10.2 Hostname for OracleAS Single Sign-On

If you are installing OracleAS Single Sign-On, and your hosts file contains only the hostname of your computer, without the domain name, then you will only be able to sign on to the Single Sign-On server using the hostname by itself (without the domain name).

If you want to require a domain name when connecting to the Single Sign-On server, you can edit the hosts file to include the domain name. If you do not want to edit the file, you can use the OUI_HOSTNAME command-line parameter to the installer to override the value in hosts. For example:

```
prompt> mount_point/1012disk1/runInstaller OUI_HOSTNAME=myserver.mydomain.com
```

4.11 Network Topics

Typically, the computer on which you want to install Oracle Application Server is connected to the network, has local storage to contain the Oracle Application Server installation, has a display monitor, and has a CD-ROM or DVD drive.

This section describes how to install Oracle Application Server on computers that do not meet the typical scenario. It covers the following cases:

- Section 4.11.1, "Installing on a DHCP Host"
- Section 4.11.2, "Installing on Multihomed (Multi-IP) Computers"
- Section 4.11.3, "Copying CD-ROMs or DVD to Hard Drive, and Installing from the Hard Drive"
- Section 4.11.4, "Installing from a Remote CD-ROM or DVD Drive"
- Section 4.11.5, "Installing on Remote Computers"

4.11.1 Installing on a DHCP Host

If you are installing Oracle Application Server in a DHCP network you must use a loopback configuration. To access the Oracle Application Server, you need to use a

local browser. Perform the following steps to install Oracle Application Server in a DHCP network:

1. Find the IP address allocated from the DHCP server by running the following command:

   ```
   $ /sbin/ifconfig -a
   ```

   The IP address is associated with the interface configured to use DHCP.

2. Configure the host to resolve hostname to loopback IP address:

   a. Configure the host to resolve hostname to loopback IP address, by modifying the `/etc/hosts` file to contain the following entries:

      ```
      127.0.0.1 hostname.domainname hostname
      127.0.0.1 localhost.localdomain localhost
      ```

   b. Check that the hostname resolves to the loopback IP address by entering the following command:

      ```
      $ /bin/ping hostname.domainname
      ```

3. Complete the Oracle Application Server installation as described in this guide using the hostname used in step 2.

4.11.2 Installing on Multihomed (Multi-IP) Computers

You can install Oracle Database on a multihomed computer. A multihomed computer is associated with multiple IP addresses. This is typically achieved by having multiple network cards on the computer. Each IP address is associated with a hostname; additionally, you can set up aliases for the hostname. By default, Oracle Universal Installer uses the `ORACLE_HOSTNAME` environment variable setting to find the hostname. If `ORACLE_HOSTNAME` is not set and you are installing on a computer that has multiple network cards, Oracle Universal Installer determines the hostname by using the first name in the `/etc/hosts` file.

Clients must be able to access the computer using this hostname (or using aliases for this hostname). To check, ping the hostname from the client computers using the short name (hostname only) and the full name (hostname and domain name). Both must work.

4.11.3 Copying CD-ROMs or DVD to Hard Drive, and Installing from the Hard Drive

Instead of installing from the Oracle Application Server CD-ROMs or DVD, you can copy the contents of the CD-ROMs or DVD to a hard drive and install from there. This might be easier if you plan to install many instances of Oracle Application Server on your network, or if the computers where you want to install Oracle Application Server do not have CD-ROM or DVD drives.

(You can install from remote CD-ROM or DVD drives; refer to Section 4.11.4, "Installing from a Remote CD-ROM or DVD Drive".)

When you install from the hard drive, the installer does not prompt you to swap CD-ROMs. It can find all the files if they are in the proper locations (refer to Figure 4–3).

Space Requirement

Ensure that the hard drive contains enough space to hold the contents of the CD-ROMs or the `application_server` directory on the DVD. Each CD-ROM

contains approximately 650 MB. This means that if you are copying three CD-ROMs, you need approximately 1.9 GB of disk space.

On the DVD, the `application_server` directory is approximately 1.6 GB.

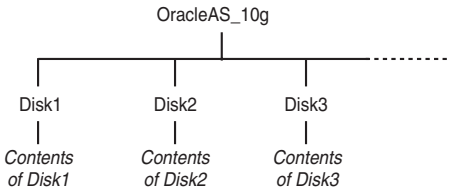
This space is in addition to the space required for installing Oracle Application Server (listed in Table 4–2).

To Copy the CD-ROMs:

1. Create a directory structure on your hard drive as shown in Figure 4–3.

   You need to create a parent directory (called `OracleAS_10g` in the example, but you can name it anything you like), and, under the parent directory, create subdirectories called `Disk1`, `Disk2`, and so on. The names of the subdirectories must be `Disk`*N*, where *N* is the CD-ROM number.

Figure 4–3 Directory Structure for Copying CD-ROMs to Disk



2. Copy the contents of each CD-ROM into the corresponding directory.

```
prompt> cp -pr /cdrom_mount_point/10.1.2disk1/* /path/to/hard/drive/Disk1/
prompt> cp -pr /cdrom_mount_point/10.1.2disk2/* /path/to/hard/drive/Disk2/
... Repeat for each CD-ROM.
```

To run the installer from the copied files, invoke the `runInstaller` executable from the `Disk1` directory. Run it from the computer that will be running Oracle Application Server.

```
prompt> /path/to/hard/drive/Disk1/runInstaller
```

To Copy the application_server Directory from the DVD

1. (optional) Create a directory to contain the `application_server` directory.
2. Copy the `application_server` directory from the DVD to your hard disk.

```
prompt> cp -pr /dvd_mount_point/application_server /path/to/hard/drive
```

To run the installer from the copied files, invoke the `runInstaller` executable from the computer that will be running Oracle Application Server:

```
prompt> /path/to/hard/drive/application_server/runInstaller
```

4.11.4 Installing from a Remote CD-ROM or DVD Drive

You can run the installer on a remote computer ("remote_computer"), but have the installer screens display on your local computer ("local_computer"). The installer will install Oracle Application Server on the remote computer.

1. Allow remote_computer to display on local_computer. You need to run this command on the local computer's console.

```
local_computer> xhost +remote_computer
```

If you do not run `xhost`, you might get an Xlib error similar to "Failed to connect to server", "Connection refused by server," or "Can't open display" when starting the installer.

2. On local_computer, perform a remote login (using `telnet` or `rlogin`) to remote_computer. Log in as the `oracle` user, as described in Section 4.8, "Operating System User". Ensure that the user has set the environment variables correctly, as described in Section 4.9, "Environment Variables".

```
local_computer> rlogin -l oracle remote_computer.mydomain.com
- OR -
local_computer> telnet remote_computer.mydomain.com
```

3. Set the DISPLAY environment variable on remote_computer to point to local_computer.

   Example (C shell):

```
remote_computer> setenv DISPLAY local_computer.mydomain.com:0.0
```

   Example (Bourne or Korn shell):

```
remote_computer> DISPLAY=local_computer.mydomain.com:0.0; export DISPLAY
```

4. Run the installer. Refer to Section 5.19, "Starting Oracle Universal Installer".

> **Note:** You can use a PC X emulator to run the installer if it supports a PseudoColor color model or PseudoColor visual. Set the PC X emulator to use a PseudoColor visual, and then start the installer. Refer to the X emulator documentation for instructions on how to change the color model or visual settings.

4.11.5 Installing on Remote Computers

You can run the installer on a remote computer ("remote_computer"), but have the installer screens display on your local computer ("local_computer"). The installer will install Oracle Application Server on the remote computer.

1. Allow remote_computer to display on local_computer. You need to run this command on the local computer's console.

```
local_computer> xhost +remote_computer
```

   If you do not run `xhost`, you might get an Xlib error similar to "Failed to connect to server", "Connection refused by server," or "Can't open display" when starting the installer.

2. On local_computer, perform a remote login (using `telnet` or `rlogin`) to remote_computer. Log in as the `oracle` user, as described in Section 4.8, "Operating System User". Ensure that the user has set the environment variables correctly, as described in Section 4.9, "Environment Variables".

```
local_computer> rlogin -l oracle remote_computer.mydomain.com
- OR -
local_computer> telnet remote_computer.mydomain.com
```

3. Set the DISPLAY environment variable on remote_computer to point to local_computer.

   Example (C shell):

```
remote_computer> setenv DISPLAY local_computer.mydomain.com:0.0
```

Example (Bourne or Korn shell):

```
remote_computer> DISPLAY=local_computer.mydomain.com:0.0; export DISPLAY
```

4. Run the installer. Refer to Section 5.19, "Starting Oracle Universal Installer".

> **Note:** You can use a PC X emulator to run the installer if it supports a PseudoColor color model or PseudoColor visual. Set the PC X emulator to use a PseudoColor visual, and then start the installer. Refer to the X emulator documentation for instructions on how to change the color model or visual settings.

4.11.6 Installing on NFS-Mounted Storage

To run Oracle Application Server on NFS systems, you have to use a certified NFS-mounted storage system.

Currently Oracle Application Server is certified to run on these NFS systems:

- Network Appliance (NetApp) filers

The NetApp system should be exported to at least the remote install user and remote root user. You can do this using `exportfs` command:

```
prompt> exportfs -i /vol/vol1
```

Before installing, verify that the NFS mount setuid permission is set to `suid`. The `nosuid` option will cause the install to fail.

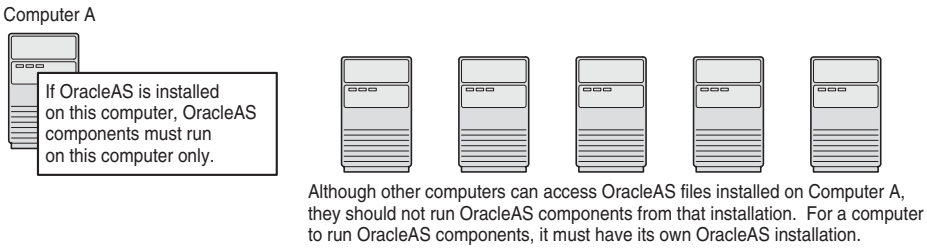
To check the latest certification list for any updates, visit Oracle Technology Network at:

http://www.oracle.com/technology

4.11.7 Running Multiple Instances from One Installation

Oracle Application Server components are intended to be run only on the computer where they are installed. You cannot run the components on remote computers, even though the computers can access the files through NFS.

Figure 4–4 Run Oracle Application Server Only on the Computer Where It Is Installed



4.11.8 Support for NIS and NIS+

You can install and run Oracle Application Server in NIS and NIS+ environments.

4.12 Prerequisite Checks Performed by the Installer

Table 4–14 lists the checks performed by the installer:

Table 4–14 Prerequisite Checks Performed by the Installer

Item	Description
Processor	Refer to Table 4–2 for recommended values.
Operating system version	Refer to Section 4.3, "Software Requirements" for supported versions.
Operating system patches	Refer to Section 4.3, "Software Requirements" for a list of required patches.
Software packages	Refer to Section 4.3, "Software Requirements" for a list of required packages.
Operating system kernel parameters	Refer to Section 4.4, "Kernel Parameters" for a list of required kernel parameters.
Memory	Refer to Table 4–2 for recommended values.
Swap space	Refer to Table 4–2 for recommended values.
TMP space	Refer to Table 4–2 for recommended values.
Instance name	The installer checks that the computer on which you are installing Oracle Application Server does not already have an instance of the same name.
Oracle home directory name	The installer checks that the Oracle home directory name does not contain any spaces.
Path to Oracle home directory	The installer checks that the path to the Oracle home directory is not longer than 127 characters.
Oracle home directory contents	The installer checks that the Oracle home directory does not contain any files that might interfere with the installation.

Table 4–14 (Cont.) Prerequisite Checks Performed by the Installer

Item	Description
Oracle home directory	You should install Oracle Application Server in a new directory, unless you are expanding a middle tier (refer to Section 7.14, "Expanding a Middle Tier") or installing a middle tier in an Oracle home that contains Oracle Developer Suite 10*g* Release 2 (10.1.2) (refer to Section 5.5, "Oracle Home Directory"). Here are some examples of installations that are **not allowed**: ■ Any type of Oracle Application Server into an 8.0, 8*i*, 9.0.1, or 9.2 database Oracle home ■ Any type of Oracle Application Server into an Oracle Management Service Oracle home ■ Any type of Oracle Application Server into an Oracle Collaboration Suite Oracle home ■ Any type of Oracle Application Server into an Oracle HTTP Server standalone Oracle home ■ Any type of Oracle Application Server into an OracleAS Web Cache standalone Oracle home ■ Any type of Oracle Application Server into an Oracle9*i* Developer Suite 9.0.2 Oracle home ■ Any type of Oracle Application Server into an Oracle Application Server Containers for J2EE standalone Oracle home ■ Any type of Oracle Application Server into an Oracle9*i*AS 1.0.2.2 Oracle home ■ Oracle Application Server middle tier into an infrastructure 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ Oracle Application Server middle tier into an Oracle9*i*AS 9.0.2, 9.0.3, or 9.0.4 middle tier Oracle home ■ OracleAS Developer Kits into an infrastructure 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ OracleAS Developer Kits into an Oracle9*i*AS middle tier 9.0.2, 9.0.3, 9.0.4, or 10.1.2 Oracle home ■ OracleAS Developer Kits into an Oracle Developer Suite 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ OracleAS Infrastructure into any Oracle9*i*AS 9.0.2, 9.0.3, or 9.0.4 Oracle home ■ OracleAS Infrastructure into an Oracle Application Server 10*g* Release 2 (10.1.2) middle tier or OracleAS Developer Kits Oracle home ■ OracleAS Infrastructure into an Oracle Developer Suite 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ OracleAS Infrastructure or middle tier into an Oracle home installed from the Business Intelligence CD-ROM
Port 1521	The installer displays a warning if port 1521 is in use by any application, including database listeners of any version. You need to stop the application that is using port 1521, then click **OK** in the warning dialog. If it is a database listener that is using port 1521, you might be able to use it for the metadata repository database. Refer to Section 4.6.4, "If Port 1521 Is in Use" for details. If it is another application that is using port 1521, you need to stop it or configure it to use a different port. Alternatively, you can change the database listener to use a port other than 1521, but you can do this only after installation. Refer to *Oracle Application Server Administrator's Guide* for details.
Static port conflicts	The installer checks the ports listed in the `staticports.ini` file, if specified. Refer to Section 4.6, "Ports".
Monitor	The installer checks that the monitor is configured to display at least 256 colors.

Table 4–14 (Cont.) Prerequisite Checks Performed by the Installer

Item	Description
Display permission	The installer checks that the user has permissions to display on the monitor specified by the DISPLAY environment variable.
DISPLAY environment variable	The installer checks that the DISPLAY environment variable is set.
TNS_ADMIN environment variable	The TNS_ADMIN environment variable must not be set. There must not be a `tnsnames.ora` file in the `/etc` directories.
DBCA_RAW_CONFIG environment variable	If you are installing the OracleAS Infrastructure in a Real Application Clusters environment, you need to set this environment variable to point to a file that describes the locations of your raw partitions.
Cluster file system	The installer checks that you are not installing Oracle Application Server in a cluster file system (CFS).
Oracle Enterprise Manager 10*g* directories are writable	The installer runs this check only if you are expanding a middle tier or if you are reinstalling Oracle Application Server in the same Oracle home. The installer checks that these directories are writable by the operating system user running the installer: ■ `ORACLE_HOME/sysman/emd` ■ `ORACLE_HOME/sysman/config` ■ `ORACLE_HOME/sysman/webapps/emd/WEB-INF/config`
Oracle Enterprise Manager 10*g* files exist	The installer runs this check only if you are expanding a middle tier or if you are reinstalling Oracle Application Server in the same Oracle home. The installer checks that these files exist: ■ `ORACLE_HOME/sysman/config/iasadmin.properties` ■ `ORACLE_HOME/sysman/webapps/emd/WEB-INF/config/consoleConfig.xml`
Kernel check on Linux systems	The installer runs this check only if you are installing on Linux. The installer makes sure that the kernel version contains the string `2.4.9-e.49` or higher for Red Hat Enterprise Linux AS/ES 2.1, the string `2.4.21-20.EL` for Red Hat Enterprise Linux AS/ES 3.0, the string `2.6.9-11.EL` for Red Hat Enterprise Linux AS/ES 4.0, the string `2.4.21` for SUSE Linux Enterprise Server 8, and the string 2.6.5-7.97 for SUSE Linux Enterprise Server 9.
glibc version check on Linux	The installer runs this check only if you are installing on Linux. The installer makes sure that the glibc version is glibc-2.2.4-32.17 or higher on Red Hat Enterprise Linux AS/ES 2.1, glibc-2.3.2-95.27 or higher on Red Hat Enterprise Linux AS/ES 3.0, glibc-2.2.2-124 or higher on SUSE Linux Enterprise Server 8, and glibc-2.3.3-98.28 or higher on SUSE Linux Enterprise Server 9.
Packages check on Linux	The installer runs this check only if you are installing on Linux.The installer makes sure that the mandatory packages are installed. For example, it checks the gcc, sysstat and openmotif packages as specified in Table 4–4 for Red Hat Enterprise Linux AS/ES 2.1, Table 4–5 for Red Hat Enterprise Linux AS/ES 3.0, Table 4–7 for SUSE Linux Enterprise Server 8 and Table 4–8 for SUSE Linux Enterprise Server 9.

5

Things You Should Know Before Starting the Installation

This chapters includes the following sections:

- Section 5.1, "Obtaining Software from Oracle E-Delivery"

  Section 5.2, "Basic Concepts"
- Section 5.3, "Order of Installation"
- Section 5.4, "Where Do I Install Oracle Application Server?"
- Section 5.5, "Oracle Home Directory"
- Section 5.6, "Can I Use Symbolic Links?"
- Section 5.7, "First-Time Installation of Any Oracle Product"
- Section 5.8, "Installing Additional Languages"
- Section 5.9, "Oracle Application Server Instances and Instance Names"
- Section 5.10, "The ias_admin User and Restrictions on its Password"
- Section 5.11, "Comparing Installing Components against Configuring Components"
- Section 5.12, "Installing Oracle9i Application Server Release 2 (9.0.2) on the Same Computer"
- Section 5.13, "Where Does the Installer Write Files?"
- Section 5.14, "Why Do I Need to be Able to Log In as Root At Certain Times During Installation?"
- Section 5.15, "Running root.sh During Installation"
- Section 5.16, "Can I Modify Other Oracle Application Server Instances During Installation?"
- Section 5.17, "Connecting to Oracle Internet Directory Through SSL Connections"
- Section 5.18, "Setting the Mount Point for the CD-ROM or DVD"
- Section 5.19, "Starting Oracle Universal Installer"

5.1 Obtaining Software from Oracle E-Delivery

You can obtain Oracle products from Oracle E-Delivery at `http://edelivery.oracle.com/`. Oracle products are distributed as "E-Packs".

An E-Pack is an electronic version of the software that is also available to Oracle Customers on CD-ROM or DVD. This section contains the following topics:

- Section 5.1.1, "Finding and Downloading the Oracle Application Server 10g Release 2 (10.1.2) E-Pack"
- Section 5.1.2, "Finding Required and Optional Downloads"
- Section 5.1.3, "Disk Space Requirements"
- Section 5.1.4, "Software Requirements for Unzipping Files"
- Section 5.1.5, "Extracting Software from the Zip Files"

5.1.1 Finding and Downloading the Oracle Application Server 10*g* Release 2 (10.1.2) E-Pack

Refer to the CD/Media Pack description or the list of products that you purchased on your Oracle Ordering Document. Then, view the License List to help you decide which Product Pack you need to select in order to search for the appropriate E-Pack(s) to download. Prior to downloading, verify that the product you are looking for is in the License and Options section of the E-Pack README. Oracle recommends that you print the README for reference.

5.1.2 Finding Required and Optional Downloads

Refer to the README link that is on each E-Pack Download page. In addition to listing the licensable products and options contained in the pack, the README lists downloadable files that are required to run each product and which downloadable files are optional. Oracle recommends that you print the README for reference.

5.1.3 Disk Space Requirements

In addition to having the required disk space necessary to install and run your Oracle software, you'll need to have sufficient disk space to download all the required software files and have enough disk space to extract them.

After extracting the software from the Zip files, you can burn them onto CD-ROM and install from them, or install from your computer's hard drive.

5.1.4 Software Requirements for Unzipping Files

All Oracle E-Delivery files have been archived using Info-ZIP's highly portable Zip utility. After downloading one or more of the archives, you will need the UnZip utility to extract the files.You must unzip the archive on the platform for which it was intended. For example, if you download the file for the Solaris Operating System (SPARC) version of Oracle Application Server, you must unzip the file on a Solaris Operating System (SPARC) computer. If you unzip the file on a Windows computer, and then move the stage area to a Solaris Operating System (SPARC) machine, the stage area files will be corrupted because Windows will not preserve the case sensitivity or the permission bits of UNIX file names.

5.1.5 Extracting Software from the Zip Files

Verify that the file size of your downloaded file matches the file size displayed on E-Delivery. Unzip each Zip file to its own temporary directory. For example, create a directory structure called oraAS10g on your hard drive:

```
/oraAS10g
```

Then create a new directory for each Zip file you downloaded:

```
/oraAS10g/Disk1
/oraAS10g/Disk2
```

If you plan to burn the files on a CD-ROM, create a separate CD-ROM from the contents of each directory. Do not burn a CD-ROM containing the Zip file itself; you need the unzipped contents of the Zip files to do the installation. When you burn the files to CD-ROM, the contents of each disc must be at the root of the CD image.

To install from CD-ROM or from your hard drive, refer to Section 5.19, "Starting Oracle Universal Installer".

5.2 Basic Concepts

Oracle Application Server is made up of:

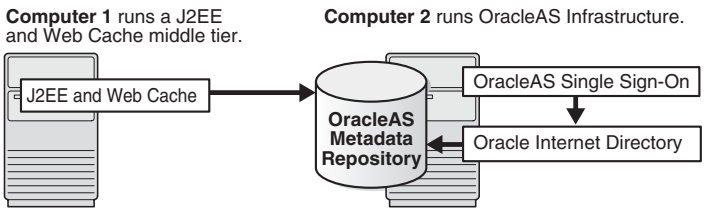
- Oracle Application Server middle tier
- OracleAS Infrastructure

You deploy and run your applications on Oracle Application Server middle tiers. The infrastructure provides services that are used by middle tiers. Infrastructure services can be shared by one or more middle tiers.

When you run the installer, you select whether you want to install the middle tier or the infrastructure. Typically you need both, so you would run the installer twice.

Figure 5–1 shows a simple Oracle Application Server installation. The J2EE and Web Cache middle tier running on computer 1 uses OracleAS Infrastructure running on computer 2. The figure shows the OracleAS Metadata Repository and two Identity Management services (OracleAS Single Sign-On and Oracle Internet Directory).

Figure 5–1 A Middle Tier Using Infrastructure Services



5.3 Order of Installation

In most cases, you must install OracleAS Infrastructure first, because the middle tiers depend on OracleAS Infrastructure services. The one case where the infrastructure is optional is the J2EE and Web Cache middle-tier type.

> **See Also:** Section 7.4, "Configuration Options for the J2EE and Web Cache Middle Tier"

5.4 Where Do I Install Oracle Application Server?

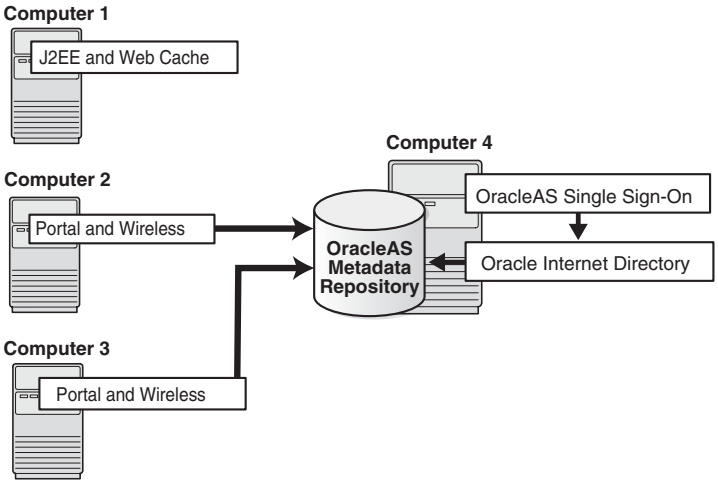
You can install the middle tiers and the infrastructure on the same computer or on separate computers. You can get better performance if you install the infrastructure on its own computer, and the middle tiers on other computers.

For example, Figure 5–2 shows a topology with four computers:

- Computer 1 runs a J2EE and Web Cache instance that is not using any infrastructure services.
- Computer 2 runs a Portal and Wireless middle tier that uses infrastructure services from the infrastructure instance running on Computer 4.
- Computer 3 runs another Portal and Wireless middle tier that uses infrastructure services from the infrastructure instance running on Computer 4.
- Computer 4 runs OracleAS Infrastructure.

Refer to Chapter 15, "Recommended Topologies" for topology examples.

Figure 5–2 Configuration with Multiple Middle Tiers and an Infrastructure



Note: You can install different middle tiers and infrastructure components on different platforms. The only exception is that if you want to cluster multiple J2EE and Web Cache middle tiers, they must be on the same platform. However, the infrastructure for this cluster can still be on a different platform.

5.5 Oracle Home Directory

The directory in which you install Oracle Application Server is called the Oracle home. During installation, you specify the full path to this directory and a name for this Oracle home.

For example, you can install OracleAS Infrastructure in `/opt/oracle/OraHome_Infra`, and you can name it "Infra".

Names of Oracle homes must be 128 characters or fewer, and can contain only alphanumeric characters and underscores.

Notes: Spaces are not allowed anywhere in the Oracle home directory path. For example, you cannot install in "`/opt/oracle/app server/Infra`" because of the space character in "`app server`". The installer does not check for this until several screens after you have entered the path.

If you plan to install a middle tier and an infrastructure on the same computer, you must install them in different Oracle home directories. The installer does not allow you to install a middle tier and an infrastructure in the same Oracle home. Section 15.2, "Portal and Wireless Developer Topology" describes a configuration where you install a middle tier and an infrastructure on the same computer.

> **Tip:** If you install multiple Oracle Application Server instances (for example, an OracleAS Infrastructure and a middle tier) on the same computer, create scripts for setting the environment for each instance. This is to ensure that you run the binaries from the proper Oracle home. Environment variables that you need to set include `ORACLE_HOME` and `PATH`.

5.5.1 Installing in an Existing Oracle Home

Generally, you cannot install Oracle Application Server in an existing Oracle home. Refer to "Oracle home directory" on page 4-48 for a list of combinations that are not allowed. Two exceptions to the rule are:

- You can install Oracle Application Server middle tiers into an existing Oracle home that contains Oracle Developer Suite 10*g* Release 2 (10.1.2). However, before you install, check that in the file `ORACLE_HOME/j2ee/home/config/default-web-site.xml`, the protocol is set to "`ajp13`" (not `http`), and the port is set to `0` (zero).

  > **Note:** If you choose to install Oracle Application Server in an existing Oracle Developer Suite 10*g* Release 2 (10.1.2) home, you will lose some Oracle Developer Suite functionality. Specifically, you can no longer access directly the OC4J home instance in Oracle Developer Suite using the *hostname*`:8888` URL.

- You can install Oracle Application Server middle tier into an existing middle tier if you are expanding it. Refer to Section 7.14, "Expanding a Middle Tier" for details.

5.5.2 Installing in a Non-Empty Oracle Home

You cannot install Oracle Application Server in a directory that already contains some files, except for the cases mentioned in Section 5.5.1, "Installing in an Existing Oracle Home". For example, if you cancel an installation, or if an installation failed, you have to clean up the directory before you can reinstall Oracle Application Server in it. Also, the installer cannot "repair" an installation. Refer to Section G.2.2, "Message About Installing in a Non-Empty Directory" for instructions on how to clean up the directory.

5.6 Can I Use Symbolic Links?

You can create symbolic links before installing Oracle Application Server and use them during installation. For example, if you run the following commands:

```
mkdir /home/basedir
ln -s /home/linkdir /home/basedir
```

then, when you run the installer, you can specify `/home/linkdir` as the Oracle Home.

After installation, you cannot create symbolic links to the Oracle Home. You also may not move the Oracle Home to a different location and create a symbolic link to the original Oracle Home.

5.7 First-Time Installation of Any Oracle Product

If Oracle Application Server is the first Oracle product to be installed on a computer, the installer displays a screen where you specify an inventory directory (also called the `oraInventory` directory). This inventory directory is used by the installer to keep track of all Oracle products installed on the computer.

The inventory directory is separate from the Oracle home directory for Oracle Application Server.

To ensure other users in the `oinstall` group have access to the inventory directory (so that they can install Oracle products), do not use the `oracle` user's home directory as the inventory directory because home directories might not have the proper permissions set up for the `oinstall` group. Instead, you can put the inventory directory in the `/opt/oracle` directory (for example, `/opt/oracle/oraInventory`).

If you have installed an Oracle product previously on the computer, the installer uses the existing inventory directory. Ensure that you have write permissions on that directory. The best way of ensuring this is to run the installer as the same operating system user who installed the existing Oracle products.

Oracle recommends creating an operating system user to perform all tasks related to installation of Oracle products. Refer to Section 4.8, "Operating System User".

5.8 Installing Additional Languages

By default, the installer installs Oracle Application Server with text in English and in the operating system language. If you need additional languages, click the **Product Languages** button in the "Select a Product to Install" screen.

When you select additional languages to install, the installer installs text in the selected languages. It also installs fonts required to display the languages.

For some components, languages are installed only if you select them during installation. In this case, if you access the application in a language that is not available, it will fall back on the server locale language.

For other components, available languages are installed regardless of what you select during installation. In this case, however, fonts are installed only for the languages that are explicitly selected. When you access the application, it uses text in your language because the language was installed. However, if you do not have the appropriate fonts to render the text, the text appears as square boxes. This usually applies to the Chinese, Japanese, and Korean languages.

You can install fonts after installation. Refer to Section G.2.7, "User Interface Does Not Display in the Desired Language, or Does Not Display Properly".

Note: OracleAS Portal is not supported on the `ZHT32EUC` database character set used for Traditional Chinese. If your environment supports Traditional Chinese, then the `ZHT16MSWIN950`, `AL32UTF8`, or `ZHT16BIG5` character set must be used. For details about selecting the character set in the Oracle Universal Installer (OUI), refer to *Oracle Application Server Globalization Guide*.

Note that you cannot install additional languages after installation. You must install all languages that you need during installation. If you run Oracle Application Server in an environment that uses a language that you did not install, the user interface can display text in that language and/or in English, or it can display square boxes (caused by missing fonts) instead of text.

5.9 Oracle Application Server Instances and Instance Names

When you install the infrastructure or middle tier, what you get is an Oracle Application Server instance. The installer prompts you to provide a name for the Oracle Application Server instance you are installing. For example, you can name an instance "infra" or "J2EE". This name can be different from the Oracle home name.

You cannot change this name after installation.

Oracle Application Server appends the hostname and domain name to the given instance name to form a complete instance name. For example, if you are installing an instance on a computer named `c1`, and you name the instance `infra1`, then the full name of the instance is `infra1.c1.mydomain.com`, assuming the domain name is `mydomain.com`.

Valid Characters in Instance Names

Instance names can consist only of the alphanumeric characters (`A-Z`, `a-z`, `0-9`) and the _ (underscore) character.

The maximum length for an instance name is 64 characters.

Restrictions on Oracle Application Server Instance Names

Do not use the hostname of the computer when naming Oracle Application Server instances.

If you are planning to place the Oracle Application Server instance in an OracleAS Cluster, the instance name must not contain the following:

- hostname or IP address of any computer in the OracleAS Cluster
- Oracle home of any Oracle Application Server installation in the OracleAS Cluster

How Oracle Application Server Uses Instance Names

Instance names are important because Oracle Application Server uses them to uniquely identify instances. This means that if you install multiple Oracle Application Server instances on the same computer (for example, an OracleAS Infrastructure and a J2EE and Web Cache instance), you must give them different names.

When you administer Oracle Application Server using Oracle Enterprise Manager 10*g* Application Server Control (or Application Server Control for short), the instance name appears on the screens. You can click the instance name to see details about the instance, such as the components that are installed in that instance, if the components are running or stopped, and the log files for the components. The Application Server

Control is a browser-based administration tool for Oracle Application Server. Refer to *Oracle Application Server Administrator's Guide* for details about this administration tool.

In addition, some `dcmctl` commands require an instance name as a parameter. `dcmctl` is a command-line tool for administering Oracle Application Server instances. Refer to *Distributed Configuration Management Administrator's Guide* for details about `dcmctl`.

5.10 The ias_admin User and Restrictions on its Password

The installer prompts you to specify the password for the `ias_admin` user. The `ias_admin` user is the administrative user for Oracle Application Server instances. To manage Oracle Application Server instances using Application Server Control, you log in as `ias_admin`.

On a computer, you can install multiple Oracle Application Server instances, each with its own unique instance name, but the name of the administrative user is `ias_admin` for all instances. The password for the `ias_admin` user can be different for each instance.

Password for the ias_admin User

The password for the `ias_admin` user must conform to Oracle Internet Directory's password policy:

- If you are using the Oracle Internet Directory that is shipped with this release of Oracle Application Server and you did not change the default password policy, passwords have the following restrictions:
  - The minimum length is five alphanumeric characters.
  - At least one of the characters must be a number.
- If you are using any other version of Oracle Internet Directory (for example, you are using an existing Oracle Internet Directory), your Oracle Internet Directory administrator might have defined a different password policy. The password you enter for the `ias_admin` user must conform to the existing Oracle Internet Directory's password policy.

In addition to the password policy defined in Oracle Internet Directory, the password for the `ias_admin` user has these restrictions:

- Passwords must be shorter than 30 characters.
- Passwords can contain only alphanumeric characters from your database character set, the underscore (_), the dollar sign ($), and the number sign (#).
- Passwords must begin with an alphabetic character. Passwords cannot begin with a number, the underscore (_), the dollar sign ($), or the number sign (#).
- Passwords cannot be Oracle reserved words. The *Oracle Database SQL Reference* lists the reserved words. You can find this guide on Oracle Technology Network

  `http://www.oracle.com/technology/documentation`.

  You can also avoid using words that sound like they might be reserved words.

Note: When entering your password, check that the state of the Caps Lock key is what you want it to be. Passwords are case-sensitive.

You must remember the password because you need to enter it to perform the following tasks:

- When you log on to Application Server Control to manage Oracle Application Server, you log on as the `ias_admin` user.
- For middle-tier installations: if you want to install a larger middle tier in an `ORACLE_HOME` that already contains a middle tier (for example, you want to install the Portal and Wireless type over an existing J2EE and Web Cache type), you must enter the existing password during the installation.

If you forget the password, you can reset it. Refer to *Oracle Application Server Administrator's Guide* for details.

5.11 Comparing Installing Components against Configuring Components

When you select components on the Select Configuration Options screen, the installer installs and configures the selected components. For the unselected components, the installer still installs them, but does not configure them.

In most cases, you can configure components that you did not select on the Select Configuration Options screen after installation using the Application Server Control. Refer to *Oracle Application Server Administrator's Guide* for details.

5.12 Installing Oracle9*i* Application Server Release 2 (9.0.2) on the Same Computer

If you want to install the current release of Oracle Application Server and Oracle9*i* Application Server Release 2 (9.0.2) on the same computer, make sure you install Release 2 (9.0.2) first.

If you install Oracle9*i* Application Server Release 2 (9.0.2) Infrastructure after installing the current release of Oracle Application Server Infrastructure, you must disable the Net Listener installed by the 9.0.2 infrastructure. The current version of Net Listener is capable of listening for both the current and previous releases of the database. For information on starting and stopping Net Listener, refer to *Oracle Application Server Administrator's Guide*.

For more information on compatibility with earlier releases, refer to *Oracle Application Server Upgrade and Compatibility Guide*.

Note: Oracle9*i* Application Server Release 2 (9.0.2) is no longer supported. Oracle recommends that you upgrade to the latest release of Oracle Application Server.

5.13 Where Does the Installer Write Files?

The installer writes files to the following directories:

Table 5–1 Directories Where the Installer Writes Files

Directory	Description
Oracle home directory	This directory contains Oracle Application Server files. You specify this directory when you install Oracle Application Server.

Table 5–1 (Cont.) Directories Where the Installer Writes Files

Directory	Description
Inventory directory	When you install the first Oracle product on a computer, you specify this directory, which the installer uses to keep track of which Oracle products are installed on the computer. In subsequent installations, the installer uses the same inventory directory.
`/etc` directory	This directory contains information on locations of Oracle homes on the computer. If you installed Oracle9*i*AS Release 2 (9.0.2) on your computer, this directory also contains files that provide information for Oracle Enterprise Manager 10*g*.
`/tmp` directory	The installer writes files needed only during installation to a "temporary" directory. By default, the "temporary" directory is `/tmp`. To specify a different directory, set the TMP environment variable. Refer to Section 4.9.5, "TMP and TMPDIR" for details.

5.14 Why Do I Need to be Able to Log In as Root At Certain Times During Installation?

At least once during installation, the installer prompts you to log in as the root user and run a script. You need to be root because the script edits files in the `/etc` directory.

5.15 Running root.sh During Installation

The installer prompts you to run the `root.sh` script in a separate window. This script creates files in the local bin directory (`/usr/local/bin`, by default).

If the script finds files of the same name, it prompts you if you want to override the existing files. You should back up these files (you can do this from another window), then overwrite them.

The following lines show the prompts from the `root.sh` script. The default values are enclosed in square brackets.

```
Enter the full pathname of the local bin directory: [/usr/local/bin]:
The file "dbhome" already exists in /usr/local/bin.  Overwrite it? (y/n)[n]:  y
 Copying dbhome to /usr/local/bin ...
The file "oraenv" already exists in /usr/local/bin.  Overwrite it? (y/n)[n]:  y
 Copying oraenv to /usr/local/bin ...
The file "coraenv" already exists in /usr/local/bin.  Overwrite it? (y/n)[n]: y
 Copying coraenv to /usr/local/bin ...
```

After you run `root.sh`, you may see warnings that begin with "chmod: WARNING: Corresponding set-ID also disabled..." You may ignore these warnings.

5.16 Can I Modify Other Oracle Application Server Instances During Installation?

During the installation of an Oracle Application Server instance, you should not change the configuration or passwords of other installations in your environment. For example, if there is an OracleAS Infrastructure installation in your environment, you should not modify it during the installation of a middle tier.

5.17 Connecting to Oracle Internet Directory Through SSL Connections

When you install OracleAS Infrastructure or middle tiers, you can specify that Oracle Application Server components connect to Oracle Internet Directory only through SSL connections. On screens where you specify the hostname and port for Oracle Internet Directory, you can select the **Use Only SSL Connections With This Oracle Internet Directory** option.

Note that Oracle HTTP Server is not set up for SSL connections during installation. If you need Oracle HTTP Server to use SSL, you can set it up after installation. Refer to *Oracle HTTP Server Administrator's Guide* for details.

5.18 Setting the Mount Point for the CD-ROM or DVD

The Oracle Application Server CD-ROMs are in RockRidge format. The DVD is in DVD format.

On most Linux systems, the disk mounts automatically when you insert it into the disk drive. To mount the first disk, follow these steps:

1. Insert Oracle Application Server disk 1 into the disk drive.
2. To verify that the disk mounted automatically, run the following command:
   - Red Hat:

     ```
     # ls /mnt/cdrom
     ```

   - SUSE Linux Enterprise Server:

     ```
     # ls /media/cdrom
     ```

3. If the command in step 2 fails to display the contents of the disk, run the following command:
   - Red Hat:

     ```
     # mount -t iso9660 /dev/cdrom /mnt/cdrom
     ```

   - SUSE Linux Enterprise Server:

     ```
     # mount -t iso9660 /dev/cdrom /media/cdrom
     ```

5.19 Starting Oracle Universal Installer

1. If your computer does not mount CD-ROMs or DVDs automatically, you need to set the mount point manually. Refer to Section 5.18, "Setting the Mount Point for the CD-ROM or DVD" for details.
2. Log in as the `oracle` user.
3. If you are installing Oracle Application Server on a multihomed computer, create the `ORACLE_HOSTNAME` environment variable. Set this variable to point to the hostname of the computer on which you are installing Oracle Application Server.

   See Also:

   - Section 4.11.2, "Installing on Multihomed (Multi-IP) Computers"

4. CD-ROM users: Insert Oracle Application Server Disk 1 into the CD-ROM drive.

   DVD users: Insert the Oracle Application Server DVD into the DVD drive.

5. Run the Oracle Universal Installer using the command shown after the notes:

Note:

- Be sure you are not logged in as the `root` user when you start the Oracle Universal Installer. The installer gives an error message if you try to run it as the root user.
- Do not start the installation inside the `mount_point` directory. If you do, then you may not be able to eject the installation disk. The following `cd` command changes your current directory to your home directory.

CD-ROM:

```
prompt> cd
prompt> mount_point/10.1.2disk1/runInstaller
```

DVD:

```
prompt> cd
prompt> mount_point/application_server/runInstaller
```

This launches Oracle Universal Installer through which you install Oracle Application Server.

6

Installing OracleAS Infrastructure

Table 6–1 Contents of This Chapter

Topics	Procedures
■ Section 6.1, "Infrastructure Installation Types" ■ Section 6.2, "Why Would I Select the Different Infrastructure Installation Types?" ■ Section 6.3, "Order of Installation for the Infrastructure" ■ Section 6.4, "Can I Install Components on Separate Computers?" ■ Section 6.5, "Tips for Installing Oracle Identity Management Components Separately" ■ Section 6.6, "Do I Need the Oracle Delegated Administration Services or the Oracle Directory Integration and Provisioning Components?" ■ Section 6.7, "Can I Configure Components After Installation?" ■ Section 6.8, "Can I Use an Existing Database for the OracleAS Metadata Repository?" ■ Section 6.9, "Can I Use an Existing Oracle Internet Directory?" ■ Section 6.10, "Registration of OracleAS Metadata Repository in Oracle Internet Directory and Password Randomization" ■ Section 6.11, "Contents of the OracleAS Metadata Repository" ■ Section 6.12, "Can I Use Multiple Metadata Repositories?" ■ Section 6.13, "What High Availability Options Does Oracle Application Server Support?" ■ Section 6.14, "Restrictions on the Passwords for the SYS, SYSTEM, SYSMAN, and DBSNMP Users" ■ Section 6.15, "Support for NE8ISO8859P10 and CEL8ISO8859P14 Characters Sets" ■ Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?" ■ Section 6.17, "How to Determine Port Numbers Used by Components" ■ Section 6.18, "Can I Add OCA After Installation?" ■ Section 6.19, "How to Deploy Oracle Delegated Administration Services on a Separate Host"	■ Section 6.20, "Installing OracleAS Infrastructure" ■ Section 6.21, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory" ■ Section 6.22, "Installing OracleAS Metadata Repository in a New Database" ■ Section 6.23, "Installing Oracle Identity Management Components Only (Including Oracle Internet Directory)" ■ Section 6.24, "Installing Oracle Identity Management Components Only (Excluding Oracle Internet Directory)" ■ Section 6.25, "Installing Oracle Internet Directory Only" ■ Section 6.26, "Installing OCA and OracleAS Metadata Repository Only" ■ Section 6.27, "Install Fragment: The First Few Screens of the Installation" ■ Section 6.28, "Install Fragment: The Last Few Screens of the Installation" ■ Section 6.29, "Install Fragment: Database Screens" ■ Section 6.30, "Install Fragment: OCA Screens"

6.1 Infrastructure Installation Types

Infrastructure components can be grouped into Oracle Identity Management components and the OracleAS Metadata Repository component. Table 6–2 describes these components:

Table 6–2 OracleAS Infrastructure Components

Infrastructure Components	Description
Oracle Identity Management components	These components provide directory, security, and user management functionality. Some of these components have schemas in the OracleAS Metadata Repository. ■ Oracle Internet Directory ■ OracleAS Single Sign-On ■ Oracle Delegated Administration Services ■ Oracle Directory Integration and Provisioning ■ OracleAS Certificate Authority
OracleAS Metadata Repository	OracleAS Metadata Repository is a collection of schemas used by other Oracle Application Server components. The schemas can be grouped into these categories: ■ Product metadata ■ Oracle Identity Management metadata ■ Management metadata Refer to Section 6.11, "Contents of the OracleAS Metadata Repository" for details.

When you install the infrastructure, the installer asks if you want to install the Oracle Identity Management components, OracleAS Metadata Repository, or both. These are the installation types for the OracleAS Infrastructure:

- Oracle Identity Management and OracleAS Metadata Repository
- Oracle Identity Management
- OracleAS Metadata Repository

In addition to the components listed in Table 6–2, when you install the OracleAS Infrastructure, you also get the Oracle HTTP Server, Oracle Application Server Containers for J2EE, and Oracle Enterprise Manager 10*g* components. These components are always installed and configured, regardless of which installation type you selected.

Refer to the next section, Section 6.2, "Why Would I Select the Different Infrastructure Installation Types?"

6.2 Why Would I Select the Different Infrastructure Installation Types?

By separating the infrastructure into Oracle Identity Management components and OracleAS Metadata Repository, the installer enables you to install the OracleAS Infrastructure components over multiple computers. For example, you can install the OracleAS Metadata Repository on one computer, and the Oracle Identity Management components on another computer. Within the Oracle Identity Management option, you can install Oracle Identity Management components over multiple computers as well.

These options also enable you to create a new database or use an existing database for the OracleAS Metadata Repository. Selecting either the "OracleAS Metadata Repository" or the "OracleAS Metadata Repository and Oracle Identity Management" option causes the installer to create a new database and populate it with the OracleAS Metadata Repository.

To use an existing database, refer to Section 6.8, "Can I Use an Existing Database for the OracleAS Metadata Repository?"

6.3 Order of Installation for the Infrastructure

If you plan to install both OracleAS Metadata Repository and Oracle Identity Management components on the same computer, select the "Oracle Identity Management and OracleAS Metadata Repository" option. The installer installs the components in the proper order. Refer to Section 6.20, "Installing OracleAS Infrastructure" for the step-by-step procedure.

If you plan to install the infrastructure components on separate computers, install them in this order:

1. Install the OracleAS Metadata Repository.

   You can have the installer create a new database and populate it with the OracleAS Metadata Repository, or you can run the Oracle Application Server Metadata Repository Creation Assistant to install the OracleAS Metadata Repository in an existing database.

   Note that you cannot register the OracleAS Metadata Repository with Oracle Internet Directory at this point, because you do not have an Oracle Internet Directory yet. The registration is done in the next step.

   See Also:

   - Section 6.22, "Installing OracleAS Metadata Repository in a New Database"
   - For information on how to install the OracleAS Metadata Repository in an existing database, refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide*.

2. Install the Oracle Identity Management components.

   The installer prompts you to enter the connection information for the OracleAS Metadata Repository database.

   Refer to Section 6.23, "Installing Oracle Identity Management Components Only (Including Oracle Internet Directory)" for the step-by-step procedure.

   The installer registers the OracleAS Metadata Repository with the newly created Oracle Internet Directory. Refer to Section 6.10, "Registration of OracleAS Metadata Repository in Oracle Internet Directory and Password Randomization" for details about registration.

Installing Only the OracleAS Metadata Repository Does Not Give You an Oracle Application Server Instance

If you install only the OracleAS Metadata Repository when installing the infrastructure, the installer creates a new database and populates it with the OracleAS Metadata Repository schemas. This instance is different from other Oracle Application Server instances in the following ways:

- The installer does not prompt you to name this Oracle Application Server instance.
- At the end of installation, Oracle Enterprise Manager 10*g* Application Server Control is not started up, because it is not configured for this instance. You do not need it to manage this instance, which consists of only the metadata repository database.

To manage this instance, you use database management tools. For more information, refer to the chapter "Introduction to Administration Tools" in the *Oracle Application Server Administrator's Guide*.

- At the end of installation, Oracle HTTP Server is also not started up, because you do not need it to manage this instance.

6.4 Can I Install Components on Separate Computers?

You already know that you can install Oracle Application Server instances on separate computers. In addition, you can also distribute components over multiple computers. This is especially useful for infrastructure components. You might want to do this to improve performance, security, scalability, and availability of infrastructure services.

Examples:

- The OracleAS Infrastructure uses an Oracle database to contain the OracleAS Metadata Repository. You can install this database on its own computer.
- You can install the Oracle Identity Management components in the infrastructure on one or more computers.

Table 6–3 shows some possible OracleAS Infrastructure configurations:

Table 6–3 OracleAS Infrastructure Configurations

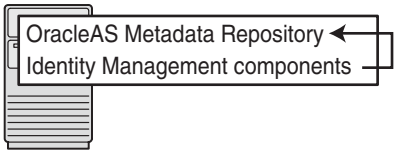
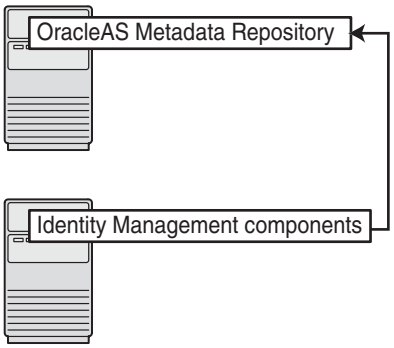
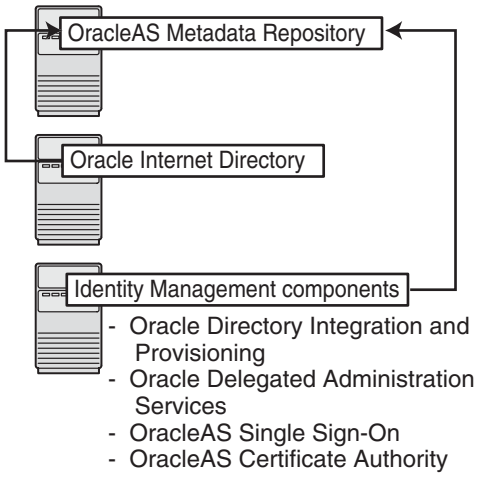
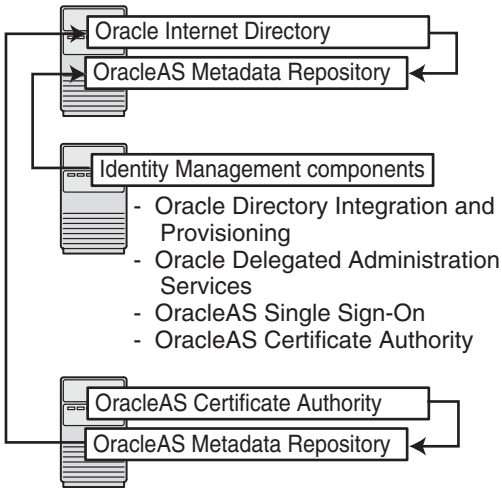
Configuration	Description / How to Install
	In this configuration, the OracleAS Metadata Repository and the Oracle Identity Management components run from the same Oracle home. To install this configuration, install the OracleAS Metadata Repository and the Oracle Identity Management components at the same time. For installation steps, refer to Section 6.20, "Installing OracleAS Infrastructure".
	In this configuration, the OracleAS Metadata Repository and the Oracle Identity Management components run on separate computers. To install this configuration: 1. Install the OracleAS Metadata Repository first. Refer to Section 6.22, "Installing OracleAS Metadata Repository in a New Database". Alternatively, you can install the OracleAS Metadata Repository in an existing database. Refer to Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database". 2. Then install the Oracle Identity Management components. Refer to Section 6.23, "Installing Oracle Identity Management Components Only (Including Oracle Internet Directory)".

Table 6–3 (Cont.) OracleAS Infrastructure Configurations

Configuration	Description / How to Install
	In this configuration, the OracleAS Metadata Repository runs on one computer, Oracle Internet Directory runs on a second computer, and the remaining Oracle Identity Management components run on a third computer. To install this configuration: 1. Install the OracleAS Metadata Repository first. Refer to Section 6.22, "Installing OracleAS Metadata Repository in a New Database". Alternatively, you can install the OracleAS Metadata Repository in an existing database. Refer to Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database". 2. Install Oracle Internet Directory. Refer to Section 6.25, "Installing Oracle Internet Directory Only". 3. Install the remaining Oracle Identity Management components. Refer to Section 6.24, "Installing Oracle Identity Management Components Only (Excluding Oracle Internet Directory)".
	In this configuration, you want OCA to use its own OracleAS Metadata Repository (for security reasons). Other Oracle Identity Management components use another OracleAS Metadata Repository. To install this configuration: 1. Install OracleAS Metadata Repository and Oracle Identity Management components, but not OCA. You can install all these items in the same Oracle home (refer to the first configuration), or you can distribute them. The figure shows a distributed configuration. 2. Install OCA with its own OracleAS Metadata Repository. Refer to Section 6.21, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory".

Note that if you install Oracle Identity Management components on a separate computer from OracleAS Metadata Repository, then the OracleAS Metadata Repository will need network access to the Oracle Identity Management components.

Refer to Chapter 15, "Recommended Topologies", which describes configurations involving multiple computers and distributed components.

6.5 Tips for Installing Oracle Identity Management Components Separately

If you are installing Oracle Identity Management components separately, keep the following guidelines in mind when choosing which components to configure in the Select Configuration Options screen:

- You *cannot* install and configure more than one OCA against the same OracleAS Metadata Repository. You *can* install and configure more than one OracleAS Single Sign-On, Oracle Delegated Administration Services, or Oracle Directory Integration and Provisioning against the same OracleAS Metadata Repository. If

you want to configure more than one Oracle Internet Directory against the same OracleAS Metadata Repository, refer to *Oracle Internet Directory Administrator's Guide*.

- You must select at least one component to configure. Otherwise the installation will not succeed.
- If you configure OracleAS Single Sign-On and Oracle Delegated Administration Services in separate installations against the same Oracle Internet Directory, make sure you configure OracleAS Single Sign-On before Oracle Delegated Administration Services. This is because Oracle Delegated Administration Services depends on mod_osso, which will not be set up during installation unless the Oracle Internet Directory it points to already has OracleAS Single Sign-On configured.
- If you have an Oracle Identity Management installation that includes Oracle Directory Integration and Provisioning but does not include Oracle Internet Directory, you will still see an Oracle Internet Directory process in the `opmnctl status` output. This is because oidmon must be installed and started in order to start the Oracle Directory Integration and Provisioning process.

6.6 Do I Need the Oracle Delegated Administration Services or the Oracle Directory Integration and Provisioning Components?

These components are optional, but you might want to install them because they provide the following services:

- Oracle Delegated Administration Services provide a browser-based interface to Oracle Internet Directory. Users can use the interface to perform tasks such as changing their passwords, searching for other users in the directory, and creating groups. Users can even create additional users (if they have the proper privilege).
- Oracle Directory Integration and Provisioning enables you to integrate applications and third-party LDAP directories with Oracle Internet Directory. You can use Oracle Directory Integration and Provisioning to synchronize data in all directories, and to send notifications to applications when data in Oracle Internet Directory changes (for example, when you add users or groups to Oracle Internet Directory).

6.7 Can I Configure Components After Installation?

If you did not configure a component during installation (that is, you did not select the component in the Select Configuration Options screen), you can configure some components after installation.

You cannot configure Oracle Internet Directory after installation. You need to install and configure Oracle Internet Directory through the installer.

Refer to Section 16.8, "Component Configuration After Installation" for details.

6.8 Can I Use an Existing Database for the OracleAS Metadata Repository?

You can install the OracleAS Metadata Repository in a new database, or in an existing database.

If you want to install the OracleAS Metadata Repository in an existing database, refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

6.9 Can I Use an Existing Oracle Internet Directory?

You can use an existing Oracle Internet Directory instead of having the installer create a new one. You might want to do this if your applications need to authenticate users that are already stored in your Oracle Internet Directory. During the infrastructure installation, do not select "Oracle Internet Directory" in the Select Configuration Options screen.

You need to provide the connect information (hostname, port, username, password) for the existing Oracle Internet Directory.

The Oracle Internet Directory must be version 9.0.4 or later. Note that Oracle Internet Directory version 9.2.x is not supported.

To determine the Oracle Internet Directory version, make sure that Oracle Internet Directory is up and running. Then run the following command:

```
prompt> oidldapd -version
```

The `oidldapd` command can be found in the `ORACLE_HOME/bin` directory, where `ORACLE_HOME` is the root directory where you installed Oracle Internet Directory.

6.10 Registration of OracleAS Metadata Repository in Oracle Internet Directory and Password Randomization

The OracleAS Metadata Repository and the Oracle Internet Directory work closely together. Before you can use an OracleAS Metadata Repository (in most cases), ensure that it is registered with an Oracle Internet Directory.

An exception to this rule is when you want to use a J2EE and Web Cache middle tier with the Database-Based Farm feature but without the Oracle Identity Management Access feature. In this case, you need an OracleAS Metadata Repository, but it need not be registered with an Oracle Internet Directory.

Table 6–4 shows the scenarios where the installer automatically registers the OracleAS Metadata Repository with an Oracle Internet Directory, and the scenarios where you decide whether to register or not.

Table 6–4 Database Registration Scenarios

Scenario	Registration	Schema Passwords
Install and configure the OracleAS Metadata Repository and Oracle Internet Directory in the same installation session For steps, refer to Section 6.20, "Installing OracleAS Infrastructure".	Automatic	Randomized
Install the OracleAS Metadata Repository against an existing Oracle Internet Directory Refer to Section 6.21, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory".	Automatic	Randomized
Install an Oracle Internet Directory against an existing OracleAS Metadata Repository Refer to Section 6.25, "Installing Oracle Internet Directory Only".	Automatic	Randomized (the metadata repository schemas are given new randomized passwords)
Install the OracleAS Metadata Repository only (without installing Oracle Identity Management components) and you choose to register it with Oracle Internet Directory This scenario applies to installing it in a new database or in an existing database. Section 6.22, "Installing OracleAS Metadata Repository in a New Database" Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database"	Yes	Randomized
Install the OracleAS Metadata Repository only (without installing Oracle Identity Management components) and you choose **not** to register it with Oracle Internet Directory This scenario applies to installing it in a new database or in an existing database.	No	The schemas are locked, and the passwords are expired.

In the last two scenarios, the installer asks you if you want to register the OracleAS Metadata Repository with an Oracle Internet Directory. If you answer yes, you provide connect information for the Oracle Internet Directory. If you answer no, the installer does not register the OracleAS Metadata Repository with an Oracle Internet Directory.

Note: If you did not register the OracleAS Metadata Repository with an Oracle Internet Directory during installation, you can register it later using the Oracle Application Server Metadata Repository Creation Assistant. Refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

6.11 Contents of the OracleAS Metadata Repository

The OracleAS Metadata Repository contains schemas that can be grouped into these categories:

- Product Metadata schemas

  These schemas are used by middle-tier components, such as OracleAS Portal and OracleAS Wireless.

- Oracle Identity Management schemas

  These schemas are used by Oracle Identity Management components, such as Oracle Internet Directory, OracleAS Single Sign-On, and OCA.

- Management schemas

  These schemas are used by components such as DCM.

If you are interested in seeing the names of all the schemas, refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide*.

6.12 Can I Use Multiple Metadata Repositories?

You can install multiple metadata repositories to increase performance. This enables different components in your topology to use different metadata repositories. To use multiple metadata repositories, follow these guidelines:

- To enable a Portal and Wireless or a Business Intelligence and Forms middle tier to use a second metadata repository for product metadata:

  a. Install the second metadata repository and register it with the Oracle Internet Directory.

  You can do this using the installer or the OracleAS Metadata Repository Creation Assistant. Use the installer to create a new database containing the OracleAS Metadata Repository, or use the OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository in an existing database. Refer to Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database" for details.

  b. When you install the Portal and Wireless or the Business Intelligence and Forms middle tier, select the second metadata repository from the list of registered repositories. This is the metadata repository that the middle tier will use for its product metadata.

- To use a second metadata repository for a J2EE and Web Cache middle tier, you have different options, depending on which J2EE and Web Cache features you need:

  - If you need both the Oracle Identity Management Access feature and the Database-Based Farm feature, you need to register the second metadata repository with the Oracle Internet Directory.

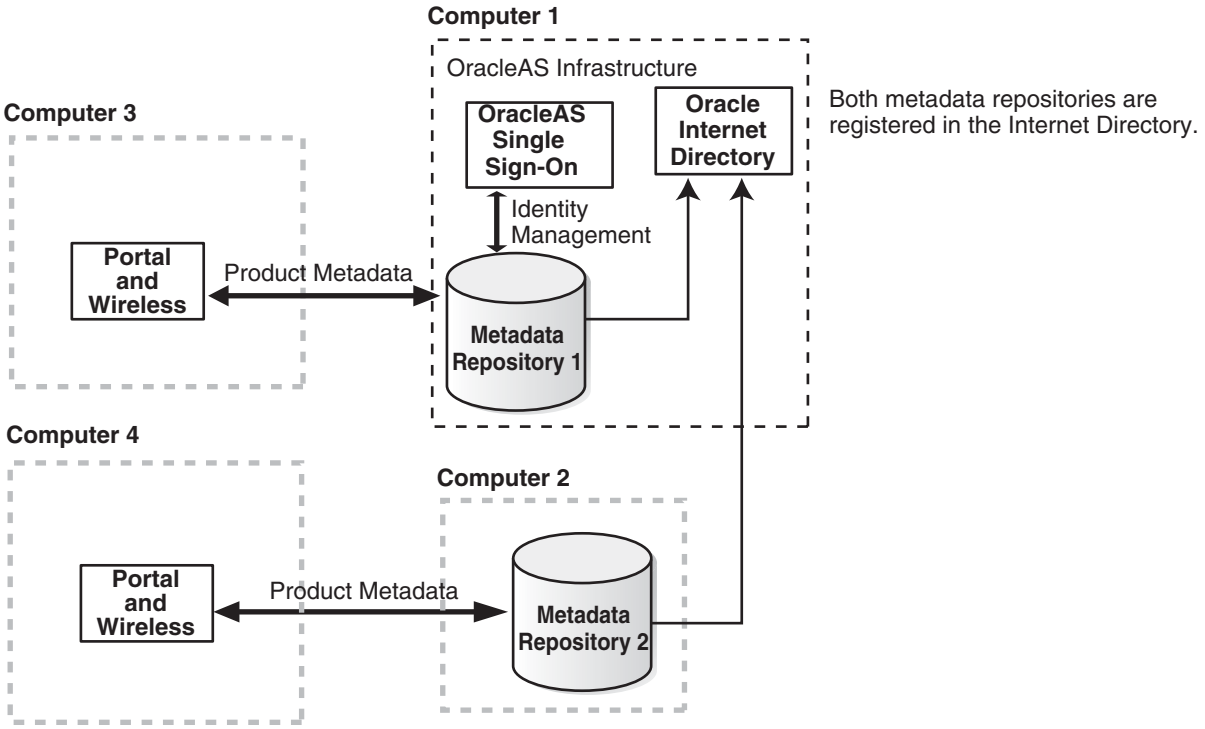
  - If you need only the Database-Based Farm feature, you do not need to register the second metadata repository. The reason for this is that you might not have an Oracle Internet Directory.

Figure 6–1 shows a topology that involves two metadata repositories. It uses four computers:

- Computer 1 runs a metadata repository and Oracle Identity Management components. The Oracle Identity Management components use this metadata repository.
- Computer 2 has a metadata repository that is registered with the Oracle Internet Directory running on Computer 1.
- Computer 3 has a Portal and Wireless middle tier. This middle tier knows to use the metadata repository on Computer 1 for its product metadata because it was registered with that metadata repository during installation.

- Computer 4 also has a Portal and Wireless middle tier. This middle tier knows to use the metadata repository on Computer 2 for its product metadata because it was registered with that metadata repository during installation.

Figure 6–1 Multiple Metadata Repositories in Use



Notes:

- If you are installing multiple metadata repositories on the same computer, each metadata repository must have a unique global database name and system identifier (SID).
- If you are registering multiple metadata repositories with the same Oracle Internet Directory, each metadata repository must have a unique global database name and SID. If not, the Oracle Internet Directory Configuration Assistant will fail when you install the second metadata repository with the same name.

6.13 What High Availability Options Does Oracle Application Server Support?

Oracle Application Server can run in the following high availability environments:

- OracleAS Cold Failover Cluster
- OracleAS Cluster (Identity Management)
- OracleAS Disaster Recovery

Refer to Chapter 10, "Installing in High Availability Environments: Overview" for details.

6.14 Restrictions on the Passwords for the SYS, SYSTEM, SYSMAN, and DBSNMP Users

When you install the OracleAS Metadata Repository in a new database, the installer prompts you to set the passwords for the SYS, SYSTEM, SYSMAN, and DBSNMP users, which are privileged users for the database. The passwords for these users have the following restrictions:

- Passwords must be shorter than 30 characters.
- Passwords can contain only alphanumeric characters from your database character set, the underscore (_), the dollar sign ($), and the number sign (#).
- Passwords must begin with an alphabetic character. Passwords cannot begin with a number, the underscore (_), the dollar sign ($), or the number sign (#).
- Passwords cannot be Oracle reserved words. The *Oracle SQL Reference* lists the reserved words. You can find this guide on Oracle Technology Network: `http://www.oracle.com/technology/documentation`

  You can also avoid using words that sound like they might be reserved words.
- Passwords cannot be the default passwords, which are `change_on_install` and `manager`.

6.15 Support for NE8ISO8859P10 and CEL8ISO8859P14 Characters Sets

If you use characters in the NE8ISO8859P10 or CEL8ISO8859P14 character sets, make sure that your database uses the Unicode character set AL32UTF8. If you are installing a new database, select "AL32UTF8" in the Specify Database Configuration Options screen.

The reason for this is that Java does not support the NE8ISO8859P10 or CEL8ISO8859P14 character sets. If you configure the database to use a character set not supported by Java, you will get an "Unsupported IANA character encoding" error in OracleAS Portal.

6.16 What Do I Enter in the "Specify Namespace in Internet Directory" Screen?

The distinguished name (DN) that you specify on this screen will be designated as the namespace in Oracle Internet Directory where users and groups are administered.

Select the suggested namespace if it meets your deployment requirements. If not, enter a DN that you want in the custom namespace field. The installer determines the suggested namespace from the `/etc/hosts` file. Refer to Section 4.10, "The /etc/hosts File".

If you plan to integrate your Oracle Identity Management components with a third-party directory, you should specify the DN of a namespace that matches the DN of the default namespace in the third-party directory. Refer to *Oracle Internet Directory Administrator's Guide* for details on integration with third-party directories.

6.17 How to Determine Port Numbers Used by Components

During installation, you might need to know port numbers used by certain Oracle Application Server components. For example, if you install OracleAS Infrastructure

against an existing Oracle Internet Directory, the installer prompts for the Oracle Internet Directory hostname and port number.

You can get a list of port numbers in the following ways:

- Use Oracle Enterprise Manager 10*g* Application Server Control.

  Click the Ports link on the Enterprise Manager home page. This takes you to a page that lists all ports in use and the suggested port ranges for different components.

- Look in the `ORACLE_HOME/install/portlist.ini` file. `ORACLE_HOME` refers to the directory containing the Oracle Application Server installation.

  Note that if you change a component's port number after installation, the `portlist.ini` file is *not* updated. The `portlist.ini` file is not updated after installation.

6.18 Can I Add OCA After Installation?

If you installed OracleAS Infrastructure but did not select to configure OCA, and later decide that you want to use OCA, you have to install it in a separate Oracle home. You cannot install it in an existing Oracle home.

When you install OCA in a new Oracle home, you can install it on the same or different computer as the OracleAS Infrastructure. You can also install it with its own OracleAS Metadata Repository or install it against an existing OracleAS Metadata Repository:

- Install OCA only.

  OCA will share the OracleAS Metadata Repository that you installed earlier. If you are installing OCA on the same computer as the OracleAS Infrastructure instance, you might want to consider this option for performance reasons. (The second option requires running two databases on the same computer; this could degrade performance.)

  Refer to Section 6.24, "Installing Oracle Identity Management Components Only (Excluding Oracle Internet Directory)" for details. In the Select Configuration Options screen, select **OracleAS Certificate Authority (OCA)** only.

- Install OCA with its own OracleAS Metadata Repository.

  Refer to Section 15.7, "OCA Topology" for details.

6.19 How to Deploy Oracle Delegated Administration Services on a Separate Host

To configure Oracle Delegated Administration Services in a separate Oracle Home, you perform a standalone installation of it. To do this, select the Identity Management installation type, and, on the Configuration Options screen, select Delegated Administration Services.

6.20 Installing OracleAS Infrastructure

Perform this procedure to install an OracleAS Metadata Repository and Oracle Identity Management components. This procedure provides a complete OracleAS Infrastructure in a single Oracle home.

If you want to use an existing Oracle Internet Directory, refer to Section 6.21, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory".

If you want to use an existing database for the OracleAS Metadata Repository, refer to Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database".

Table 6–5 Steps for Installing OracleAS Infrastructure

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ▪ In the Select Installation Type screen, select **Identity Management and OracleAS Metadata Repository**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Select **OracleAS Certificate Authority (OCA)** if you want to configure your own certificate authority which can issue certificates for users and servers. Do not select **High Availability and Replication**. Click **Next**.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file. Click **Next**.
4.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
5.	OCA screens	If you select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens where you need to enter OCA information. Refer to Section 6.30, "Install Fragment: OCA Screens".
6.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. Refer to Section 6.29, "Install Fragment: Database Screens".
7.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
8.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

6.21 Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory

Perform this procedure to install Oracle Identity Management components (except Oracle Internet Directory) and the OracleAS Metadata Repository.

Prerequisite: Oracle Internet Directory version 9.0.4 or later

You would perform this procedure in cases where you already have an Oracle Internet Directory (and its associated OracleAS Metadata Repository), and you want to:

- Install OCA with its own OracleAS Metadata Repository, or
- Install another OracleAS Metadata Repository for Oracle Internet Directory replication.

It is unlikely that you would use this procedure to install other Oracle Identity Management components (OracleAS Single Sign-On, Oracle Delegated Administration Services, or Oracle Directory Integration and Provisioning), because this procedure installs a new OracleAS Metadata Repository. To install Oracle Identity Management components without OracleAS Metadata Repository, follow the procedure in Section 6.24, "Installing Oracle Identity Management Components Only (Excluding Oracle Internet Directory)".

Table 6–6 Steps for Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **Identity Management and OracleAS Metadata Repository**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory** because you want to use an existing one. Do not select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services** and/or **OracleAS Directory Integration and Provisioning** if you need the services provided by these components. Refer to Section 6.6, "Do I Need the Oracle Delegated Administration Services or the Oracle Directory Integration and Provisioning Components?" Select **OracleAS Certificate Authority (OCA)** if you want to configure your own certificate authority which can issue certificates for users and servers. Do not select **High Availability and Replication**. Click **Next**.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file. Click **Next**.

Table 6–6 (Cont.) Steps for Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory

	Screen	Action
4.	Register with Oracle Internet Directory	**Hostname**: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port at which Oracle Internet Directory is listening. Refer to Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click **Next**.
5.	Specify Login for Oracle Internet Directory	**Username**: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. Refer to Section 8.3, "Groups Required to Configure or Deinstall Components" for details. **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.
6.	OCA screens	If you select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens where you need to enter OCA information. Refer to Section 6.30, "Install Fragment: OCA Screens".
7.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. Refer to Section 6.29, "Install Fragment: Database Screens".
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
9.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

6.22 Installing OracleAS Metadata Repository in a New Database

Perform this procedure to create a new database and populate it with the OracleAS Metadata Repository. This procedure does not install any Oracle Identity Management components.

Table 6–7 Steps for Installing OracleAS Metadata Repository in a New Database

	Screen	Action
1.	--	Start the installer. Refer to Section 5.19, "Starting Oracle Universal Installer" for details.
2.	Welcome	Click **Next**.
3.	Specify Inventory Directory and Credentials	This screen appears only if this is the first installation of any Oracle product on this computer. **Enter the full path of the inventory directory**: Enter a full path to the inventory directory. Enter a directory that is different from the Oracle home directory for the product files. Example: `/opt/oracle/oraInventory` **Specify operating system group name**: Select the operating system group that will have write permission for the inventory directory. Example: `oinstall` Click **Next**.
4.	Run `orainstRoot.sh`	This screen appears only if this is the first installation of any Oracle product on this computer. Run the `orainstRoot.sh` script in a different shell as the root user. The script is located in the `oraInventory` directory. After running the script, click **Continue**.
5.	Specify File Locations	**Name**: Enter a name to identify this Oracle home. The name can consist of alphanumeric and the underscore (_) characters only, and cannot be longer than 128 characters. Example: `OH_MR` **Destination Path**: Enter the full path to the destination directory. This is the Oracle home. If the directory does not exist, the installer creates it. If you want to create the directory beforehand, create it as the `oracle` user; do not create it as the root user. Example: `/opt/oracle/app_server_mr` Click **Next**.
6.	Specify Hardware Cluster Installation Mode	This screen appears only if the computer is part of a hardware cluster. If you are installing an infrastructure, select the computers in the hardware cluster where you want to install the infrastructure. You can select multiple computers, or you can just select the current computer. Click **Next**.
7.	Select a Product to Install	Select **OracleAS Infrastructure**. If you need to install additional languages, click **Product Languages**. Refer to Section 5.8, "Installing Additional Languages" for details. Click **Next**.
8.	Select Installation Type	Select **OracleAS Metadata Repository**. Click **Next**. If you get an error message saying that the TMP environment variable is not set, it means that the default temp directory does not have enough space. You can either set the TMP environment variable to point to a different directory or free up enough space in the default temp directory. For details on the TMP environment variable, refer to Section 4.9.5, "TMP and TMPDIR".
9.	Confirm Pre-Installation Requirements	Verify that your computer meets all the requirements. Click **Next**.

Table 6–7 (Cont.) Steps for Installing OracleAS Metadata Repository in a New Database

	Screen	Action
10.	Select Configuration Options	For installing the OracleAS Metadata Repository in a new database, there are no configuration options. Click **Next**.
11.	Register OracleAS Metadata Repository	If you already have an Oracle Internet Directory and know its connect information, select **Yes** and enter the name of the computer where Oracle Internet Directory is running and the port number. Refer to Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. If you do not have an Oracle Internet Directory, or do not know its connect information, select **No**. Click **Next**.
12.	Specify Login for Oracle Internet Directory	This screen appears only if you selected **Yes** in the previous screen. **Username**: Enter the username for logging into Oracle Internet Directory. The user must belong to the iAS Admins group in Oracle Internet Directory. **Password**: Enter the password. **Realm**: This field appears only if your Oracle Internet Directory contains multiple realms. Enter the name of the realm against which to authenticate the user. Click **Next**.
13.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. Refer to Section 6.29, "Install Fragment: Database Screens".
14.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

15.	--	Unlock the `dcm` schema, and set its password. This step is required only if you want to use the metadata repository for database clustering of middle-tier instances.
		1. Set the `ORACLE_HOME` environment variable to point to the full path of the directory where you installed the OracleAS Metadata Repository.
		2. Set the `ORACLE_SID` environment variable to the SID of the OracleAS Metadata Repository.
		3. Unlock the `dcm` schema and set its password using SQL*Plus.
		The following `alter user` command sets the password to "welcome1", but you can set it to any value.
		`prompt> $ORACLE_HOME/bin/sqlplus "sys/`*`password`*`as sysdba"`
		`SQL> alter user dcm identified by welcome1 account unlock;`

6.23 Installing Oracle Identity Management Components Only (Including Oracle Internet Directory)

Perform this procedure to install Oracle Identity Management components without installing an OracleAS Metadata Repository.

Follow this procedure to configure Oracle Internet Directory against a remote OracleAS Metadata Repository. You have installed the OracleAS Metadata Repository in an existing database (refer to Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database") or in a new database (Section 6.22, "Installing OracleAS Metadata Repository in a New Database").

Prerequisite: OracleAS Metadata Repository that is not already registered with any Oracle Internet Directory

Table 6–8 Steps for Installing Oracle Identity Management Components Only (Including Oracle Internet Directory)

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Note: ■ In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services** and/or **OracleAS Directory Integration and Provisioning** if you need the services provided by these components. Refer to Section 6.6, "Do I Need the Oracle Delegated Administration Services or the Oracle Directory Integration and Provisioning Components?" Select **OracleAS Certificate Authority (OCA)** if you want to configure your own certificate authority which can issue certificates for users and servers. Do not select **High Availability and Replication**. Click **Next**.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file. Click **Next**.
4.	Specify Repository	**Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.
5.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.

Table 6–8 (Cont.) Steps for Installing Oracle Identity Management Components Only (Including Oracle Internet Directory)

	Screen	Action
6.	Enter information to configure OCA	Provide the information as prompted by the OCA screens. Refer to Section 6.30, "Install Fragment: OCA Screens" for details.
7.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `id_mgmt` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
8.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

6.24 Installing Oracle Identity Management Components Only (Excluding Oracle Internet Directory)

Perform this procedure to install Oracle Identity Management components without installing an OracleAS Metadata Repository or Oracle Internet Directory.

Use this procedure to install additional OracleAS Single Sign-On, Oracle Delegated Administration Services, or Oracle Directory Integration and Provisioning components against an existing Oracle Internet Directory.

Prerequisites: OracleAS Metadata Repository, Oracle Internet Directory version 9.0.4 or later.

Table 6–9 Steps for Installing Oracle Identity Management Components Only (Excluding Oracle Internet Directory)

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services** and/or **OracleAS Directory Integration and Provisioning** if you need the services provided by these components. Refer to Section 6.6, "Do I Need the Oracle Delegated Administration Services or the Oracle Directory Integration and Provisioning Components?" Select **OracleAS Certificate Authority (OCA)** if you want to configure your own certificate authority which can issue certificates for users and servers. Do not select **High Availability and Replication**. Click **Next**.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file. Click **Next**.
4.	Register with Oracle Internet Directory	**Hostname**: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port on which Oracle Internet Directory is listening. Refer to Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click **Next**.
5.	Specify Login for Oracle Internet Directory	**Username**: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. Refer to Section 8.3, "Groups Required to Configure or Deinstall Components" for details. **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.

Table 6–9 (Cont.) Steps for Installing Oracle Identity Management Components Only (Excluding Oracle Internet Directory)

	Screen	Action
6.	Enter information to configure OCA	Provide the information as prompted by the OCA screens. Refer to Section 6.30, "Install Fragment: OCA Screens" for details.
7.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `id_mgmt` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
8.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

6.25 Installing Oracle Internet Directory Only

Perform this procedure to install an Oracle Internet Directory.

Prerequisite: OracleAS Metadata Repository

Table 6–10 Steps for Installing Oracle Internet Directory

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ▪ In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Do not select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Do not select **High Availability and Replication**. Click **Next**.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file. Click **Next**.

Table 6–10 (Cont.) Steps for Installing Oracle Internet Directory

	Screen	Action
4.	Specify Repository	**Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.
5.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
6.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
7.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

6.26 Installing OCA and OracleAS Metadata Repository Only

Perform this procedure to install the OCA and the OracleAS Metadata Repository components only. This scenario is used by the Section 15.7, "OCA Topology".

Prerequisites: Oracle Internet Directory version 9.0.4 or later

Table 6–11 Steps for Installing OCA and OracleAS Metadata Repository

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Note: ▪ In the Select Installation Type screen, select **Identity Management and OracleAS Metadata Repository**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory** because you want to use an existing one. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Do not select **OracleAS Directory Integration and Provisioning**. Select **OracleAS Certificate Authority (OCA)**. Do not select **High Availability and Replication**. Click **Next**.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file. Click **Next**.
4.	Register with Oracle Internet Directory	**Hostname**: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port on which Oracle Internet Directory is listening. Refer to Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click **Next**.
5.	Specify Login for Oracle Internet Directory	**Username**: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the Trusted Application Admins group and to the iAS Admins group in Oracle Internet Directory. **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.
6.	OCA screens	Enter information to configure OCA. Refer to Section 6.30, "Install Fragment: OCA Screens".

Table 6–11 (Cont.) Steps for Installing OCA and OracleAS Metadata Repository

	Screen	Action
7.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. Refer to Section 6.29, "Install Fragment: Database Screens".
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_oca` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
9.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

6.27 Install Fragment: The First Few Screens of the Installation

The first few screens of the installer are described here because they are the same for all installations. Most installation procedures in this chapter refer to this section as their starting point.

Table 6–12 First Few Screens of the Installation

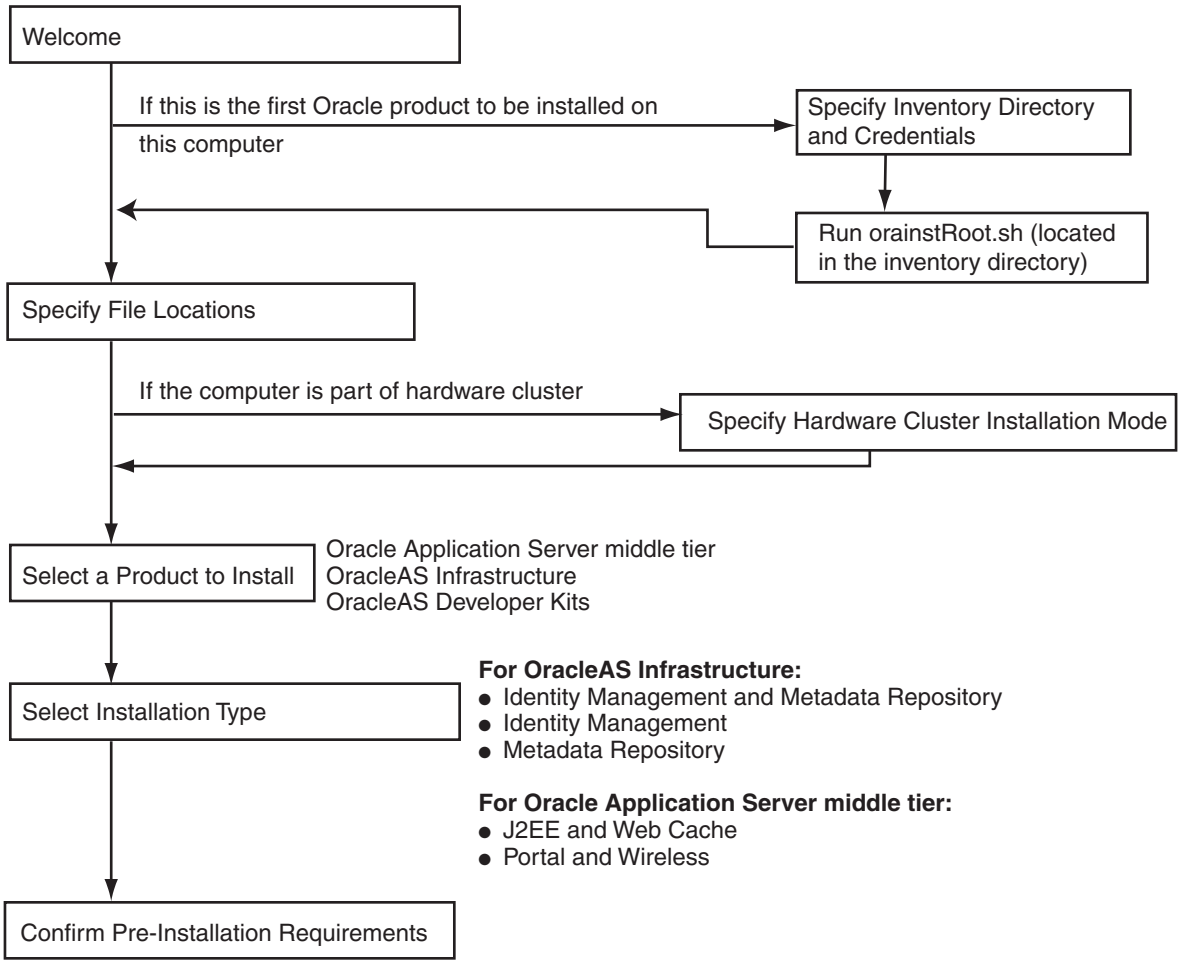
	Screen	Action
1.	--	Start the installer. Refer to Section 5.19, "Starting Oracle Universal Installer" for details.
2.	Welcome	Click **Next**.
3.	Specify Inventory Directory and Credentials	This screen appears only if this is the first installation of any Oracle product on this computer. **Enter the full path of the inventory directory**: Enter a full path to the inventory directory. Enter a directory that is different from the Oracle home directory for the product files. Example: `/opt/oracle/oraInventory` **Specify operating system group name**: Select the operating system group that will have write permission for the inventory directory. Example: `oinstall` Click **Next**.
4.	Run `orainstRoot.sh`	This screen appears only if this is the first installation of any Oracle product on this computer. Run the `orainstRoot.sh` script in a different shell as the root user. The script is located in the `oraInventory` directory. After running the script, click **Continue**.

Table 6–12 (Cont.) First Few Screens of the Installation

	Screen	Action
5.	Specify File Locations	**Name**: Enter a name to identify this Oracle home. The name can consist of alphanumeric and the underscore (_) characters only, and cannot be longer than 128 characters. Example: `OH_INFRA` **Destination Path**: Enter the full path to the destination directory. This is the Oracle home. If the directory does not exist, the installer creates it. If you want to create the directory beforehand, create it as the `oracle` user; do not create it as the root user. Example: `/opt/oracle/infra` Click **Next**.
6.	Specify Hardware Cluster Installation Mode	This screen appears only if the computer is part of a hardware cluster. If you are installing an infrastructure, select the computers in the hardware cluster where you want to install the infrastructure. You can select multiple computers, or you can just select the current computer. Click **Next**.
7.	Select a Product to Install	Select **OracleAS Infrastructure**. If you need to install additional languages, click **Product Languages**. Refer to Section 5.8, "Installing Additional Languages" for details. Click **Next**.
8.	Select Installation Type	The options displayed on this screen depend on what you selected in the Select a Product to Install screen. The installation types for OracleAS Infrastructure are: ▪ **Oracle Identity Management and OracleAS Metadata Repository** ▪ **Oracle Identity Management** ▪ **OracleAS Metadata Repository** Click **Next**. If you get an error message saying that the TMP environment variable is not set, it means that the default temp directory does not have enough space. You can either set the TMP environment variable to point to a different directory or free up enough space in the default temp directory. For details on the TMP environment variable, refer to Section 4.9.5, "TMP and TMPDIR".
9.	Upgrade Existing Oracle9iAS Infrastructure	This screen appears if the installer detects an Infrastructure Release 2 (9.0.2) instance on the computer and you selected to install OracleAS Infrastructure. This screen presents you with the option to upgrade the existing Release 2 (9.0.2) Infrastructure, or install the current version of the OracleAS Infrastructure. If you want to upgrade, refer to *Oracle Application Server Upgrade and Compatibility Guide*.
10.	Confirm Pre-Installation Requirements	Verify that your computer meets all the requirements. Click **Next**.

Figure 6–2 summarizes the screen sequence.

Figure 6–2 Sequence for the First Few Screens in the Installation



6.28 Install Fragment: The Last Few Screens of the Installation

The last few screens of the installer are described in this section because they are the same for all installations. Most installation procedures in this chapter refer to this section as their end point.

Table 6–13 Last Few Screens in the Installation

	Screen	Action
1.	Summary	Verify your selections and click **Install**.
2.	Install Progress	This screen shows the progress of the installation.
3.	Run `root.sh`	**Note:** Do not run the `root.sh` script until this dialog appears. **1.** When you see this dialog, run the `root.sh` script in a different shell as the root user. The script is located in this instance's Oracle home directory. **2.** Click **OK**.
4.	Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
5.	End of Installation	Click **Exit** to quit the installer.

6.29 Install Fragment: Database Screens

If you are installing a new database for the OracleAS Metadata Repository, the installer displays the following screens:

Table 6–14 Database Screens

	Screen	Action
1.	Specify Database Configuration Options	**Global Database Name**: Enter a name for the OracleAS Metadata Repository database. Append a domain name to the database name. This domain name for the global database name can be different from your network domain name. The domain name portion of the global database name has the following naming restrictions: ▪ Can contain only alphanumeric, underscore (_), minus (-), and pound (#) characters ▪ Must not be longer than 128 characters The database name portion of the global database name has the following naming restrictions: ▪ Must contain alphanumeric characters only ▪ Must not be longer than eight characters ▪ Must not contain `PORT` or `HOST` in uppercase characters. If you want the name to contain "host" or "port", use lowercase characters. Example: `orcl.mydomain.com` **Note:** Be sure that you do not enter two or more periods together, for example, `orcl.mydomain.com`. The installer does not check for this, and this will lead to errors later during the installation process. **SID**: Enter the system identifier for the OracleAS Metadata Repository database. Typically this is the same as the global database name, but without the domain name. The SID must be unique across all databases. SIDs have the following naming restrictions: ▪ Must contain alphanumeric characters only ▪ Must not be longer than eight characters ▪ Must not contain `PORT` or `HOST` in uppercase characters. If you want the name to contain "host" or "port", use lowercase characters. Example: `orcl` **Database Character Set**: Select the character set to use. Refer to Section 6.15, "Support for NE8ISO8859P10 and CEL8ISO8859P14 Characters Sets" for details. **Database File Location**: Enter the full path to the parent directory for the data files directory. This parent directory must already exist, and you must have write permissions in this directory. The installer will create a subdirectory in this parent directory, and the subdirectory will have the same name as the SID. The data files will be placed in this subdirectory. Example: If you enter `/u02/oradata`, and the SID is `orcl`, then the data files will be located in `/u02/oradata/orcl`. Click **Next**.
2.	Specify Database Schema Passwords	Set the passwords for these privileged database schemas: SYS, SYSTEM, SYSMAN, and DBSNMP. You can set different passwords for each schema, or you can set the same password for all the schemas. Click **Next**.

6.30 Install Fragment: OCA Screens

If you select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen when you are installing an OracleAS Infrastructure, the installer displays the screens listed in Table 6–15.

Note that you cannot install more than one OCA against the same OracleAS Metadata Repository. When you are installing Oracle Identity Management components only against an existing OracleAS Metadata Repository, be sure that the metadata repository does not already have an instance of OCA configured against it.

Example: You install OracleAS Metadata Repository and Oracle Identity Management components including OCA on a computer. Then if you try to install additional Oracle Identity Management components (including OCA) on the same or different computer against the same OracleAS Metadata Repository, this installation would fail.

Table 6–15 OCA Screens

	Screen	Action
1.	Select OracleAS Metadata Repository	This screen appears only if you are configuring OCA **and** you are using an existing Oracle Internet Directory **and** you are using an existing OracleAS Metadata Repository. The Oracle Internet Directory must contain the registration for the OracleAS Metadata Repository that you want to use. Select the OracleAS Metadata Repository that you want OCA to use. Click **Next**.

Table 6–15 (Cont.) OCA Screens

	Screen	Action
2.	Specify OCA Distinguished Name	OCA uses the DN specified on this screen to populate the Issuer field of certificates that it issues. **Typical DN**: Use this section if your DN uses only the attributes listed in this section. You do not have to fill in all the attributes specified in this section. Only the `o` (organization) attribute is required. Note that the ' (single quote) character is not a valid character in any of the attributes. ■ **Common name (cn)**: Enter the name that you want on the certificate. This name must be different from your hostname. Example: `John Doe`. ■ **Organizational unit (ou)**: Enter the name of your division or department. Example: `Sales`. ■ **Organization (o)**: Enter the name of your company or organization. Example: `Oracle Corporation`. ■ **Country (c)**: Select your country from the list. **Custom DN**: If your DN uses attributes not listed in the Typical DN section, specify your DN in this section. Click **Next**.
3.	Select OCA Key Length	**Key Length (bits)**: Select the key length used in RSA algorithm to sign all certificates issued by OCA. Oracle recommends that you use at least a 2048-bit key length. Longer key lengths provide greater security, but require more time to issue each new certificate. Click **Next**.
4.	Specify OCA Administrator's Password	**Administrator's Password** and **Confirm Password**: Specify and confirm the password for the OCA administrator. The password has the following restrictions: ■ It must contain at least eight characters. ■ It must contain at least one alphabetic character. ■ It must contain at least one non-alphabetic character (for example, a number). ■ Its first character cannot be a number. You need this password to manage OCA. This password is also used by the OCA Configuration Assistant. You can change the password after installation using the `ocactl` command. Refer to OCA Online Help for details. Click **Next**.

7

Installing Middle Tiers

Table 7–1 Contents of This Chapter

Topics	Procedures
■ Section 7.1, "Middle-tier Types" ■ Section 7.2, "Components in the Middle Tier" ■ Section 7.3, "Which Components Do I Need?" ■ Section 7.4, "Configuration Options for the J2EE and Web Cache Middle Tier" ■ Section 7.5, "How to Determine the Password for the DCM Schema" ■ Section 7.6, "How to Determine Port Numbers Used by Components" ■ Section 7.7, "If You Plan to Install Middle Tiers Against an Upgraded Oracle Internet Directory"	■ Section 7.8, "Installing a J2EE and Web Cache Without an Infrastructure" ■ Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access" ■ Section 7.10, "Installing J2EE and Web Cache in a Database-Based Farm Repository but Without Oracle Identity Management Access" ■ Section 7.11, "Installing J2EE and Web Cache in a File-Based Farm Repository but Without Oracle Identity Management Access" ■ Section 7.12, "Installing J2EE and Web Cache in a File-Based Farm Repository and with Oracle Identity Management Access" ■ Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms" ■ Section 7.14, "Expanding a Middle Tier" ■ Section 7.15, "Can I Upgrade and Expand a Middle Tier at the Same Time?" ■ Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" ■ Section 7.17, "Install Fragment: The Last Few Screens of the Installation"

7.1 Middle-tier Types

When you install an Oracle Application Server middle tier, you select which type of middle tier you want. Oracle Application Server has these types of middle tiers:

- J2EE and Web Cache
- Portal and Wireless
- Business Intelligence and Forms

Middle tiers provide components for deploying and running applications. The different types of middle tiers provide different components (refer to Section 7.2, "Components in the Middle Tier").

Middle Tiers and Infrastructure

The Portal and Wireless and the Business Intelligence and Forms middle tiers require an OracleAS Infrastructure, because components in these middle tiers need to access their schemas in the OracleAS Metadata Repository.

The J2EE and Web Cache type requires some infrastructure components only if you select the **Database-Based Farm** and/or the **Oracle Identity Management Access** options. If you do not select these options during the J2EE and Web Cache middle-tier installation, then you do not need an OracleAS Infrastructure. Refer to Section 7.4, "Configuration Options for the J2EE and Web Cache Middle Tier" for details.

7.2 Components in the Middle Tier

Table 7–2 shows the components that are installed for each type of middle tier.

Note that the components in the smaller middle-tier types are a subset of the larger middle-tier types: the bigger types contain all the components from the smaller types:

- The J2EE and Web Cache type is the smallest type.
- The Portal and Wireless type contains all the components in the J2EE and Web Cache type plus components specific to the Portal and Wireless type.
- The Business Intelligence and Forms type contains all middle-tier components.

Table 7–2 Components in the Middle Tier

	J2EE and Web Cache	Portal and Wireless	Business Intelligence and Forms
Oracle HTTP Server	Yes	Yes	Yes
Oracle Application Server Containers for J2EE (OC4J)	Yes	Yes	Yes
OracleAS Web Cache	Yes	Yes	Yes
Oracle Enterprise Manager 10*g* Application Server Control	Yes	Yes	Yes
OracleAS Portal		Yes	Yes
OracleAS Wireless		Yes	Yes
OracleAS Personalization			Yes
OracleBI Discoverer (includes OracleBI Discoverer Plus, OracleBI Discoverer Viewer, and OracleBI Discoverer Portlet Provider)			Yes
OracleAS Reports Services			Yes
OracleAS Forms Services			Yes

7.3 Which Components Do I Need?

You deploy your applications on middle-tier instances. Select the middle-tier type that provides the components required by your applications.

If you know what components you will be using in your applications, you can choose the appropriate middle-tier type. For example, if you need portal functionality, then you would install the Portal and Wireless type. You can also install the Business Intelligence and Forms type, because it includes the OracleAS Portal component.

If you do not know what you want, but you have the disk space, you can install the Business Intelligence and Forms type. This ensures that you have all the components. If you do not have the disk space, you can install a smaller middle-tier type, and later expand it to a larger type if necessary. For example, you can expand a J2EE and Web Cache middle tier to a Business Intelligence and Forms middle tier. Refer to Section 7.14, "Expanding a Middle Tier" for details.

Table 7–3 lists some features and appropriate components:

Table 7–3 Mapping Features to Components

If You Need this Feature:	Select a Middle-tier Type that Provides this Component:
J2EE (for developing JavaServer Pages, servlets, and Enterprise JavaBeans applications)	Oracle Application Server Containers for J2EE (OC4J)
Web services	OC4J
UDDI	OracleAS Portal UDDI requires the Portal and Wireless (or the Business Intelligence and Forms) middle-tier type because UDDI depends on OC4J for application deployment, OracleAS Metadata Repository for storing various UDDI data structures, and Oracle Internet Directory for user and group management. The J2EE and Web Cache installation type does not require a OracleAS Metadata Repository or Oracle Internet Directory.
Oracle Ultra Search	OracleAS Portal Note that you must select **OracleAS Portal** to create and configure the Oracle Ultra Search instance. If you do not select **OracleAS Portal**, you cannot create and configure the Oracle Ultra Search instance after installation using the Application Server Control.
Portals	OracleAS Portal
Reports and Discoverer providers (which you can use with OracleAS Portal)	OracleAS Reports Services, OracleBI Discoverer
PL/SQL applications	Oracle HTTP Server
Delivery to mobile devices such as cell phones and PDAs	OracleAS Wireless
Oracle Sensor Edge Server This middle-tier component enables inventory management by processing information from sensors such as radio frequency ID (RFID) devices, laser diodes, and temperature sensors. For information on managing Oracle Sensor Edge Server, refer to *Oracle Application Server Wireless Administrator's Guide*. For information on developing Oracle Sensor Edge Server components, refer to *Oracle Application Server Wireless Developer's Guide*.	OracleAS Wireless
Data mining	OracleAS Personalization
Business Intelligence applications	OracleAS Reports Services, OracleBI Discoverer
Reports	OracleAS Reports Services
Forms	OracleAS Forms Services

7.4 Configuration Options for the J2EE and Web Cache Middle Tier

If you install the J2EE and Web Cache middle tier, the Select Configuration Options screen displays the options listed in Table 7–4.

Some of these options require certain OracleAS Infrastructure components, as listed in the table. You need to install the required infrastructure components before you can install the J2EE and Web Cache middle tier with these options.

Table 7–4 Options in the Select Configuration Options Screen for the J2EE and Web Cache Middle Tier

Option	Description and Requirements

OracleAS Farm Repository	Select this option to make this J2EE and Web Cache instance part of a farm. Refer to Section 7.4.1, "What Is a Farm?" and Section 7.4.2, "What Is an OracleAS Cluster?" if you need information on farms and clusters.
	
	If you select this option, the installer displays the Select Repository Type screen, in which you select whether you want to create a new file-based repository, join an existing file-based repository, or join a database-based repository.
	
	▪ If you select "create a new file-based repository", the instance that you are installing will be a "repository host". This instance will hold the repository information, and you can point other instances to use the repository information stored with this instance. You usually select this option for the first J2EE and Web Cache instance (if you choose to use file-based repository).
	
	▪ If you select "join an existing file-based repository", the installer will prompt you for the location of the repository host and the port.
	
	You can determine the repository host and port by running the "`dcmctl getRepositoryID`" command:
	
	`prompt> ORACLE_HOME/dcm/bin/dcmctl getRepositoryID`
	`File-based Repository ID  mymachine2.mydomain.com:7102`
	
	ORACLE_HOME specifies the home directory of any existing Oracle Application Server instance that belongs to the farm that you want to join. In the example, the repository host is `mymachine2.mydomain.com`, and the port is `7102`.
	
	▪ If you select "join an existing database-based repository", the installer will prompt you for the location of the OracleAS Metadata Repository. The OracleAS Metadata Repository does not need to be registered with Oracle Internet Directory because Oracle Internet Directory is not required for this option. This option does not require any Oracle Identity Management components.

Oracle Identity Management Access	Select this option if your applications need Oracle Identity Management services such as OracleAS Single Sign-On and Oracle Internet Directory. This option requires the following components to be previously installed: Oracle Internet Directory, OracleAS Single Sign-On, and OracleAS Metadata Repository. You can install these components by installing the OracleAS Infrastructure. Additionally, the OracleAS Metadata Repository must be registered with the Oracle Internet Directory. Refer to Section 6.10, "Registration of OracleAS Metadata Repository in Oracle Internet Directory and Password Randomization".
OracleAS Web Cache	Select this option to install and configure OracleAS Web Cache. No previously installed components are required.

7.4.1 What Is a Farm?

A farm is a collection of one or more instances that share the same metadata repository. When instances belong to a farm, you can manage them as a group and you can also cluster them.

Oracle Application Server can store repository information in a database ("database-based repository") or file system ("file-based repository"). Repository information includes things such as the list of instances that belong to a farm, whether or not the instances are clustered, and configuration information for clusters.

For a file-based repository, the repository information is stored with a specific instance. This instance is called the "repository host".

For a database-based repository, the repository information is stored in the OracleAS Metadata Repository.

You can set a J2EE and Web Cache instance to belong to a farm during or after installation. If you are unsure during installation, you can install the instance as a standalone instance (that is, not belonging to a farm). After installation, if you so desire, you can associate the instance with a farm. Conversely, you can install an instance as part of a farm and after installation, you can convert the instance to a standalone instance.

For details about farms, refer to *Distributed Configuration Management Administrator's Guide* and *Oracle Application Server High Availability Guide*.

7.4.2 What Is an OracleAS Cluster?

You can cluster instances that belong to a farm. All the instances in a cluster have the same configuration. Any instance in a cluster can handle requests directed to any cluster member.

The installer does not cluster instances for you. You have to do this after installation.

For details about OracleAS Clusters, refer to *Distributed Configuration Management Administrator's Guide* and *Oracle Application Server High Availability Guide*.

7.4.3 Special Requirements for Installing J2EE and Web Cache Instances with OracleAS File-Based Repository Across a Firewall

If you are installing J2EE and Web Cache instances that use the OracleAS File-based Repository feature, and the instances are on different sides of a firewall, then you need to ensure that these instances can communicate with each other across the firewall.

A scenario of when you would install the instances in this manner is in the "myJ2EECompany.com" architecture. In this architecture, you install OracleAS Web Cache in the Web tier, and OC4J in the Application tier, and these tiers are separated by a firewall. The myJ2EECompany.com architecture is described in detail in the *Oracle Application Server Enterprise Deployment Guide*.

To enable instances to communicate with each other across the firewall, you need to open up some ports in the firewall after the first installation. For details, refer to Chapter 3, "Configuring the Application Infrastructure for myJ2EECompany.com", in *Oracle Application Server Enterprise Deployment Guide*.

7.5 How to Determine the Password for the DCM Schema

If you install the J2EE and Web Cache middle tier with the **OracleAS Database-Based Farm Repository** option selected, but without the **Oracle Identity Management Access** option, the installer prompts you to enter the password for the `DCM` schema in the OracleAS Metadata Repository.

This password is generated randomly. You have two choices:

- Change the Random Password on page 7-5
- Determine the Random Password Using Oracle Internet Directory on page 7-6

Change the Random Password

If you did not register the OracleAS Metadata Repository with an Oracle Internet Directory, you need to change the random password to a known value. You can do this using the "alter user" SQL command in SQL*Plus. The following example changes the password to "`newpassword`":

```
prompt> $ORACLE_HOME/bin/sqlplus "sys/sys_password as sysdba"
```

```
SQL> alter user dcm identified by newpassword;
```

You need to log in as the sys user to change the password.

Determine the Random Password Using Oracle Internet Directory

> **Note:** This procedure can only be performed by the Oracle Internet Directory superuser (`cn=orcladmin`).

If you did register the OracleAS Metadata Repository with an Oracle Internet Directory, you can use the Oracle Directory Manager to determine the random password.

However, if you do have an Oracle Internet Directory and the OracleAS Metadata Repository is registered with it, it might make more sense to select both **OracleAS Database-Based Farm Repository** and **Oracle Identity Management Access** in the Select Configuration Options screen. If you select both, the installer does not prompt you to enter the `DCM` password.

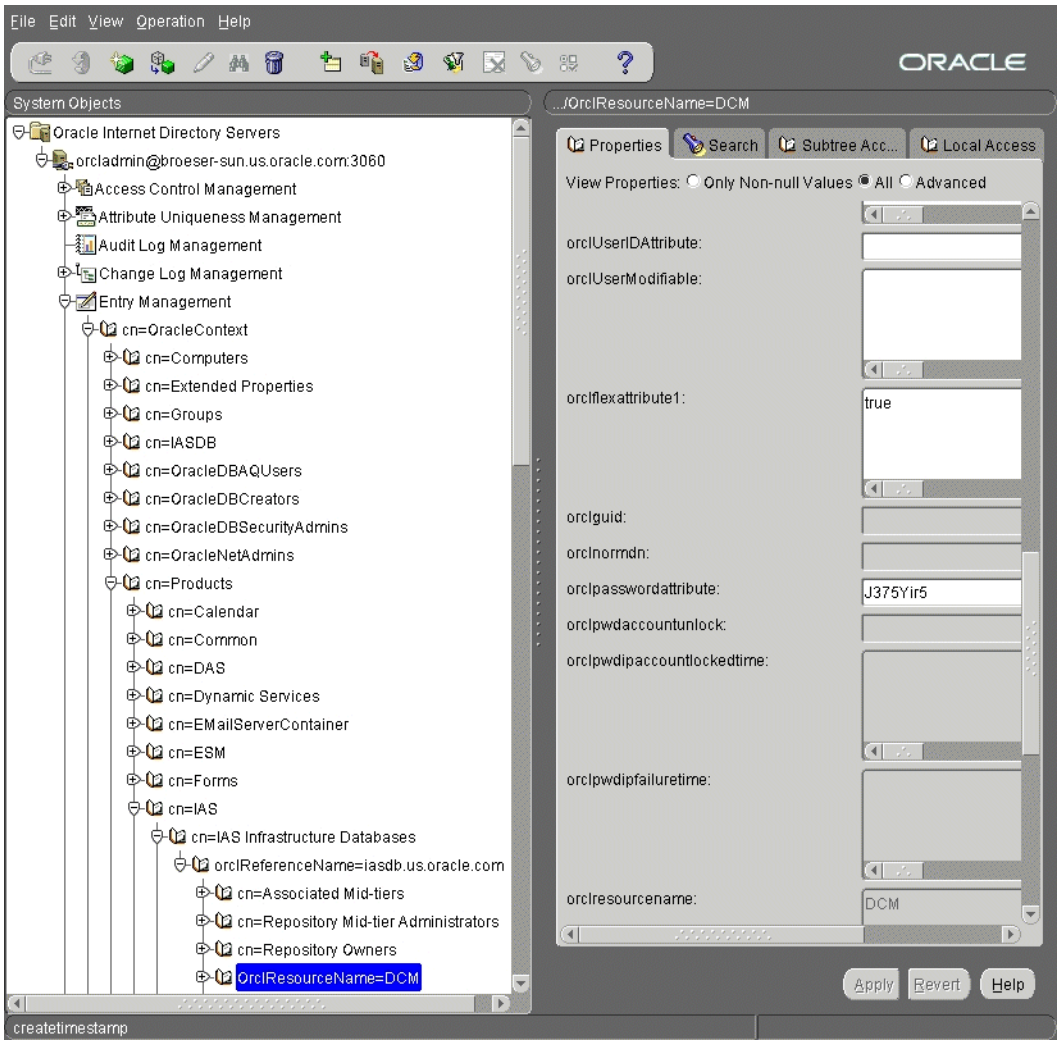
To determine the random password in Oracle Internet Directory:

1. Start up Oracle Directory Manager.

   ```
   prompt> $ORACLE_HOME/bin/oidadmin
   ```

2. Log in to Oracle Internet Directory as the `cn=orcladmin` superuser.
3. Expand the structure as shown in Figure 7–1. On the left side, select **OrclResourceName=DCM**, as shown. The password for the `DCM` schema is shown in the **orclpasswordattribute** field on the right side.

Figure 7–1 Viewing the DCM Schema's Password in Oracle Internet Directory



7.6 How to Determine Port Numbers Used by Components

During installation, you might need to know port numbers used by certain components. For example, when you install Oracle Application Server middle tiers, the installer prompts for the Oracle Internet Directory port.

You can get a list of port numbers in the following ways:

- Use Oracle Enterprise Manager 10*g* Application Server Control.

  Click the Ports link on the Enterprise Manager home page. This takes you to a page that lists all ports in use and the suggested port ranges for different components.

- Look in the *ORACLE_HOME*`/install/portlist.ini` file. *ORACLE_HOME* refers to the directory containing the Oracle Application Server installation.

  Note that if you change a component's port number after installation, the `portlist.ini` file is *not* updated. The `portlist.ini` file is not updated after installation.

7.7 If You Plan to Install Middle Tiers Against an Upgraded Oracle Internet Directory

If you plan to install middle tiers against an Oracle Internet Directory that was upgraded from version 9.2.0.x to the current release, make sure you followed the steps on upgrading Oracle Internet Directory 9.2.0.x as documented in the *Oracle Application Server Upgrade and Compatibility Guide*. The instructions are in the "Upgrading the Oracle Identity Management Services" chapter.

7.8 Installing a J2EE and Web Cache Without an Infrastructure

Perform this procedure to install a J2EE and Web Cache instance that does not require an infrastructure.

Table 7–5 Steps for Installing J2EE and Web Cache

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ▪ In the Select Installation Type screen, select **J2EE and Web Cache**. Click **Next**.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Do *not* select **Identity Management Access** because this option requires Oracle Internet Directory and OracleAS Single Sign-On. Do *not* select **OracleAS Farm Repository**. Click **Next**.
2.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
3.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
4.	--	Finish the installation. Refer to Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.9 Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier in a database-based farm repository and with Oracle Identity Management Access.

Prerequisite: OracleAS Infrastructure

Table 7–6 Steps for Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **J2EE and Web Cache**.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Select **Identity Management Access**. Select **OracleAS Farm Repository**. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
4.	Select Repository Type	Select **Join an Existing OracleAS Database-based Farm**. Click **Next**.
5.	Register with Oracle Internet Directory	**Host**: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port at which Oracle Internet Directory is listening. If you do not know the port number, refer to Section 7.6, "How to Determine Port Numbers Used by Components". **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click **Next**.
6.	Specify Login for Oracle Internet Directory	**Username**: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. Refer to Section 8.3, "Groups Required to Configure or Deinstall Components" for details. **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.

Table 7–6 (Cont.) Steps for Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access

	Screen	Action
7.	Select Metadata Repository for OracleAS Cluster	Select the OracleAS Metadata Repository from the list. Click **Next**.
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `j2ee` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
9.	--	Finish the installation. Refer to Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.10 Installing J2EE and Web Cache in a Database-Based Farm Repository but Without Oracle Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier in a database-based farm repository, but without Oracle Identity Management access.

Prerequisite: OracleAS Metadata Repository

Table 7–7 Steps for Installing J2EE and Web Cache in a Database-Based Farm Repository but Without Oracle Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **J2EE and Web Cache**.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Select **OracleAS Farm Repository**. Deselect **Identity Management Access**. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
4.	Select Repository Type	Select **Join an Existing OracleAS Database-based Farm**. Click **Next**.

Table 7–7 (Cont.) Steps for Installing J2EE and Web Cache in a Database-Based Farm Repository but Without Oracle Identity Management Access

	Screen	Action
5.	Specify Metadata Repository for DB-Managed Cluster	**Password**: Enter the password for the `DCM` schema. The initial password for the schema is `dcm`. Refer to Section 7.5, "How to Determine the Password for the DCM Schema" for details. **Hostname and Port**: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host.domain:port`*. Example: `myhost.mydomain.com:1521`. **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.
6.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `j2ee` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
7.	--	Finish the installation. Refer to Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.11 Installing J2EE and Web Cache in a File-Based Farm Repository but Without Oracle Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier in a file-based farm repository but without Oracle Identity Management access.

Table 7–8 Steps for Installing J2EE and Web Cache in a File-Based Farm Repository but Without Oracle Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **J2EE and Web Cache**. Click **Next**.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Select **OracleAS Farm Repository**. Do *not* select **Identity Management Access** because this option requires Oracle Internet Directory and OracleAS Single Sign-On. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
4.	Select Repository Type	If you want to start a new file-based farm, select **Create a New OracleAS File-based Farm for this Instance**. If you want this instance to join an existing file-based farm, select **Join an Existing OracleAS File-based Farm**. The installer will prompt for the location of the existing farm. Click **Next**.

Table 7–8 (Cont.) Steps for Installing J2EE and Web Cache in a File-Based Farm Repository but Without Oracle Identity Management Access

	Screen	Action

5.	Specify File-Based Farm Repository	Enter the location of the existing file-based farm repository on this screen. This screen appears only if you selected **Join an Existing OracleAS File-based Farm** in the previous screen.
		
		Repository Host: Enter the name of the computer where the existing farm is being hosted.
		
		Repository Port: Enter the port number for the repository.
		
		You can determine the repository host and port by running the "`dcmctl getRepositoryID`" command:
		
		`prompt> ORACLE_HOME/dcm/bin/dcmctl getRepositoryID`
		`File-based Repository ID  mymachine2.mydomain.com:7102`
		
		`ORACLE_HOME` specifies the home directory of any existing Oracle Application Server instance that belongs to the farm that you want to join. In the example, the repository host is `mymachine2.mydomain.com`, and the port is `7102`.
		
		Click **Next**.

6.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
7.	--	Finish the installation. Refer to Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.12 Installing J2EE and Web Cache in a File-Based Farm Repository and with Oracle Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier in a file-based farm repository and with Oracle Identity Management access.

Prerequisite: Oracle Internet Directory

Table 7–9 Steps for Installing J2EE and Web Cache in a File-Based Farm Repository and with Oracle Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **J2EE and Web Cache**. Click **Next**.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Select **OracleAS Farm Repository**. Select **Identity Management Access**. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
4.	Select Repository Type	If you want to start a new file-based farm, select **Create a New OracleAS File-based Farm for this Instance**. If you want this instance to join an existing file-based farm, select **Join an Existing OracleAS File-based Farm**. The installer will prompt for the location of the existing farm. Click **Next**.

5.	Specify File-Based Farm Repository	Enter the location of the existing file-based farm repository on this screen. This screen appears only if you selected **Join an Existing OracleAS File-based Farm** in the previous screen.
		Repository Host: Enter the name of the computer where the existing farm is being hosted.
		Repository Port: Enter the port number for the repository.
		You can determine the repository host and port by running the "`dcmctl getRepositoryID`" command:
		`prompt> ORACLE_HOME/dcm/bin/dcmctl getRepositoryID`
		`File-based Repository ID  mymachine2.mydomain.com:7102`
		ORACLE_HOME specifies the home directory of any existing Oracle Application Server instance that belongs to the farm that you want to join. In the example, the repository host is `mymachine2.mydomain.com`, and the port is `7102`.
		Click **Next**.

6.	Register with Oracle Internet Directory	**Host**: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port at which Oracle Internet Directory is listening. If you do not know the port number, refer to Section 7.6, "How to Determine Port Numbers Used by Components". **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click **Next**.

Table 7–9 (Cont.) Steps for Installing J2EE and Web Cache in a File-Based Farm Repository and with Oracle Identity Management Access

	Screen	Action
7.	Specify Login for Oracle Internet Directory	**Username**: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. Refer to Section 8.3, "Groups Required to Configure or Deinstall Components" for details. **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
9.	--	Finish the installation. Refer to Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.13 Installing Portal and Wireless or Business Intelligence and Forms

Perform this procedure to install a Portal and Wireless or a Business Intelligence and Forms middle tier.

Prerequisite: OracleAS Infrastructure

Table 7–10 Steps for Installing Portal and Wireless or Business Intelligence and Forms

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **Portal and Wireless** or **Business Intelligence and Forms**.
2.	Select Configuration Options	Select the components that you will be using, and click **Next**. You do not have to select all the components. For Portal and Wireless, the options are: ■ **OracleAS Portal** ■ **OracleAS Wireless** For Business Intelligence and Forms, the options are: ■ **OracleAS Portal** ■ **OracleAS Wireless** ■ **OracleBI Discoverer** ■ **OracleAS Personalization** ■ **OracleAS Reports Services** ■ **OracleAS Forms Services**
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
4.	Register with Oracle Internet Directory	**Host**: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port number at which Oracle Internet Directory is listening. If you do not know the port number, refer to Section 7.6, "How to Determine Port Numbers Used by Components". **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click **Next**.
5.	Specify Login for Oracle Internet Directory	**Username**: Enter the username to use to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. Refer to Section 8.3, "Groups Required to Configure or Deinstall Components" for details. **Password**: Enter the user's password. **Realm**: Enter the realm against which to validate the user. This field appears only if your Oracle Internet Directory contains more than one realm. If the Oracle Internet Directory contains only one realm, then the installer validates the user against that realm. Click **Next**.
6.	Select OracleAS Metadata Repository	**Repository**: Select the OracleAS Metadata Repository that you want to use for this middle-tier instance. The installer will register this instance with the selected OracleAS Metadata Repository. Click **Next**.

Table 7–10 (Cont.) Steps for Installing Portal and Wireless or Business Intelligence and Forms

	Screen	Action
7.	Provide Outgoing Mail Server Information	This screen appears only if you selected **OracleAS Reports Services** or **OracleBI Discoverer** in the Select Configuration Options screen. Enter the name of the outgoing mail (SMTP) server for use by OracleAS Reports Services. You can leave it blank and configure it later. Click **Next**.
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example 1: `PortalWireless` Example 2: `BI_Forms` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
9.	--	Finish the installation. Refer to Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.14 Expanding a Middle Tier

After installing a middle tier and using it, you may decide that you need a component that is in a larger middle tier. For example, you installed a J2EE and Web Cache middle tier, and you realize you need OracleAS Portal.

What you can do is to install the Portal and Wireless type (or the Business Intelligence and Forms type) in the same Oracle home as the J2EE and Web Cache instance. The installer installs and configures the additional components in the larger middle tier without changing the configuration of existing components.

You can expand middle tiers in the following ways:

- J2EE and Web Cache to Portal and Wireless
- J2EE and Web Cache to Business Intelligence and Forms
- Portal and Wireless to Business Intelligence and Forms

Expanding a middle tier is the same as installing a new one, with these differences:

- In the Specify File Locations screen, you enter the Oracle home directory of the middle tier you want to expand.
- You need the password of the ias_admin user of the middle tier you want to expand.

  Instead of the Specify Instance Name and ias_admin Password screen, the installer displays the Specify ias_admin Password screen. In this screen, you enter the existing password for the ias_admin user.
- The instance name remains the same.
- When the installer prompts you to run `root.sh`, **do not run it**.

Note: You must configure OracleAS Web Cache before expanding a J2EE and Web Cache instance. If you did not configure OracleAS Web Cache during installation, refer to *Oracle Application Server Administrator's Guide* for instructions on configuring additional components after installation.

Remember that the Portal and Wireless and the Business Intelligence and Forms middle tiers require OracleAS Infrastructure.

You cannot "shrink" a middle tier: you cannot go from a larger middle tier to a smaller middle tier.

Note that you cannot expand an infrastructure.

Procedure: Expanding a Middle Tier

Perform the following procedure to expand a middle tier:

Table 7–11 Steps for Expanding a Middle Tier

	Screen	Action

1.	--	Stop all processes associated with the middle tier that you want to expand. If you need help on how to stop the processes, refer to *Oracle Application Server Administrator's Guide*.
		In particular, be sure that you stop the Application Server Control and DCM before performing the expansion.
		To stop Application Server Control, run the following command:
		`prompt> $ORACLE_HOME/bin/emctl stop iasconsole`
		To stop OracleAS Web Cache (if configured), run the following command:
		`prompt> $ORACLE_HOME/opmn/bin/opmnctl stopproc ias-component=WebCache`
		To ensure that DCM is stopped, run the following command:
		`prompt> $ORACLE_HOME/dcm/bin/dcmctl shutdown`

2.	--	Start up the installer and complete the first few screens. Refer to Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ▪ In the Specify File Locations screen, enter the Oracle home directory of the middle tier you want to expand. ▪ In the Select Installation Type screen, select **Portal and Wireless** or **Business Intelligence and Forms**.
3.	Select Configuration Options	Select the components that you need, and click **Next**. For Portal and Wireless, the options are: ▪ **OracleAS Portal** ▪ **OracleAS Wireless** For Business Intelligence and Forms, the options are: ▪ **OracleAS Portal** ▪ **OracleAS Wireless** ▪ **OracleBI Discoverer** ▪ **OracleAS Personalization** ▪ **OracleAS Reports Services** ▪ **OracleAS Forms Services**
4.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
5.	Register with Oracle Internet Directory	**Host**: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port number at which Oracle Internet Directory is listening. If you do not know the port number, refer to Section 7.6, "How to Determine Port Numbers Used by Components". **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click **Next**.

Table 7–11 (Cont.) Steps for Expanding a Middle Tier

	Screen	Action
6.	Specify Login for Oracle Internet Directory	**Username**: Enter the username to use to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. Refer to Section 8.3, "Groups Required to Configure or Deinstall Components" for details. **Password**: Enter the user's password. **Realm**: Enter the realm against which to validate the user. This field appears only if your Oracle Internet Directory contains more than one realm. If the Oracle Internet Directory contains only one realm, then the installer validates the user against that realm. Click **Next**.
7.	Select OracleAS Metadata Repository	**Repository**: Select the OracleAS Metadata Repository that you want to use for this middle-tier instance. The installer will register this instance with the selected OracleAS Metadata Repository. Click **Next**.
8.	Provide Outgoing Mail Server Information	This screen appears only if you selected **OracleAS Reports Services** or **OracleBI Discoverer** in the Select Configuration Options screen. Enter the name of the outgoing mail (SMTP) server for use by OracleAS Reports Services. You can leave it blank and configure it later. Click **Next**.
9.	Specify ias_admin Password	**ias_admin Password**: Enter the password for the ias_admin user of the middle tier you are expanding. Click **Next**.
10.	--	Finish the installation. Refer to Section 7.17, "Install Fragment: The Last Few Screens of the Installation". **Note:** When the installer prompts you to run `root.sh`, **do not run it**.

If you did not shut down DCM when you performed the expansion, you may find that OracleAS Web Cache is not enabled after expanding the middle tier. In this case, perform these steps:

1. Enable OracleAS Web Cache by changing its status to "`enabled`" in the file *ORACLE_HOME*`/opmn/conf/opmn.xml`:

   ```
   <ias-component id="WebCache" status="enabled">
   ```

2. Reload OPMN.

   ```
   prompt> ORACLE_HOME/opmn/bin/opmnctl reload
   ```

7.15 Can I Upgrade and Expand a Middle Tier at the Same Time?

If you have a middle tier from the 10*g* (9.0.4) release and you want to upgrade it to a 10*g* Release 2 (10.1.2) middle tier of the same type (for example, J2EE and Web Cache 10*g* (9.0.4) middle tier to J2EE and Web Cache 10*g* Release 2 (10.1.2) middle tier), follow the instructions in the *Oracle Application Server Upgrade and Compatibility Guide*.

If you want to upgrade a middle tier and expand it at the same time (for example, going from J2EE and Web Cache 10*g* (9.0.4) to Portal and Wireless 10*g* Release 2 (10.1.2)), you have to perform two procedures:

1. Upgrade the middle tier to the same type middle tier in 10*g* Release 2 (10.1.2). This procedure is documented in the *Oracle Application Server Upgrade and Compatibility Guide*.

2. Expand the middle tier in the 10*g* Release 2 (10.1.2) Oracle home. The previous section, Section 7.14, "Expanding a Middle Tier", has details.

7.16 Install Fragment: The First Few Screens for Installing Middle Tiers

The first few screens of the installer are described here because they are the same for all installations. Most installation procedures in this chapter refer to this section as their starting point.

Table 7–12 First Few Screens of the Middle-tier Installation

	Screen	Action
1.	--	Start the installer. Refer to Section 5.19, "Starting Oracle Universal Installer".
2.	Welcome	Click **Next**.
3.	Specify Inventory Directory and Credentials	This screen appears only if this is the first installation of any Oracle product on this computer. **Enter the full path of the inventory directory**: Enter a full path to the inventory directory. Enter a directory that is different from the Oracle home directory for the product files. Example: `/opt/oracle/oraInventory` **Specify operating system group name**: Select the operating system group that will have write permission for the inventory directory. Example: `oinstall` Click **Next**.
4.	Run `orainstRoot.sh`	This screen appears only if this is the first installation of any Oracle product on this computer. Run the `orainstRoot.sh` script in a different shell as the root user. The script is located in the inventory directory. After running the script, click **Continue**.
5.	Specify File Locations	**Name**: Enter a name to identify this Oracle home. The name can consist of alphanumeric and the underscore (_) characters only, and cannot be longer than 128 characters. Example: `OH_J2EE` **Destination Path**: Enter the full path to the destination directory. This is the Oracle home. If the directory does not exist, the installer creates it. If you want to create the directory beforehand, create it as the `oracle` user; do not create it as the root user. Example: `/opt/oracle/OraJ2EE` Click **Next**.
6.	Specify Hardware Cluster Installation Mode	This screen appears only if the computer is part of a hardware cluster. When you are installing a middle tier, select **Local Installation** because hardware cluster is not supported for middle tiers. Click **Next**.

Table 7–12 (Cont.) First Few Screens of the Middle-tier Installation

	Screen	Action
7.	Select a Product to Install	Select **Oracle Application Server** to install a middle tier. If you need to install additional languages, click **Product Languages**. Refer to Section 5.8, "Installing Additional Languages" for details. Click **Next**.
8.	Select Installation Type	The options displayed on this screen depend on what you selected in the Select a Product to Install screen. If you selected **Oracle Application Server** (which refers to the Oracle Application Server middle tier), the screen displays: ■ **J2EE and Web Cache** ■ **Portal and Wireless** ■ **Business Intelligence and Forms** Click **Next**. If you get an error message saying that the TMP environment variable is not set, it means that the default temp directory does not have enough space. You can either set the TMP environment variable to point to a different directory or free up enough space in the default temp directory. For details on the `TMP` environment variable, refer to Section 4.9.5, "TMP and TMPDIR".
9.	Confirm Pre-Installation Requirements	Verify that you meet all the requirements listed on the screen. Click **Next**.

Refer to Figure 6–2 for a graphic that summarizes the screen sequence. These screens are the same for installing OracleAS Infrastructure or middle tier.

7.17 Install Fragment: The Last Few Screens of the Installation

The last few screens of the installer are described in this section because they are the same for all installations. Most installation procedures in this chapter refer to this section as their end point.

Table 7–13 Last Few Screens in the Installation

	Screen	Action
1.	Summary	Verify your selections and click **Install**.
2.	Install Progress	This screen shows the progress of the installation.
3.	Run `root.sh`	**Note:** Do not run the script until you see this dialog. **1.** When this dialog appears, run the `root.sh` script in a different shell as the root user. The script is located in this instance's Oracle home directory. **2.** Click **OK**.
4.	Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
5.	End of Installation	Click **Exit** to quit the installer.

8

Configuring Oracle Internet Directory for Oracle Application Server Installation Privileges

When you install certain middle-tier or infrastructure components, the installer prompts you for a username to log in to Oracle Internet Directory. For the installation to complete successfully, this user must belong to certain groups in Oracle Internet Directory. The groups that are required depend on what you are installing.

By putting users into groups, you allow other users to perform installations. Users do not have to log in as the `cn=orcladmin` superuser to perform the installations.

Contents:

- Section 8.1, "Default Users in Oracle Internet Directory"
- Section 8.2, "Groups in Oracle Internet Directory"
- Section 8.3, "Groups Required to Configure or Deinstall Components"
- Section 8.4, "Groups Required to Install Middle Tiers"
- Section 8.5, "Groups Required to Install Additional Metadata Repositories"
- Section 8.6, "Example of Installation with Different Users"
- Section 8.7, "How to Create Users in Oracle Internet Directory"
- Section 8.8, "How to Add Users to Groups in Oracle Internet Directory"
- Section 8.9, "Contents of a New Oracle Internet Directory"
- Section 8.10, "On the Specify Login for Oracle Internet Directory Screen, What Username and Realm Do I Enter?"

8.1 Default Users in Oracle Internet Directory

When you install Oracle Internet Directory, it has two users: `cn=orcladmin` and `orcladmin`:

- `cn=orcladmin` is the Oracle Internet Directory superuser. This user has all the privileges to perform all tasks in Oracle Internet Directory.

  The initial password for `cn=orcladmin` is the same as the password for the ias_admin user for the Oracle Application Server instance. You specified this password during installation.

  `cn=orcladmin` is the owner of the objects created in the same installation session. For example, if you installed Oracle Internet Directory, OracleAS Metadata

Repository, and Oracle Delegated Administration Services, the `cn=orcladmin` user is created and becomes a member of the Repository Owners group and the DAS Component Owners group. `cn=orcladmin` also becomes a member of the iAS Admins group.

Note that you cannot log in to Oracle Internet Directory as the superuser (`cn=orcladmin`) using Oracle Delegated Administration Services. To log in as `cn=orcladmin`, you must use the Oracle Directory Manager.

- The `orcladmin` user is also created when you install Oracle Internet Directory. The DN for this user is: `cn=orcladmin,cn=users,<default realm DN>`.

  The initial password for `orcladmin` is the same as the password for the ias_admin user for the Oracle Application Server instance. You specified this password during installation.

  You can log in to Oracle Internet Directory as `orcladmin` using Oracle Delegated Administration Services to manage other Oracle Internet Directory users. You can do this because `orcladmin` is a valid OracleAS Single Sign-On user.

For more information on the `cn=orcladmin` and `orcladmin` users, refer to *Oracle Internet Directory Administrator's Guide*.

8.2 Groups in Oracle Internet Directory

Groups in Oracle Internet Directory can be classified into these categories:

- Section 8.2.1, ""Global" Groups"
- Section 8.2.2, "Groups for Each Metadata Repository"
- Section 8.2.3, "Groups for Each Component"

8.2.1 "Global" Groups

Table 8–1 describes the groups that affect all Oracle Application Server instances and components registered with Oracle Internet Directory.

Table 8–1 "Global" Groups

Group	Description
IAS Admins DN: cn=IASAdmins, cn=groups, cn=OracleContext	IAS Admins have the following privileges: ▪ Install and register new metadata repositories. IAS Admins have no privileges to manage existing repositories already registered with Oracle Internet Directory. ▪ Install middle tiers.
Trusted Application Admins DN: cn=Trusted Application Admins, cn=groups, cn=OracleContext	To install Oracle Identity Management, OracleAS Portal, or OracleAS Wireless components, you must belong to several groups, one of which is the Trusted Application Admins group. Table 8–4 lists the required groups for each component.
IAS & User Management Application Admins DN: cn=IAS & User Mgmt Application Admins, cn=groups, cn=OracleContext	To install OracleAS Portal or OracleAS Wireless, you must belong to several groups, one of which is the IAS & User Management Application Admins group. Table 8–4 lists the required groups for each component.

8.2.2 Groups for Each Metadata Repository

Each metadata repository registered with Oracle Internet Directory has its own groups, as described in Table 8–2. This enables you to assign different owners and users for each repository.

Table 8–2 Groups Associated with Each Metadata Repository Registered with Oracle Internet Directory

Group	Description
Repository Owners DN: cn=Repository Owners, orclReferenceName=*dbName*, cn=IAS Infrastructure Databases, cn=IAS, cn=Products, cn=OracleContext	The user who installs the metadata repository becomes a member of this group. Repository Owners have the following privileges: ■ Add/remove users to/from this group. ■ De-register this repository. ■ Add/remove users to/from the Mid-Tier Admins group for this repository. ■ Add/remove middle-tier instances to/from this repository. ■ All privileges of the Mid-Tier Administrators group.
Mid-Tier Administrators DN: cn=Repository Mid-tiers, orclReferenceName=*dbName*, cn=IAS Infrastructure Databases, cn=IAS, cn=Products, cn=OracleContext	Mid-Tier Administrators have the following privileges: ■ Add/remove middle-tier instances from the Associated Middle Tiers group for this repository. This is required to install a middle tier or to configure a middle-tier component to use a different repository. ■ Access metadata for the repository database object.
Associated Middle Tiers DN: cn=Associated Mid-tiers, orclReferenceName=*dbName*, cn=IAS Infrastructure Databases, cn=IAS, cn=Products, cn=OracleContext	Members of this group are middle-tier instances associated with this metadata repository. The middle-tier instances are added to this group during installation. You do not have to add the instances manually to this group. Members of this group have the following privilege: ■ Access metadata for the repository database object and its schemas.

8.2.3 Groups for Each Component

Oracle Application Server components also have groups in Oracle Internet Directory. Each component has a Component Owners group and an Associated Middle Tiers group, as described in Table 8–3.

Table 8–3 Groups Associated with Each Component

Group	Description
Component Owners DN: cn=Component Owners, orclApplicationCommonName=*componentCommonName*, cn=*componentName*, cn=Products, cn=OracleContext	Component Owners have the following privileges: ■ Add/remove owners for this component. ■ De-register this component. ■ Associate additional middle tiers with this component.
Associated Middle Tiers DN: cn=Associated Mid-tiers, orclApplicationCommonName=*componentCommonName*, cn=*componentName*, cn=Products, cn=OracleContext	Members of this group are middle-tier instances.

Figure 8–6 shows these groups for the Oracle Delegated Administration Services component.

8.3 Groups Required to Configure or Deinstall Components

Table 8–4 shows the groups that a user needs to belong to in order to configure or deinstall Oracle Application Server components.

The user who installs and configures the components becomes the owner of the components.

Table 8–4 Oracle Internet Directory Groups Required to Configure Components

To Configure This Component	User Must Be a Member of ALL Listed Groups:
Infrastructure Components	
OracleAS Metadata Repository	To register OracleAS Metadata Repository against Oracle Internet Directory, you must log in to Oracle Internet Directory as a user who belongs to the iAS Admins group.
Oracle Internet Directory	In OracleAS Cluster (Identity Management) environments, to install subsequent Oracle Internet Directory instances after the first one, you must be the Oracle Internet Directory superuser (`cn=orcladmin`).
Oracle Delegated Administration Services	■ Trusted Application Admins ■ iAS Admins ■ Mid-Tier Admins group for the metadata repository used by OracleAS Single Sign-On If you are unsure which metadata repository is used by OracleAS Single Sign-On, refer to "To Determine the Metadata Repository Used by OracleAS Single Sign-On" on page 8-6. ■ Component Owners for the Oracle Delegated Administration Services component **Note:** This is required only if you are installing multiple instances of Oracle Delegated Administration Services. When you are installing the second and subsequent instances, then you need to belong to the Component Owners group. You do not need to be a member when you install the first Oracle Delegated Administration Services instance. Refer to Section 8.8.1, "Using Oracle Directory Manager to Add Users to Groups" for steps on how to add users to groups.
OracleAS Single Sign-On	You must install OracleAS Single Sign-On as the superuser (`cn=orcladmin`).
Oracle Directory Integration and Provisioning	■ iAS Admins ■ Trusted Application Admins ■ Admin for Oracle Directory Integration and Provisioning, which is identified by "`cn=dipadmingrp,cn=odi,cn=oracle internet directory`" ■ Mid-Tier Admins group for the metadata repository used by OracleAS Single Sign-On. If you are unsure which metadata repository is used by OracleAS Single Sign-On, refer to "To Determine the Metadata Repository Used by OracleAS Single Sign-On" on page 8-6.
OCA, configured against an existing OracleAS Metadata Repository	■ Trusted Application Admins ■ iAS Admins ■ Repository Owners group for the existing metadata repository

Table 8–4 (Cont.) Oracle Internet Directory Groups Required to Configure Components

To Configure This Component	User Must Be a Member of ALL Listed Groups:
OCA, configured against a new OracleAS Metadata Repository (that is, you are installing and configuring OCA and OracleAS Metadata Repository in the same installation session)	■ Trusted Application Admins ■ iAS Admins
J2EE and Web Cache Middle-tier Features	
Oracle Identity Management Access only	■ iAS Admins
Oracle Identity Management Access and Farm Repository (Database-Based or File-Based)	■ iAS Admins ■ Mid-Tier Admins or Repository Owners group for the metadata repository
Portal and Wireless, and Business Intelligence and Forms Middle-tier Components	
OracleAS Portal	■ Trusted Application Admins ■ IAS & User Management Application Admins ■ iAS Admins ■ Mid-Tier Admins or Repository Owners group for the metadata repository ■ Component Owners group for the OracleAS Portal component **Note:** This group is applicable only when you are installing additional OracleAS Portal instances. It does not apply for the first OracleAS Portal installation. For subsequent OracleAS Portal installations, you can perform the installation as the same Oracle Internet Directory user who performed the first installation. If you want to allow a different Oracle Internet Directory user to install OracleAS Portal, you have to add this user to the Component Owners group for the Portal application entity.

Table 8–4 (Cont.) Oracle Internet Directory Groups Required to Configure Components

To Configure This Component	User Must Be a Member of ALL Listed Groups:
OracleAS Wireless	■ IAS & User Management Application Admins ■ iAS Admins ■ Mid-Tier Admins or Repository Owners group for the metadata repository ■ Component Owners group for the OracleAS Wireless component **Note:** This group is applicable only when you are installing additional OracleAS Wireless instances. It does not apply for the first OracleAS Wireless installation. For subsequent OracleAS Wireless installations, you can perform the installation as the same Oracle Internet Directory user who performed the first installation. If you want to allow a different Oracle Internet Directory user to install OracleAS Wireless, you have to add this user to the Component Owners group for the Wireless application entity. ■ In addition, the user must be one of the owners of the OracleAS Wireless application entity. To determine the name of the OracleAS Wireless application entity, run the following command from the first OracleAS Wireless installation: `prompt> $ORACLE_HOME/wireless/bin/getAppEntityName.sh` Then add the user as a component owner for this application entity. You can do this using the Deployment Delegation Console or the Oracle Directory Manager.
OracleAS Reports Services OracleAS Forms Services OracleAS Personalization OracleBI Discoverer	■ iAS Admins ■ Mid-Tier Admins or Repository Owners group for the metadata repository

To Determine the Metadata Repository Used by OracleAS Single Sign-On

1. Run the following command (all on one line):

```
prompt> ldapsearch -h oidhostname -p oidport -D cn=orcladmin -w password
 -b "orclapplicationcommonname=orasso_ssoserver,cn=sso,cn=products,
      cn=oraclecontext"
 -s base "objectclass=*" seealso
```

   Values you need to provide:

   oidhostname - name of the computer running Oracle Internet Directory. Example: `dbmachine.mydomain.com`.

   oidport - port number on which Oracle Internet Directory is listening. Example: `389`.

   password - password for the `cn=orcladmin` user.

2. If the command in the preceding step does not return the name of the metadata repository, then run the following commands:

   a. Run this command first to get the "orclreplicaid" value, which you need for the next command.

```
prompt> ldapsearch -h oidhostname -p oidport -D cn=orcladmin -w password
 -b "" -s base "objectclass=*" orclreplicaid
```

b. Then run this command.

```
prompt> ldapsearch -h oidhostname -p oidport -D cn=orcladmin -w password
 -b "orclreplicaid=value_from_previous_command,cn=replication
configuration"
 -s base "objectclass=*" seealso
```

This returns a "seealso" value in the format: `cn=Metadata repository DB Name,cn=oraclecontext`.

8.4 Groups Required to Install Middle Tiers

When you install middle tiers, the installer prompts you to log in to Oracle Internet Directory. Log in as a user who is a member of these groups:

- Section 8.4.1, "Groups Required to Install Against the Desired Metadata Repository"
- Section 8.4.2, "Groups Required to Install Middle-Tier Components"

8.4.1 Groups Required to Install Against the Desired Metadata Repository

To install middle tiers against a metadata repository, the user must belong to these groups:

- IAS Admins group
- Mid-Tier Admins group for the metadata repository to be used with the middle tier. When the installer prompts for the OracleAS Metadata Repository to use with this middle tier, the installer displays only the metadata repositories for which the user is a mid-tier admin. For example, in Figure 8–2, userA can see only the repository for orcl.oracle.com, and userB can see only the repository for orcl1.oracle.com.

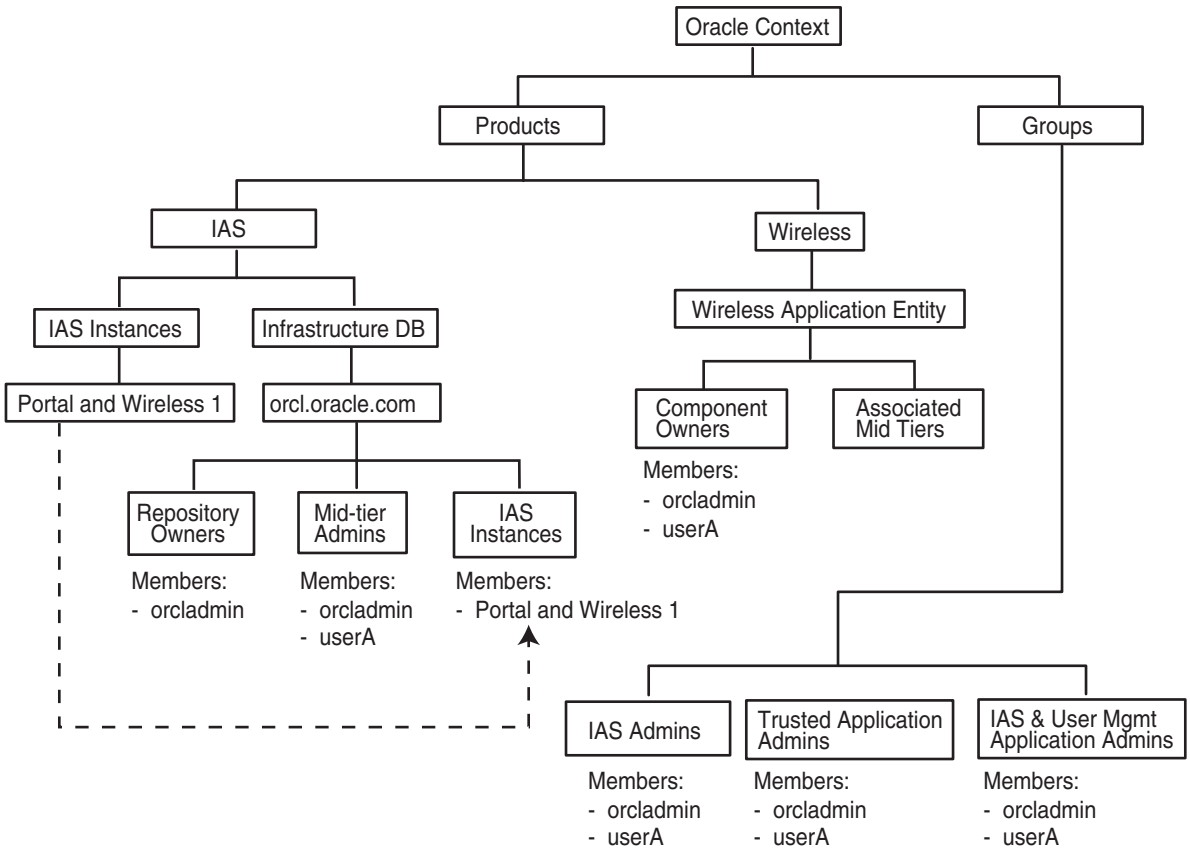
8.4.2 Groups Required to Install Middle-Tier Components

To install middle-tier components, such as OracleAS Portal and OracleAS Wireless, the user must belong to additional groups. Refer to Table 8–4 for a list of components and required groups.

8.4.3 Example

Figure 8–1 shows an Oracle Internet Directory with one metadata repository and one middle-tier instance. userA can install middle tiers against the orcl metadata repository because userA belongs to the Mid-Tier Admins and the IAS Admins groups. userA can also install middle-tier components because userA belongs to the Trusted Application Admins group, the IAS & User Management Application Admins group, and the Component Owners group for Wireless.

Figure 8–1 Contents of Oracle Internet Directory with One Infrastructure and One Middle Tier



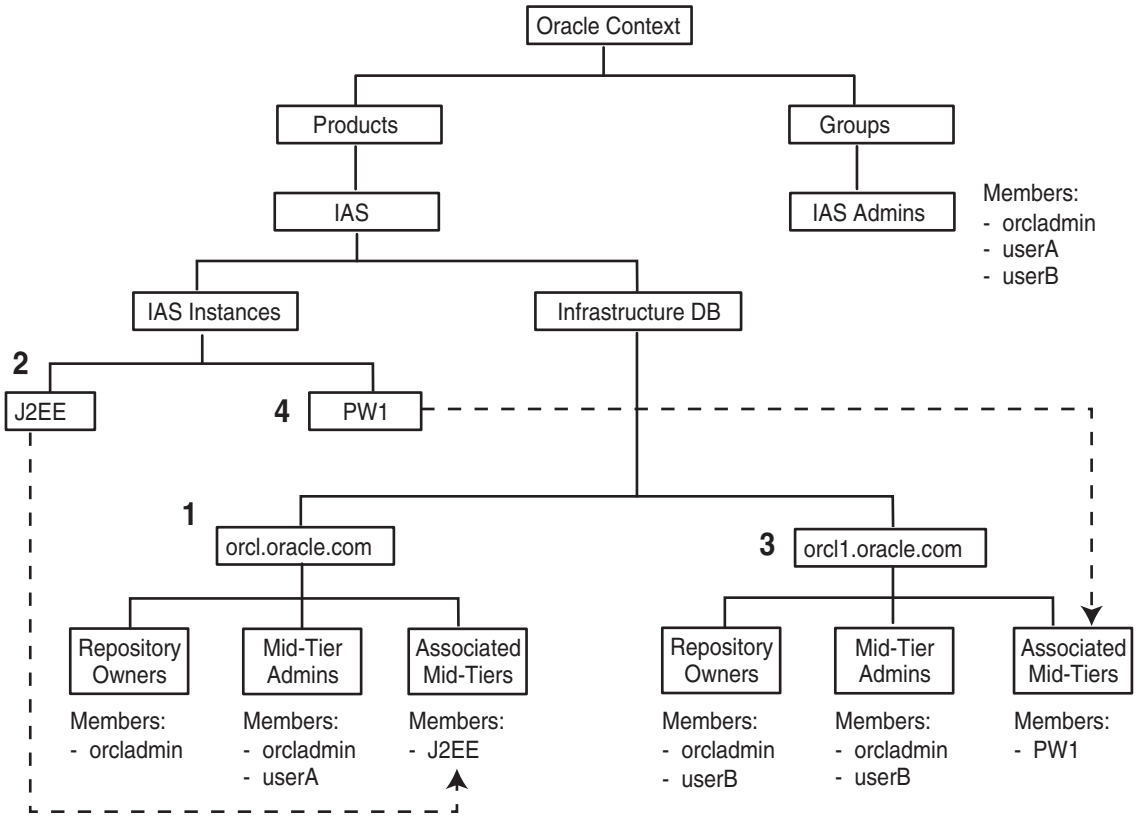
8.5 Groups Required to Install Additional Metadata Repositories

To install additional metadata repositories, a user must be a member of the IAS Admins group. After installation, the user then becomes a member of the Repository Owners group for that metadata repository.

8.6 Example of Installation with Different Users

Figure 8–2 shows an Oracle Internet Directory with two metadata repositories and two middle tiers installed by different users.

Figure 8–2 Oracle Internet Directory with Two Metadata Repositories and Two Middle Tiers



The numbers in the figure correspond to these steps:

1. Install OracleAS Infrastructure (including Oracle Internet Directory and OracleAS Metadata Repository)

This first installation creates an Oracle Internet Directory and a metadata repository.

The installer registers the metadata repository with Oracle Internet Directory by creating the "orcl.oracle.com" entry.

The `orcladmin` user becomes a member of the Repository Owners group and the Mid-Tier Admins group for this repository.

2. Install J2EE and Web Cache Middle Tier

userA was added to the following groups:

- Mid-Tier Admins group of "orcl.oracle.com"

  This enables userA to use the "orcl.oracle.com" repository for this middle tier. Note that this group is required only if you install the J2EE and Web Cache middle tier with the OracleAS Database-Based Cluster option. If you install the middle tier without this option, userA does not need to belong to this Mid-Tier Admins group.

- iAS Admins group

The installer registers this middle tier with Oracle Internet Directory by creating the "J2EE" entry. (The "J2EE" is the name of the middle-tier instance, specified by userA.)

The middle tier becomes a member of the Associated Mid-Tiers group for "orcl.oracle.com".

3. Install OracleAS Infrastructure (OracleAS Metadata Repository only)

userB was added to the iAS Admins group so that userB can perform this installation. Refer to Section 8.5, "Groups Required to Install Additional Metadata Repositories".

The installer registers this new repository with Oracle Internet Directory by creating the "orcl1.oracle.com" entry.

userB becomes a member of the Repository Owners group and the Mid-Tier Admins group for the new repository.

4. Install Portal and Wireless Middle Tier

userB was added to these groups:

- Mid-Tier Admins group of "orcl1.oracle.com", so that userB can use the repository for this middle tier
- Trusted Application Admins, required for installing OracleAS Portal
- IAS & User Management Application Admins, required for installing OracleAS Portal and OracleAS Wireless
- iAS Admins, required for installing OracleAS Portal and OracleAS Wireless

The installer registers this middle tier with Oracle Internet Directory by creating the "PW1" entry.

The middle tier becomes a member of the Associated Mid-Tiers group for "orcl1.oracle.com".

8.7 How to Create Users in Oracle Internet Directory

You can create users in Oracle Internet Directory using the Self-Service Console, which is part of the Oracle Delegated Administration Services. Refer to *Oracle Internet Directory Administrator's Guide* for details.

Note: You **cannot** connect to Oracle Internet Directory as the `cn=orcladmin` superuser using the Oracle Delegated Administration Services consoles. To connect to Oracle Internet Directory as the superuser, use Oracle Directory Manager.

8.8 How to Add Users to Groups in Oracle Internet Directory

To add users to groups in Oracle Internet Directory, you can use these tools:

- Oracle Directory Manager is a Java-based tool for managing Oracle Internet Directory.
- Oracle Delegated Administration Services is a Web-based tool intended for end-users to perform tasks such as changing their passwords and editing their personal information. If users have the proper privileges, they can also use this tool to create groups and users.

Note: You cannot log in to Oracle Internet Directory as the `cn=orcladmin` superuser using Oracle Delegated Administration Services. In cases where you have to log in as the superuser to add users to groups (or to perform other Oracle Internet Directory-related tasks), you have to use Oracle Directory Manager.

8.8.1 Using Oracle Directory Manager to Add Users to Groups

When you have to log in as the `cn=orcladmin` superuser to add users to groups, you have to use Oracle Directory Manager, instead of Oracle Delegated Administration Services.

To add users using Oracle Directory Manager:

1. Start up Oracle Directory Manager. ORACLE_HOME refers to the home directory where Oracle Internet Directory is installed.

   ```
   prompt> cd $ORACLE_HOME/bin
   prompt> ./oidadmin
   ```

2. In the Oracle Directory Manager Connect screen, enter the connect information for Oracle Internet Directory:
   - **User**: Enter `cn=orcladmin`.
   - **Password**: Enter the password for `cn=orcladmin`.
   - **Server** and **Port**: Click the icon at the right of the field to enter the name of the computer running Oracle Internet Directory and the port number on which Oracle Internet Directory is listening.
   - Click **Login**.
3. On the left side, navigate to the group to which you want to add users. Select the group on the left side to display its attributes on the right side.

   To navigate to "global" groups, refer to Section 8.8.1.1, "Navigating to "Global" Groups".

   To navigate to metadata repository groups, refer to Section 8.8.1.2, "Navigating to Metadata Repository Groups".

   To navigate to component groups, refer to Section 8.8.1.3, "Navigating to Component Groups".
4. Add new users to the group by adding the DNs of the users to the `uniquemember` attribute.

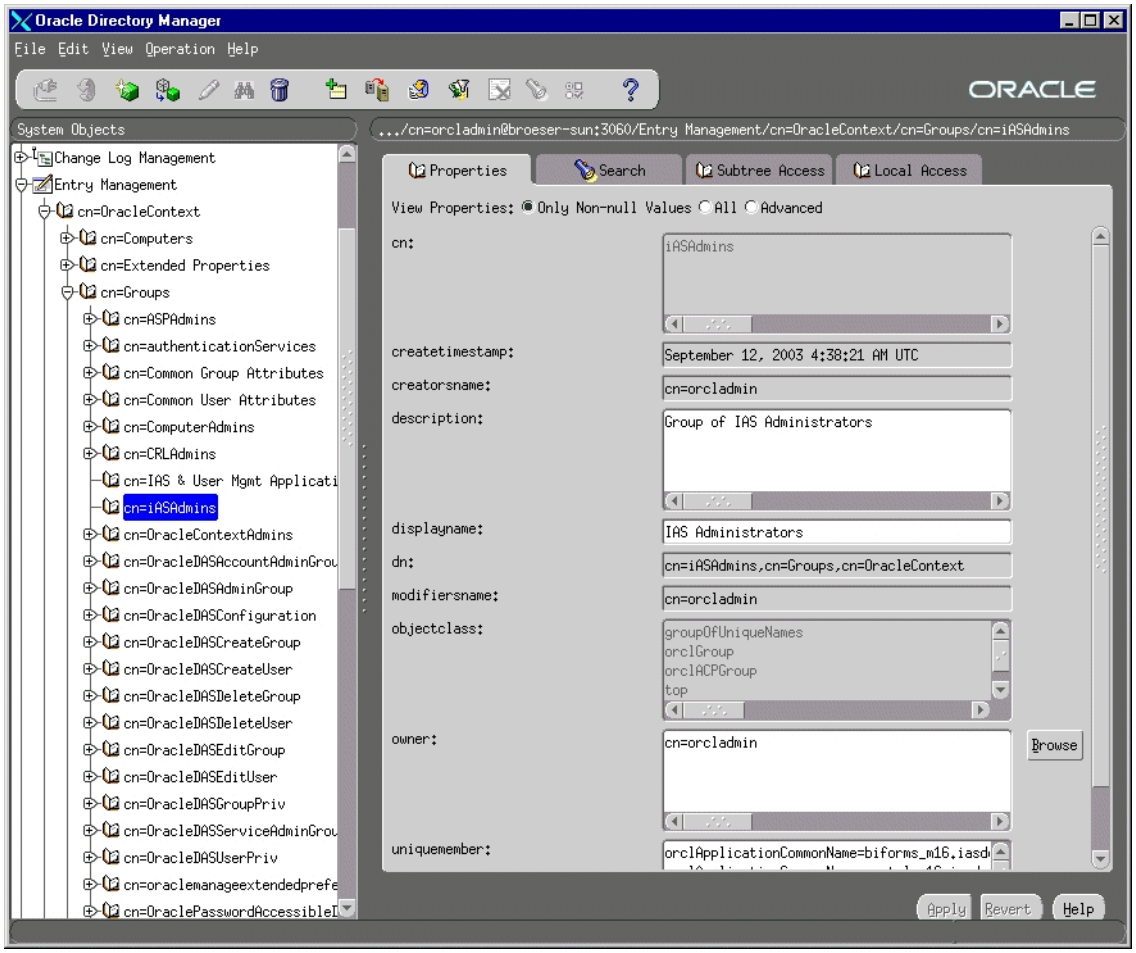
8.8.1.1 Navigating to "Global" Groups

The "global" groups are listed in Table 8–1.

The general navigation path is as follows. Refer to Figure 8–3 for a screenshot.

1. Expand the top-level entry, "Oracle Internet Directory Servers".
2. Expand the specific Oracle Internet Directory.
3. Expand the following entries: **Entry Management** > **cn=OracleContext** > **cn=Groups**.
4. Click the group to which you want to add users. Figure 8–3 shows Oracle Directory Manager with the iASAdmins group selected.

Figure 8–3 Using Oracle Directory Manager to Add Users to "Global" Groups



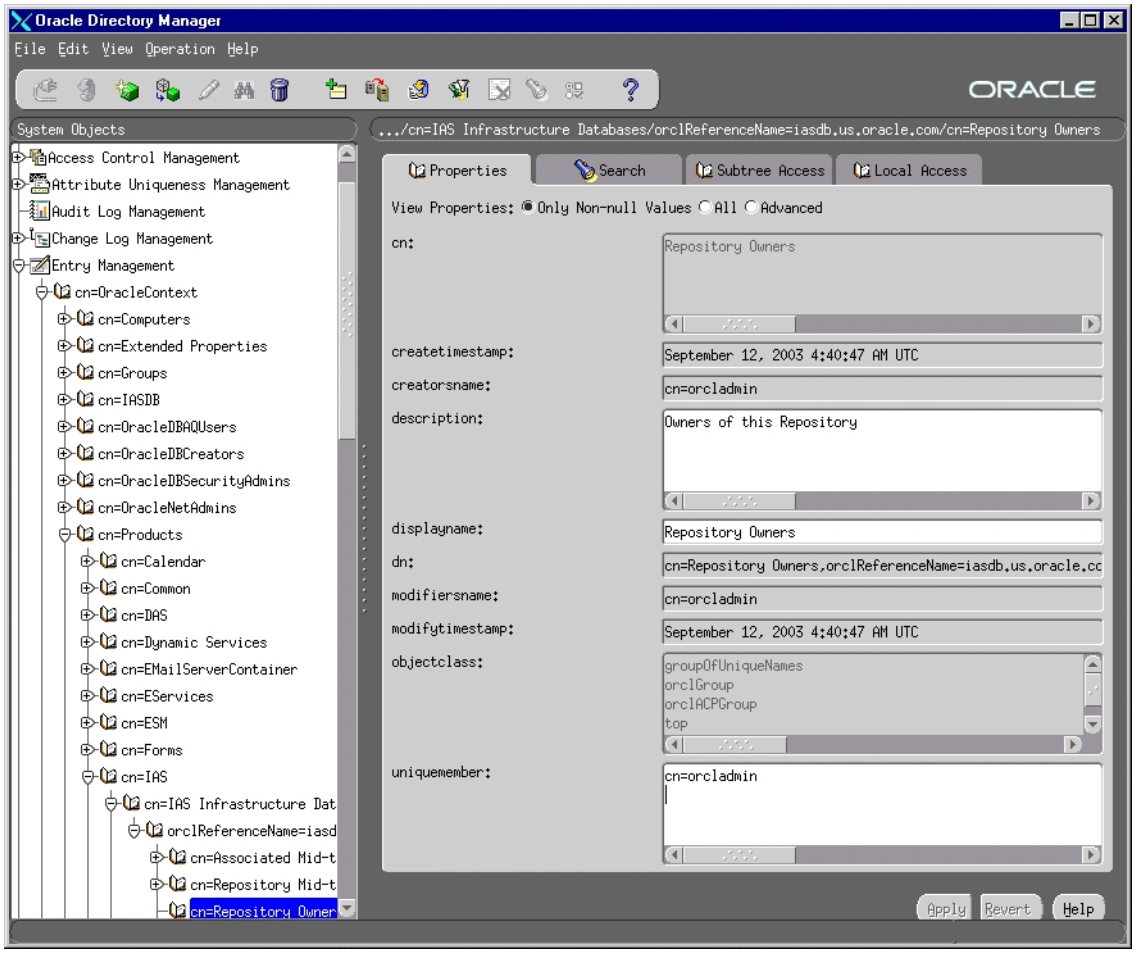
8.8.1.2 Navigating to Metadata Repository Groups

The metadata repository groups are listed in Table 8–2.

The general navigation path is as follows. Refer to Figure 8–4 for a screenshot.

1. Expand the top-level entry, "Oracle Internet Directory Servers".
2. Expand the specific Oracle Internet Directory.
3. Expand the following entries: **Entry Management** > **cn=OracleContext** > **cn=Products** > **cn=IAS** > **cn=IAS Infrastructure Databases** > **orclReferenceName=***dbName*, where *dbName* is the name of the OracleAS Metadata Repository database.
4. Click the group to which you want to add users. Figure 8–4 shows Oracle Directory Manager with the Repository Owners group for the orcl.us.oracle.com database selected.

Figure 8–4 Using Oracle Directory Manager to Add Users to Metadata Repository Groups



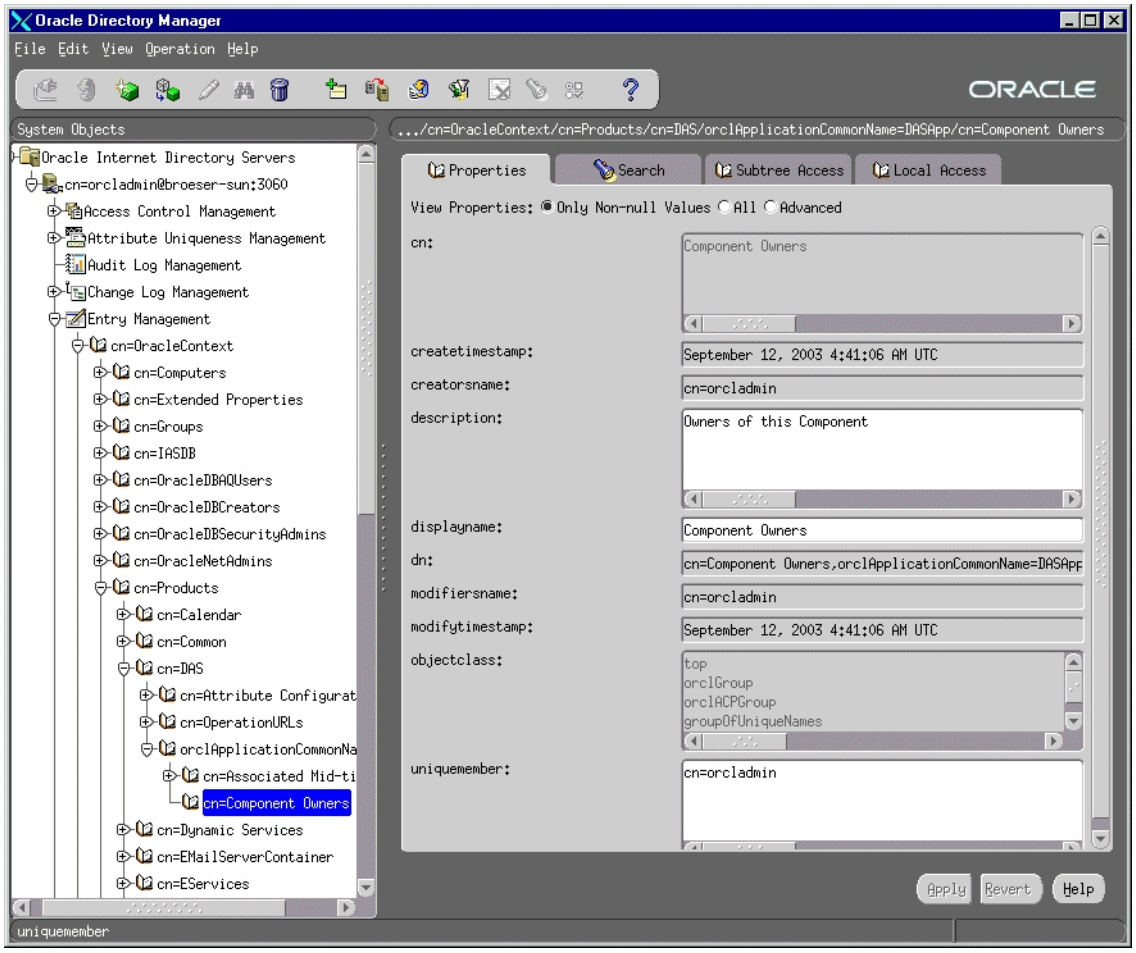
8.8.1.3 Navigating to Component Groups

The component groups are listed in Table 8–3.

The general navigation path is as follows. Refer to Figure 8–5 for a screenshot.

1. Expand the top-level entry, "Oracle Internet Directory Servers".
2. Expand the specific Oracle Internet Directory.
3. Expand the following entries: **Entry Management** > **cn=OracleContext** > **cn=Products**.
4. Expand the particular component (for example, **cn=DAS**) whose groups you want to add users to.
5. Expand **orclApplicationCommonName=***appName*, where *appName* is specific to the component and application server instance. If you have installed multiple instances of a component, you would see multiple instances of this entry.
6. Click the group to which you want to add users. Figure 8–5 shows Oracle Directory Manager with the Component Owners group for Oracle Delegated Administration Services selected.

Figure 8–5 Using Oracle Directory Manager to Add Users to the Component Users Group for the Oracle Delegated Administration Services Component



8.8.2 Using Deployment Delegation Console to Add Users to Groups

Using the Deployment Delegation Console, which is installed as part of Oracle Delegated Administration Services, you can add users to or remove users from the following groups:

- Repository Owners
- Mid-Tier Administrators
- Component Owners

> **Note:** You can add users to these groups only if these groups have existing members other than the `cn=orcladmin` superuser. If the only member of these groups is the superuser, then you have to use Oracle Directory Manager to add users to these groups. Refer to Section 8.8.1, "Using Oracle Directory Manager to Add Users to Groups".

To add users to these groups:

1. Ensure that the Oracle Delegated Administration Services and Oracle Internet Directory are running.

2. Display the Deployment Delegation Console page. The URL is:

   `http://hostname:port/oiddas/ui/oidinstallhome`

   hostname specifies the name of the computer where you installed Oracle Delegated Administration Services.

   port specifies the port on which Oracle HTTP Server is listening.

3. Click **Login**.

4. Enter a username and password to log in to Oracle Internet Directory, and click **Login**. The login user must have sufficient privileges to allow you to add users to the desired group:

To add users to this group:	Log in as a user who belongs to:
Repository Owners	the same Repository Owners group.
Mid-Tier Administrators	the Repository Owners group for the same repository.
Component Owners	the same Component Owners group.

5. Perform the steps to add the user to the desired group:

To add the user to the Repository Owners group

1. Click the **Repository** tab.

   This displays all the metadata repositories for which you are an owner.
2. Select the metadata repository to which you want to add a user, and click **Manage Owners**.
3. On the page that displays the current owners, click **Add**.
4. Enter the first few characters of the user's name in the **Search** field and click **Go**. If you leave the **Search** field empty and click **Go**, you would get a list of all users in Oracle Internet Directory.
5. Select the user that you want to add to the Repository Owners group and click **Select**.
6. Click **Submit** on the Manage Repository Owners page.

To add the user to the Mid-Tier Administrators group

1. Click the **Repository** tab.

   This displays all the metadata repositories for which you are an owner.
2. Select the metadata repository to which you want to add a user, and click **Manage Administrators**.
3. On the page that displays the current administrators, click **Add**.
4. Enter the first few characters of the user's name in the **Search** field and click **Go**. If you leave the **Search** field empty and click **Go**, you would get a list of all users in Oracle Internet Directory.
5. Select the user that you want to add to the Mid-Tier Administrators group and click **Select**.
6. Click **Submit** on the Manage Administrators page.

To add the user to the Component Owners group

1. Click the **Components** tab.

   This displays all the components for which you are an owner.
2. Select the component to which you want to add a user, and click **Manage Owners**.
3. On the page that displays the current component owners, click **Add**.
4. Enter the first few characters of the user's name in the **Search** field and click **Go**. If you leave the **Search** field empty and click **Go**, you would get a list of all users in Oracle Internet Directory.
5. Select the user that you want to add to the Component Owners group and click **Select**.
6. Click **Submit** on the Manage Component Owners page.

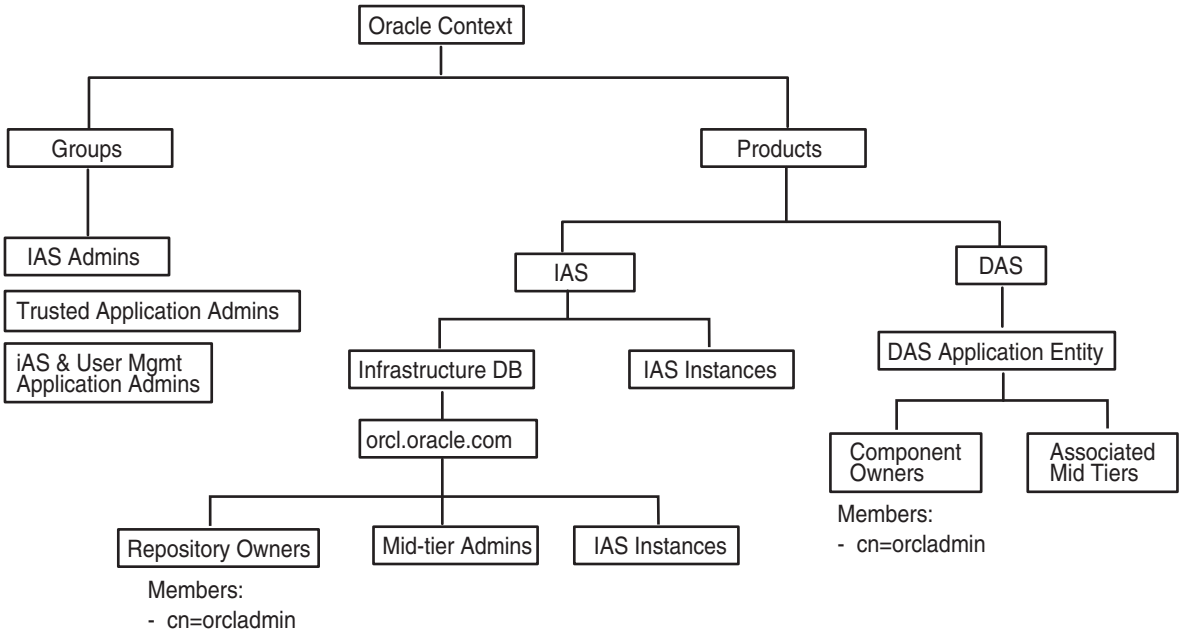
8.9 Contents of a New Oracle Internet Directory

When you install OracleAS Infrastructure with Oracle Internet Directory, OracleAS Metadata Repository, and Oracle Delegated Administration Services, the Oracle Internet Directory contains the following objects (Figure 8–6):

- "Global" groups as listed in Table 8–1
- The `cn=orcladmin` superuser
- The `orcladmin` user belonging to the default realm
- An entry for the metadata repository registered with the Oracle Internet Directory. This metadata repository is associated with the groups listed in Table 8–2. The `cn=orcladmin` superuser is a member of the Repository Owners group.
- An application entity entry for the Oracle Delegated Administration Services component. This component is associated with the groups listed in Table 8–3. The `cn=orcladmin` superuser is a member of the Component Owners group.

  To enable other users to install additional instances of Oracle Delegated Administration Services, log in as `cn=orcladmin` in Oracle Directory Manager and add the users to the Component Owners group. Refer to Section 8.8.1, "Using Oracle Directory Manager to Add Users to Groups".

Figure 8–6 Contents of a New Oracle Internet Directory



8.10 On the Specify Login for Oracle Internet Directory Screen, What Username and Realm Do I Enter?

The installer displays the Specify Login for Oracle Internet Directory screen:

- when you are installing OracleAS Infrastructure and you are using an existing Oracle Internet Directory
- when you are installing a middle tier that requires an infrastructure.

This screen prompts you to enter a username and password to log in to Oracle Internet Directory.

Username

In the Username field, enter either the simple username or the user's DN.

Simple username example: `jdoe`

DN example: `cn=orcladmin`

The user must belong to specific groups for installing and configuring certain components. Refer to Table 8–4 for details.

If you want to specify the superuser, enter `cn=orcladmin`, not just `orcladmin`.

Realm

The Realm field appears only if your Oracle Internet Directory contains more than one realm. The username that you enter is authenticated against the specified realm. If you are unsure what the realm name is, contact your Oracle Internet Directory administrator.

Example 1: in a hosted deployment, the realm name could be similar to the name of the hosted company: `XYZCorp`.

Example 2: within an enterprise, you could have separate realms for internal users and external users. The realm name for the external users could be `externalUsers`.

9

Installing Oracle Internet Directory in Replicated Mode

This chapter describes how to install Oracle Internet Directory in replicated mode, that is, how to install Oracle Internet Directory masters and replicas.

Contents:

- Section 9.1, "Oracle Internet Directory Replication Overview"
- Section 9.2, "Requirements"
- Section 9.3, "Installation Order"
- Section 9.4, "Installing a Master Oracle Internet Directory"
- Section 9.5, "Installing an Oracle Internet Directory Replica"
- Section 9.6, "Accessing OracleAS Single Sign-On and Oracle Delegated Administration Services"

9.1 Oracle Internet Directory Replication Overview

To run Oracle Internet Directory in a replication environment means that you have more than one Oracle Internet Directory, each with its own OracleAS Metadata Repository. The Oracle Internet Directory instances synchronize the data in the metadata repositories so that the data in the repositories are "loosely consistent". This means that the data in the repositories are not guaranteed to be synchronized in "real time", but the data become identical within an acceptable time interval.

For More Information

This chapter provides information from an installation point of view. For in-depth information on replication, refer to the following guides:

- For information on Oracle Internet Directory replication concepts and administration, refer to *Oracle Internet Directory Administrator's Guide*.
- For information on Oracle Internet Directory replication deployment scenarios, refer to *Oracle Identity Management Concepts and Deployment Planning Guide*.

Types of Replication

There are two types of replication. During installation, you select the type of replication that you want.

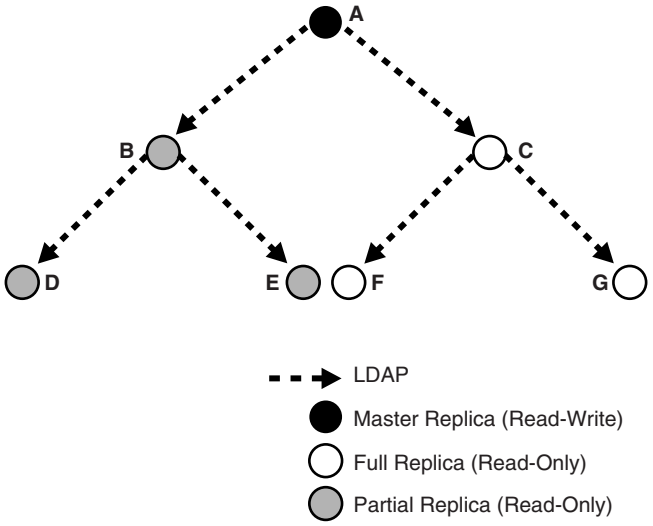
- Section 9.1.1, "Fan-Out Replication (LDAP Replication)"
- Section 9.1.2, "Multimaster Replication (Advanced Replication)"

9.1.1 Fan-Out Replication (LDAP Replication)

In fan-out replication, one Oracle Internet Directory is the master, and the other Oracle Internet Directory instances are called the Oracle Internet Directory replicas.

Clients modify the data in the master Oracle Internet Directory only. The master then propagates the changes to the replicas. These replicas, in turn, can update other Oracle Internet Directory replicas.

Figure 9–1 Example of Fan-Out Replication (LDAP Replication)



In fan-out replication, Oracle Internet Directory instances use the LDAP protocol to communicate with each other. The Select Oracle Internet Directory Replication Mode screen in the installer uses the term **LDAP Replication** to refer to fan-out replication.

The procedure for installing a master Oracle Internet Directory is the same as installing a "regular" (non-replicated) Oracle Internet Directory.

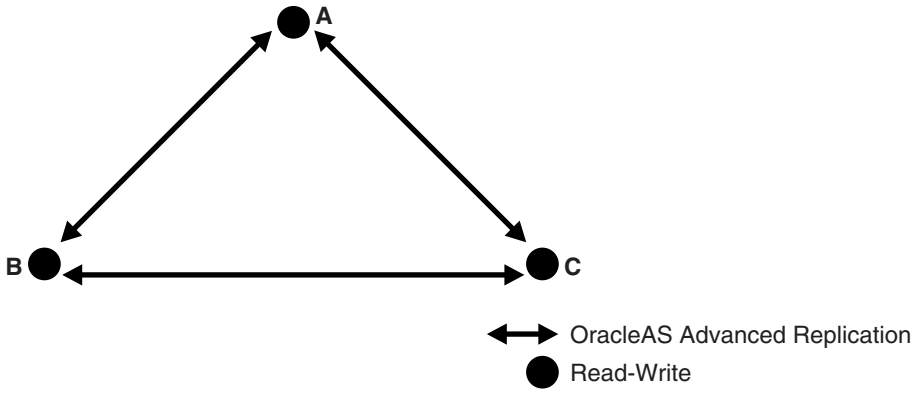
The procedure for installing replicas is different. When installing a replica, you must select the **High Availability and Replication** option in the Select Configuration Options screen, and you need to provide connect information to the master Oracle Internet Directory.

The Oracle Application Server instance that runs the Oracle Internet Directory (master or replica) can also run other Oracle Application Server components, such as the OracleAS Metadata Repository, OracleAS Single Sign-On, Oracle Delegated Administration Services, and/or Oracle Directory Integration and Provisioning.

9.1.2 Multimaster Replication (Advanced Replication)

In multimaster replication, you have one or more master Oracle Internet Directory instances. You can also have other Oracle Internet Directory instances that are replicas. Clients can update data in any Oracle Internet Directory (master or replica). The Oracle Internet Directory instances propagate the changes among themselves.

Figure 9–2 Example of Multimaster Replication (Advanced Replication)



In multimaster replication, Oracle Internet Directory instances use the Oracle Database Advanced Replication protocol to communicate with each other. The Select Oracle Internet Directory Replication Mode screen in the installer uses the term **Advanced Replication** to refer to multimaster replication.

The procedure for installing a master Oracle Internet Directory is the same as installing a "regular" (non-replicated) Oracle Internet Directory.

The procedure for installing replicas is different. When installing a replica, you must select the **High Availability and Replication** option in the Select Configuration Options screen, and you need to provide connect information to the master Oracle Internet Directory.

The Oracle Application Server instance that runs the Oracle Internet Directory (master or replica) can also run other Oracle Application Server components, such as the OracleAS Metadata Repository, OracleAS Single Sign-On, Oracle Delegated Administration Services, and/or Oracle Directory Integration and Provisioning.

9.2 Requirements

Check that you meet the following requirements for installing Oracle Internet Directory in replication mode:

- Section 9.2.1, "Database Requirements"
- Section 9.2.2, "Clock Synchronization"

9.2.1 Database Requirements

Each Oracle Internet Directory, whether master or replica, needs its own OracleAS Metadata Repository. You can install it with a new OracleAS Metadata Repository, or against an existing OracleAS Metadata Repository.

If installing against an existing OracleAS Metadata Repository, you can create an existing OracleAS Metadata Repository in two different ways:

- You can install it by selecting the **OracleAS Metadata Repository** option in the Select Installation Type screen.
- You can install the OracleAS Metadata Repository in an existing database. Refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details on how to load the OracleAS Metadata Repository in an existing database.

If you are installing against an existing OracleAS Metadata Repository, the **OracleAS Metadata Repository must not be already registered with another Oracle Internet Directory**. If you specify an OracleAS Metadata Repository that is already registered with an Oracle Internet Directory, the installer assumes you are installing a high availability environment, and it does not display the replication options.

9.2.2 Clock Synchronization

Check that the clocks on the computers running the masters and replicas are within 250 seconds of each other.

9.3 Installation Order

To install Oracle Internet Directory in replicated mode, you need a master Oracle Internet Directory and one or more Oracle Internet Directory replicas. You install them in the following order:

1. Install the master Oracle Internet Directory first.
2. Install the Oracle Internet Directory replicas. The installer will prompt you to enter connect information for the master Oracle Internet Directory.

9.4 Installing a Master Oracle Internet Directory

The procedure for installing a master Oracle Internet Directory is the same as installing a "regular" (non-replicated) Oracle Internet Directory. You can install the master Oracle Internet Directory against an existing database, or you can install it with a new database.

Note:

- In the Select Configuration Options screen, you must select **Oracle Internet Directory**. You can select other components to configure, as desired.
- Also in the Select Configuration Options screen, you do not need to select **High Availability and Replication**. Select this option only if you are installing this Oracle Application Server instance in a high availability configuration.
- If you select the **High Availability and Replication** option in Select Configuration Options screen, the installer displays the Select High Availability Option screen. In this, **do not** select the **Replication** option, because this option is for installing a replica Oracle Internet Directory, not a master Oracle Internet Directory.

You can use any of the procedures in Chapter 6, "Installing OracleAS Infrastructure" to install a master Oracle Internet Directory. Examples:

- To install a master Oracle Internet Directory with a new database, follow the procedure in Section 6.20, "Installing OracleAS Infrastructure".
- To install a master Oracle Internet Directory with an existing database, follow the procedure in Section 6.23, "Installing Oracle Identity Management Components Only (Including Oracle Internet Directory)" or Section 6.25, "Installing Oracle Internet Directory Only".

You can also install a master Oracle Internet Directory in high availability environments. Refer to Chapter 11, "Installing in High Availability Environments: OracleAS Cold Failover Cluster" and Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)" for details.

9.5 Installing an Oracle Internet Directory Replica

You can install an Oracle Internet Directory replica against an existing database, or you can install it with a new database.

Contents of this section:

- Section 9.5.1, "Overview of Installing a Replica"
- Section 9.5.2, "Installing an Oracle Internet Directory Replica with a New Database"
- Section 9.5.3, "Installing an Oracle Internet Directory Replica against an Existing Database"

9.5.1 Overview of Installing a Replica

When installing an Oracle Internet Directory replica, remember the following:

- In the Select Configuration Options screen, you must select **Oracle Internet Directory** and **High Availability and Replication**.
- In the Select High Availability Option screen, select **Replication**.
- When the installer prompts you to enter connect information for the master Oracle Internet Directory, you need to connect as the Oracle Internet Directory superuser (`cn=orcladmin`). You need to know the password for the superuser.
- The master Oracle Internet Directory must not already contain a registration for a database with the same global database name or SID as the OracleAS Metadata Repository to be used for the replica.
- The OracleAS Metadata Repository for the replica cannot already be registered with any Oracle Internet Directory.

9.5.2 Installing an Oracle Internet Directory Replica with a New Database

Follow these steps to install an Oracle Internet Directory replica with a new database:

Table 9–1 Installing an Oracle Internet Directory Replica with a New Database

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select a Product to Install screen, select **OracleAS Infrastructure**. ■ In the Select Installation Type screen, select **Oracle Identity Management and OracleAS Metadata Repository**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **High Availability and Replication**. The other options on this screen are optional: Select **OracleAS Single Sign-On**, **OracleAS Delegated Administration Services**, **OracleAS Directory Integration and Provisioning**, and/or **OracleAS Certificate Authority (OCA)** if you need these components. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
4.	Select High Availability Option	This screen is required to install a replica. This screen appears only if you selected **High Availability and Replication** in the Select Configuration Options screen. Select **Replication**, and click **Next**.
5.	Select Oracle Internet Directory Replication Mode	Select **LDAP Replication** if you want fan-out replication. Select **Advanced Replication** if you want multimaster replication. Click **Next**.
6.	Specify Oracle Internet Directory Master Node	**Hostname**: Enter the name of the computer running the master Oracle Internet Directory. **Port**: Enter the port at which the master Oracle Internet Directory is listening. Do not select **Use only SSL connections with this Oracle Internet Directory**. If you want Oracle Internet Directory to run in SSL-only mode, you can make this configuration change after installation. Refer to *Oracle Application Server Administrator's Guide* for details. Click **Next**.
7.	Specify Master Oracle Internet Directory Login	**Username**: Enter `cn=orcladmin` because you have to connect to the master Oracle Internet Directory as the superuser. **Password**: Enter the password for the superuser. Click **Next**.
8.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
9.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OCA. Refer to Section 6.30, "Install Fragment: OCA Screens" for details.

Table 9–1 (Cont.) Installing an Oracle Internet Directory Replica with a New Database

	Screen	Action
10.	Specify Database Configuration Options	**Global Database Name**: Enter a name for the OracleAS Metadata Repository database. Append the domain name of your computer to the database name. Example: `orcl.mydomain.com` **Note**: Ensure that the master Oracle Internet Directory does not already contain a registration for a database with the same global database name or SID. (The installer checks this for you.) **SID**: Enter the system identifier for the OracleAS Metadata Repository database. Typically this is the same as the global database name, but without the domain name. The SID must be unique across all databases. The SID cannot be longer than eight characters. Example: `orcl` **Select Database Character Set**: Select the character set to use. **Specify Database File Location**: Enter the full path to the parent directory for the data files directory. This parent directory must already exist, and you must have write permissions in this directory. The installer will create a subdirectory in this parent directory, and the subdirectory will have the same name as the SID. The data files will be placed in this subdirectory. Example: If you enter `/u02/oradata`, and the SID is `orcl`, then the data files will be located in `/u02/oradata/orcl`. Click **Next**.
11.	Specify Database Schema Passwords	Set the passwords for these privileged database schemas: SYS, SYSTEM, SYSMAN, and DBSNMP. You can set different passwords for each schema, or you can set the same password for all the schemas. Refer to Section 6.14, "Restrictions on the Passwords for the SYS, SYSTEM, SYSMAN, and DBSNMP Users" for rules on setting passwords for these accounts. Click **Next**.
12.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra` **ias_admin Password** and **Confirm Password**: Enter and confirm the password for the ias_admin user. This is the administrative user for this infrastructure instance. This password will also become the password for the following users: ▪ the Oracle Internet Directory superuser ("`cn=orcladmin`") ▪ the Oracle Internet Directory database user ("`ods`") ▪ the replication DN, which is the identity used by the replication server. The DN is: "`cn=replication dn, orclreplicaid=`*replica_ID*`, cn=replication configuration`", where *replica_ID* is the replica ID of the Oracle Internet Directory being installed. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for password requirements. Example: `welcome99` Click **Next**.
13.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

9.5.3 Installing an Oracle Internet Directory Replica against an Existing Database

Follow these steps to install an Oracle Internet Directory replica against an existing database.

Table 9–2 Installing an Oracle Internet Directory Replica against an Existing Database

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Note: ■ In the Select a Product to Install screen, select **OracleAS Infrastructure**. ■ In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **High Availability and Replication**. The other options on this screen are optional: Select **OracleAS Single Sign-On**, **OracleAS Delegated Administration Services**, **OracleAS Directory Integration and Provisioning**, and/or **OracleAS Certificate Authority (OCA)** if you need these components. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
4.	Specify Repository	Enter information for the OracleAS Metadata Repository that you want to use for the replica. **Note**: ■ This OracleAS Metadata Repository cannot already be registered with any Oracle Internet Directory. ■ The master Oracle Internet Directory, which you will specify in step 7., must not already contain a registration for a database with the same global database name or SID as this OracleAS Metadata Repository. (**The installer does not check this for you.**) **Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.
5.	Select High Availability Option	This screen is required to install a replica. If you do not see this screen, return to the Select Configuration Options screen and ensure you selected **High Availability and Replication**. Select **Replication**. Click **Next**.
6.	Select Oracle Internet Directory Replication Mode	Select **LDAP Replication** if you want fan-out replication. Select **Advanced Replication** if you want multimaster replication. Click **Next**.

Table 9–2 (Cont.) Installing an Oracle Internet Directory Replica against an Existing Database

	Screen	Action
7.	Specify Oracle Internet Directory Master Node	**Hostname**: Enter the name of the computer running the master Oracle Internet Directory. **Port**: Enter the port at which the master Oracle Internet Directory is listening. Do not select **Use only SSL connections with this Oracle Internet Directory**. If you want Oracle Internet Directory to run in SSL-only mode, you can make this configuration change after installation. Refer to *Oracle Application Server Administrator's Guide* for details. Click **Next**.
8.	Specify Master Oracle Internet Directory Login	**Username**: Enter `cn=orcladmin` because you have to connect to the master Oracle Internet Directory as the superuser. **Password**: Enter the password for the superuser. Click **Next**.
9.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
10.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OCA. Refer to Section 6.30, "Install Fragment: OCA Screens" for details.
11.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `id_mgmt` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. This password will also become the password for the following users: ▪ the Oracle Internet Directory superuser ("`cn=orcladmin`") ▪ the Oracle Internet Directory database user ("`ods`") ▪ the replication DN, which is the identity used by the replication server. The DN is: "`cn=replication dn, orclreplicaid=`*replica_ID*`, cn=replication configuration`", where *replica_ID* is the replica ID of the Oracle Internet Directory being installed. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
12.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

9.6 Accessing OracleAS Single Sign-On and Oracle Delegated Administration Services

To access OracleAS Single Sign-On or Oracle Delegated Administration Services on the replica node, you have to use the password for the `orcladmin` user on the master Oracle Internet Directory, not the replica Oracle Internet Directory.

Example:

1. Enter the URL for OracleAS Single Sign-On or Oracle Delegated Administration Services in your browser:

   For OracleAS Single Sign-On, the URL is: `http://`*`host`*`:`*`port`*`/pls/orasso`.

   For Oracle Delegated Administration Services, the URL is: `http://`*`host`*`:`*`port`*`/oiddas`.

   host specifies the name of the computer where you installed the Oracle Internet Directory replica.

   port specifies the port number on which Oracle HTTP Server is listening.

2. To log in, enter `orcladmin` as the user name and the password you entered when you installed the **master Oracle Internet Directory**. If you enter the password for the replica Oracle Internet Directory, the login will not succeed.

10

Installing in High Availability Environments: Overview

This chapter provides an overview of the high availability configurations supported by Oracle Application Server. Subsequent chapters provide the details. This chapter also lists the common requirements.

Contents of this chapter:

- Section 10.1, "Overview of High Availability Configurations"
- Section 10.2, "Installation Order for High Availability Configurations"
- Section 10.3, "Requirements for High Availability Configurations"

10.1 Overview of High Availability Configurations

This chapter provides only a brief overview of the high availability configurations in Oracle Application Server. For a complete description of the configurations, refer to *Oracle Application Server High Availability Guide*.

Oracle Application Server supports the following types of high availability configurations:

- Section 10.1.1, "OracleAS Cold Failover Cluster"
- Section 10.1.2, "OracleAS Cluster"
- Section 10.1.3, "OracleAS Disaster Recovery"

For a quick summary of the high availability configurations, refer to Section 10.1.4, "Summary of Differences".

10.1.1 OracleAS Cold Failover Cluster

Oracle Application Server provides an active-passive model for all its components using OracleAS Cold Failover Clusters. In an OracleAS Cold Failover Cluster configuration, two or more application server instances are configured to serve the same application workload but only one is active at any particular time. These instances can reside on the same machine or on different machines.

The most common properties of an OracleAS Cold Failover Cluster configuration include:

- Shared storage

The passive Oracle Application Server instance in an active-passive configuration has access to the same Oracle binaries, configuration files, and data as the active instance.

- Virtual hostname

  During OracleAS Infrastructure installation, you can specify a virtual hostname in the Specify Virtual Hostname screen. This OracleAS Infrastructure virtual hostname can be managed by a hardware cluster or a load balancer and is used by the middle-tier and OracleAS Infrastructure components to access the OracleAS Infrastructure. This is regardless of whether the OracleAS Infrastructure is in a single node installation, in the OracleAS Cold Failover Cluster solution, or in the OracleAS Cluster solution.

  The virtual hostname is the hostname associated with the virtual IP. This is the name that is chosen to give the Oracle Application Server middle-tier a single system view of the OracleAS Infrastructure with the help of a hardware cluster or load balancer. This name-IP entry must be added to the DNS that the site uses, so that the middle-tier nodes can associate with the OracleAS Infrastructure without having to add this entry into their local `/etc/hosts` (or equivalent) file. For example, if the two physical hostnames of the hardware cluster are `node1.mycompany.com` and `node2.mycompany.com`, the single view of this cluster can be provided by the name `selfservice.mycompany.com`. In the DNS, `selfservice` maps to the virtual IP address of the OracleAS Infrastructure, which either floats between `node1` and `node2` via a hardware cluster or maps to `node1` and `node2` by a load balancer, all without the middle tier knowing which physical node is active and actually servicing a particular request.

  See Also: *Oracle Application Server High Availability Guide*

  You cannot specify a virtual hostname during Oracle Application Server middle-tier installation, but you can still use a virtual hostname via a hardware cluster or load balancer by following the post-installation configuration steps for cold failover cluster middle tiers.

- Failover procedure

  An active-passive configuration also includes a set of scripts and procedures to detect failure of the Active instance and to failover to the Passive instance while minimizing downtime.

The advantages of an OracleAS Cold Failover Cluster configuration include:

- Increased availability

  If the active instance fails for any reason or must be taken offline, an identically configured passive instance is prepared to take over at any time.

- Reduced operating costs

  In an active-passive configuration only one set of processes is up and serving requests. Management of the active instance is generally less than managing an array of active instances.

- Application independence

  Some applications may not be suited to an active-active configuration. This may include applications which rely heavily on application state or on information stored locally. An active-passive configuration has only one instance serving requests at any particular time.

In general, the term OracleAS Cold Failover Cluster describes clustering at the Oracle Application Server instance level. However, if it is necessary to call out the specific type of instances being clustered, this document will use OracleAS Cold Failover Cluster (*type*) to characterize the cluster solution. For example:

- OracleAS Cold Failover Cluster (Identity Management)
- OracleAS Cold Failover Cluster (Middle-Tier)

From the entry point of an Oracle Application Server system (content cache) to the back end layer (data sources), all the tiers that are crossed by a client request can be configured in a redundant manner either in an active-active configuration using OracleAS Clusters or in an active-passive configuration using OracleAS Cold Failover Clusters.

Refer to Chapter 11, "Installing in High Availability Environments: OracleAS Cold Failover Cluster" for installation details.

10.1.2 OracleAS Cluster

Oracle Application Server provides an active-active redundant model for all its components with OracleAS Cluster. In an OracleAS Cluster, two or more Oracle Application Server instances are configured to serve the same application workload. These instances can reside on the same machine or on different machines.The active instances may be front-ended by an external load balancer, which can redirect requests to any of the active instances, or by some other application-level configuration, such as address lists, to distribute the requests.

The most common properties of an OracleAS Cluster configuration include:

- Identical instance configuration

  The instances are meant to serve the same workload or application. Their configuration guarantees that they deliver the same exact reply to the same request. Some configuration properties may be identical and others may be instance-specific, such as local host name information.

- Managed collectively

  Changes made to one system will usually need to be propagated to the other systems in an active-active configuration.

- Operate independently

  In order to provide maximum availability, the loss of one Oracle Application Server instance in an active-active configuration should not affect the ability of the other instances to continue to serve requests.

The advantages of an OracleAS Cluster configuration include:

- Increased availability

  An active-active configuration is a redundant configuration. Loss of one instance can be tolerated because other instance can continue to serve the same requests.

- Increased scalability and performance

  Multiple identically-configured instances provide the capability to have a distributed workload shared among different machines and processes. If configured correctly, new instances can also be added as the demand of the application grows.

In general, the term OracleAS Cluster describes clustering at the Oracle Application Server instance level. However, if it is necessary to call out the specific type of

instances being clustered, this document will use OracleAS Cluster (*type*) to characterize the cluster solution. For example:

- two or more J2EE instances are known as OracleAS Cluster (J2EE)
- two or more OracleAS Portal instances are known as OracleAS Cluster (Portal)
- two or more Oracle Identity Management instances are known as OracleAS Cluster (Identity Management)

For details on OracleAS Cluster (Identity Management), refer to Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)".

10.1.3 OracleAS Disaster Recovery

OracleAS Disaster Recovery configurations have the following characteristics:

- A production site and a standby site that mirrors the production site. Typically, these sites are located some distance from each other to guard against site failures such as floods, fires, or earthquakes. During normal operation, the production site handles all the requests. If the production site goes down, the standby site takes over and handles all the requests.
- Each site has all the hardware and software to run. It contains nodes for running OracleAS Infrastructure and the middle tiers; load balancers; and DNS servers.

OracleAS Disaster Recovery includes OracleAS Infrastructure and middle tiers. For details, refer to Chapter 13, "Installing in High Availability Environments: OracleAS Disaster Recovery".

10.1.4 Summary of Differences

Table 10–1 summarizes the differences among the high availability configurations.

Table 10–1 Differences Among the High Availability Configurations

	OracleAS Cold Failover Cluster	OracleAS Cluster (Identity Management)	OracleAS Disaster Recovery
Node configuration	Active-Passive	Active-Active	Active-Passive
Hardware cluster	Yes	No	Optional (hardware cluster required only if you installed the OracleAS Infrastructure in an OracleAS Cold Failover Cluster configuration)
Virtual hostname	Yes	No	Yes
Load balancer	No	Yes	No
Shared storage	Yes	No	No

10.2 Installation Order for High Availability Configurations

For all high availability configurations, you install the components in the following order:

1. OracleAS Metadata Repository
2. Oracle Identity Management components

   If you are distributing the Oracle Identity Management components, you install them in the following order:

a. Oracle Internet Directory and Oracle Directory Integration and Provisioning

b. OracleAS Single Sign-On and Oracle Delegated Administration Services

3. Middle tiers

   Note that you can install middle tiers before the other components and reassociate them with the high availability configuration following installation of the other components.

10.3 Requirements for High Availability Configurations

This section describes the requirements common to all high availability configurations. In addition to these common requirements, each configuration has its own specific requirements. Refer to the individual chapters for details.

Note: You still need to meet the requirements listed in Chapter 4, "Requirements", plus requirements specific to the high availability configuration that you plan to use.

The common requirements are:

- Section 10.3.1, "Check Minimum Number of Nodes"
- Section 10.3.2, "Check That Groups Are Defined Identically on All Nodes"
- Section 10.3.3, "Check the Properties of the oracle User"
- Section 10.3.4, "Check for Previous Oracle Installations on All Nodes"

10.3.1 Check Minimum Number of Nodes

You need at least two nodes in a high availability configuration. If a node fails for any reason, the second node takes over.

10.3.2 Check That Groups Are Defined Identically on All Nodes

Check that the `/etc/group` file on all nodes in the cluster contains the operating system groups that you plan to use. You should have one group for the `oraInventory` directory, and one or two groups for database administration. The group names and the group IDs must be the same for all nodes.

Refer to Section 4.7, "Operating System Groups" for details.

10.3.3 Check the Properties of the oracle User

Check that the `oracle` operating system user, which you log in as to install Oracle Application Server, has the following properties:

- Belongs to the `oinstall` group and to the `osdba` group. The `oinstall` group is for the `oraInventory` directory, and the `osdba` group is a database administration group. Refer to Section 4.7, "Operating System Groups" for details.
- Has write privileges on remote directories.

10.3.4 Check for Previous Oracle Installations on All Nodes

Check that all the nodes where you want to install in a high availability configuration do not have existing `oraInventory` directories.

Details of all Oracle software installations are recorded in the Oracle Installer Inventory directory. Typically, this directory is unique to a node and named `oraInventory`. The directory path of the Oracle Installer Inventory directory is stored in the `oraInst.loc` file.

The existence of this file on a node confirms that the node contains some Oracle software installation. Since the high availability configurations require installations on multiple nodes with Oracle Installer Inventory directories on a file system that may not be accessible on other nodes, the installation instructions in this chapter and subsequent chapters for high availability configurations assume that there have not been any previous installations of any Oracle software on any of the nodes that are used for this high availability configuration. The `oraInst.loc` file and the Oracle Installer Inventory directory should not exist on any of these nodes prior to these high availability installations.

To check if a node contains an `oraInventory` directory that could be detected by the installer:

1. On each node, check for the existence of the `oraInst.loc` file. This file is stored in the `/etc` directory.

   If a node does not contain this file, then it does not have an `oraInventory` directory that will be used by the installer. You can check the next node.

2. For nodes that contain the `oraInst.loc` file, rename the file and the `oraInventory` directory. The installer then prompts you to enter a location for a new `oraInventory` directory.

   For example enter the following commands as `root`:

```
# cat /etc/oraInst.loc
inventory_loc=/localfs/app/oracle/oraInventory
inst_group=dba
# mv /etc/oraInst.loc /etc/oraInst.loc.orig
# mv /localfs/app/oracle/oraInventory /localfs/app/oracle/oraInventory.orig
```

Because the `oraInst.loc` file and the Oracle Installer Inventory directory are required only during the installation of Oracle software, and not at runtime, renaming them and restoring them later does not affect the behavior of any installed Oracle software on any node. Make sure that the appropriate `oraInst.loc` file and Oracle Installer Inventory directory are in place before starting the Oracle Universal Installer.

> **Note:** For an OracleAS Disaster Recovery configuration, the correct `oraInst.loc` file and associated `oraInventory` directory are required during normal operation, not just during installation.

11

Installing in High Availability Environments: OracleAS Cold Failover Cluster

This chapter describes how to install Oracle Application Server in OracleAS Cold Failover Cluster configurations.

- Section 11.1, "OracleAS Cold Failover Cluster: Introduction"
- Section 11.2, "Preinstallation Steps for OracleAS Cold Failover Cluster"
- Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration"
- Section 11.4, "Installing a Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration"
- Section 11.5, "Installing an OracleAS Cold Failover Cluster (Oracle Identity Management) Configuration"
- Section 11.6, "Installing a Distributed OracleAS Cold Failover Cluster (Oracle Identity Management) Configuration"
- Section 11.7, "Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in an OracleAS Cold Failover Cluster"
- Section 11.8, "Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment"
- Section 11.9, "Installing OracleAS Cold Failover Cluster (Middle-Tier)"
- Section 11.10, "Installing OracleAS Cold Failover Cluster (Infrastructure) and OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes"
- Section 11.11, "Post-Installation Steps for OracleAS Cold Failover Cluster"
- Section 11.12, "Installing Middle Tiers Against an OracleAS Cold Failover Cluster Infrastructure"
- Section 11.13, "Installing Regular Middle-Tiers on OracleAS Cold Failover Cluster Nodes"

11.1 OracleAS Cold Failover Cluster: Introduction

In OracleAS Cold Failover Cluster configurations, you have an active and a passive node, and shared storage that can be accessed by either node.

During normal operation, the active node runs Oracle Application Server processes and processes requests from clients. If the active node fails, then a failover event

occurs. The passive node takes over and becomes the active node. It mounts the shared storage and runs the processes.

Configurations

You can install OracleAS Cold Failover Cluster in these configurations:

- OracleAS Cold Failover Cluster (Infrastructure). Refer to Section 11.3.
- Distributed OracleAS Cold Failover Cluster (Infrastructure). Refer to Section 11.4.
- OracleAS Cold Failover Cluster (Oracle Identity Management). Refer to Section 11.5.
- Distributed OracleAS Cold Failover Cluster (Oracle Identity Management). Refer to Section 11.6.
- OracleAS Cold Failover Cluster (Middle-Tier). Refer to Section 11.9.

11.2 Preinstallation Steps for OracleAS Cold Failover Cluster

Before installing Oracle Application Server in an OracleAS Cold Failover Cluster, perform these procedures:

- Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address"
- Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes"
- Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
- Section 11.2.4, "Check That Clusterware Is Running"

Note: In addition to the requirements listed in this chapter, ensure that you meet the requirements described in Section 10.3, "Requirements for High Availability Configurations".

11.2.1 Map the Virtual Hostname and Virtual IP Address

Each node in an OracleAS Cold Failover Cluster configuration is associated with its own physical IP address. In addition, the active node in the cluster is associated with a virtual hostname and virtual IP address. This allows clients to access the OracleAS Cold Failover Cluster using the virtual hostname.

Virtual hostnames and virtual IP addresses are any valid hostname and IP address in the context of the subnet containing the hardware cluster.

Note:

- Map the virtual hostname and virtual IP address only to the active node. Do not map the virtual hostname and IP address to both active and secondary nodes at the same time. When you failover, only then map the virtual hostname and IP address to the secondary node, which is now the active node.
- Before attempting to complete this procedure, ask the system or network administrator to review all the steps required. The procedure will reconfigure the network settings on the cluster nodes and may vary with differing network implementations.

The following example configures a virtual hostname called `vhost.mydomain.com`, with a virtual IP of 138.1.12.191:

1. Register the virtual hostname and IP address with DNS for the network.

   For example, register the `vhost.mydomain.com/138.1.12.191` pair with DNS.

2. Add the following line to the `/etc/hosts` file on the active node:

   ip_address hostname.domain hostname

   For example:

   ```
   138.1.12.191   vhost.mydomain.com   vhost
   ```

3. Determine the primary public network interface.

   The primary public network interface for Ethernet encapsulation is typically and `eth0` on Linux.

   `/sbin/ifconfig`

4. Find an available index number for the primary public network interface.

   For example, if the following is the output of the **`/sbin/ifconfig`** command and eth0 is determined to be the primary public interface in step 3, then eth0:1 is available for an additional IP address:

   ```
   eth0      Link encap:Ethernet  HWaddr 00:B0:D0:68:B4:3D
             inet addr:130.35.137.46  Bcast:130.35.139.255 Mask:255.255.252.0
             UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
             RX packets:608598569 errors:8 dropped:0 overruns:0 frame:8
             TX packets:578257570 errors:111 dropped:0 overruns:0 carrier:111
             collisions:0 txqueuelen:100
             RX bytes:2407934851 (2296.3 Mb)  TX bytes:3386476912 (3229.5 Mb)
             Interrupt:26 Base address:0xe0c0 Memory:fbefc000-fbefc038

   eth1       Link encap:Ethernet  HWaddr 00:02:B3:28:80:8C
              inet addr:10.0.0.1  Bcast:10.255.255.255  Mask:255.0.0.0
              UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
              RX packets:781415 errors:0 dropped:0 overruns:0 frame:0
              TX packets:725511 errors:0 dropped:0 overruns:0 carrier:0
              collisions:0 txqueuelen:100
              RX bytes:280473135 (267.4 Mb)  TX bytes:254651952 (242.8 Mb)
              Interrupt:23 Base address:0xccc0 Memory:fabff000-fabff038

   lo        Link encap:Local Loopback
             inet addr:127.0.0.1 Mask:255.0.0.0
             UP LOOPBACK RUNNING  MTU:16436  Metric:1
             RX packets:114185902 errors:0 dropped:0 overruns:0 frame:0
             TX packets:114185902 errors:0 dropped:0 overruns:0 carrier:0
             collisions:0 txqueuelen:0
             RX bytes:2307872746 (2200.9 Mb)  TX bytes:2307872746 (2200.9 Mb)
   ```

   Do not use 0 as the index number because `interface:0` is the same as interface. For example, `eth0:0` is the same as eth0.

5. Add the virtual IP address to the primary public network interface by running the following command, as the `root` user:

   For example, enter the following command if is the primary public interface:

```
/sbin/ifconfig primary_public_interface:available_index ip_address
```

For example, enter the following command if `eth0:1` is available:

```
/sbin/ifconfig eth0:1 138.1.12.191
```

Note: You must use the same NETMASK and BROADCAST values for this interface as those used for the primary public network interface (`lan0` and `eth0` in this example). Modify the `ifconfig` commands in this step to include the appropiate `netmask` and `broadcast` options.

6. Check that the virtual IP address is configured correctly:
   a. Use the instructions listed in step 3 to confirm the for the entry created in step 5.
   b. Try to connect to the node using the virtual hostname and virtual IP address from another node. For example, entering both of the following commands from a different node should provide a login to the node you configured in this procedure:

      ```
      telnet hostname.domain
      telnet ip_address
      ```

      For example, enter:

      ```
      telnet vhost.mydomain.com
      telnet 138.1.12.191
      ```

On Failover

If the active node fails, then the secondary node takes over. If you do not have a clusterware agent to map the virtual IP from the failed node to the secondary node, then you have to do it manually. You have to remove the virtual IP mapping from the failed node, and map it to the secondary node.

1. On the failed node, remove the virtual IP address by running the following command as the `root` user:

   ```
   /sbin/ifconfig configured_interface down
   ```

   For example, enter the following command if `eth0:1` is configured with the virtual IP address:

   ```
   /sbin/ifconfig eth0:1 down
   ```

   Note: Use the commands in step 3 of the previous procedure to confirm that the virtual IP address has been removed.

2. On the secondary node, add the virtual IP address.

   On the secondary node, follow steps 2 to 6 of the previous procedure to add and confirm the virtual IP address on the secondary node.

11.2.2 Set Up a File System That Can Be Mounted from Both Nodes

Although the hardware cluster has shared storage, you need to create a file system on this shared storage such that both nodes of the OracleAS Cold Failover Cluster can mount this file system. You will use this file system for the following directories:

- Oracle home directory for the Oracle Application Server instance
- The `oraInventory` directory

For disk space requirements, refer to Section 4.2, "System Requirements".

If you are running a volume manager on the cluster to manage the shared storage, refer to the volume manager documentation for steps to create a volume. Once a volume is created, you can create the file system on that volume.

If you do not have a volume manager, you can create a file system on the shared disk directly. Ensure that the hardware vendor supports this, that the file system can be mounted from either node of the OracleAS Cold Failover Cluster, and that the file system is repairable from either node if a node fails.

To check that the file system can be mounted from either node, do the following steps:

1. Set up and mount the file system from node 1.
2. Unmount the file system from node 1.
3. Mount the file system from node 2 using the same mount point that you used in step 1.
4. Unmount it from node 2, and mount it on node 1, because you will be running the installer from node 1.

Note: Only one node of the OracleAS Cold Failover Cluster should mount the file system at any given time. File system configuration files on all nodes of the cluster should not include an entry for the automatic mount of the file system upon a node restart or execution of a global mount command. For example, on UNIX platforms, do not include an entry for this file system in `/etc/fstab` file.

11.2.3 Review Recommendations for Automatic Storage Management (ASM)

If you plan to use ASM instances for the OracleAS Metadata Repository database, consider these recommendations:

- If you plan to use ASM with Oracle database instances from multiple database homes on the same node, then you should run the ASM instance from an Oracle home that is different from the database homes.
- The ASM home should be installed on every cluster node. This prevents the accidental removal of ASM instances that are in use by databases from other homes during the de-installation of a database Oracle home.

11.2.4 Check That Clusterware Is Running

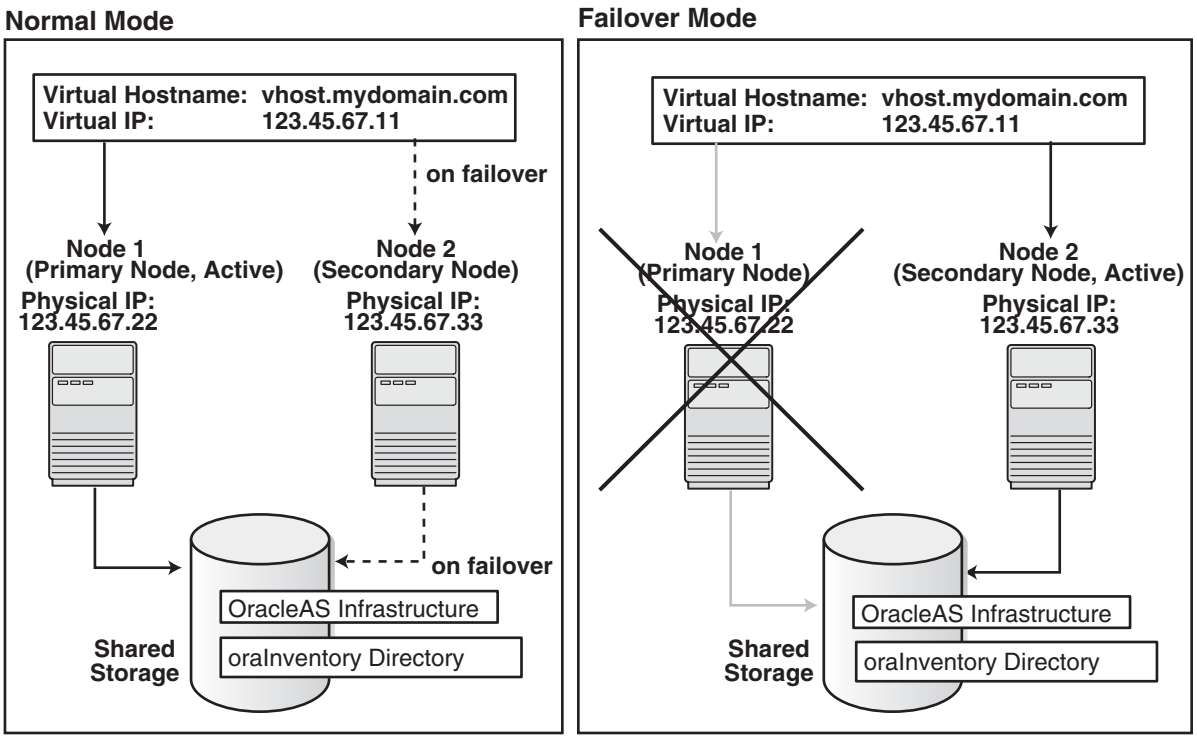
If you plan to automate failovers in the OracleAS Cold Failover Cluster, then each node in a cluster must be running hardware vendor clusterware.

To check that the clusterware is running, use the command appropriate for your clusterware.

11.3 Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration

Figure 11–1 shows an OracleAS Cold Failover Cluster (Infrastructure) configuration.

Figure 11–1 OracleAS Cold Failover Cluster (Infrastructure) Configuration



The figure shows:

- two nodes running clusterware
- storage devices local to each node
- storage device that can be accessed by both nodes. You install OracleAS Infrastructure on this shared storage device.

During normal operation, one node ("node 1") acts as the active node. It mounts the shared storage to access the OracleAS Infrastructure files, runs OracleAS Infrastructure processes, and handles all requests.

If the active node goes down for any reason, the clusterware fails over OracleAS Infrastructure processes to the other node ("node 2"), which now becomes the active node. It mounts the shared storage, runs the processes, and handles all requests.

These nodes appear as one computer to clients through the use of a virtual address. To access the OracleAS Infrastructure, clients, including middle-tier components and applications, use the virtual address associated with the cluster. The virtual address is associated with the active node (node 1 during normal operation, node 2 if node 1 goes down). Clients do not need to know which node (node 1 or node 2) is servicing requests.

You use the virtual hostname in URLs that access the infrastructure. For example, if `vhost.mydomain.com` is the virtual hostname, the URLs for the Oracle HTTP Server and the Application Server Control would look like the following:

URL for:	Example URL
Oracle HTTP Server, Welcome page	http://vhost.mydomain.com:7777
Oracle HTTP Server, secure mode	https://vhost.mydomain.com:4443
Application Server Control	http://vhost.mydomain.com:1156

Oracle Application Server Middle Tiers

You can install and run the middle tiers on other nodes (nodes that are not running OracleAS Infrastructure). During installation, you set up the middle tiers to use services from the OracleAS Infrastructure installed on the shared storage device.

You can also install and run the middle tiers on the cluster nodes without using an OracleAS Cold Failover Cluster configuration for the middle tiers. In this case, you install middle tiers using the regular installation process. If you do this, make sure the middle tier ports will not conflict with the OracleAS Infrastructure ports when a failover occurs.

If you want to install and run the middle tiers on the same cluster that is running the OracleAS Infrastructure, refer to Section 11.10, "Installing OracleAS Cold Failover Cluster (Infrastructure) and OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes".

11.3.1 OracleAS Cold Failover Cluster (Infrastructure): Overview of Installation Steps

To set up an OracleAS Cold Failover Cluster (Infrastructure) configuration, perform these steps:

Table 11–1 Overview of Installation Steps for OracleAS Cold Failover Cluster (Infrastructure)

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address" ■ Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes" ■ Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
2.	Install OracleAS Infrastructure	Install OracleAS Infrastructure on the shared storage.
3.	Perform Post-Installation Steps	This post-installation step configures the CSS daemon. This step is required only if you are using ASM (Automatic Storage Management) feature of the Oracle database, and you do not have an existing Oracle database.z

11.3.2 OracleAS Cold Failover Cluster (Infrastructure): Details of Installation Steps

This section lists the steps for installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure) configuration.

Step 1 Perform Pre-Installation Steps

Perform the pre-installation steps listed in Section 11.2, "Preinstallation Steps for OracleAS Cold Failover Cluster".

Step 2 Install OracleAS Infrastructure

For OracleAS Cold Failover Cluster (Infrastructure), you install both OracleAS Metadata Repository and Oracle Identity Management in the same Oracle home by selecting **Identity Management and OracleAS Metadata Repository** in the Select Installation Type screen. This option creates a new database for the OracleAS Metadata Repository and a new Oracle Internet Directory.

Key Points

- The destination directory must be on the shared disk.
- Remember to select **High Availability and Replication** in the Select Configuration Options screen. By default, this option is not selected.
- You enter the virtual hostname in the Specify Virtual Hostname screen.

Installer Screens

Run the installer and follow the screen sequence shown in Table 11–2:

Table 11–2 Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
1.	--	Start up the installer. Refer to Section 5.19, "Starting Oracle Universal Installer" for details.
2.	Welcome	Click **Next**.
3.	Specify Inventory Directory and Credentials	This screen appears only if this is the first installation of any Oracle product on this computer. **Enter the full path for the inventory directory**: Enter a full path to a directory where you want the installer to store its files. The installer uses these files to keep track of all Oracle products that are installed on this computer. Enter a directory that is different from the Oracle home directory. **Note:** You must enter a directory in the file system that can be mounted from either node in the OracleAS Cold Failover Cluster configuration. Example: `/mnt/app/oracle/oraInventory` **Specify operating system group name**: Select the operating system group that will have write permission for the inventory directory. Example: `oinstall` Click **Next**.
4.	Run `orainstRoot.sh`	This screen appears only if this is the first installation of any Oracle product on this computer. Run the `orainstRoot.sh` script in a different shell as the root user. The script is located in the `oraInventory` directory. After running the script, click **Continue**.

Table 11–2 (Cont.) Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
5.	Specify File Locations	**Name**: Enter a name to identify this Oracle home. The name can consist of alphanumeric and the underscore (_) characters only, and cannot be longer than 128 characters. Example: `OH_INFRA` **Destination Path**: Enter the full path to the destination directory. This is the Oracle home. **Notes:** ▪ You must enter a directory in the file system that can be mounted from either node in the OracleAS Cold Failover Cluster configuration. ▪ You must enter a new Oracle home name and directory. Do **not** select an existing Oracle home from the list. Example: `/mnt/app/oracle/OraInfra` Click **Next**.
6.	Select a Product to Install	Select **OracleAS Infrastructure** to install an infrastructure. If you need to install additional languages, click **Product Languages**. Refer to Section 5.8, "Installing Additional Languages" for details. Click **Next**.
7.	Select Installation Type	Select **Oracle Identity Management and OracleAS Metadata Repository**. Click **Next**. If you get an error message saying that the TMP environment variable is not set, it means that the default temp directory does not have enough space. You can either set the TMP environment variable to point to a different directory or free up enough space in the default temp directory. For details on the TMP environment variable, refer to Section 4.9.5, "TMP and TMPDIR".
8.	Confirm Pre-Installation Requirements	Verify that you meet all the listed requirements, and click **Next**.
9.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Select **OracleAS Certificate Authority (OCA)** if you want a certificate authority. Select **High Availability and Replication**. Click **Next**.
10.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
11.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
12.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.

Table 11–2 (Cont.) Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
13.	Specify Virtual Hostname	**Note:** This is a critical screen when installing the infrastructure in an OracleAS Cold Failover Cluster. If you do not see this screen, check the following: ▪ Return to the Select High Availability or Replication Option screen and ensure that you selected **Virtual Host**. ▪ Return to the Select Configuration Options screen and ensure that you selected **High Availability and Replication**. **Virtual Hostname**: Enter the virtual hostname for the OracleAS Cold Failover Cluster configuration. Example: `vhost.mydomain.com` Click **Next**.
14.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OCA. Refer to Section 6.30, "Install Fragment: OCA Screens" for details.
15.	Specify Database Configuration Options	**Global Database Name**: Enter a name for the OracleAS Metadata Repository database. Append the domain name of your computer to the database name. Example: `orcl.mydomain.com` **SID**: Enter the system identifier for the OracleAS Metadata Repository database. Typically this is the same as the global database name, but without the domain name. The SID must be unique across all databases. The SID cannot be longer than eight characters. Example: `orcl` **Select Database Character Set**: Select the character set to use. **Specify Database File Location**: Enter the full path to the parent directory for the data files directory. This parent directory must already exist, and you must have write permissions in this directory. The installer will create a subdirectory in this parent directory, and the subdirectory will have the same name as the SID. The data files will be placed in this subdirectory. Example: If you enter `/u02/oradata`, and the SID is `orcl`, then the data files will be located in `/u02/oradata/orcl`. Click **Next**.
16.	Specify Database Schema Passwords	Set the passwords for these privileged database schemas: SYS, SYSTEM, SYSMAN, and DBSNMP. You can set different passwords for each schema, or you can set the same password for all the schemas. Refer to Section 6.14, "Restrictions on the Passwords for the SYS, SYSTEM, SYSMAN, and DBSNMP Users" for rules on setting passwords for these accounts. Click **Next**.

Table 11–2 (Cont.) Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
17.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra` **ias_admin Password** and **Confirm Password**: Enter and confirm the password for the ias_admin user. This is the administrative user for this infrastructure instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for password requirements. Example: `welcome99` Click **Next**.
18.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

Step 3 Perform Post-Installation Steps

The following step is required only if you meet **both** of these requirements:

- You plan to use the Automatic Storage Management (ASM) feature of Oracle Database 10*g* for the OracleAS Metadata Repository.
- Your computer does not have an existing Oracle Database 10*g*.

If you meet these requirements, you need to configure the Cluster Synchronization Services (CSS) daemon on the other node. The CSS daemon synchronizes ASM instances with the database instances that use the ASM instances for database file storage.

To configure the CSS daemon:

1. Stop all the processes in the OracleAS Cold Failover Cluster (Infrastructure) home.
2. Stop the CSS daemon. You can do this by running the following command as `root`.

   ```
   # /etc/init.d/init.cssd stop
   ```

3. Fail over the IP and the disk to the other node.
4. On the other node, run the following command as `root`:

   ```
   # $ORACLE_HOME/root.sh
   ```

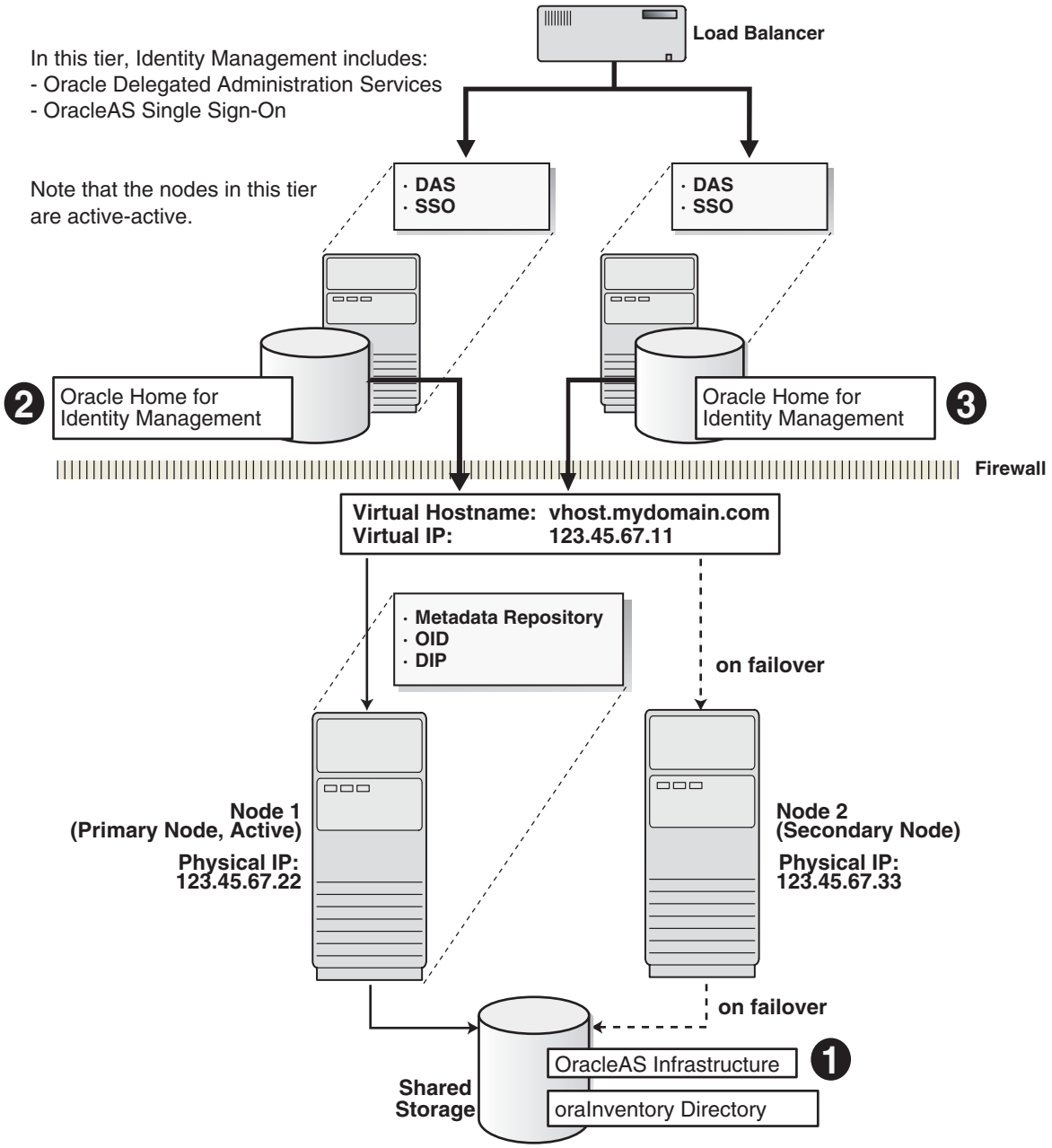
   `ORACLE_HOME` is where you installed the OracleAS Cold Failover Cluster (Infrastructure).

11.4 Installing a Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration

Figure 11–2 shows a distributed OracleAS Cold Failover Cluster (Infrastructure) configuration.

This configuration is similar to the configuration described in Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration", except that the OracleAS Single Sign-On and Oracle Delegated Administration Services components are installed separately on other nodes.

Figure 11–2 Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration



In a distributed OracleAS Cold Failover Cluster (Infrastructure) configuration, you run the OracleAS Metadata Repository, Oracle Internet Directory, and Oracle Directory Integration and Provisioning in an *active-passive* configuration.

However, the OracleAS Single Sign-On and Oracle Delegated Administration Services components run in an *active-active* configuration. You have a load balancer to direct requests to the nodes running these components.

11.4.1 Distributed OracleAS Cold Failover Cluster (Infrastructure): Overview of Installation Steps

To set up a distributed OracleAS Cold Failover Cluster (Infrastructure) configuration, perform these steps:

Table 11–3 Overview of Installation Steps for Distributed OracleAS Cold Failover Cluster (Infrastructure)

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.4, "Check That Clusterware Is Running" ■ Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address" ■ Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes" ■ Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
2.	Install OracleAS Infrastructure	In this step, you install OracleAS Infrastructure on the shared storage. You install all components except OracleAS Single Sign-On, Oracle Delegated Administration Services, and OCA.
3.	Perform Post-Installation Steps	This post-installation step configures the CSS daemon. This step is required only if you are using ASM (Automatic Storage Management) feature of the Oracle database, and you do not have an existing Oracle database.
4.	Install OracleAS Single Sign-On and Oracle Delegated Administration Services	In this step, you install OracleAS Single Sign-On and Oracle Delegated Administration Services.

11.4.2 Distributed OracleAS Cold Failover Cluster (Infrastructure): Details of Installation Steps

Step 1 Perform Pre-Installation Steps

Perform the pre-installation steps listed in Section 11.2, "Preinstallation Steps for OracleAS Cold Failover Cluster".

Step 2 Install OracleAS Infrastructure

In a distributed OracleAS Cold Failover Cluster (Infrastructure) configuration, you install both OracleAS Metadata Repository and Oracle Identity Management components (except for OracleAS Single Sign-On, Oracle Delegated Administration Services, and OCA) in the same Oracle home by selecting **Identity Management and OracleAS Metadata Repository** in the Select Installation Type screen. This option creates a new database for the OracleAS Metadata Repository and a new Oracle Internet Directory.

The steps are the same as those listed in step 2, "Install OracleAS Infrastructure" on page 11-8, except that in the Select Configuration Options screen, do not select **OracleAS Single Sign-On**, **OracleAS Delegated Administration Services**, and **OracleAS Certificate Authority (OCA)**.

Step 3 Perform Post-Installation Steps

The following step is required only if you meet **both** of these requirements:

- You plan to use the Automatic Storage Management (ASM) feature of Oracle Database 10*g* for the OracleAS Metadata Repository.

- Your computer does not have an existing Oracle Database 10*g*.

If you meet these requirements, you need to configure the CSS daemon on the other node. The CSS daemon synchronizes ASM instances with the database instances that use the ASM instances for database file storage.

To configure the CSS daemon:

1. Stop all the processes in the OracleAS Cold Failover Cluster (Infrastructure) home.
2. Stop the CSS daemon. You can do this by running the following command as `root`.

   ```
   # /etc/init.d/init.cssd stop
   ```

3. Fail over the IP and the disk to the other node.
4. On the other node, run the following command as `root`:

   ```
   # $ORACLE_HOME/root.sh
   ```

   `ORACLE_HOME` is where you installed the OracleAS Cold Failover Cluster (Infrastructure).

Step 4 Install OracleAS Single Sign-On and Oracle Delegated Administration Services

You install OracleAS Single Sign-On and Oracle Delegated Administration Services on the local disks of each node. You perform these installations separately.

Pre-Installation Steps

This installation is actually an OracleAS Cluster (Identity Management) installation. As such, you perform the OracleAS Cluster (Identity Management) setup steps in Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)":

- Section 12.2.1, "Use the Same Path for the Oracle Home Directory (recommended)"
- Section 12.2.2, "Synchronize Clocks on All Nodes"
- Section 12.2.3, "Configure Virtual Server Names and Ports for the Load Balancer"
- Section 12.2.5, "Set up Cookie Persistence on the Load Balancer"

Installation Steps

The steps are the same as those listed in Section 12.6.5, "Installing OracleAS Single Sign-On and Oracle Delegated Administration Services on Each Node".

11.5 Installing an OracleAS Cold Failover Cluster (Oracle Identity Management) Configuration

Figure 11–3 shows an OracleAS Cold Failover Cluster (Oracle Identity Management) configuration.

This configuration is suitable if you have the OracleAS Metadata Repository database in a separate highly available environment and you want to use an active-passive configuration for the Oracle Identity Management components. You install the Oracle Identity Management components on a shared disk different from the share disk that contains the OracleAS Metadata Repository database.

This configuration includes:

- two clustered nodes
- storage devices local to each node
- two shared disks that can be accessed by both nodes. One shared disk contains the Oracle home for the database (on which you will load the OracleAS Metadata Repository), and on the other shared disk, you will install Oracle Identity Management.

During normal operation, node 1, which is the primary node, is the active node. It mounts both shared disks to access the Oracle Identity Management and database files, runs the Oracle Identity Management and database processes, and handles all requests.

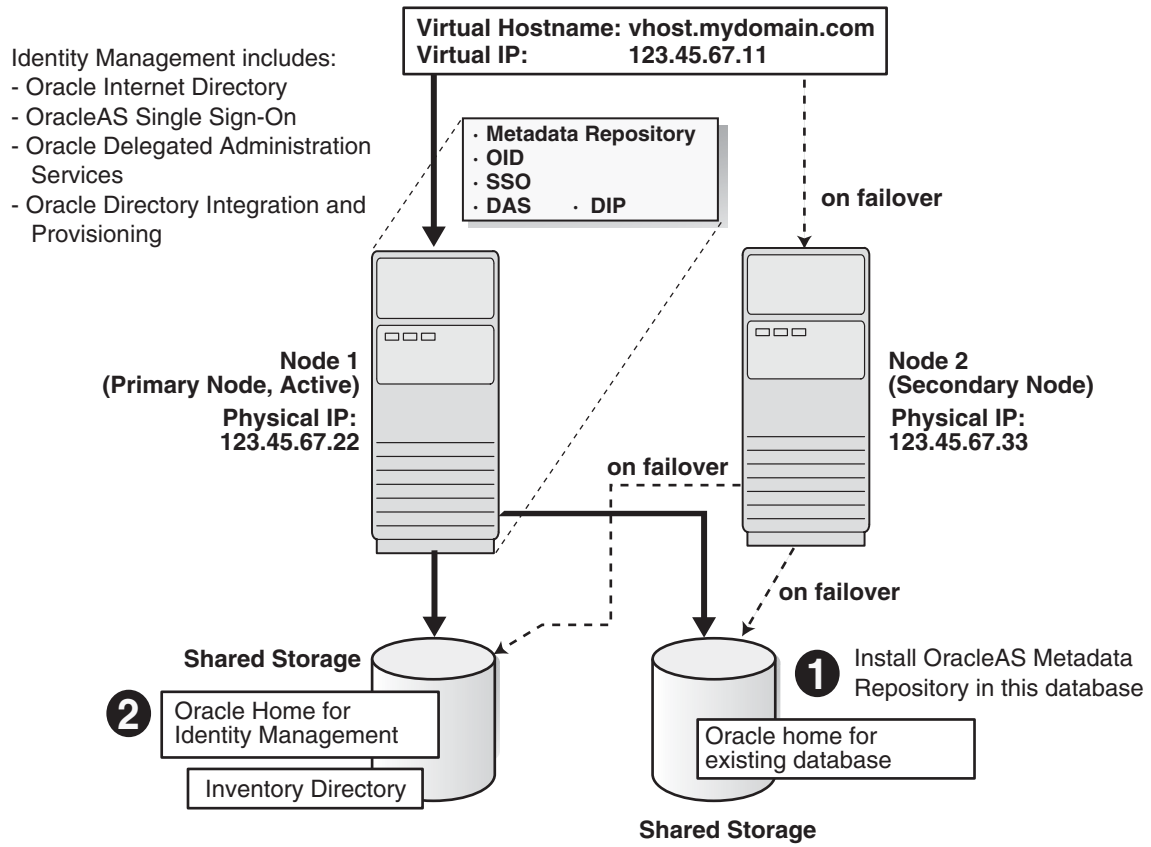
If node 1 goes down for any reason, the clusterware fails over the Oracle Identity Management and database processes to node 2. Node 2 becomes the active node, mounts both shared disks, runs the processes, and handles all requests.

To access the active node in an OracleAS Cold Failover Cluster, clients, including middle-tier components and applications, use the virtual hostname associated with the OracleAS Cold Failover Cluster. The virtual hostname is associated with the active node (node 1 during normal operation, node 2 if node 1 goes down). Clients do not need to know which node (primary or secondary) is servicing requests.

You also use the virtual hostname in URLs that access the infrastructure. For example, if `vhost.mydomain.com` is the name of the virtual host, the URLs for the Oracle HTTP Server and the Application Server Control would look like the following:

URL for:	Example URL
Oracle HTTP Server, Welcome page	`http://vhost.mydomain.com:7777`
Oracle HTTP Server, secure mode	`https://vhost.mydomain.com:4443`
Application Server Control	`http://vhost.mydomain.com:1156`

Figure 11–3 OracleAS Cold Failover Cluster (Oracle Identity Management) Configuration



11.5.1 OracleAS Cold Failover Cluster (Oracle Identity Management): Overview of Installation Steps

To create an OracleAS Cold Failover Cluster (Oracle Identity Management) configuration against an existing cold failover cluster database, perform these steps:

Table 11–4 Overview of Installation Steps for OracleAS Cold Failover Cluster (Oracle Identity Management) Configuration

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.4, "Check That Clusterware Is Running" ■ Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address" ■ Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes" ■ Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
2.	Install OracleAS Metadata Repository	Install OracleAS Metadata Repository on your existing cold failover cluster database.
3.	Install the Oracle Identity Management Components	Install the Oracle Identity Management components.

11.5.2 OracleAS Cold Failover Cluster (Oracle Identity Management): Details of Installation Steps

Perform the following steps to install Oracle Application Server in an OracleAS Cold Failover Cluster (Oracle Identity Management) configuration.

Step 1 Perform Pre-Installation Steps

Perform the pre-installation steps listed in Section 11.2, "Preinstallation Steps for OracleAS Cold Failover Cluster".

Step 2 Install OracleAS Metadata Repository

Use the OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository in an existing database. Refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

If you do not have an existing database, you can use the installer to create one. Note that you have to create the database with a virtual hostname. Refer to Section 11.8, "Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment" for details.

Step 3 Install the Oracle Identity Management Components

You install the Oracle Identity Management on the other shared disk. Follow the installation steps described in Table 11–5.

Key Points

- When the installer prompts you for the Oracle home path, enter a path on the shared disk. Make sure that both nodes can access this path.
- In the Select High Availability or Replication Option screen, select **Virtual Host**.
- In the Specify Virtual Hostname screen, enter the virtual hostname.

Installer Screens

Table 11–5 Installing Oracle Identity Management Components

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Note: In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Select **OracleAS Certificate Authority (OCA)** if you want a certificate authority. Select **High Availability and Replication**. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.

Table 11–5 (Cont.) Installing Oracle Identity Management Components

	Screen	Action
4.	Specify Repository	**Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.
5.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
6.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
7.	Specify Virtual Hostname	**Note:** This is a critical screen when installing the infrastructure in an OracleAS Cold Failover Cluster. If you do not see this screen, check the following: ▪ Return to the "Select High Availability or Replication Option" screen and ensure that you selected **Virtual Host**. ▪ Return to the Select Configuration Options screen and ensure that you selected **High Availability and Replication**. **Virtual Hostname**: Enter the virtual hostname for the OracleAS Cold Failover Cluster configuration. Example: `vhost.mydomain.com` Click **Next**.
8.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OCA. Refer to Section 6.30, "Install Fragment: OCA Screens" for details.
9.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `id_mgmt` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
10.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

11.6 Installing a Distributed OracleAS Cold Failover Cluster (Oracle Identity Management) Configuration

This configuration is suitable:

- if you want to run Oracle Internet Directory and Oracle Directory Integration and Provisioning on the same tier as your database, and Oracle Delegated Administration Services and OracleAS Single Sign-On on a different tier
- if you want to install the OracleAS Metadata Repository in an existing cold failover cluster database

Figure 11–4 shows a distributed OracleAS Cold Failover Cluster (Oracle Identity Management) configuration.

It consists of:

- two nodes running Oracle Delegated Administration Services and OracleAS Single Sign-On. These nodes are accessed through a load balancer.
- two nodes running clusterware. These nodes will run the existing cold failover cluster database, Oracle Internet Directory, and Oracle Directory Integration and Provisioning.
- storage devices local to each node
- two shared disks. One shared disk contains the database Oracle home. On the other shared disk, you will install Oracle Internet Directory and Oracle Directory Integration and Provisioning.
- firewalls to separate the tiers

Tier Running the Oracle Internet Directory, Oracle Directory Integration and Provisioning, and Database

In this tier, during normal operation, the active node mounts the shared disks to access the Oracle Identity Management and database; runs the Oracle Internet Directory, Oracle Directory Integration and Provisioning, and database processes; and handles all requests.

If the active node goes down for any reason, the clusterware fails over the processes to the secondary node (node 2), which becomes the new active node, mounts the shared disks, runs the processes, and handles all requests.

To access the active node, clients, including middle-tier components and applications, use the virtual hostname. The virtual hostname is associated with the active node (which is the primary node during normal operation, the secondary node upon failover). Clients do not need to know which node (primary or secondary) is servicing requests.

You need to use the virtual hostname in URLs to access the active node. For example, if `vhost.mydomain.com` is the virtual hostname, the URLs for the Oracle HTTP Server and the Application Server Control for this tier would look like the following:

URL for:	Example URL
Oracle HTTP Server, Welcome page	http://vhost.mydomain.com:7777
Oracle HTTP Server, secure mode	https://vhost.mydomain.com:4443
Application Server Control	http://vhost.mydomain.com:1156

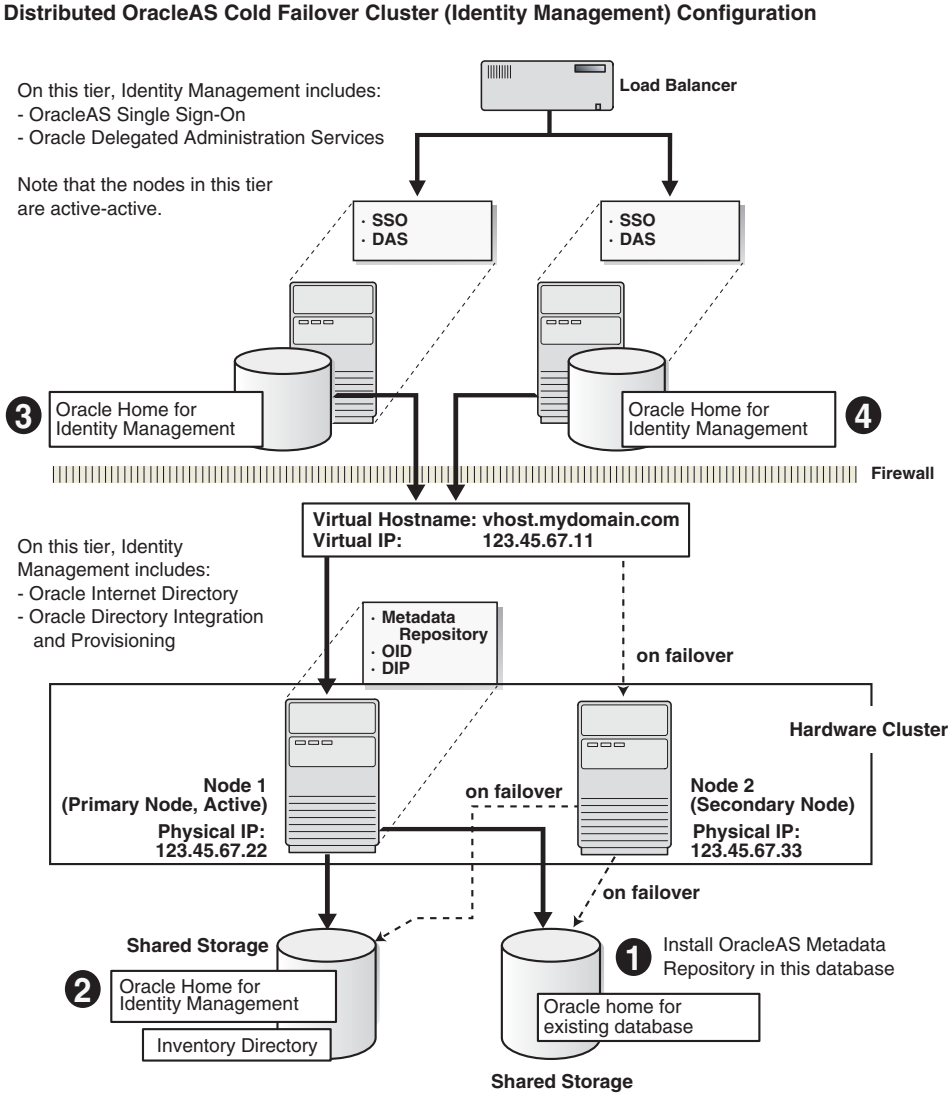
Tier Running Oracle Delegated Administration Services and OracleAS Single Sign-On

Note that the nodes in this tier are not clustered. Both nodes are active at the same time, and you install the files locally on each node. To access these nodes, clients go through a load balancer. For example, if the name of the load balancer is

`loadbalance1.mydomain.com`, the URLs for the Oracle HTTP Server and the Application Server Control for this tier would look like the following:

URL for:	Example URL
Oracle HTTP Server, Welcome page	http://vhost.mydomain.com:7777
Oracle HTTP Server, secure mode	https://vhost.mydomain.com:4443
Application Server Control	http://vhost.mydomain.com:1156

Figure 11–4 Distributed OracleAS Cold Failover Cluster (Oracle Identity Management) Configuration



11.6.1 Distributed OracleAS Cold Failover Cluster (Oracle Identity Management): Overview of Installation Steps

To create a distributed OracleAS Cold Failover Cluster (Oracle Identity Management) configuration against an existing cold failover cluster database, perform these steps:

Table 11–6 Overview of Installation Steps for Distributed OracleAS Cold Failover Cluster (Oracle Identity Management) Configuration

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.4, "Check That Clusterware Is Running" ■ Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address" ■ Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes" ■ Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
2.	Install OracleAS Metadata Repository	Install OracleAS Metadata Repository on your existing cold failover cluster database.
3.	Install Oracle Internet Directory and Oracle Directory Integration and Provisioning	Install the Oracle Internet Directory and Oracle Directory Integration and Provisioning components.
4.	Install OracleAS Single Sign-On and Oracle Delegated Administration Services	Install the OracleAS Single Sign-On and Oracle Delegated Administration Services components.

11.6.2 Distributed OracleAS Cold Failover Cluster (Oracle Identity Management): Details of Installation Steps

Step 1 Perform Pre-Installation Steps

Perform the pre-installation steps listed in Section 11.2, "Preinstallation Steps for OracleAS Cold Failover Cluster".

Step 2 Install OracleAS Metadata Repository

Use the OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository in an existing database. Refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

If you do not have an existing database, you can use the installer to create one. Note that you have to create the database with a virtual hostname. Refer to Section 11.8, "Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment" for details.

Step 3 Install Oracle Internet Directory and Oracle Directory Integration and Provisioning

Install the Oracle Internet Directory and Oracle Directory Integration and Provisioning components on the other shared disk. Follow the installation steps described in Table 11–7.

Key Points

- In the Select Installation Type screen, select **Oracle Identity Management**.
- In the Select Configuration Options screen, select **Oracle Internet Directory**, **OracleAS Directory Integration and Provisioning**, and **High Availability and Replication**.
- In the Select High Availability or Replication Option screen, select **Virtual Host**.
- In the Specify Virtual Hostname screen, enter the virtual hostname.

Installer Screens

Table 11–7 Installing Oracle Internet Directory and Oracle Directory Integration and Provisioning

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Note: In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
4.	Specify Repository	**Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.
5.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
6.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
7.	Specify Virtual Hostname	**Note:** This is a critical screen when installing the infrastructure in an OracleAS Cold Failover Cluster. If you do not see this screen, check the following: ▪ Return to the Select High Availability or Replication Option screen and ensure that you selected **Virtual Host**. ▪ Return to the Select Configuration Options screen and ensure that you selected **High Availability and Replication**. **Virtual Hostname**: Enter the virtual hostname for the OracleAS Cold Failover Cluster configuration. Example: `vhost.mydomain.com` Click **Next**.

Table 11–7 (Cont.) Installing Oracle Internet Directory and Oracle Directory Integration and Provisioning

	Screen	Action
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_dip` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
9.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

Step 4 Install OracleAS Single Sign-On and Oracle Delegated Administration Services

Install these components in an OracleAS Cluster (Identity Management) configuration. In this configuration, you install them on the local disks of each node. You perform these installations separately.

Pre-Installation steps: Because this installation is actually an OracleAS Cluster (Identity Management) installation, you can follow the OracleAS Cluster (Identity Management) setup steps in Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)":

- Section 12.2.1, "Use the Same Path for the Oracle Home Directory (recommended)"
- Section 12.2.2, "Synchronize Clocks on All Nodes"
- Section 12.2.3, "Configure Virtual Server Names and Ports for the Load Balancer"
- Section 12.2.5, "Set up Cookie Persistence on the Load Balancer"

Installation steps: The installation steps are described in Section 12.6.5, "Installing OracleAS Single Sign-On and Oracle Delegated Administration Services on Each Node".

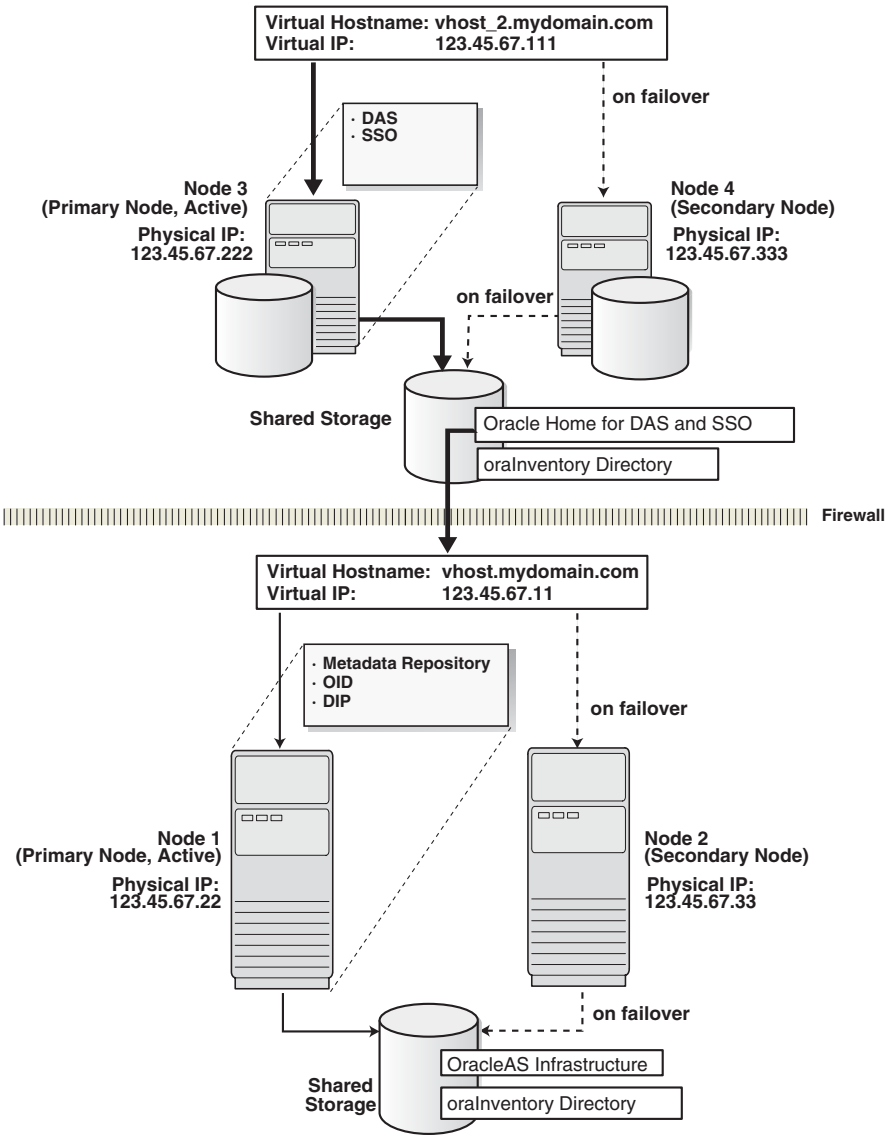
11.7 Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in an OracleAS Cold Failover Cluster

The configuration described in this section is similar to that described in Section 11.4, "Installing a Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration". The difference is that in the configuration described in this section, OracleAS Single Sign-On and Oracle Delegated Administration Services run in an OracleAS Cold Failover Cluster configuration.

You need two sets of clustered nodes. Refer to Figure 11–5. One set runs the OracleAS Metadata Repository and Oracle Internet Directory, and another set runs Oracle Delegated Administration Services and OracleAS Single Sign-On.

For each set, you need a shared storage and a virtual hostname. You install Oracle homes for the various Oracle Application Server components on the shared storage.

Figure 11–5 Oracle Delegated Administration Services and OracleAS Single Sign-On in a Cold Failover Cluster



11.7.1 Oracle Delegated Administration Services and OracleAS Single Sign-On in OracleAS Cold Failover Cluster: Overview of Installation Steps

Table 11–8 Overview of Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in an OracleAS Cold Failover Cluster

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.4, "Check That Clusterware Is Running". You need clusterware for all nodes. ■ Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address". You need two sets of virtual hostnames: one set for OracleAS Metadata Repository and Oracle Internet Directory, and a second set for Oracle Delegated Administration Services and OracleAS Single Sign-On. ■ Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes". You need two shared disks, one for each set of nodes. ■ Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
2.	(optional) Create `staticports.ini` Files	If you wish, create two `staticports.ini` files, one for each set of nodes.
3.	Install OracleAS Metadata Repository and Oracle Internet Directory	From node 1, install OracleAS Metadata Repository and Oracle Internet Directory on the shared disk. The steps are the same as those listed in step 2, "Install OracleAS Infrastructure" on page 11-8, except that in the Select Configuration Options screen, do not select **OracleAS Single Sign-On** and **OracleAS Delegated Administration Services**.
4.	Install Oracle Delegated Administration Services and OracleAS Single Sign-On from Node 3	From node 3, install Oracle Delegated Administration Services and OracleAS Single Sign-On on the shared disk.
5.	Stop the OracleAS Infrastructure Processes on Node 1	From node 1, stop the OracleAS Infrastructure processes.
6.	Stop the OracleAS Infrastructure Processes on Node 3	From node 1, stop the OracleAS Infrastructure processes.
7.	Perform Post-Installation Steps	This post-installation step configures the CSS daemon. This step is required only if you are using ASM (Automatic Storage Management) feature of the Oracle database, and you do not have an existing Oracle database.

11.7.2 Oracle Delegated Administration Services and OracleAS Single Sign-On in OracleAS Cold Failover Cluster: Details of Installation Steps

Step 1 Perform Pre-Installation Steps

Perform the pre-installation steps listed in Section 11.2, "Preinstallation Steps for OracleAS Cold Failover Cluster".

Step 2 (optional) Create `staticports.ini` Files

If you wish, you may set up two `staticports.ini` files, one for each set of nodes. For information on `staticports.ini`, refer to Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)".

Step 3 Install OracleAS Metadata Repository and Oracle Internet Directory

Install OracleAS Metadata Repository and Oracle Internet Directory in the same Oracle home by selecting **Identity Management and OracleAS Metadata Repository** in the Select Installation Type screen. This option creates a new database for the OracleAS Metadata Repository and a new Oracle Internet Directory.

The steps are the same as those listed in step 2, "Install OracleAS Infrastructure" on page 11-8, with these differences:

- In the Select Configuration Options screen, select these components/options:
  - **Oracle Internet Directory**
  - **OracleAS Directory Integration and Provisioning**
  - **High Availability and Replication**

  Do not select these components:
  - **OracleAS Single Sign-On**
  - **OracleAS Delegated Administration Services**
  - **OracleAS Certificate Authority (OCA)**
- In the Specify Port Configuration Options screen, select **Manual** and enter the full path to the `staticports.ini` file that you created in the previous step.

Step 4 Install Oracle Delegated Administration Services and OracleAS Single Sign-On from Node 3

From node 3, install Oracle Delegated Administration Services and OracleAS Single Sign-On on the shared disk by following the steps in Table 11–9.

Key Points

- When the installer prompts you for the Oracle home path, enter a path on the shared disk. Make sure that both nodes can access this path.
- In the Select High Availability or Replication Option screen, select **Virtual Host**.
- In the Specify Virtual Hostname screen, enter the virtual hostname.

Table 11–9 Installing Oracle Delegated Administration Services and OracleAS Single Sign-On

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Note: In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Do not select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click **Next**.

Table 11–9 (Cont.) Installing Oracle Delegated Administration Services and OracleAS Single Sign-On

	Screen	Action
3.	Specify Port Configuration Options	Select **Manual** and enter the full path to your `staticports.ini` file in the provided field. You created the `staticports.ini` file in step 2, "(optional) Create `staticports.ini` Files" on page 11-25. Click **Next**.
4.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
5.	Register with Oracle Internet Directory	Enter connect information for the Oracle Internet Directory that you installed earlier. **Hostname**: Enter the virtual hostname to access the Oracle Internet Directory host. **Port**: Enter the port on which Oracle Internet Directory is listening. Refer to Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want to use only SSL to connect to Oracle Internet Directory. Click **Next**.
6.	Specify Oracle Internet Directory Login	**Username**: Enter the username to log in to the Oracle Internet Directory. **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.
7.	Specify Virtual Hostname	**Note:** This is a critical screen when installing in an OracleAS Cold Failover Cluster. If you do not see this screen, check the following: ▪ Return to the Select High Availability or Replication Option screen and ensure that you selected **Virtual Host**. ▪ Return to the Select Configuration Options screen and ensure that you selected **High Availability and Replication**. **Virtual Hostname**: Enter the virtual hostname for the OracleAS Cold Failover Cluster configuration. Example: `vhost_2.mydomain.com` Click **Next**.
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for the instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `sso_das` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
9.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

Step 5 Stop the OracleAS Infrastructure Processes on Node 1

Stop the processes that are running in the Oracle home where you installed the OracleAS Metadata Repository and Oracle Internet Directory.

1. Stop the Application Server Control.

```
prompt> ORACLE_HOME/bin/emctl stop iasconsole
```

2. Stop the components.

```
prompt> ORACLE_HOME/opmn/bin/opmnctl stopall
```

3. Stop the OracleAS Metadata Repository.
   a. Set the ORACLE_HOME environment variable to the OracleAS Infrastructure home.
   b. Set the ORACLE_SID environment variable to the SID of the OracleAS Metadata Repository (for example, `orcl`).
   c. Stop the OracleAS Metadata Repository instance.

```
prompt> ORACLE_HOME/bin/sqlplus /nolog
SQL> connect SYS as SYSDBA
SQL> shutdown
SQL> quit
```

   d. Stop the listener.

```
prompt> ORACLE_HOME/bin/lsnrctl stop
```

   e. Stop the Oracle Enterprise Manager 10*g* 10*g* Database Control.

```
prompt> ORACLE_HOME/bin/emctl stop dbconsole
```

Step 6 Stop the OracleAS Infrastructure Processes on Node 3

Stop the processes that are running in the Oracle home where you installed Oracle Delegated Administration Services and OracleAS Single Sign-On.

1. Stop the Application Server Control.

```
prompt> ORACLE_HOME/bin/emctl stop iasconsole
```

2. Stop the components.

```
prompt> ORACLE_HOME/opmn/bin/opmnctl stopall
```

Step 7 Perform Post-Installation Steps

The following step is required only if you meet **both** of these requirements:

- You plan to use the Automatic Storage Management (ASM) feature of Oracle Database 10*g* for the OracleAS Metadata Repository.
- Your computer does not have an existing Oracle Database 10*g*.

If you meet these requirements, you need to configure the CSS daemon on the other node. The CSS daemon synchronizes ASM instances with the database instances that use the ASM instances for database file storage.

To configure the CSS daemon:

1. Stop all the processes in the OracleAS Cold Failover Cluster (Infrastructure) home.
2. Stop the CSS daemon. You can do this by running the following command as `root`.

```
# /etc/init.d/init.cssd stop
```

3. Fail over the IP and the disk to the other node.
4. On the other node, run the following command as `root`:

```
# $ORACLE_HOME/root.sh
```

ORACLE_HOME is where you installed the OracleAS Cold Failover Cluster (Infrastructure).

11.8 Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment

This section describes how to install the OracleAS Metadata Repository in a new database (that is, the installer will create a new database for you and populate it with the OracleAS Metadata Repository). You can use this database in an OracleAS Cold Failover Cluster environment.

Prerequisites:

- Check that you have configured a virtual hostname and virtual IP.

Table 11–10 Installing the OracleAS Metadata Repository Only

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **Oracle Identity Management and Metadata Repository**. **Note**: Do **not** select the **Metadata Repository** option. This option creates a new database with the OracleAS Metadata Repository, but this database is not configured for OracleAS Cold Failover Cluster.
2.	Select Configuration Options	Do not select **Oracle Internet Directory**. Do not select **Oracle Application Server Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Do not select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click **Next**.
3.	Specify Port Configuration Options	Select **Automatic**. Click **Next**.
4.	Select High Availability Option	Select **Virtual Host**. Click **Next**.

Table 11–10 (Cont.) Installing the OracleAS Metadata Repository Only

	Screen	Action
5.	Register Oracle Application Server Metadata Repository	If you already have an Oracle Internet Directory and know its connect information, select **Yes** and enter the name of the computer where Oracle Internet Directory is running and the port number. Refer to Section 6.17, "How to Determine Port Numbers Used by Components"if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. If you do not have an Oracle Internet Directory, or do not know its connect information, select **No**. Click **Next**.
6.	Specify Oracle Internet Directory login	This screen appears only if you selected **Yes** in the previous screen. **Username**: Enter the username for logging into Oracle Internet Directory. The user must belong to the iAS Admins group in Oracle Internet Directory. **Password**: Enter the password. **Realm**: This field appears only if your Oracle Internet Directory contains multiple realms. Enter the name of the realm against which to authenticate the user. Click **Next**.
7.	Specify Virtual Hostname	**Virtual Hostname**: Enter the name of the virtual host. Click **Next**.
8.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. Refer to Section 6.29, "Install Fragment: Database Screens".
9.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 11.9, "Installing OracleAS Cold Failover Cluster (Middle-Tier)" for instance name details. Example: `infra` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.11, "Comparing Installing Components against Configuring Components"for restrictions on the password. Example: `welcome99` Click **Next**.
10.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation"for details.

11.9 Installing OracleAS Cold Failover Cluster (Middle-Tier)

You can also install Oracle Application Server middle tiers in an OracleAS Cold Failover Cluster configuration with separate Oracle Homes on the local storage of each node as shown in Figure 11–6 or a single Oracle Home on a shared disk as shown in Figure 11–7).

OracleAS Cold Failover Cluster (Middle-Tier) configurations have an active node and a passive node. Unlike OracleAS Cold Failover Cluster (Infrastructure), you can install OracleAS Cold Failover Cluster (Middle-Tier) on a shared disk or you can install in separate Oracle Homes, one on each node of the cluster. Each installation option for OracleAS Cold Failover Cluster (Middle-Tier) has different benefits:

- A single Oracle Home installation is easier to manage, patch, and maintain because you only need to update the configuration on one Oracle Home.

- Separate Oracle Homes allow for rolling upgrades and patches of the instance.

Note that single Oracle Home install is not supported for installations that include OracleAS Wireless.

The following sections contain instructions for installing OracleAS Cold Failover Cluster (Middle-Tier):

- Section 11.9.1, "Installing in Separate Oracle Homes"
- Section 11.9.2, "Installing in a Single Oracle Home"

Additionally, instructions for expanding an existing installation are in the following section:

- Section 11.9.3, "Expanding the Middle Tiers"

Virtual Hostname

Clients access the active node (for example, node 1) using the virtual hostname (`vhost_mt.mydomain.com` in Figure 11–6 and Figure 11–7). If node 1 fails, the virtual hostname points to node 2, and node 2 becomes the active node.

Figure 11–6 OracleAS Cold Failover Cluster (Middle-Tier) Configuration with Separate Oracle Homes

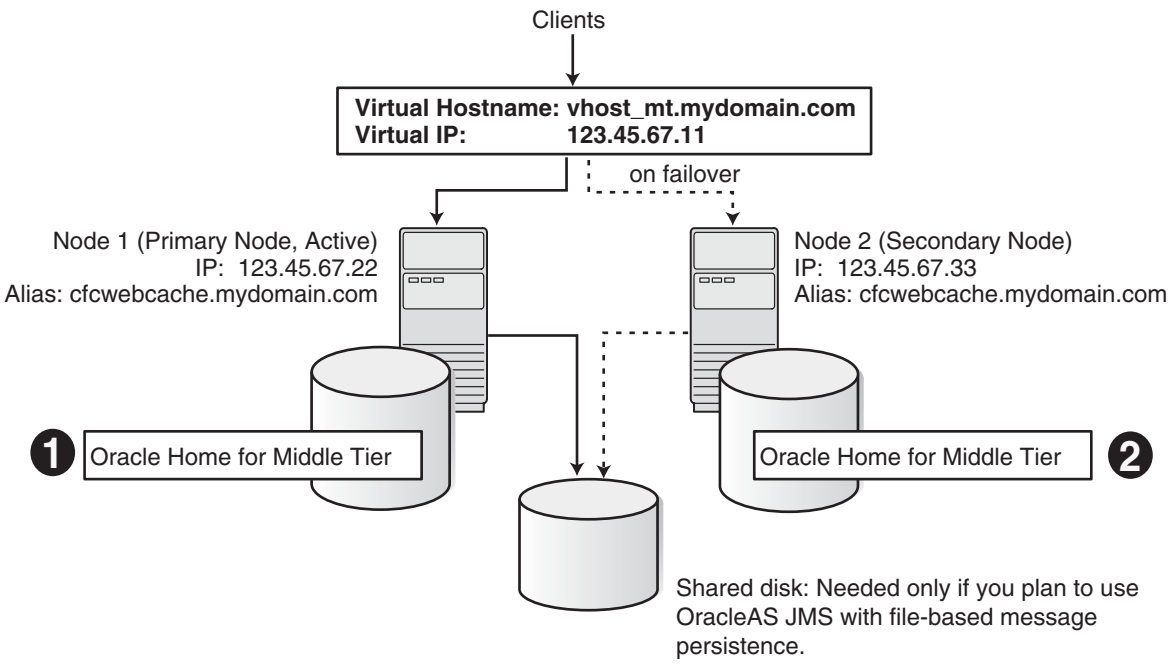
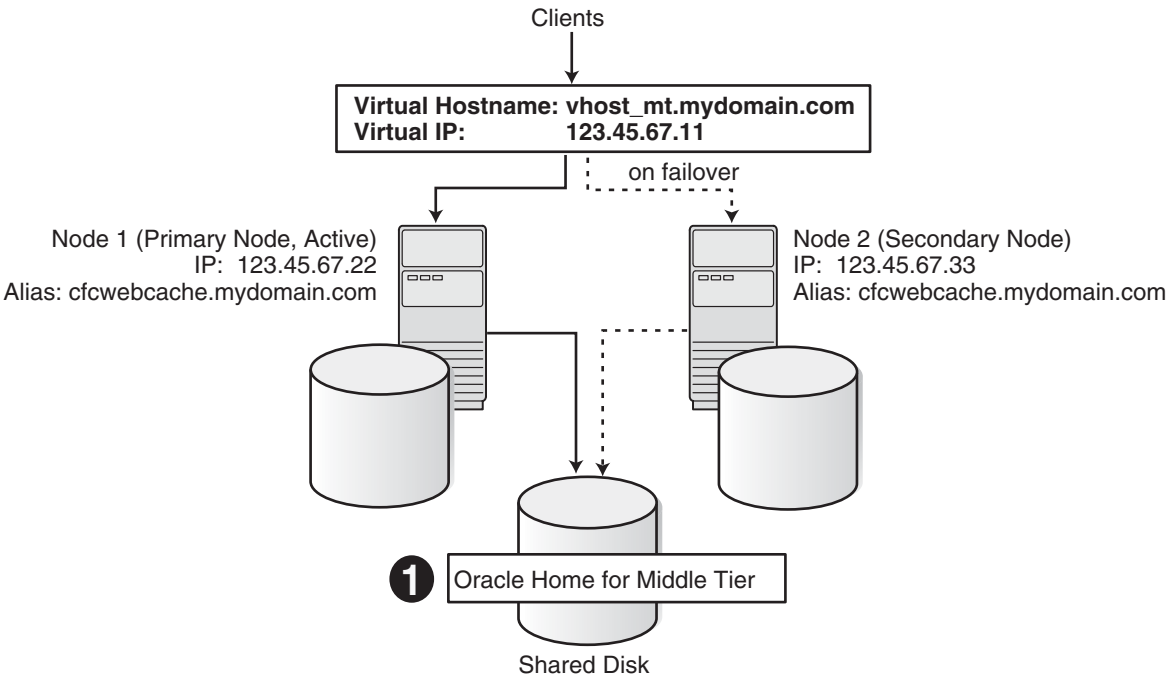


Figure 11–7 OracleAS Cold Failover Cluster (Middle-Tier) Configuration with a Single Oracle Home



11.9.1 Installing in Separate Oracle Homes

To install OracleAS Cold Failover Cluster (Middle-Tier) in separate Oracle Homes, perform the following steps.

11.9.1.1 Preinstallation Steps

Before installing the middle tier, perform the following generic preinstallation steps listed in the following sections:

- Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address"
- Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes"
- Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
- Section 11.2.4, "Check That Clusterware Is Running"

In addition, you also need to perform the following steps:

- Section 11.9.1.1.1, "Set up staticports.ini File"
- Section 11.9.1.1.2, "Create an Alias for the Hostnames"

11.9.1.1.1 Set up staticports.ini File

Both installations must use the same ports. To do this, set up a `staticports.ini` file to use when installing the middle tiers. Refer to Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)" for details on creating the `staticports.ini` file.

Note: The ports used for the middle tiers must be different from the ones used for the infrastructure installed on the same cluster.

11.9.1.1.2 Create an Alias for the Hostnames

If you plan to include OracleAS Web Cache in the Oracle Application Server instances, you should create an alias for the hostnames.

You do this by adding a line to the `/etc/hosts` file on each node.

Lines in the `hosts` file have the following format. You can have one or more aliases.

ip_address official_hostname aliases...

For example, if the nodes are called `node1` and `node2`, and you want the alias to be called `cfcwebcache`, then you would add these lines to the `hosts` file:

- In the `hosts` file on `node1`, add this line:

```
123.45.67.22  node1.mydomain.com  node1  cfcwebcache.mydomain.com
```

- In the `hosts` file on `node2`, add this line:

```
123.45.67.33  node2.mydomain.com  node2  cfcwebcache.mydomain.com
```

11.9.1.2 Installing the Middle Tiers

Install the middle tiers on the local storage of each node.

Tip: To save time, you can install the middle tiers on both nodes at the same time, instead of doing them sequentially.

Note the following when performing the installations:

- Use the same Oracle home paths for both installations.
- Specify the `staticports.ini` file that you created in Section 11.9.1.1, "Preinstallation Steps" during the installation.
- Use the same instance name for both installations. This is not mandatory, but recommended.

To install J2EE and Web Cache middle tiers, refer to Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access".

To install Portal and Wireless or Business Intelligence and Forms middle tiers, refer to Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

11.9.1.3 Postinstallation Steps

Before the middle tiers can run in cold failover cluster mode, perform the following post-installation steps:

- Section 11.9.1.3.1, "(optional) Configure the Middle-Tier Instances to Use SSL"
- Section 11.9.1.3.2, "Back up the Installations (Middle-Tier and OracleAS Infrastructure)"
- Section 11.9.1.3.3, "Enable the Virtual IP for the OracleAS Cold Failover Cluster (Middle-Tier) on the Active Node"

- Section 11.9.1.3.4, "(optional) Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence"
- Section 11.9.1.3.5, "Update Component Configuration on Node 1"
- Section 11.9.1.3.6, "Update Component Configuration on Node 2"
- Section 11.9.1.3.7, "Back up Files"

The last section, Section 11.9.1.3.8, "Restoring Files to a Known State", describes how to revert to a known state if an unrecoverable error occurred during conversion.

11.9.1.3.1 (optional) Configure the Middle-Tier Instances to Use SSL

If you want the middle-tier instances to use SSL, follow the steps in the *Oracle Application Server Administrator's Guide*. You should perform this SSL configuration before you configure the middle tiers for OracleAS Cold Failover Cluster.

11.9.1.3.2 Back up the Installations (Middle-Tier and OracleAS Infrastructure)

Before running the chgtocfmt script (in Section 11.9.1.3.5, "Update Component Configuration on Node 1"), you should back up the middle tiers on both nodes and also your OracleAS Infrastructure, including the OracleAS Metadata Repository and the Oracle Identity Management components. You can do this using the OracleAS Backup and Recovery Tool, described in *Oracle Application Server Administrator's Guide*. You then have backup files, from which you can perform a restore operation your files in case you encounter errors during the conversion.

You can also use the `-b` option to the chgtocfmt script to back up your files, but note the following points:

- The `-b` option backs up only the middle-tier instance. It does not back up your OracleAS Infrastructure. You should use the -b option only for standalone J2EE and Web Cache middle tiers (that is, middle tiers that do not require an OracleAS Infrastructure).
- The `-b` option calls the OracleAS Backup and Recovery Tool to perform the backup. This means that before you can use the -b option, you need to have configured the OracleAS Backup and Recovery Tool beforehand. .

11.9.1.3.3 Enable the Virtual IP for the OracleAS Cold Failover Cluster (Middle-Tier) on the Active Node

On `node1`, log in as `root` and run the following command:

```
# /sbin/ifconfig interface_name virtual_IP
```

Refer to Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address" for details.

11.9.1.3.4 (optional) Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence

If you are using OracleAS JMS with file-based persistence, create a file system on the shared disk for the OracleAS JMS queues, and mount this file system from `node1`.

11.9.1.3.5 Update Component Configuration on Node 1

Perform the following steps to update some component configuration on the middle-tier Oracle home that you installed on node 1.

1. Run the conversion command `chgtocfmt` on node 1.

> **Note:** If you changed any of the component port numbers after installation, you must manually update the file located at `ORACLE_HOME/install/portlist.ini` before performing this step.

```
prompt> $ORACLE_HOME/bin/chgtocfmt -v vhost_mt.mydomain.com -p password -n [-s]
[-b] [-e] [-w cfcwebcache.mydomain.com]
```

where

- `-v` specifies the fully qualified virtual hostname to which the install is being converted. The virtual hostname should be enabled on the current host.
- `-p` specifies the password for the Oracle Internet Directory.
- `-n` indicates that the install is not on a shared disk.
- `-s` indicates that SSL is enabled on the middle-tier.
- `-b` indicates to perform a backup of the current configuration before converting the instance to run in the OracleAS Cold Failover Cluster (Middle-Tier). The OracleAS Backup and Recovery Tool must be preconfigured to use this option. To do this, refer to *Oracle Application Server Administrator's Guide*.
- `-e` indicates that you are expanding a OracleAS Cold Failover Cluster (Middle-Tier) installation. Only use this option if you adding new components or configuring additional components in an existing OracleAS Cold Failover Cluster (Middle-Tier).
- `-w` specifies the alias located in `/etc/hosts` that is used for the OracleAS Web Cache on this node.

2. Check the following log files for errors:
   - `chgtocmt.log`
   - `chgip0.log`
   - `chgip1.log`

   These files are located in the `ORACLE_HOME/chgip/log` directory.
3. Verify the changes on node 1.

   To verify the installation, access the Application Server Control page using the virtual hostname in the URL (for example: http://vhost_mt.mydomain.com:1156).

   The default port number is 1156. You can verify the port number by looking in the `ORACLE_HOME/install/portlist.ini` file.
4. Modify OracleAS JMS
   a. In the `jms.xml` file for the OC4J instance that you plan to use, set the `host` attribute in `jms-server` to the virtual hostname (example: *vhost_mt.mydomain.com*).

      ```
      <jms-server host="vhost_mt.mydomain.com" port="9127">
      ...
      </jms-server>
      ```

   b. If for a queue, file-based message persistence is being used, the location for the file should ideally be on a shared disk. In this case, the shared disk needs to

fail over with the virtual IP. To configure this, the value of the `persistence-file` attribute for `queue` should be a file on the shared disk.

```
<queue name="Demo Queue" location="jms/demoQueue"
   persistence-file="/path/to/shared_file_system/demoQueueFile">
   <description>A dummy queue</description>
</queue>
```

c. Update the DCM repository and restart the components.

```
prompt> $ORACLE_HOME/dcm/bin/dcmctl updateConfig -ct oc4j
prompt> $ORACLE_HOME/bin/emctl stop iasconsole
prompt> $ORACLE_HOME/opmn/bin/opmnctl stopall
prompt> $ORACLE_HOME/opmn/bin/opmnctl startall
prompt> $ORACLE_HOME/bin/emctl start iasconsole
```

5. Fail over the Virtual IP to Node 2

a. Stop all Oracle Application Server processes on node 1.

```
prompt> $ORACLE_HOME/bin/emctl stop iasconsole
prompt> $ORACLE_HOME/opmn/bin/opmnctl stopall
```

b. Fail over the virtual hostname *vhost_mt.mydomain.com* from node 1 to node 2.

On `node1`, run the following command as `root`:

```
# /sbin/ifconfig interface_name down
```

On `node2`, run the following command as `root`:

```
# /sbin/ifconfig interface_name virtual_IP
```

11.9.1.3.6 Update Component Configuration on Node 2

Perform these steps on the middle-tier Oracle home that you installed on node 2.

1. Run the conversion command `chgtocfmt` on node 2 as you did in Step 1 in Section 11.9.1.3.5.
2. Check the log files on node 2 as you did in Step 2 in Section 11.9.1.3.5
3. Verify the changes on node 2 as you did in Step 3 in Section 11.9.1.3.5.
4. Modify OracleAS JMS on node 2 as you did in Step 4 in Section 11.9.1.3.5

11.9.1.3.7 Back up Files

After successfully converting the middle tiers to an OracleAS Cold Failover Cluster (Middle-Tier) topology, you should back up your files again because previous backups that you have are no longer valid (because of the configuration changes you just made). You should back up all your middle tiers (on both nodes), plus your OracleAS Infrastructure.

11.9.1.3.8 Restoring Files to a Known State

This section describes how to restore files to a known state, if errors occurred during the conversion.

If an unrecoverable error occurred during conversion, you can restore the middle tiers and OracleAS Infrastructure to a known state using the backup files that you created in Section 11.9.1.3.2, "Back up the Installations (Middle-Tier and OracleAS

Infrastructure)". You use the OracleAS Backup and Recovery Tool to perform the restore operation.

If you do not have backup files, you can try reversing the changes made by the `chgtocfmt` script by running the script again, but this time you use the *physical hostname* for both the `-v` and `-w` options. For example:

```
prompt> $ORACLE_HOME/bin/chgtocfmt -v physhost_mt.mydomain.com -p password -n [-s]
[-b] [-e] [-w physhost_mt.mydomain.com]
```

Note that re-running the script may not work. If the script gave errors when you were converting to a virtual host-based environment, you might get the same errors when you re-run the script to convert back to a physical host-based environment.

11.9.2 Installing in a Single Oracle Home

To install OracleAS Cold Failover Cluster (Middle-Tier) on a shared disk, perform the following steps.

> **Note:** Single Oracle Home install is not supported for installations that include OracleAS Wireless.

11.9.2.1 Preinstallation Steps

Before installing the middle tier, perform the following generic preinstallation steps listed in the following sections:

- Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address"
- Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes"
- Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
- Section 11.2.4, "Check That Clusterware Is Running"

In addition, you also need to perform the following steps:

- Section 11.9.2.1.1, "Create an Alias for the Hostnames"
- Section 11.9.2.1.2, "(optional) Set up staticports.ini File"
- Section 11.9.2.1.3, "Enable the Virtual IP for the OracleAS Cold Failover Cluster (Middle-Tier) on the Active Node"

11.9.2.1.1 Create an Alias for the Hostnames

If you plan to include OracleAS Web Cache in the Oracle Application Server instances, you should create an alias for the hostnames.

You do this by adding a line to the `/etc/hosts` file on each node.

Lines in the `hosts` file have the following format. You can have one or more aliases.

ip_address official_hostname aliases...

For example, if the nodes are called `node1` and `node2`, and you want the alias to be called `cfcwebcache`, then you would add these lines to the `hosts` file:

- In the `hosts` file on `node1`, add this line:

  ```
  123.45.67.22  node1.mydomain.com  node1  cfcwebcache.mydomain.com
  ```

- In the `hosts` file on `node2`, add this line:

```
123.45.67.33  node2.mydomain.com  node2  cfcwebcache.mydomain.com
```

11.9.2.1.2 (optional) Set up staticports.ini File

If you wish, you may set up `staticports.ini` file to use when installing the middle tier. Refer to Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)" for details on creating the `staticports.ini` file.

11.9.2.1.3 Enable the Virtual IP for the OracleAS Cold Failover Cluster (Middle-Tier) on the Active Node

On `node1`, log in as `root` and run the following command:

```
/sbin/ifconfig interface_name virtual_IP
```

Refer to Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address" for details.

11.9.2.2 Installing the Middle Tier

Install the middle tier on the shared disk of the hardware cluster from either node of the cluster.

> **Note:** If you created a `staticports.ini` file in Section 11.9.2.1, "Preinstallation Steps", specify it during the installation.

To install J2EE and Web Cache middle tiers, refer to Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access".

To install Portal and Wireless or Business Intelligence and Forms middle tiers, refer to Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

11.9.2.3 Post-Installation Steps

Before the middle tiers can run in cold failover cluster mode, perform the following post-installation steps:

- Section 11.9.2.3.1, "(optional) Configure the Middle-Tier Instances to Use SSL"
- Section 11.9.2.3.2, "Back up the Installations (Middle-Tier and OracleAS Infrastructure)"
- Section 11.9.2.3.3, "(optional) Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence"
- Section 11.9.2.3.4, "Update Component Configuration"
- Section 11.9.2.3.5, "Back up Files"
- Section 11.9.2.3.6, "Restoring Files to a Known State"

11.9.2.3.1 (optional) Configure the Middle-Tier Instances to Use SSL

If you want the middle-tier instances to use SSL, follow the steps in the *Oracle Application Server Administrator's Guide*. You should perform this SSL configuration before you configure the middle tiers for OracleAS Cold Failover Cluster.

11.9.2.3.2 Back up the Installations (Middle-Tier and OracleAS Infrastructure)

Before running the chgtocfmt script (in Section 11.9.2.3.4, "Update Component Configuration"), you should back up the middle tiers on both nodes and also your OracleAS Infrastructure, including the OracleAS Metadata Repository and the Oracle Identity Management components. You can do this using the OracleAS Backup and Recovery Tool, described in the *Oracle Application Server Administrator's Guide*. You then have backup files, from which you can perform a restore operation your files in case you encounter errors during the conversion.

You can also use the `-b` option to the chgtocfmt script to back up your files, but note the following points:

- The `-b` option backs up only the middle-tier instance. It does not back up your OracleAS Infrastructure. You should use the `-b` option only for standalone J2EE and Web Cache middle tiers (that is, middle tiers that do not require an OracleAS Infrastructure).
- The `-b` option calls the OracleAS Backup and Recovery Tool to perform the backup. This means that before you can use the `-b` option, you need to have configured the OracleAS Backup and Recovery Tool beforehand..

11.9.2.3.3 (optional) Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence

If you are using OracleAS JMS with file-based persistence, create a file system on the shared disk for the OracleAS JMS queues, and mount this file system from node 1.

11.9.2.3.4 Update Component Configuration

Perform the following steps to update some component configuration on the middle-tier Oracle home on the shared disk.

1. Run the conversion command `chgtocfmt` on node 1.

   > **Note:** If you changed any of the component port numbers after installation, you must manually update the file located at `ORACLE_HOME/install/portlist.ini` before performing this step.

   ```
   prompt> $ORACLE_HOME/bin/chgtocfmt -v vhost_mt.mydomain.com -p password [-n]
   [-s] [-b] [-e] [-w cfcwebcache.mydomain.com]
   ```

   where

   - `-v` specifies the fully qualified virtual hostname to which the install is being converted. The virtual hostname should be enabled on the current host.
   - `-p` specifies the password for the Oracle Internet Directory.
   - `-n` indicates that the install is not on a shared disk.
   - `-s` indicates that SSL is enabled on the middle-tier.
   - `-b` indicates to perform a backup of the current configuration before converting the instance to run in the OracleAS Cold Failover Cluster (Middle-Tier). The OracleAS Backup and Recovery Tool must be preconfigured to use this option. To do this, refer to *Oracle Application Server Administrator's Guide*.
   - `-e` indicates that you are expanding a OracleAS Cold Failover Cluster (Middle-Tier) installation. Only use this option if you adding new components

or configuring additional components in an existing OracleAS Cold Failover Cluster (Middle-Tier).

- `-w` specifies the alias located in `/etc/hosts` that is used for the OracleAS Web Cache on this node.

2. Check the following log files for errors:
   - `chgtocmt.log`
   - `chgip0.log`
   - `chgip1.log`

   These files are located in the `ORACLE_HOME/chgip/log` directory.
3. Verify the changes on node 1.

   To verify the installation, access the Application Server Control page using the virtual hostname in the URL (for example: `http://vhost_mt.mydomain.com:1156`).

   The default port number is 1156. You can verify the port number by looking in the `ORACLE_HOME/install/portlist.ini` file.
4. Modify OracleAS JMS
   a. In the `jms.xml` file for the OC4J instance that you plan to use, set the `host` attribute in `jms-server` to the virtual hostname (example: *vhost_mt.mydomain.com*).

      ```
      <jms-server host="vhost_mt.mydomain.com" port="9127">
      ...
      </jms-server>
      ```

   b. If for a queue, file-based message persistence is being used, the location for the file should ideally be on a shared disk. In this case, the shared disk needs to fail over with the virtual IP. To configure this, the value of the `persistence-file` attribute for `queue` should be a file on the shared disk.

      ```
      <queue name="Demo Queue" location="jms/demoQueue"
         persistence-file="/path/to/shared_file_system/demoQueueFile">
         <description>A dummy queue</description>
      </queue>
      ```

   c. Update the DCM repository and restart the components.

      ```
      prompt> $ORACLE_HOME/dcm/bin/dcmctl updateConfig -ct oc4j
      prompt> $ORACLE_HOME/bin/emctl stop iasconsole
      prompt> $ORACLE_HOME/opmn/bin/opmnctl stopall
      prompt> $ORACLE_HOME/opmn/bin/opmnctl startall
      prompt> $ORACLE_HOME/bin/emctl start iasconsole
      ```
5. Copy `/etc/oratab` and `/etc/oraInst.loc` from node 1 to node 2.
6. Fail over the Virtual IP to node 2.
   a. Stop all Oracle Application Server processes on node 1.

      ```
      prompt> $ORACLE_HOME/bin/emctl stop iasconsole
      prompt> $ORACLE_HOME/opmn/bin/opmnctl stopall
      ```

   b. Fail over the virtual hostname *vhost_mt.mydomain.com* from node 1 to node 2.

      On node 1, run the following command as `root`:

```
# /sbin/ifconfig interface_name down
```

On node 2, run the following command as `root`:

```
# /sbin/ifconfig interface_name virtual_IP
```

c. Fail over the shared disk hosting the Oracle home.

7. Verify the installation on node 2 as you did in Step 3.

11.9.2.3.5 Back up Files

After successfully converting the middle tier to an OracleAS Cold Failover Cluster (Middle-Tier) topology, you should back up your files again because previous backups that you have are no longer valid (because of the configuration changes you just made). You should back up all your middle tier, plus your OracleAS Infrastructure.

11.9.2.3.6 Restoring Files to a Known State

This section describes how to restore files to a known state, if errors occurred during the conversion.

If an unrecoverable error occurred during conversion, you can restore the middle tiers and OracleAS Infrastructure to a known state using the backup files that you created in Section 11.9.1.3.2, "Back up the Installations (Middle-Tier and OracleAS Infrastructure)". You use the OracleAS Backup and Recovery Tool to perform the restore operation.

If you do not have backup files, you can try reversing the changes made by the `chgtocfmt` script by running the script again, but this time you use the *physical hostname* for both the `-v` and `-w` options. For example:

```
prompt> $ORACLE_HOME/bin/chgtocfmt -v physhost_mt.mydomain.com -p password -n [-s]
[-b] [-e] [-w physhost_mt.mydomain.com]
```

Note that re-running the script may not work. If the script gave errors when you were converting to a virtual host-based environment, you might get the same errors when you re-run the script to convert back to a physical host-based environment.

11.9.3 Expanding the Middle Tiers

After installing the OracleAS Cold Failover Cluster (Middle-Tier), you may decide you need a component that is not installed or configured on the middle tier.

If you decide to add additional components, refer to Section 7.14, "Expanding a Middle Tier" for installation instructions. If you need to configure components that were not previously configured, refer to *Oracle Application Server Administrator's Guide*. For installations in separate Oracle homes, you will need to expand the middle tiers on both nodes of the cluster.

Note that the OracleAS Wireless component is not supported for a OracleAS Cold Failover Cluster (Middle-Tier) installed in single Oracle home.

After adding or configuring additional components, you need to run the `chgtocfmt` command using the `-e` option. All of the other options should be the same as the first time you ran it. For example, if you ran this command the first time:

```
prompt> $ORACLE_HOME/bin/chgtocfmt -v vhost_mt.mydomain.com -p password -w
cfcwebcache.mydomain.com
```

then you should run the following command after expanding the middle tiers:

```
prompt> $ORACLE_HOME/bin/chgtocfmt -v vhost_mt.mydomain.com -p password -w
cfcwebcache.mydomain.com -e
```

For installations in separate Oracle homes, you will need to run the `chgtocfmt` command on both nodes of the cluster.

11.10 Installing OracleAS Cold Failover Cluster (Infrastructure) and OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes

This configuration is a combination of Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration" and Section 11.9, "Installing OracleAS Cold Failover Cluster (Middle-Tier)". This section describes how to install these configurations on the same nodes.

Figure 11–8 shows where you would install the components, and on which nodes they would be running.

In normal mode, OracleAS Infrastructure runs on node 1, while the middle tier runs on node 2. Unlike normal cold failover cluster configurations, both nodes are active in this case but running different components (either the OracleAS Infrastructure components or the middle-tier components).

Virtual Hostnames

You need two virtual hostnames: one virtual hostname (for example, vhost_infra) points to the node running OracleAS Infrastructure, and the other virtual hostname (for example, vhost_mt) points to the node running the middle tier.

Failover

If node 1 fails (Figure 11–9), the OracleAS Infrastructure processes fail over to node 2. The virtual hostname that was pointing to node 1 now points to node 2.

If node 2 fails (Figure 11–10), the middle-tier processes fail over to node 1. The virtual hostname that was pointing to node 2 now points to node 1. Note that you need to configure the middle tier after installation for it to fail over to the other node.

Location of Oracle Homes

You install the OracleAS Infrastructure on the shared storage, and the middle tier on the local storage of each node. You install the middle tier twice, once for each node.

To access the OracleAS Infrastructure or the middle tier, clients use the virtual hostname associated with the node running the OracleAS Infrastructure or middle-tier components.

You also use the virtual hostname in URLs. For example, if `vhost_infra.mydomain.com` is the name of the virtual host for the OracleAS Infrastructure, the URLs for the Oracle HTTP Server and the Application Server Control would look like the following:

URL for:	Example URL
Oracle HTTP Server, Welcome page	http://vhost.mydomain.com:7777
Oracle HTTP Server, secure mode	https://vhost.mydomain.com:4443
Application Server Control	http://vhost.mydomain.com:1156

Figure 11–8 OracleAS Cold Failover Cluster (Infrastructure) with OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes

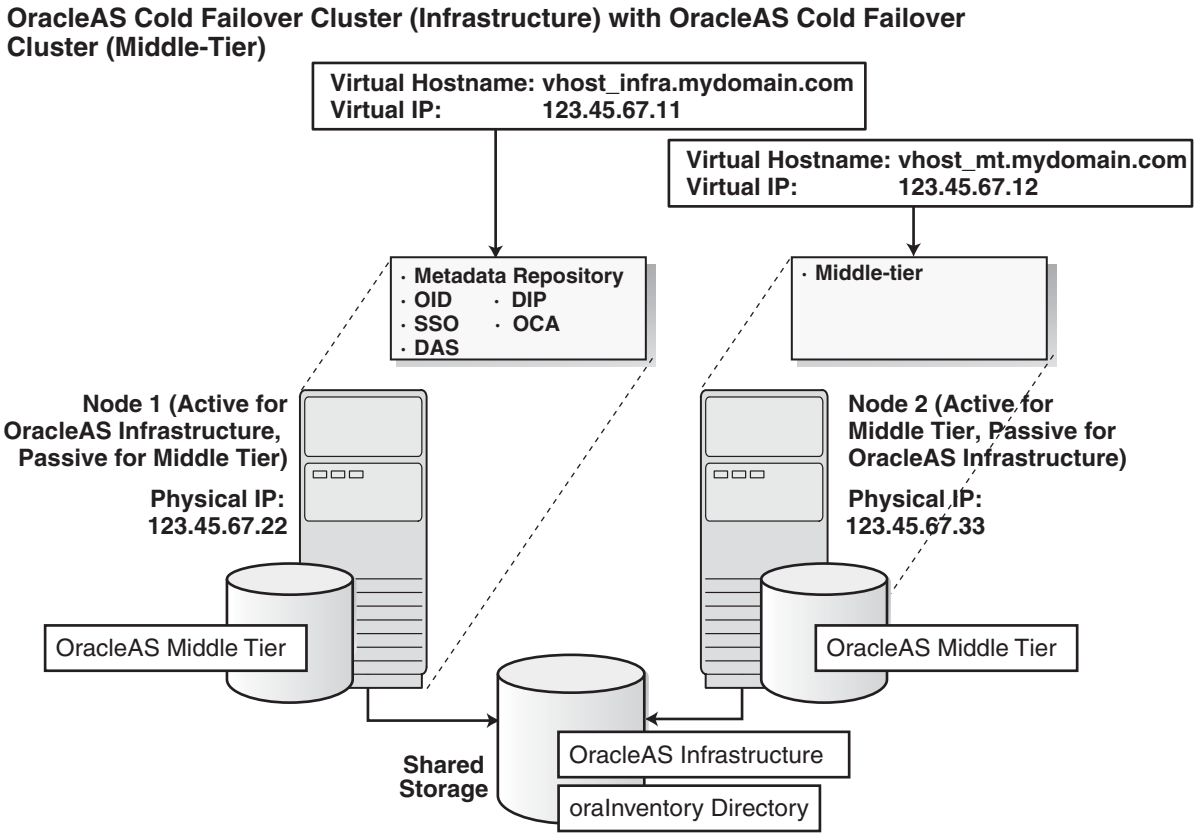


Figure 11–9 If Node 1 Fails

OracleAS Cold Failover Cluster (Infrastructure) with OracleAS Cold Failover Cluster (Middle-Tier)

If Node 1 Fails

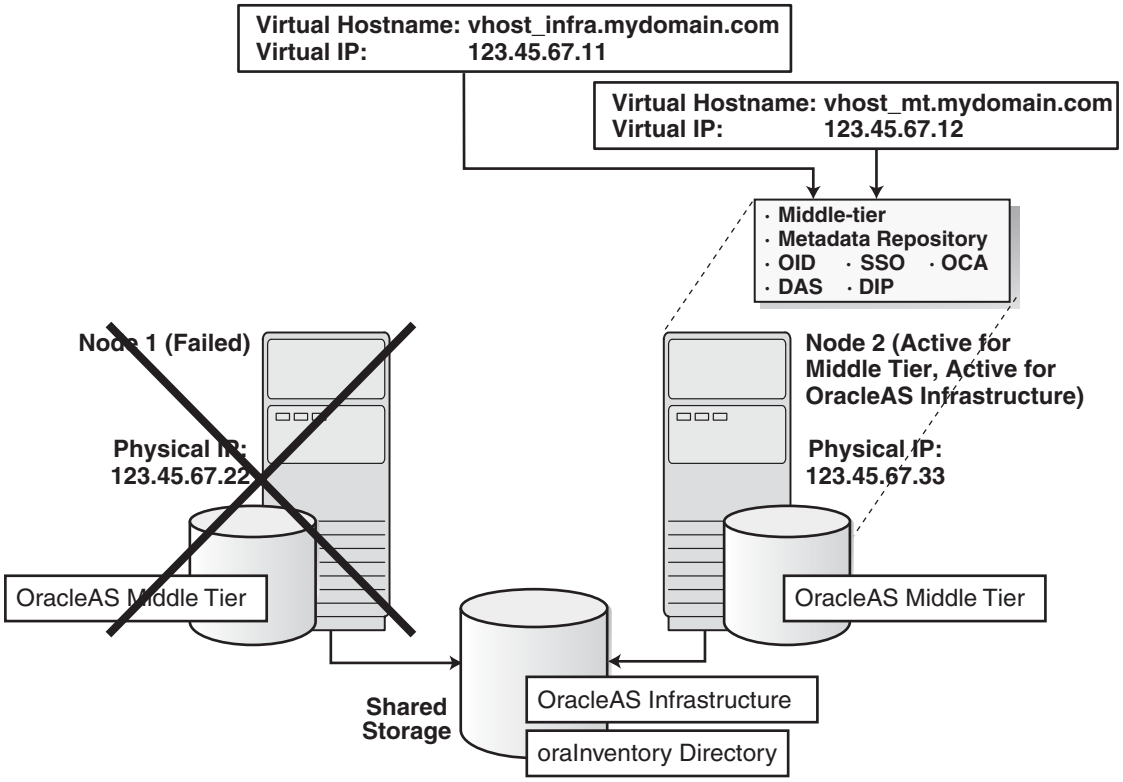
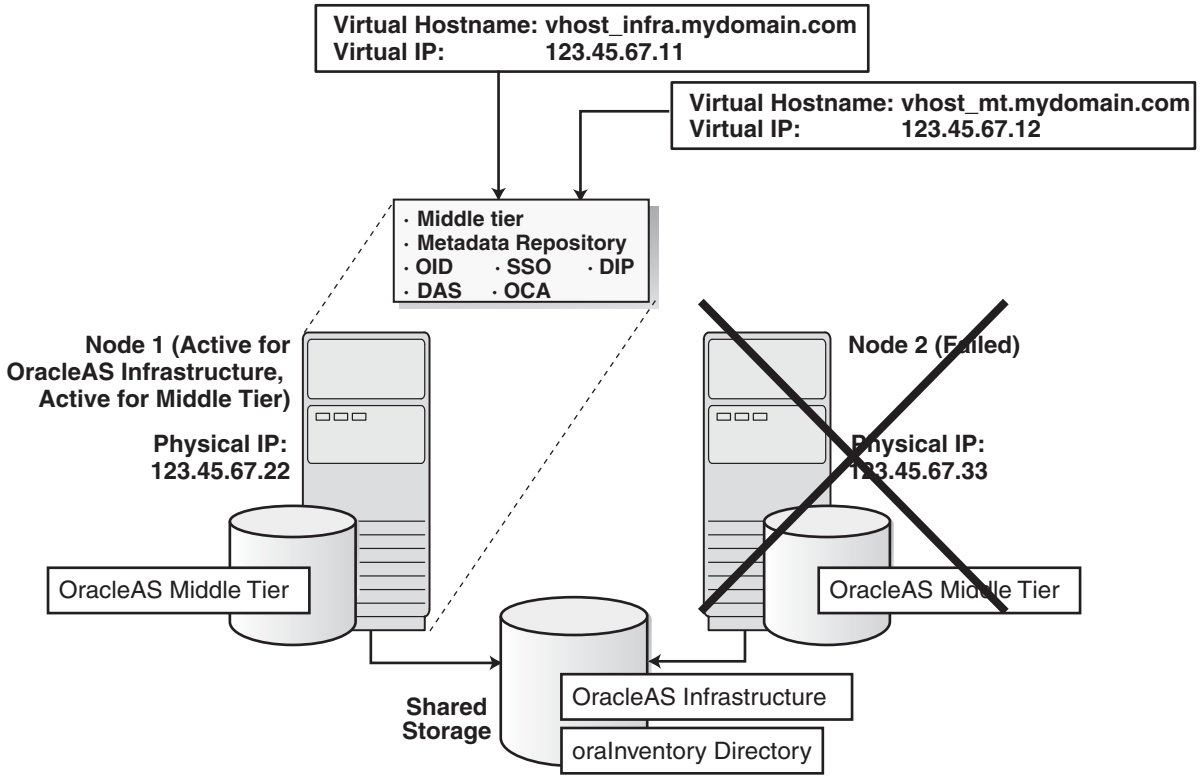


Figure 11–10 If Node 2 Fails



11.10.1 Installation Steps

To create this configuration:

1. Set up the environment.
   - Section 11.2.1, "Map the Virtual Hostname and Virtual IP Address"
   - Section 11.2.2, "Set Up a File System That Can Be Mounted from Both Nodes"
   - Section 11.2.3, "Review Recommendations for Automatic Storage Management (ASM)"
   - Section 11.2.4, "Check That Clusterware Is Running"
2. Create an alias for the hostnames.

   You do this by adding a line to the `/etc/hosts` file on each node.

   Lines in the `hosts` file use the following format. You can have one or more aliases.

   ip_address official_hostname aliases...

   For example, if the nodes are called `node1` and `node2`, and you want the alias to be called `cfcwebcache`, then you would add these lines to the `hosts` file:

   - In the `hosts` file on `node1`, add this line:

     ```
     123.45.67.22  node1.mydomain.com  node1  cfcwebcache.mydomain.com
     ```

   - In the `hosts` file on `node2`, add this line:

```
123.45.67.33  node2.mydomain.com  node2  cfcwebcache.mydomain.com
```

3. Install OracleAS Infrastructure on the shared storage. Refer to Section 11.3.2, "OracleAS Cold Failover Cluster (Infrastructure): Details of Installation Steps".
4. Create a `staticports.ini` file for the middle tiers. This is to ensure that the middle tiers use the same ports, and that the ports are different from the ports used by the OracleAS Infrastructure.

   When either node fails, a failover event occurs and all the OracleAS Infrastructure and middle-tier components will run on the same node. For the components to continue working, there must not be any port conflicts.
5. Install the middle tier on the local storage of each node.

   Notes for installing the middle tiers:

   - You need to use the same Oracle home path for both nodes.
   - You need to use the same Oracle Application Server instance name.
   - When the installer prompts you to enter the hostname for the Oracle Internet Directory, enter the *virtual hostname* for the OracleAS Infrastructure.
   - To install a J2EE and Web Cache middle tier, refer to Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access".
   - To install a Portal and Wireless middle tier, refer to Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

11.10.2 Post-Installation Steps

Perform the post-installation steps for `node1` and `node2` listed in Section 11.9.2.3, "Post-Installation Steps".

11.11 Post-Installation Steps for OracleAS Cold Failover Cluster

- Section 11.11.1, "Edit the ORACLE_HOME/Apache/Apache/htdocs/index.html File"
- Section 11.11.2, "Copy /etc/oraInst.loc and /etc/oratab to the Other Node"
- Section 11.11.3, "Edit the oraInst.loc and oratab Files on the Secondary Node"
- Section 11.11.4, "Create a Clusterware Agent for Automatic Failover"

11.11.1 Edit the ORACLE_HOME/Apache/Apache/htdocs/index.html File

In the `ORACLE_HOME/Apache/Apache/htdocs/index.html` file, change all occurrences of the physical hostname (example: `node1`) to the virtual hostname (example: `vhost`), where `node1` appears as a hostname.

Note that if `node1` is used as part of the Oracle Application Server instance name, do not change it.

11.11.2 Copy /etc/oraInst.loc and /etc/oratab to the Other Node

After the OracleAS Infrastructure installation is complete, copy the `/etc/oraInst.loc` and the `/etc/oratab` from the node where you performed the installation to the other node in Oracle Application Server Cold Failover Cluster. This

ensures that you can run the installer to update the Oracle home from either node in the cluster.

11.11.3 Edit the oraInst.loc and oratab Files on the Secondary Node

After the OracleAS Infrastructure installation is complete, edit the `/etc/oraInst.loc` and `/etc/oratab` files on the secondary node. T

Edit the `oratab` file on the secondary node as follows:

1. Create or edit a `/etc/oratab` file.
2. Copy the `oratab` entries from the primary node for the Metadata Repository, created during the OracleAS Cold Failover Cluster installation.

For example, copy the following entries from the `oratab` file on the primary node to the `oratab` file on the secondary node where `/mnt/app/oracle/OraInfra_10_1_2` is the Oracle Home directory:

```
*:/mnt/app/oracle/OraInfra_10_1_2:N
asdb:/mnt/app/oracle/OraInfra_10_1_2:N
```

Create the `oraInst.loc` file on the secondary node by copying the `oraInst.loc` file from the primary node to the secondary node. The `oraInst.loc` file is not used during runtime by Oracle Application Server. It is used only by the installer.

11.11.4 Create a Clusterware Agent for Automatic Failover

An OracleAS Cold Failover Cluster environment provides the framework for a manual failover of OracleAS Infrastructure. To achieve automatic failover, you must set up an agent using the clusterware. An example of automatic failover is setting up the secondary node to monitor the heart beat of the primary node and when the secondary node detects that the primary node is down, the virtual IP address, shared storage, and all the OracleAS Infrastructure processes are failed over to the secondary node.

11.12 Installing Middle Tiers Against an OracleAS Cold Failover Cluster Infrastructure

This section describes how to install middle tiers that are not in a cold failover cluster configuration against an OracleAS Cold Failover Cluster infrastructure.

If you want to install middle tiers that can take advantage of cold failover cluster features, refer to Section 11.9, "Installing OracleAS Cold Failover Cluster (Middle-Tier)" or Section 11.10, "Installing OracleAS Cold Failover Cluster (Infrastructure) and OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes".

For non-cold failover cluster middle tiers to work with OracleAS Infrastructure in an OracleAS Cold Failover Cluster, you can install the middle tiers on computers outside the cluster, or on nodes within the cluster.

Note: The preferred solution is to install and run the non-cold failover cluster middle tiers on nodes outside the OracleAS Cold Failover Cluster.

11.12.1 If You Plan to Install Middle Tiers on OracleAS Cold Failover Cluster Nodes

If you plan to install a non-cold failover cluster middle tier on an OracleAS Cold Failover Cluster node (primary or secondary), perform these tasks before installing the middle tier:

- Section 11.12.1.1, "Create a staticports.ini File for the Middle Tier"
- Section 11.12.1.2, "Rename the /etc/oraInst.loc File Used for the Infrastructure"

11.12.1.1 Create a staticports.ini File for the Middle Tier

Ensure that the ports used by the middle tier are not the same as the ports used by the infrastructure. The reason is that the infrastructure can fail over from the primary to the secondary node (and vice versa), and there must not be any port conflicts on either node. The same ports must be reserved for the infrastructure on both nodes.

If the infrastructure is running on the same node where you want to install the middle tier, the installer can detect which ports are in use and select different ports for the middle tier. For example, if the infrastructure is running on the primary node, and you run the installer on the primary node to install the middle tier, then the installer can assign different ports for the middle tier.

However, if the infrastructure is running on a node different from where you want to install the middle tier, the installer cannot detect which ports are used by the infrastructure. For example, if the infrastructure is running on the primary node but you want to install the middle tier on the secondary node, the installer is unable to detect which ports the infrastructure is using. In this situation, you need to set up a `staticports.ini` file to specify port numbers for the middle tier. Refer to Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

To see which ports the infrastructure is using, view the `ORACLE_HOME/install/portlist.ini` file, where `ORACLE_HOME` refers to the directory where you installed the infrastructure.

11.12.1.2 Rename the /etc/oraInst.loc File Used for the Infrastructure

Set up the environment so that the middle tier will have its own inventory directory, instead of using the same inventory directory used by the infrastructure. To do this, you need to rename the `/etc/oraInst.loc` file to something else so that the installer will prompt you to enter a new inventory directory. The following example renames it to `oracle.infra`.

```
prompt> su
Password: root_password
# cd /etc
# mv oraInst.loc oraInst.loc.infra
```

When the installer prompts for the inventory directory, specify a directory on the local storage or on a disk other than the one where you installed the OracleAS Infrastructure.

When the middle-tier installation is complete, do the following rename operations:

```
prompt> su
Password: root_password
# cd /etc
# mv oraInst.loc oraInst.loc.mt see (1)
# mv oraInst.loc.infra oraInst.loc see (2)
```

(1) This command renames the `oracle` directory created by the installer when it installed the middle tier.

(2) This command renames the `oracle.infra` directory back to `oracle`.

The `/etc/oraInst.loc` file is not used during Oracle Application Server runtime. The only time you need it is when you run the installer (for example, to de-install an instance or to expand an instance).

Be sure the correct `oracle` directory is in place before you run the installer.

11.12.2 Procedure for Installing Middle Tiers Against an OracleAS Cold Failover Cluster Infrastructure

To install middle tiers against OracleAS Infrastructure in an OracleAS Cold Failover Cluster, follow the procedures as documented in Chapter 7, "Installing Middle Tiers", but with these differences:

- In the Register with Oracle Internet Directory screen, enter the virtual hostname in the **Hostname** field.
- If you are installing the middle tier on an OracleAS Cold Failover Cluster node, you must follow these additional requirements:
  - Read Section 11.12.1, "If You Plan to Install Middle Tiers on OracleAS Cold Failover Cluster Nodes".

11.13 Installing Regular Middle-Tiers on OracleAS Cold Failover Cluster Nodes

If you install middle-tiers that are not in a cold failover cluster configuration on the same nodes as an OracleAS Cold Failover Cluster infrastructure, then the ports used for the middle tiers must be different from the ones used for any OracleAS Infrastructure installed on the same cluster. The ports must also be different from those used for other Oracle Homes on the same node. To check the ports assigned to components in any Oracle Home, see the Ports page on the Application Server Control Console.

When you install the middle-tiers, you should use a `staticports.ini` file. Refer to Chapter 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)"for details.

12

Installing in High Availability Environments: OracleAS Cluster (Identity Management)

This chapter describes how to install Oracle Application Server in OracleAS Cluster (Identity Management) configurations.

- Section 12.1, "OracleAS Cluster (Identity Management): Introduction"
- Section 12.2, "Preinstallation Steps for OracleAS Cluster (Identity Management)"
- Section 12.3, "About Oracle Internet Directory Passwords"
- Section 12.4, "About Configuring SSL and Non-SSL Ports for Oracle HTTP Server"
- Section 12.5, "Installing an OracleAS Cluster (Identity Management) Configuration"
- Section 12.6, "Installing a Distributed OracleAS Cluster (Identity Management) Configuration"
- Section 12.7, "Postinstallation Steps"
- Section 12.8, "Installing Middle Tiers Against OracleAS Cluster (Identity Management) Configurations"

12.1 OracleAS Cluster (Identity Management): Introduction

In OracleAS Cluster (Identity Management) configurations, the Oracle Identity Management components and the OracleAS Metadata Repository run on separate nodes. All the nodes in an OracleAS Cluster (Identity Management) configuration are active. Requests from clients, such as middle tiers, are directed to a load balancer, which then directs the requests to one of the active nodes. Refer to Figure 12–1.

These nodes can belong to a hardware cluster, but this is not required.

These configurations are called "OracleAS Cluster (Identity Management)" because the OracleAS Single Sign-On and Oracle Delegated Administration Services components are clustered. This means that these components are configured identically across nodes.

Database (OracleAS Metadata Repository) Requirement

You need an existing database before installing an OracleAS Cluster (Identity Management) configuration. You will install the OracleAS Metadata Repository on this database using the OracleAS Metadata Repository Creation Assistant. You can use any database configuration supported by OracleAS Metadata Repository Creation Assistant. Refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for the supported database configurations. For OracleAS Cluster (Identity

Management) configurations, Oracle recommends using a high availablity database configuration such as Real Application Clusters or cold failover cluster.

You can only install one OracleAS Cluster (Identity Management) on an OracleAS Metadata Repository.

Note: For OracleAS Cluster (Identity Management) configurations, you never select the "**Oracle Identity Management and OracleAS Metadata Repository**" option in the installer. You always select the **Oracle Identity Management** option. This is why you need an existing database for the OracleAS Metadata Repository.

Always Select the Same Components

Because the installer clusters the components in an OracleAS Cluster (Identity Management) configuration, you need to select the same components in the Select Configuration Options screen for all the nodes in the cluster.

For example, if you select Oracle Internet Directory, OracleAS Single Sign-On, and Oracle Delegated Administration Services for the installation on node 1, then you have to select the same set of components in subsequent installations.

Clustering will fail if you select different components in each installation.

Configurations

You can install OracleAS Cluster (Identity Management) in these configurations:

- OracleAS Cluster (Identity Management). Refer to Section 12.5.
- Distributed OracleAS Cluster (Identity Management). Refer to Section 12.6.

12.2 Preinstallation Steps for OracleAS Cluster (Identity Management)

Before installing an OracleAS Cluster (Identity Management) configuration, you need to set up the following items:

- Section 12.2.1, "Use the Same Path for the Oracle Home Directory (recommended)"
- Section 12.2.2, "Synchronize Clocks on All Nodes"
- Section 12.2.3, "Configure Virtual Server Names and Ports for the Load Balancer"
- Section 12.2.4, "Configure Your LDAP Virtual Server"
- Section 12.2.5, "Set up Cookie Persistence on the Load Balancer"

12.2.1 Use the Same Path for the Oracle Home Directory (recommended)

For all the nodes that will be running Oracle Identity Management components, use the same full path for the Oracle home. This practice is recommended, but not required.

12.2.2 Synchronize Clocks on All Nodes

Synchronize the system clocks on all nodes so they are running within 250 seconds of each other. When synchronizing the system clocks, make sure the clocks are set to the same time zone.

Note: If you do not synchronize the clocks, then there will be inconsistent operation attributes in the directory entries and inconsistent behavior of the password state policies. As a result, you will see unwanted instance failovers.

12.2.3 Configure Virtual Server Names and Ports for the Load Balancer

Configure your load balancer with two virtual server names and associated ports:

- Configure a virtual server name for LDAP connections. For this virtual server, you need to configure two ports: one for SSL and one for non-SSL connections.

  Note: Ensure that the same ports that you configured for the LDAP virtual server are available on the nodes on which you will be installing Oracle Internet Directory.

  The installer will configure Oracle Internet Directory to use the same port numbers that are configured on the LDAP virtual server. In other words, Oracle Internet Directory on all the nodes and the LDAP virtual server will use the same port numbers. Even if the port numbers are set in the `staticports.ini` file, the port numbers entered in the installer for the load balancer will take precedence.

- Configure a virtual server name for HTTP connections. For this virtual server, you also need to configure a port for either SSL or non-SSL connections. If you want the client to connect to the load balancer using HTTPS, configure a port for SSL connections. If you want the client to connect to the load balancer using HTTP, configure a port for non-SSL connections.

  Note: The ports for the HTTP virtual server can be different from the Oracle HTTP Server `Listen` ports.

The installer will prompt you for the virtual server names and port numbers. Enter the same virtual server name in the installer that you used to configure the LDAP and HTTP virtual servers. The virtual server name may or may not be fully-qualified. For example, if you used a fully-qualified host name when you configured the LDAP virtual server, then you must enter the same fully-qualified host name in the installer.

Note: The installer does not check the load balancer. Make sure the load balancer is properly configured and enabled before running the installer.

In addition, check the following:

- Check that the virtual server names are associated with IP addresses and are part of your DNS. The nodes that will be running Oracle Application Server must be able to resolve these virtual server names.

12.2.4 Configure Your LDAP Virtual Server

Configure the LDAP virtual server on your load balancer to direct requests to node 1 initially. The procedure to add additional nodes differs depending upon whether or not your load balancer supports LDAP service monitoring.

Note that these procedures apply only to the LDAP virtual server configured on your load balancer. They do not apply to the HTTP virtual server configured on your load balancer.

12.2.4.1 Load Balancer Supports LDAP Service Monitoring

If your load balancer supports LDAP service monitoring, then you can add all the nodes to the LDAP virtual server before starting the installation.

For example, if you have three nodes:

1. Configure the LDAP virtual server to direct requests to node 1 only.
2. Add node 2 to the LDAP virtual server.
3. Add node 3 to the LDAP virtual server.
4. Install Oracle Identity Management components on node 1.
5. Install Oracle Identity Management components on node 2.
6. Install Oracle Identity Management components on node 3.

12.2.4.2 Load Balancer Does Not Support LDAP Service Monitoring

If your load balancer does not support LDAP service monitoring, then configure your LDAP virtual server to direct requests to node 1 only before starting the installation. After you complete an installation on a node, then you can add that node to the virtual server.

For example, if you have three nodes:

1. Configure the LDAP virtual server to direct requests to node 1 only.
2. Install Oracle Identity Management components on node 1.
3. Install Oracle Identity Management components on node 2.
4. Add node 2 to the LDAP virtual server.
5. Install Oracle Identity Management components on node 3.
6. Add node 3 to the LDAP virtual server.

12.2.5 Set up Cookie Persistence on the Load Balancer

On your load balancer, set up cookie persistence for HTTP traffic. Specifically, set up cookie persistence for URIs starting with `/oiddas/`. This is the URI for Oracle Delegated Administration Services. If your load balancer does not allow you to set cookie persistence at the URI level, then set the cookie persistence for all HTTP traffic. In either case, set the cookie to expire when the browser session expires. Refer to your load balancer documentation for details.

12.3 About Oracle Internet Directory Passwords

In OracleAS Cluster (Identity Management) configurations, you install Oracle Internet Directory on multiple nodes, and in each installation, you enter the instance password in the "Specify Instance Name and ias_admin Password" screen.

The password specified in the first installation is used as the password for the `cn=orcladmin` and `orcladmin` users not just in the first Oracle Internet Directory, but in all Oracle Internet Directory installations in the cluster.

This means that to access the Oracle Internet Directory on any node, you have to use the password that you entered in the first installation. You cannot use the passwords that you entered in subsequent installations.

Accessing the Oracle Internet Directory includes:

- Logging into Oracle Delegated Administration Services (URL: `http://hostname:port/oiddas`)
- Logging into OracleAS Single Sign-On (URL: `http://hostname:port/pls/orasso`)
- Connecting to Oracle Internet Directory using the Oracle Directory Manager

You still need the passwords that you entered in subsequent installations for logging into Application Server Control.

12.4 About Configuring SSL and Non-SSL Ports for Oracle HTTP Server

When you are installing OracleAS Cluster (Identity Management) configurations, the installer displays the "Specify HTTP Load Balancer Host and Listen Ports" screen.

This screen has two sections:

- In the load balancer section, you specify the load balancer's HTTP virtual server name and port number. You also indicate whether the port is for SSL or non-SSL requests.
- In the Oracle HTTP Server section, you specify the port number that you want for the Oracle HTTP Server `Listen` port. You also indicate whether the port is for SSL or non-SSL requests.

  The virtual server and the Oracle HTTP Server `Listen` port can use different port numbers.

You use this screen to set up the type of communication (SSL or non-SSL) between client, load balancer, and Oracle HTTP Server. Three cases are possible:

- Case 1: Communications between clients and the load balancer use HTTP, and communications between the load balancer and Oracle HTTP Server also use HTTP. Refer to Section 12.4.1, "Case 1: Client ---[HTTP]---> Load Balancer ---[HTTP]---> Oracle HTTP Server".
- Case 2: Communications between clients and the load balancer use HTTPS, and communications between the load balancer and Oracle HTTP Server also use HTTPS. Refer to Section 12.4.2, "Case 2: Client ---[HTTPS]---> Load Balancer ---[HTTPS]---> Oracle HTTP Server".
- Case 3: Communications between clients and the load balancer use HTTPS, but communications between the load balancer and Oracle HTTP Server use HTTP. Refer to Section 12.4.3, "Case 3: Client ---[HTTPS]---> Load Balancer ---[HTTP]---> Oracle HTTP Server".

Note: Because the values you specify in this dialog override the values specified in the `staticports.ini` file, you should not specify port numbers for the Oracle HTTP Server `Listen` port in the `staticports.ini` file.

12.4.1 Case 1: Client ---[HTTP]---> Load Balancer ---[HTTP]---> Oracle HTTP Server

HTTP Listener: Port: Enter the port number that you want to use as the Oracle HTTP Server `Listen` port. This will be the value of the `Listen` directive in the `httpd.conf` file.
Enable SSL: Do not select this option. The installer tries the default port number for the SSL port.

HTTP Load Balancer: Hostname: Enter the name of the virtual server on the load balancer configured to handle HTTP requests.

HTTP Load Balancer: Port: Enter the port number that the HTTP virtual server listens on. This will be the value of the `Port` directive in the `httpd.conf` file.
Enable SSL: Do not select this option.

Table 12–1 Example for Case 1

Values in Screen	Resulting Values in Configuration Files

HTTP Listener: Port: 8000
Enable SSL: Unchecked
HTTP Load Balancer: Port: 80
Enable SSL: Unchecked
	In **`httpd.conf`**:
	`Port 80`
	`Listen 8000`
	
	In **`ssl.conf`**:
	`Port <default port number assigned by installer>`
	`Listen <default port number assigned by installer>`

12.4.2 Case 2: Client ---[HTTPS]---> Load Balancer ---[HTTPS]---> Oracle HTTP Server

HTTP Listener: Port: Enter the port number that you want Oracle HTTP Server to listen on. This will be the value of the `Listen` directive in the `ssl.conf` file.
Enable SSL: Select this option.

HTTP Load Balancer: Hostname: Enter the name of the virtual server on the load balancer configured to handle HTTPS requests.

HTTP Load Balancer: Port: Enter the port number that the HTTP virtual server listens on. This will be the value of the `Port` directive in the `ssl.conf` file.
Enable SSL: This option has been automatically selected and cannot be deselected. This is because you selected **Enable SSL** for the HTTP Listener.

In `opmn.xml`, the installer sets the `ssl-enabled` line in the Oracle HTTP Server section to `true`.

Table 12–2 Example for Case 2

Values in Screen	Resulting Values in Configuration Files

HTTP Listener: Port: 90
Enable SSL: Checked
HTTP Load Balancer: Port: 443
Enable SSL: Checked
	In **`httpd.conf`**:
	`Port <default port number assigned by installer>`
	`Listen <default port number assigned by installer>`
	
	In **`ssl.conf`**:
	`Port 443`
	`Listen 90`

Note that in this case you will have to perform an additional post-configuration step. Refer to Section 12.7.1, "Update targets.xml (Case 2 only)".

12.4.3 Case 3: Client ---[HTTPS]---> Load Balancer ---[HTTP]---> Oracle HTTP Server

HTTP Listener: Port: Enter the port number that you want Oracle HTTP Server to listen on. This will be the value of the `Listen` directive in the `httpd.conf` file.
Enable SSL: Do not select this option.

HTTP Load Balancer: Hostname: Enter the name of the virtual server on the load balancer configured to handle HTTPS requests.

HTTP Load Balancer: Port: Enter the port number that the HTTP virtual server listens on. This will be the value of the `Port` directive in the `httpd.conf` file.
Enable SSL: Select this option.

Note that in this configuration, the load balancer must have SSL acceleration capabilities, or you must add a separate SSL Accelerator. The conversion from HTTPS to HTTP happens before Oracle HTTP Server receives the request. The SSL accelerator must be properly configured prior to installation. The installer does not check for this.

The installer will change the following lines:

- In `opmn.xml`, the installer sets the `ssl-enabled` line in the Oracle HTTP Server section to `true`.
- In `httpd.conf`, the installer adds the following lines:

```
LoadModule certheaders_module libexec/mod_certheaders.so
SimulateHttps on
```

Table 12–3 Example for Case 3

Values in Screen	Resulting Values in Configuration Files

HTTP Listener: Port: 9000
Enable SSL: Unchecked
HTTP Load Balancer: Port: 443
Enable SSL: Checked
	In **`httpd.conf`**:
	`Port 443`
	`Listen 9000`
	
	In **`ssl.conf`**:
	`Port <default port number assigned by installer>`
	`Listen <default port number assigned by installer>`

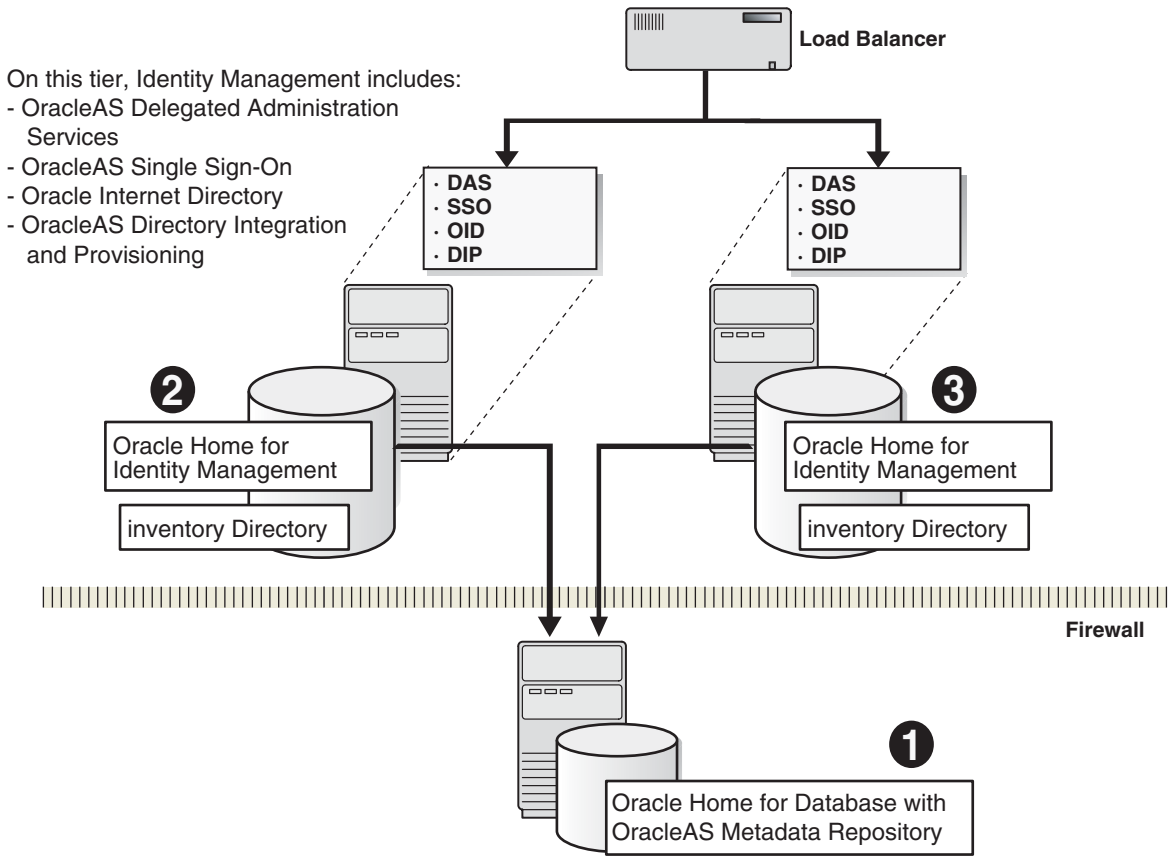
12.5 Installing an OracleAS Cluster (Identity Management) Configuration

In this configuration, you need an existing database that is already running in a configuration supported by the OracleAS Metadata Repository Creation Assistant. Oracle recommends running the database in a high availability environment, such as a Real Application Clusters database. You also need additional nodes (at least two nodes) to run Oracle Identity Management components. In this configuration, Oracle Internet Directory, OracleAS Single Sign-On, and Oracle Delegated Administration Services run on each node. If you want to distribute these components, refer to Section 12.6, "Installing a Distributed OracleAS Cluster (Identity Management) Configuration".

These nodes are accessed through a load balancer. Refer to Figure 12–1.

You install the OracleAS Metadata Repository in your existing database, then install Oracle Identity Management components against this database.

Figure 12–1 OracleAS Cluster (Identity Management) Configuration



Subsections:

- Section 12.5.1, "Installation Order"
- Section 12.5.2, "Installing OracleAS Metadata Repository"
- Section 12.5.3, "Installing OracleAS Cluster (Identity Management) on the First Node"
- Section 12.5.4, "Installing OracleAS Cluster (Identity Management) on Subsequent Nodes"
- Section 12.5.5, "If the Cluster Configuration Assistant Failed"

12.5.1 Installation Order

To create an OracleAS Cluster (Identity Management) configuration:

1. Install the OracleAS Metadata Repository in your existing database.
2. Install the Oracle Identity Management on each node. You run the installer on each node separately.
3. Install middle tiers.

12.5.2 Installing OracleAS Metadata Repository

To install the OracleAS Metadata Repository in your existing database, you use the OracleAS Metadata Repository Creation Assistant. Refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

12.5.3 Installing OracleAS Cluster (Identity Management) on the First Node

Run the installer on each node where you want to install Oracle Identity Management components.

Note that the procedure for installing Oracle Identity Management components on the first node is different from installing the components on subsequent nodes. To install the components on subsequent nodes, refer to Section 12.5.4, "Installing OracleAS Cluster (Identity Management) on Subsequent Nodes".

Subsections:

- Section 12.5.3.1, "Create staticports.ini File"
- Section 12.5.3.2, "Disable TCP Monitoring on Load Balancer for First Node"
- Section 12.5.3.3, "Configure the Load Balancer to Return Immediately to the Calling Client"
- Section 12.5.3.4, "Ensure that the OracleAS Metadata Repository Is Not Registered with any Oracle Internet Directory"
- Section 12.5.3.5, "Select the Same Components for Each Node"
- Section 12.5.3.6, "Run the Installer"

12.5.3.1 Create staticports.ini File

If you want to use custom ports for components other than Oracle HTTP Server or Oracle Internet Directory, you need to create a `staticports.ini` file for this installation.

If you want custom ports for Oracle HTTP Server or Oracle Internet Directory, you specify them in the "Specify HTTP Load Balancer Host and Listen Ports" and the "Specify LDAP Virtual Host and Listen Ports" screens.

If you specify custom ports for Oracle HTTP Server and Oracle Internet Directory also in the `staticports.ini` file, and you also specify ports in the screens mentioned, the ports specified in the screens take precedence.

To avoid specifying Oracle HTTP Server and Oracle Internet Directory ports in the `staticports.ini` file, the `staticports.ini` file **must not contain these lines**:

```
Oracle HTTP Server port = port_num
Oracle HTTP Server Listen port = port_num
Oracle HTTP Server SSL port = port_num
Oracle HTTP Server Listen (SSL) port = port_num
Oracle Internet Directory port = port_num
Oracle Internet Directory (SSL) port = port_num
```

If you have a `staticports.ini` file, you should also use the same file for installations on subsequent nodes.

12.5.3.2 Disable TCP Monitoring on Load Balancer for First Node

Before installing on the first node, you must make sure that TCP monitoring is not enabled for the Virtual IP on the first node.

12.5.3.3 Configure the Load Balancer to Return Immediately to the Calling Client

It is highly recommended that you configure the load balancer virtual server to return immediately to the calling client when the backend services to which it forwards traffic are unavailable. This is preferred over the client disconnecting on its own after a timeout based on the TCP/IP settings on the client machine.

If your load balancer is not configured this way, the Java Security Configuration Assistant may report the following:

```
WARNING: DCM service may not be available at this time to synchronize $ORACLE_
HOME/j2ee/home/config/jazn-data.xml file.
```

Refer to Section G.2.17, "WARNING: DCM service may not be available at this time" for information on how to correct this problem after the installation is finished.

> **See Also:** The *Oracle Application Server High Availability Guide* for more information on load balancer requirements.

12.5.3.4 Ensure that the OracleAS Metadata Repository Is Not Registered with any Oracle Internet Directory

When you perform the installation on the first node, you need to specify an OracleAS Metadata Repository that is not registered with any Oracle Internet Directory. The installer checks for this. If the installer finds that the OracleAS Metadata Repository is already registered with an Oracle Internet Directory, then it assumes that you are installing on subsequent nodes, and that you want to join the cluster that was created when you installed on the first node. It prompts you for the existing cluster name, and the connect information for the Oracle Internet Directory.

12.5.3.5 Select the Same Components for Each Node

You must select the same components in the Select Configuration Options screen when installing on each node. For example, if you select Oracle Internet Directory, OracleAS Single Sign-On, and Oracle Delegated Administration Services on the first node, you must select these same set of components on subsequent nodes.

12.5.3.6 Run the Installer

Follow the steps in Table 12–4.

Key Points for Installing on the First Node

- In the Select Configuration Options screen, select **High Availability and Replication**, in addition to selecting the components.
- In the Select High Availability or Replication Option screen, select **OracleAS Cluster (Identity Management)**.

Table 12–4 Steps for Installing OracleAS Cluster (Identity Management) on the First Node

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click **Next**.
3.	Specify Port Configuration Options	Select **Manual** and enter the full path to your `staticports.ini` file in the provided field. You need to use `staticports.ini` file for OracleAS Cluster (Identity Management) configurations. Refer to Section 12.5.3.1, "Create staticports.ini File". Click **Next**.
4.	Specify Repository	When you install on the first node, you need to specify an OracleAS Metadata Repository that is not registered with an Oracle Internet Directory. When you install on subsequent nodes, then the OracleAS Metadata Repository is registered with the Oracle Internet Directory on the first node. **Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the names of all the nodes where the Real Application Clusters database is running, and the port numbers. Use the format: `host1.domain.com:port1, host2.domain.com:port2, ...` **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.
5.	Select High Availability or Replication Option	Select **OracleAS Cluster (Identity Management)**, and click **Next**.
6.	Specify New OracleAS Cluster Name	Enter a name for the new OracleAS Cluster (Identity Management). Note that the cluster name is case-sensitive. Oracle recommends that you record the cluster name for use during installations on subsequent nodes. Example: `cluster1` Click **Next**.
7.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.

Table 12–4 (Cont.) Steps for Installing OracleAS Cluster (Identity Management) on the First Node

	Screen	Action
8.	Specify LDAP Virtual Host and Ports	The values you enter in this screen depend on your scenario. There are two possible scenarios: Scenario 1: You have configured a virtual server on your load balancer to handle LDAP traffic from Oracle Delegated Administration Services and OracleAS Single Sign-On to Oracle Internet Directory. Scenario 2: You do not have a load balancer. **Hostname**: In scenario 1, enter the name of the virtual server in this field. Enter the same virtual server name that you configured on the load balancer. In scenario 2, enter the name of the computer running Oracle Internet Directory. Notes on the port values (refer to Section 12.2.3, "Configure Virtual Server Names and Ports for the Load Balancer" for details): ■ The port numbers specified on this screen take precedence over the Oracle Internet Directory port numbers specified in the `staticports.ini` file. ■ The same port numbers will be used for the Oracle Internet Directory on subsequent nodes and for the load balancer. **SSL Port**: In scenario 1, enter the port configured on the virtual server to handle SSL LDAP connections. In scenario 2, enter the port that you want Oracle Internet Directory to use for SSL connections. The standard port number for SSL LDAP connections is 636, but you can use any port that you want. **Non-SSL Port**: In scenario 1, enter the port configured on the virtual server to handle non-SSL LDAP connections. In scenario 2, enter the port that you want Oracle Internet Directory to use for non-SSL connections. The standard port number for non-SSL LDAP connections is 389, but you can use any port that you want. Click **Next**.
9.	Specify HTTP Load Balancer Host and Ports	Refer to Section 12.4, "About Configuring SSL and Non-SSL Ports for Oracle HTTP Server" for details. **HTTP Listener: Port**: Enter the port number that you want Oracle HTTP Server to listen on. **Enable SSL**: Select this option if you want to configure Oracle HTTP Server for SSL on this port. **HTTP Load Balancer: Hostname**: Enter the name of the HTTP virtual server configured on your load balancer. Enter the same virtual server name that you configured on the load balancer. **HTTP Load Balancer: Port**: Enter the port for the HTTP virtual server. **Enable SSL**: Select this option if this port is for SSL communications only. Click **Next**.
10.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `id_mgmt` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
11.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

12.5.4 Installing OracleAS Cluster (Identity Management) on Subsequent Nodes

You run the installer on each node where you want to install Oracle Identity Management components. Use this procedure to install Oracle Identity Management components on nodes other than the first. For the first node, refer to Section 12.5.3, "Installing OracleAS Cluster (Identity Management) on the First Node".

Key Points for Installing on Subsequent Nodes

- Use the same `staticports.ini` file that you used for installing on the first node to ensure that the same component on all nodes uses the same port number.
- In the Specify HTTP Load Balancer Host and Ports screen, enter the name of the HTTP virtual server of the load balancer, and the associated port. You also enter the port number for Oracle HTTP Server on this screen.

Follow the steps in Table 12–5.

Table 12–5 Steps for Installing OracleAS Cluster (Identity Management) on Subsequent Nodes

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click **Next**.
3.	Specify Port Configuration Options	Select **Manual** and enter the full path to your `staticports.ini` file in the provided field. You need to use `staticports.ini` file for OracleAS Cluster (Identity Management) configurations. Refer to Section 12.5.3.1, "Create staticports.ini File". Click **Next**.
4.	Specify Repository	Specify the OracleAS Metadata Repository that is registered with the Oracle Internet Directory on the first node. **Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the names of all the nodes where the Real Application Clusters database is running, and the port numbers. Use the format: `host1.domain.com:port1, host2.domain.com:port2, ...` **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.

Table 12–5 (Cont.) Steps for Installing OracleAS Cluster (Identity Management) on Subsequent Nodes

	Screen	Action
5.	Warning	This warning reminds you that you are installing this instance as part of an OracleAS Cluster (Identity Management), and that you need to synchronize the clocks on the nodes in the cluster. Refer to Section 12.2.2, "Synchronize Clocks on All Nodes". Click **OK**.
6.	Specify Existing OracleAS Cluster Name	Specify an existing OracleAS Cluster (Identity Management) for the current instance to join. The cluster was created during a previous identical installation. Note that the cluster name is case-sensitive. Example: `cluster1` Click **Next**.
7.	Specify ODS Password	Enter the password for the ODS schema in the OracleAS Metadata Repository. The ODS schema is the main schema used by Oracle Internet Directory. By default, the ODS password is the same as the ias_admin password (the password that you entered in the Specify Instance Name and ias_admin Password screen). Click **Next**.
8.	Specify LDAP Virtual Host and Ports	The values you enter on this screen are the same as the values you entered when you did the installation on the first node. The installer uses these values to connect to the Oracle Internet Directory on the first node. **Hostname**: Enter the LDAP virtual server name of the load balancer. Enter the same virtual server name that you configured on the load balancer. **SSL Port**: Enter the port configured on this load balancer to handle LDAP SSL connections. **Non-SSL Port**: Enter the port configured on this load balancer to handle LDAP non-SSL connections. If the load balancer is running in SSL-only mode, this field will not appear on the screen. Click **Next**.
9.	Warning	This warning reminds you to set up the LDAP virtual server to direct requests to existing OracleAS Cluster (Identity Management) nodes, and then add this node to the LDAP virtual server after installation. Refer to Section 12.2.4, "Configure Your LDAP Virtual Server". Click **OK**.
10.	Specify Oracle Internet Directory Login	**Username**: Enter the username to log in to Oracle Internet Directory. You need to log in as the Oracle Internet Directory superuser (`cn=orcladmin`). **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.
11.	Specify HTTP Load Balancer Host and Ports	Refer to Section 12.4, "About Configuring SSL and Non-SSL Ports for Oracle HTTP Server" for details. The values you enter on this screen are the same as the values you entered when you did the installation on the first node. **HTTP Listener: Port**: Enter the port number that you want Oracle HTTP Server to listen on. **Enable SSL**: Select this option if you want to configure Oracle HTTP Server for SSL on this port. **HTTP Load Balancer: Hostname**: Enter the name of the HTTP virtual server configured on your load balancer. Enter the same virtual server name that you configured on the load balancer. **HTTP Load Balancer: Port**: Enter the port for the HTTP virtual server. **Enable SSL**: Select this option if this port is for SSL communications only. Click **Next**.

Table 12–5 (Cont.) Steps for Installing OracleAS Cluster (Identity Management) on Subsequent Nodes

	Screen	Action
12.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `id_mgmt` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
13.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

12.5.5 If the Cluster Configuration Assistant Failed

If the Cluster Configuration Assistant failed, you can cluster the instance after installation. In this case, to cluster the instance, you must use the "`dcmctl joincluster`" command instead of Application Server Control. You cannot use Application Server Control in this case because Application Server Control cannot cluster instances that contain disabled components. In this case, the "home" OC4J instance is disabled.

12.6 Installing a Distributed OracleAS Cluster (Identity Management) Configuration

In this configuration, you need an existing database that is already running in a configuration that is supported by OracleAS Metadata Repository Creation Assistant. Oracle recommends running the database in a high availability environment, such as a Real Application Clusters database. This database will contain the OracleAS Metadata Repository.

You also need two nodes to run OracleAS Single Sign-On and Oracle Delegated Administration Services components, and two additional nodes to run Oracle Internet Directory. These nodes are accessed through load balancers. Refer to Figure 12–2.

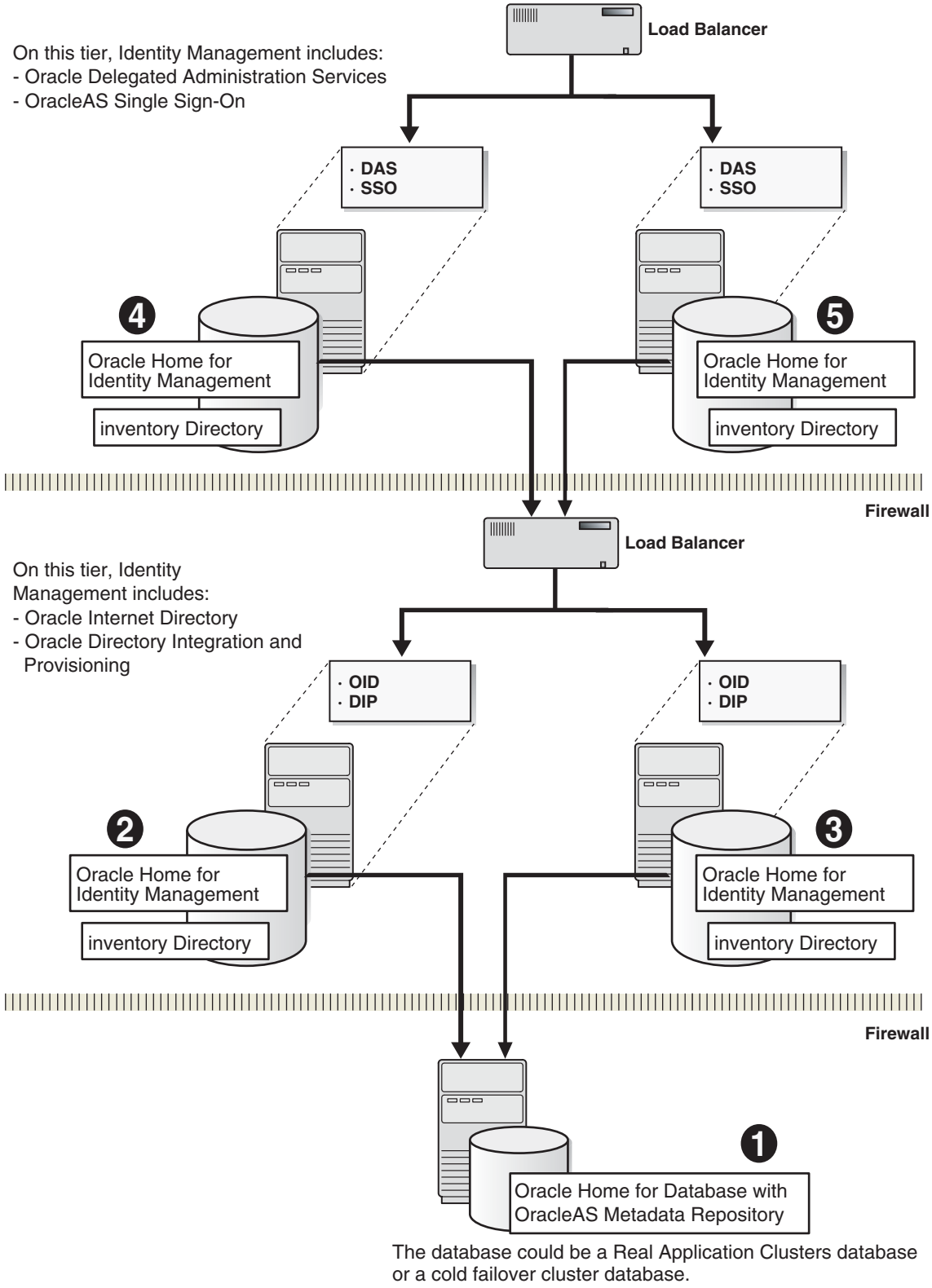
Oracle Directory Integration and Provisioning Is Started on the First Node Only

The installer starts Oracle Directory Integration and Provisioning only on the first node, even though you selected it on subsequent nodes as well. On subsequent nodes, the installer configures Oracle Directory Integration and Provisioning, but does not start it.

If You Want Oracle Internet Directory to Listen on SSL Ports Only

If you want Oracle Internet Directory to listen on SSL ports only, perform this configuration after you have installed OracleAS Single Sign-On and Oracle Delegated Administration Services. You need Oracle Internet Directory to be listening on both SSL and non-SSL ports when you install OracleAS Single Sign-On and Oracle Delegated Administration Services.

Figure 12–2 Distributed OracleAS Cluster (Identity Management) Configuration



Subsections:

- Section 12.6.1, "Installation Order"

- Section 12.6.2, "Installing OracleAS Metadata Repository"
- Section 12.6.3, "Installing Oracle Internet Directory on the First Node"
- Section 12.6.4, "Installing Oracle Internet Directory on Subsequent Nodes"
- Section 12.6.5, "Installing OracleAS Single Sign-On and Oracle Delegated Administration Services on Each Node"

12.6.1 Installation Order

To create a distributed OracleAS Cluster (Identity Management) configuration:

1. Install OracleAS Metadata Repository in your existing database.
2. Install Oracle Internet Directory on each node. You run the installer on each node separately.

> **Note:** If you want to configure Oracle Internet Directory to listen on SSL ports only, perform this configuration *after* you have installed OracleAS Single Sign-On and Oracle Delegated Administration Services. Oracle Internet Directory needs to be listening on both SSL and non-SSL ports when you install OracleAS Single Sign-On and Oracle Delegated Administration Services.

3. Install OracleAS Single Sign-On and Oracle Delegated Administration Services on each node. You run the installer on each node separately.
4. Install middle tiers.

12.6.2 Installing OracleAS Metadata Repository

To install the OracleAS Metadata Repository in your existing database, you use the OracleAS Metadata Repository Creation Assistant. Refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

12.6.3 Installing Oracle Internet Directory on the First Node

You run the installer on each node separately to install the Oracle Identity Management components.

12.6.3.1 Set up staticports.ini File

When installing Oracle Internet Directory on the first node, you do not need a load balancer. You can set up and configure the load balancer later. However you must ensure that the port numbers used by Oracle Internet Directory and by the load balancer are the same.

To do this, create a `staticports.ini` file to specify port numbers that you want Oracle Internet Directory to use. Your load balancer will use the same port numbers for LDAP communications. The `staticports.ini` file should contain these lines:

```
Oracle Internet Directory port = port_num
Oracle Internet Directory (SSL) port = port_num
```

12.6.3.2 Select the Same Components for Each Installation

If you are setting up the second node as a failover to the first node, then you must select the same set of components in the Select Configuration Options screen for each installation. For example, if you select Oracle Internet Directory and Oracle Directory Integration and Provisioning on the first node, you need to select them when installing on subsequent nodes.

12.6.3.3 Start the Installer

To install Oracle Internet Directory on the first node, follow the steps in Table 12–6.

To install Oracle Internet Directory on subsequent nodes, refer to Section 12.6.4, "Installing Oracle Internet Directory on Subsequent Nodes".

You must select the same components in the Select Configuration Options screen on all nodes. For example, if you select both Oracle Internet Directory and Oracle Directory Integration and Provisioning on the first node, you must select them on subsequent nodes in this tier.

Table 12–6 Steps for Installing Oracle Internet Directory in a Distributed OracleAS Cluster (Identity Management) on the First Node

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning** if you need this component. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click **Next**.
3.	Specify Port Configuration Options	Select **Manual** and enter the full path to your `staticports.ini` file in the provided field. You need to use `staticports.ini` file for OracleAS Cluster (Identity Management) configurations. Refer to Section 12.6.3.1, "Set up staticports.ini File". Click **Next**.
4.	Specify Repository	When you install on the first node, you need to specify an OracleAS Metadata Repository that is not already registered with an Oracle Internet Directory. When you install on subsequent nodes, then the OracleAS Metadata Repository is registered with the Oracle Internet Directory on the first node. **Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.

Table 12–6 (Cont.) Steps for Installing Oracle Internet Directory in a Distributed OracleAS Cluster (Identity Management) on the First Node

	Screen	Action
5.	Select High Availability or Replication Option	Select **OracleAS Cluster (Identity Management)**, and click **Next**.
6.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Oracle Identity Management realm. Ensure the value shown in **Suggested Namespace** meets your deployment needs. If not, enter the desired value in **Custom Namespace**. Refer to Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
7.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_das` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
8.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

12.6.4 Installing Oracle Internet Directory on Subsequent Nodes

Before performing the steps in this section, you must have installed Oracle Internet Directory on the first node as described in Section 12.6.3, "Installing Oracle Internet Directory on the First Node".

12.6.4.1 Staticports.ini File Not Needed

You do not need a `staticports.ini` file for this installation because the installer will configure this Oracle Internet Directory to use the same ports as the Oracle Internet Directory on the first node.

The Oracle Internet Directory on the first node must be up and running.

12.6.4.2 Select the Same Components for Each Installation

If you are setting up the second node as a failover to the first node, then you must select the same set of components in the Select Configuration Options screen for each installation. For example, if you select OracleAS Single Sign-On and Oracle Delegated Administration Services on the first node, you need to select them when installing on subsequent nodes.

12.6.4.3 Do Not Select the SSL Check box in the "Register with Oracle Internet Directory" Screen

Do not select the "**Use only SSL connections with this Oracle Internet Directory**" check box in the "Register with Oracle Internet Directory" screen.

12.6.4.4 Start the Installer

To install Oracle Internet Directory on subsequent nodes, follow these steps:

Table 12–7 Steps for Installing Oracle Internet Directory in a Distributed OracleAS Cluster (Identity Management) on Subsequent Nodes

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning** if you need this component. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click **Next**.
3.	Specify Port Configuration Options	Select **Automatic**. The installer configures Oracle Internet Directory to use the same ports as the Oracle Internet Directory on the first node. Click **Next**.
4.	Specify Repository	Enter the same connect information that you entered for the first Oracle Internet Directory. **Username**: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. **Password**: Enter the user's password. **Hostname and Port**: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. **Service Name**: Enter the service name of the database. Note that the service name must include the database domain name. Example: `orcl.mydomain.com` Click **Next**.
5.	Warning	This warning reminds you that you are installing this instance as part of an OracleAS Cluster (Identity Management), and that you need to synchronize the clocks on the nodes in the cluster. Refer to Section 12.2.2, "Synchronize Clocks on All Nodes". Click **OK**.
6.	Specify ODS Password	Enter the password for the ODS schema in the OracleAS Metadata Repository. The ODS schema is the main schema used by Oracle Internet Directory. By default, the ODS password is the same as the ias_admin password (the password that you entered in the Specify Instance Name and ias_admin Password screen). Click **Next**.

Table 12–7 (Cont.) Steps for Installing Oracle Internet Directory in a Distributed OracleAS Cluster (Identity Management) on Subsequent Nodes

	Screen	Action
7.	Specify Oracle Internet Directory Login	**Username**: Enter the username to log in to the first Oracle Internet Directory. You must log in as the Oracle Internet Directory superuser (`cn=orcladmin`). **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_das` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.

12.6.5 Installing OracleAS Single Sign-On and Oracle Delegated Administration Services on Each Node

You run the installer on each node separately to install these Oracle Identity Management components.

12.6.5.1 Set up staticports.ini File

If you want to use custom ports for components other than Oracle HTTP Server, you need to create a `staticports.ini` file for this installation.

If you want custom ports for Oracle HTTP Server, you specify them in the "Specify HTTP Load Balancer Host and Listen Ports" screen.

If you specify custom ports for Oracle HTTP Server also in the `staticports.ini` file, and you also specify ports in the screen mentioned, the ports specified in the screen take precedence.

To avoid specifying Oracle HTTP Server ports in the `staticports.ini` file, the `staticports.ini` file **must not contain these lines**:

```
Oracle HTTP Server port = port_num
Oracle HTTP Server Listen port = port_num
Oracle HTTP Server SSL port = port_num
Oracle HTTP Server Listen (SSL) port = port_num
```

If you have a `staticports.ini` file, you should also use the same file for installations on subsequent nodes.

12.6.5.2 Start the Installer

Some key points to start the installer are:

- In the Specify OracleAS Cluster screen, for the first node, select **Create a New Cluster**. For the second node, select **Join an Existing Cluster** to join the cluster that you created when installing on the first node.

- In the Specify HTTP Load Balancer Host and Ports screen, enter the name of the HTTP virtual server of the load balancer, and the associated port. You also enter the port number for Oracle HTTP Server on this screen.
- In the Specify HTTP Load Balancer Host and Ports screen, you need to specify the same HTTP virtual server name and port number for all nodes. However, you can specify different port numbers for Oracle HTTP Server on each node, as long as your load balancer is configured to communicate with the specified port on that node.

Table 12–8 Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in a Distributed OracleAS Cluster (Identity Management) Configuration

	Screen	Action
1.	--	Start up the installer and complete the first few screens. Refer to Section 6.27, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Oracle Identity Management**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning** if you need this component. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click **Next**.
3.	Specify Port Configuration Options	Select **Manual** and enter the full path to your `staticports.ini` file in the provided field. You need to use `staticports.ini` file for OracleAS Cluster (Identity Management) configurations. Refer to Section 12.6.5.1, "Set up staticports.ini File". Click **Next**.
4.	Select High Availability Option	Select **OracleAS Cluster (Identity Management)**, and click **Next**.
5.	Create or Join an OracleAS Cluster (Identity Management)	For the first node, select **Create a New OracleAS Cluster**. For subsequent nodes, select **Join an Existing Cluster**. Click **Next**.
6.	Specify New OracleAS Cluster Name - or - Specify Existing OracleAS Cluster Name	For the first node, enter a name for a new OracleAS Cluster (Identity Management). Example: `cluster1` For subsequent nodes, enter the name of the existing OracleAS Cluster (Identity Management). **Note:** Be very sure that the cluster name you enter is correct. The installer does not perform any checks on this name. **If the name is incorrect, the installation will fail.** Click **Next**.

Table 12–8 (Cont.) Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in a Distributed OracleAS Cluster (Identity Management) Configuration

	Screen	Action
7.	Specify LDAP Virtual Host and Ports	The installer will use the values on this screen to connect to Oracle Internet Directory. **Hostname**: Enter the LDAP virtual server name of the load balancer. Enter the same virtual server name that you configured on the load balancer. **SSL Port**: Enter the port configured on this load balancer to handle LDAP SSL connections. If the Oracle Internet Directory is configured for SSL only, select the **Use only SSL connections with this LDAP Virtual Host** option. Otherwise, enter the non-SSL port number for this load balancer in the **Non-SSL Port** field. Click **Next**.
8.	Specify Oracle Internet Directory Login	**Username**: Enter the username to log in to Oracle Internet Directory, accessed through the load balancer host and port specified in the previous screen. Log in as the Oracle Internet Directory superuser (`cn=orcladmin`), or as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. Refer to Section 8.3, "Groups Required to Configure or Deinstall Components" for details. **Password**: Enter the password for the username. **Realm**: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click **Next**.
9.	Specify HTTP Load Balancer Host and Ports	Refer to Section 12.4, "About Configuring SSL and Non-SSL Ports for Oracle HTTP Server" for details. The values entered on this screen should be the same for every node. **HTTP Listener: Port**: Enter the port number that you want Oracle HTTP Server to listen on. **Enable SSL**: Select this option if you want to configure Oracle HTTP Server for SSL on this port. **HTTP Load Balancer: Hostname**: Enter the name of the HTTP virtual server configured on your load balancer. Enter the same virtual server name that you configured on the load balancer. **HTTP Load Balancer: Port**: Enter the port for the HTTP virtual server. **Enable SSL**: Select this option if this port is for SSL communications only. Click **Next**.
10.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `das_sso` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
11.	--	Finish the installation. Refer to Section 6.28, "Install Fragment: The Last Few Screens of the Installation" for details.

12.6.5.3 If the Cluster Configuration Assistant Failed

You can cluster the instance after installation. Refer to Section 12.5.5, "If the Cluster Configuration Assistant Failed" for details.

12.7 Postinstallation Steps

After installing Oracle Identity Management components on all nodes, reconfigure your load balancer to direct requests to all nodes. Before you started the installation, you had configured the load balancer to direct requests to node 1 only. Refer to Section 12.2.4, "Configure Your LDAP Virtual Server".

12.7.1 Update targets.xml (Case 2 only)

The following configuration steps are needed only in the installation scenario described in Section 12.4.2, "Case 2: Client ---[HTTPS]---> Load Balancer ---[HTTPS]---> Oracle HTTP Server".

In this case the oracle_sso_server entry in the `targets.xml` file, on each physical host of the cluster, must be reconfigured to monitor the local SSL port.

Note:

Keep in mind that the hostname should remain the same. Do not change the hostname.

Perform the following steps to update `targets.xml` on each node of the cluster:

1. Back up the `targets.xml` file:

```
cp ORACLE_HOME/sysman/emd/targets.xml
    ORACLE_HOME/sysman/emd/targets.xml.BACKUP
```

2. Open the file and find the oracle_sso_server target type. Within this target entry, locate and edit the following two attributes:
   - HTTPPort - the server SSL port number
   - HTTPProtocol - the server protocol, which in this case is `HTTPS`

   For example, you could update the two attributes this way:

```
<Property NAME="HTTPPort" VALUE="4443"/>
<Property NAME="HTTPProtocol" VALUE="HTTPS"/>
```

3. Save and close the file.
4. Reload the OracleAS console:

```
ORACLE_HOME/bin/emctl reload
```

12.8 Installing Middle Tiers Against OracleAS Cluster (Identity Management) Configurations

Preinstallation

Before starting the middle-tier installation, configure the LDAP load balancer that you are using for Oracle Internet Directory so that it points to only one Oracle Internet Directory node.

Installation

When installing middle tiers against OracleAS Cluster (Identity Management) configurations, follow the steps described in Chapter 7, "Installing Middle Tiers".

When the installer prompts for the Oracle Internet Directory host and port, enter the LDAP virtual host name configured on the load balancer and the associated port.

Postinstallation

After installing the middle tiers, you can reconfigure the LDAP load balancer to point to all the Oracle Internet Directory nodes.

13

Installing in High Availability Environments: OracleAS Disaster Recovery

This chapter describes how to install Oracle Application Server in OracleAS Disaster Recovery configurations. OracleAS Disaster Recovery is one of the high availability environments supported by Oracle Application Server.

Contents of this chapter:

- Section 13.1, "OracleAS Disaster Recovery: Introduction"
- Section 13.2, "Setting up the OracleAS Disaster Recovery Environment"
- Section 13.3, "Installing Oracle Application Server in an OracleAS Disaster Recovery Environment"
- Section 13.4, "Installing the OracleAS 10g (10.1.2.0.2) Standalone Install of OracleAS Guard into Oracle Homes"
- Section 13.5, "Patching OracleAS Guard Release 10.1.2.0.0 with Release 10.1.2.0.2"
- Section 13.6, "What to Read Next?"

13.1 OracleAS Disaster Recovery: Introduction

Use the OracleAS Disaster Recovery environment when you want to have two physically separate sites in your environment. One site is the production site, and the other site is the standby site. The production site is active, while the standby site is passive; the standby site becomes active when the production site goes down.

OracleAS OracleAS Disaster Recovery supports a number of basic topologies for the configuration of the Infrastructure and middle tier on production and standby sites. OracleAS Disaster Recovery supports these basic topologies:

- Symmetrical topologies -- strict mirror of the production site with collocated Oracle Identity Management and OracleAS Metadata Repository Infrastructure
- Asymmetrical topologies -- simple asymmetric standby topology with collocated Oracle Identity Management and OracleAS Metadata Repository Infrastructure
- Separate OracleAS Metadata Repository for OracleAS Portal with collocated Oracle Identity Management and OracleAS Metadata Repository Infrastructure (the Departmental Topology)
- Distributed Application OracleAS metadata Repositories with Non collocated Oracle Identity Management and OracleAS Metadata Repository Infrastructure

In a symmetric topology, each node in the standby site corresponds to a node in the production site. This includes the nodes running both OracleAS Infrastructure and

middle tiers. In an asymmetric topology, the number of instances required on the standby site are fewer than the number on the production site and the number of instances required on the standby site must be the minimum set of instances required to run your site in the event of a switchover or failover operation.

As a small variation to this environment, you can set up the OracleAS Infrastructure on the production site in an OracleAS Cold Failover Cluster environment. Refer to Section 13.2.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site" for details.

For these supported topologies, OracleAS Guard will be installed in every Oracle home on every system that is part of your production and standby topology configured for the OracleAS Disaster Recovery solution.

OracleAS Guard can be installed as a standalone install kit located on OracleAS Utility media #2. Refer to Section 13.4, "Installing the OracleAS 10g (10.1.2.0.2) Standalone Install of OracleAS Guard into Oracle Homes" for more information about when this standalone kit should be installed.

Figure 13–1 shows an example symmetric OracleAS Disaster Recovery environment. Each site has two nodes running middle tiers and a node running OracleAS Infrastructure.

Data Synchronization

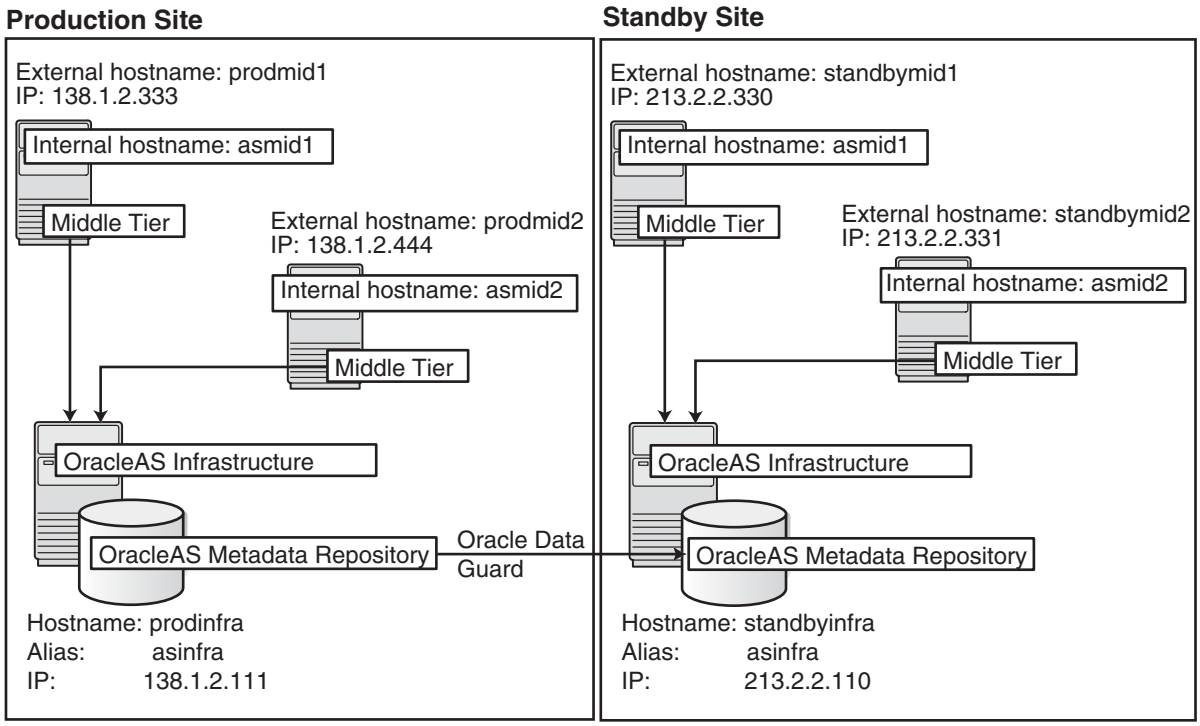
For OracleAS Disaster Recovery to work, data between the production and standby sites must be synchronized so that failover can happen very quickly. Configuration changes done at the production site must be synchronized with the standby site.

You need to synchronize two types of data. The synchronization method depends on the type of data:

- Use Oracle Data Guard to synchronize data in the OracleAS Metadata Repository databases on the production and standby sites. You can configure Oracle Data Guard to perform the synchronization.
- Use the backup and recovery scripts to synchronize data outside of the database (such as data stored in configuration files).

Refer to *Oracle Application Server High Availability Guide* for details on how to use Oracle Data Guard and the backup and recovery scripts.

Figure 13–1 OracleAS Disaster Recovery Environment



13.2 Setting up the OracleAS Disaster Recovery Environment

Before you can install Oracle Application Server in an OracleAS Disaster Recovery environment, you have to perform these steps:

- Section 13.2.1, "Ensure Nodes Are Identical at the Operating System Level"
- Section 13.2.2, "Set Up staticports.ini File"
- Section 13.2.3, "Set Up Identical Hostnames on Both Production and Standby Sites"
- Section 13.2.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site"

13.2.1 Ensure Nodes Are Identical at the Operating System Level

Ensure that the nodes are identical with respect to the following items:

- The nodes are running the same version of the operating system.
- The nodes have the same operating system patches and packages.
- You can install Oracle Application Server in the same directory path on all nodes.

13.2.2 Set Up staticports.ini File

The same component must use the same port number on the production and standby sites. For example, if Oracle HTTP Server is using port 80 on the production site, it must also use port 80 on the standby site. To ensure this is the case, create a `staticports.ini` file for use during installation. This file enables you to specify port numbers for each component. Refer to Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

13.2.3 Set Up Identical Hostnames on Both Production and Standby Sites

The names of the corresponding nodes on the production and standby sites must be identical, so that when you synchronize data between the sites, you do not have to edit the data to fix the hostnames.

For the Infrastructure Nodes

For the node running the infrastructure, set up a virtual name. To do this, specify an alias for the node in the `/etc/hosts` file.

For example, on the infrastructure node on the production site, the following line in the `hosts` file sets the alias to `asinfra`:

```
138.1.2.111   prodinfra   asinfra
```

On the standby site, the following line sets the node's alias to `asinfra`.

```
213.2.2.110   standbyinfra   asinfra
```

When you install OracleAS Infrastructure on the production and standby sites, you specify this alias (`asinfra`) in the Specify Virtual Hostname screen. The configuration data will then contain this alias for the infrastructure nodes.

For the Middle-Tier Nodes

For the nodes running the middle tiers, you cannot set up aliases like you did for the infrastructure nodes because the installer does not display the Specify Virtual Hostname screen for middle-tier installations. When installing middle tiers, the installer determines the hostname automatically by calling the `gethostname()` function. You want to be sure that for each middle-tier node on the production site, the corresponding node on the standby site returns the same hostname.

To do this, set up a local, or internal, hostname, which could be different from the public, or external, hostname. You can change the names of the nodes on the standby site to match the names of the corresponding nodes on the production site, or you can change the names of the nodes on both production and standby sites to be the same. This depends on other applications that you might be running on the nodes, and whether changing the node name will affect those applications.

1. On the nodes whose local names you want to change, reconfigure the node so that the `hostname` command returns the new local hostname.

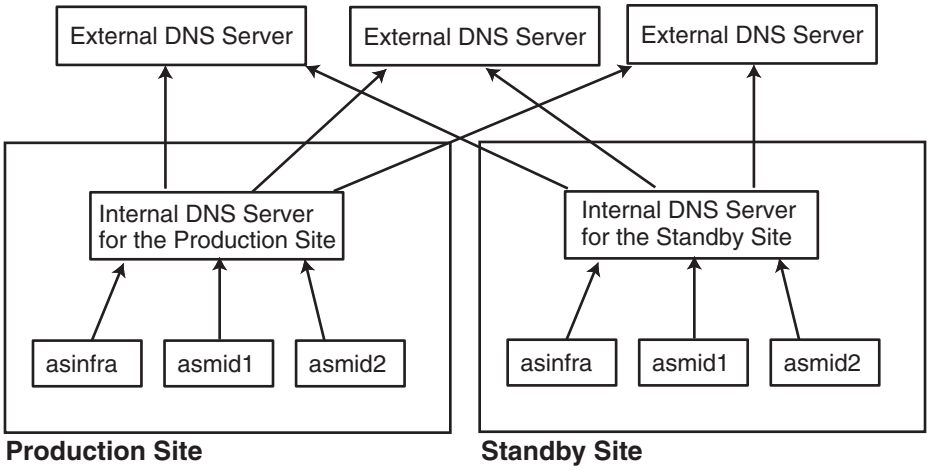
   Note: The procedure to change the hostname of a system differs between different operating systems. Contact the system administrator of your system to perform this step. Note also that changing the hostname of a system will affect installed software that has a dependency on the previous hostname. Consider the impact of this before changing the hostname.

2. Enable the other nodes in the OracleAS Disaster Recovery environment to be able to resolve the node using the new local hostname. You can do this in one of two ways:

   Method 1: Set up separate internal DNS servers for the production and standby sites. This configuration allows nodes on each site (production or standby) to resolve hostnames within the site. Before the internal DNS servers are the corporate, or external, DNS servers. The internal DNS servers forward

non-authoritative requests to the external DNS servers. The external DNS servers do not know about the existence of the internal DNS servers. Refer to Figure 13–2.

Figure 13–2 Method 1: Using DNS Servers



Method 1 Details

a. Make sure the external DNS names are defined in the external DNS zone. Example:

```
prodmid1.us.oracle.com     IN  A  138.1.2.333
prodmid2.us.oracle.com     IN  A  138.1.2.444
prodinf.us.oracle.com      IN  A  138.1.2.111
standbymid1.us.oracle.com  IN  A  213.2.2.330
standbymid2.us.oracle.com  IN  A  213.2.2.331
standbyinf.us.oracle.com   IN  A  213.2.2.110
```

b. At the production site, create a new zone at the production site using a domain name different from your external domain name. To do this, populate the zone data files with entries for each node in the OracleAS Disaster Recovery environment.

For the infrastructure node, use the virtual name or alias.

For the middle-tier nodes, use the node name (the value in).

The following example uses "asha" as the domain name for the new zone.

```
asmid1.asha    IN  A  138.1.2.333
asmid2.asha    IN  A  138.1.2.444
asinfra.asha   IN  A  138.1.2.111
```

Do the same for the standby site. Use the same domain name that you used for the production site.

```
asmid1.asha    IN  A  213.2.2.330
asmid1.asha    IN  A  213.2.2.331
asinfra.asha   IN  A  213.2.2.110
```

c. Configure the DNS resolver to point to the internal DNS servers instead of the external DNS server.

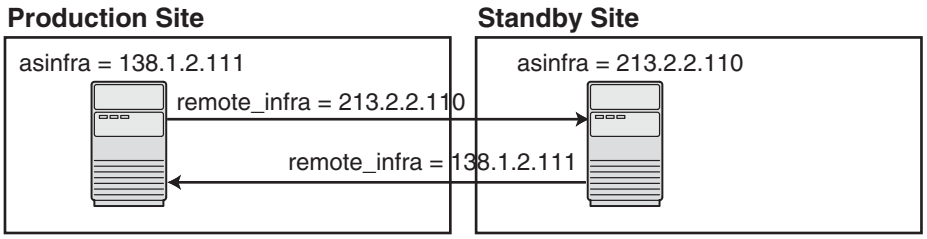
In the `/etc/resolv.conf` file for each node on the production site, replace the existing name server IP address with the IP address of the internal DNS server for the production site.

Do the same for the nodes on the standby site, but use the IP address of the internal DNS server for the standby site.

d. Create a separate entry for Oracle Data Guard in the internal DNS servers. This entry is used by Oracle Data Guard to ship redo data to the database on the standby site.

In the next example, the "remote_infra" entry points to the infrastructure node on the standby site. This name is used by the TNS entries on both the production and standby sites so that if a switchover occurs, the entry does not have to be changed.

Figure 13–3 Entry for Oracle Data Guard in the Internal DNS Servers



On the production site, the DNS entries look like this:

```
asmid1.asha        IN  A  138.1.2.333
asmid2.asha        IN  A  138.1.2.444
asinfra.asha       IN  A  138.1.2.111
remote_infra.asha  IN  A  213.2.2.110
```

On the standby site, the DNS entries look like this:

```
asmid1.asha        IN  A  213.2.2.330
asmid2.asha        IN  A  213.2.2.331
asinfra.asha       IN  A  213.2.2.110
remote_infra.asha  IN  A  138.1.2.111
```

Method 2: Edit the `/etc/hosts` file on each node on both sites. This method does not involve configuring DNS servers, but you have to maintain the `hosts` file on each node in the OracleAS Disaster Recovery environment. For example, if an IP address changes, you have to update the files on all the nodes, and restart the nodes.

Method 2 Details

a. On each node on the production site, include these lines in the `/etc/hosts` file. The IP addresses resolve to nodes on the production site.

Note: In the `hosts` file, be sure that the line that identifies the current node comes *immediately* after the localhost definition (the line with the 127.0.0.1 address).

```
127.0.0.1    localhost
138.1.2.333  asmid1.oracle.com   asmid1
138.1.2.444  asmid2.oracle.com   asmid2
138.1.2.111  asinfra.oracle.com  asinfra
```

b. On each node on the standby site, include these lines in the `hosts` file. The IP addresses resolve to nodes on the standby site.

Note: In the `hosts` file, be sure that the line that identifies the current node comes *immediately* after the localhost definition (the line with the 127.0.0.1 address).

```
127.0.0.1    localhost
213.2.2.330  asmid1.oracle.com   asmid1
213.2.2.331  asmid2.oracle.com   asmid2
213.2.2.110  asinfra.oracle.com  asinfra
```

c. Ensure that the "hosts:" line in the `/etc/nsswitch.conf` file has "files" as the first item:

```
hosts:   files nis dns
```

The entry specifies the ordering of the name resolution. If another method is listed first, then the node will use the other method to resolve the hostname.

Note: Restart the nodes after editing these files.

Verifying that the Nodes Resolve the Hostnames Correctly

After making the changes and restarting the nodes, check that the nodes resolve the hostnames properly by running the following commands:

- On the middle-tier nodes on both sites, run the `hostname` command. This should return the internal hostname. For example, the command should return "asmid1" if you run it on prodmid1 and standbymid1.

```
prompt> hostname
asmid1
```

- On each node, ping the other nodes in the environment using the internal hostname as well as the external hostname. The command should be successful. For example, from the first midtier node, prodmid1, run the following commands:

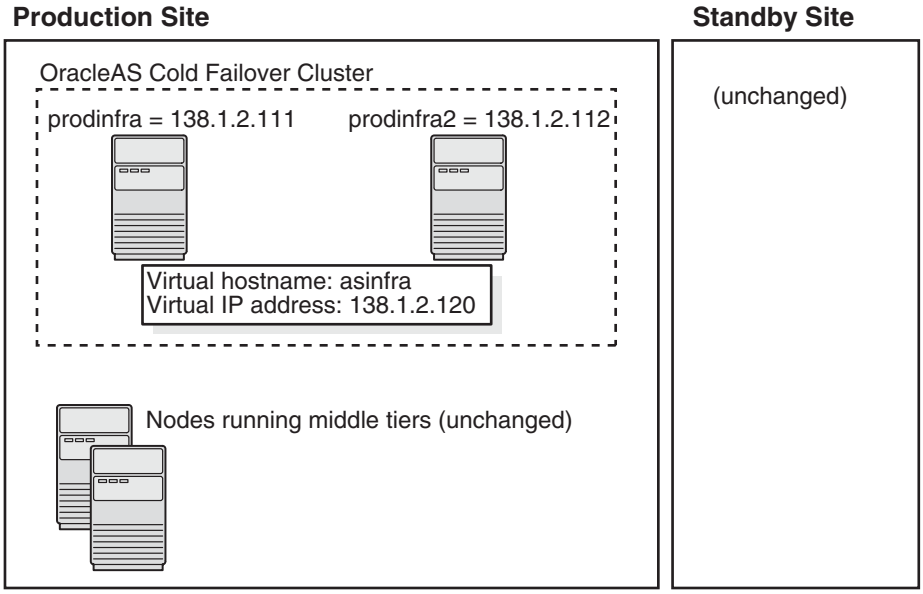
```
prompt> ping prodinfra ping the production infrastructure node
PING prodinfra: 56 data byes
64 bytes from prodinfra.oracle.com (138.1.2.111): icmp_seq=0. time=0. ms
^C

prompt> ping iasinfra ping the production infrastructure node
PING iasinfra: 56 data byes
64 bytes from iasinfra.oracle.com (138.1.2.111): icmp_seq=0. time=0. ms
^C

prompt> ping iasmid2 ping the second production midtier node
PING iasmid2: 56 data byes
64 bytes from iasmid2.oracle.com (138.1.2.444): icmp_seq=0. time=0. ms
^C

prompt> ping prodmid2 ping the second production midtier node
PING prodmid2: 56 data byes
64 bytes from prodmid2.oracle.com (138.1.2.444): icmp_seq=0. time=0. ms
^C

prompt> ping standbymid1 ping the first standby midtier node
PING standbymid1: 56 data byes
64 bytes from standbymid1.oracle.com (213.2.2.330): icmp_seq=0. time=0. ms
```

```
^C
```

13.2.4 If You Want to Use OracleAS Cold Failover Cluster on the Production Site

On the production site of a OracleAS Disaster Recovery system, you can set up the OracleAS Infrastructure to run in a OracleAS Cold Failover Cluster configuration. In this case, you have two nodes in a hardware cluster, and you install the OracleAS Infrastructure on a shared disk. Refer to Chapter 11, "Installing in High Availability Environments: OracleAS Cold Failover Cluster" for details.

Figure 13–4 Infrastructure in an OracleAS Cold Failover Cluster Configuration



To set up OracleAS Cold Failover Cluster in this environment, use the virtual IP address (instead of the physical IP address) for asinfra.asha on the production site. The following example assumes 138.1.2.120 is the virtual IP address.

```
asmid1.asha          IN  A  138.1.2.333
asmid2.asha          IN  A  138.1.2.444
asinfra.asha         IN  A  138.1.2.120        this is a virtual IP address
remote_infra.asha    IN  A  213.2.2.110
```

On the standby site, you still use the physical IP address for asinfra.asha, but the remote_infra.asha uses the virtual IP address.

```
asmid1.asha          IN  A  213.2.2.330
asmid2.asha          IN  A  213.2.2.331
asinfra.asha         IN  A  213.2.2.110        physical IP address
remote_infra.asha    IN  A  138.1.2.120        virtual IP address
```

13.3 Installing Oracle Application Server in an OracleAS Disaster Recovery Environment

Install Oracle Application Server as follows:

Note: For all of the installations, be sure to use `staticports.ini` to specify port numbers for the components. Refer to Section 13.2.2, "Set Up staticports.ini File".

1. Install OracleAS Infrastructure on the production site.
2. Install OracleAS Infrastructure on the standby site.
3. Start the OracleAS Infrastructure in each site before installing the middle tiers for that site.
4. Install middle tiers on the production site.
5. Install middle tiers on the standby site.

13.3.1 Installing the OracleAS Infrastructure

You must install the Oracle Identity Management and the OracleAS Metadata Repository components of OracleAS Infrastructure on the same node. You cannot distribute the components over multiple nodes.

The installation steps are similar to that for OracleAS Cold Failover Cluster. Refer to Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration" for the screen sequence. Note the following points:

- Select Configuration Options screen: Select **High Availability and Replication**. Refer to Table 11–2, step 9.
- Specify Virtual Hostname screen: Enter an alias as the virtual address (for example, asinfra.oracle.com). Refer to Table 11–2, step 13.

13.3.2 Installing Middle Tiers

You can install any type of middle tier that you like:

For installing J2EE and Web Cache, refer to Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access".

For installing Portal and Wireless or Business Intelligence and Forms, refer to Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

Note: When the installer prompts you to register with Oracle Internet Directory, and asks you for the Oracle Internet Directory hostname, enter the alias of the node running OracleAS Infrastructure (for example, asinfra.oracle.com).

13.4 Installing the OracleAS 10g (10.1.2.0.2) Standalone Install of OracleAS Guard into Oracle Homes

OracleAS 10g (10.1.2.0.2) standalone install of OracleAS Guard is located on Utilities Disk 2. This standalone install of OracleAS Guard can be installed in the following environments:

- In its own home in the case when you are cloning an instance or topology to a new standby system (refer to the section on standby site cloning in *Oracle Application Server High Availability Guide* for more information).

- Oracle database server home for an OracleAS Metadata Repository configuration created using OracleAS Metadata Repository Creation Assistant.
- OracleAS Disaster Recovery full site upgrade from OracleAS 10g (9.0.4) to OracleAS 10g (10.1.2.0.2) (refer to the chapter on OracleAS Disaster Recovery site upgrade procedure in *Oracle Application Server High Availability Guide* for more information).
- OracleAS Guard patch upgrade from OracleAS 10g (10.1.2.0.0) to OracleAS 10g (10.1.2.0.2) (refer to Section 13.5, "Patching OracleAS Guard Release 10.1.2.0.0 with Release 10.1.2.0.2" for more information).

If this is an upgrade installation of OracleAS Guard, make a copy of your `dsa.conf` configuration file to save your current settings for your OracleAS Guard environment. After running the OracleAS 10g (10.1.2.0.2) standalone install kit of OracleAS Guard, you can restore your saved `dsa.conf` configuration file with your settings to continue using the same settings for the upgraded OracleAS Guard environment.

To run the OracleAS 10g (10.1.2.0.2) standalone install kit of OracleAS Guard, run the kit in the following directory path:

On UNIX systems:

```
/Disk2/asg/install/runInstaller
```

Choose the type of install that you want. Choose **Typical** for most installations. Choose **Custom or Reinstall** for upgrading from an older release of OracleAS Guard to the current release.

Enter the `ias_admin` account password to continue the installation.

13.5 Patching OracleAS Guard Release 10.1.2.0.0 with Release 10.1.2.0.2

If you already have an OracleAS Disaster Recovery environment set up using OracleAS Guard Release 10.1.2.0.0, you can patch OracleAS Guard in your environment to take advantage of new features and support for the topologies described in Section 13.1, "OracleAS Disaster Recovery: Introduction". To patch your OracleAS Disaster Recovery environment, follow these basic steps:

1. Stop the OracleAS Guard server in all OracleAS 10.1.2.0.0 Oracle homes on both production and standby sites using the following opmnctl command:

   On UNIX systems:

   ```
   ORACLE_HOME/opmn/bin/opmnctl stopall
   ```

2. Install the OracleAS 10g (10.1.2.0.2) standalone install of OracleAS Guard into each Oracle home on the production and standby sites.

   If multiple Oracle homes exist on the same system, ensure that different ports are configured for each of the OracleAS Guard servers in this configuration file.

   Because this is an upgrade installation of OracleAS Guard, make a copy of your `dsa.conf` configuration file to save your current settings for your OracleAS Guard environment. After running the OracleAS 10g (10.1.2.0.2) standalone install kit of OracleAS Guard, you can restore your saved `dsa.conf` configuration file with your settings to continue using the same settings for the upgraded OracleAS Guard environment.

   On UNIX systems:

   ```
   ORACLE_HOME/dsa/dsa.conf
   ```

3. Start the OracleAS Guard server in all OracleAS 10.1.2.0.0 Oracle homes on both production and standby sites using the following opmnctl command:

   On UNIX systems:

   ```
   ORACLE_HOME/opmn/bin/opmnctl startall
   ORACLE_HOME/opmn/bin/opmnctl startproc ias-component=DSA
   ```

13.6 What to Read Next?

For information on how to manage your OracleAS Disaster Recovery environment, such as setting up Oracle Data Guard and configuring the OracleAS Metadata Repository database, refer to *Oracle Application Server High Availability Guide*.

14

Installing the OracleAS Metadata Repository in an Existing Database

Refer to *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for information on how to install the OracleAS Metadata Repository in an existing database.

15

Recommended Topologies

This chapter describes how to install and configure the infrastructure and the middle tier in different topologies. The topologies illustrate the flexibility of Oracle Application Server.

Each section in this chapter describes a topology. For each topology, the section shows a diagram of the topology, and lists the assumptions, special requirements, and installation steps.

Table 15–1 lists the recommended topologies:

Table 15–1 Recommended Topologies Summary

Topology	Environment	Requires Infrastructure?
Section 15.1, "Java Developer Topology"	Development	No
Section 15.2, "Portal and Wireless Developer Topology"	Development	Yes
Section 15.3, "Forms, Reports, and Discoverer Developer Topology"	Development	Yes
Section 15.4, "Integration Business-to-Business (B2B) Topology"	Development	Yes
Section 15.5, "Departmental Topology with Separate OracleAS Metadata Repository for OracleAS Portal"	Deployment	Yes
Section 15.6, "Development Life Cycle Support Topology"	Development and Deployment	n/a
Section 15.7, "OCA Topology"	Deployment	Yes

For More Topologies: For enterprise topologies, refer to *Oracle Application Server Enterprise Deployment Guide*.

15.1 Java Developer Topology

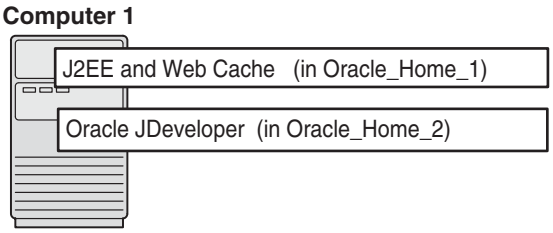
This is a single-computer development topology on which you can build, run, and test J2EE applications. It does not require an OracleAS Infrastructure.

Target Users

J2EE application developers

Figure 15–1 shows a diagram of this topology.

Figure 15–1 J2EE and Web Cache with Oracle JDeveloper



15.1.1 Description

This topology includes the components in the J2EE and Web Cache middle tier:

- Oracle HTTP Server
- Oracle Application Server Containers for J2EE
- OracleAS Web Cache

For a development tool, you can install the Oracle JDeveloper IDE, available as part of the Oracle Developer Suite.

Note:

- You can configure this J2EE and Web Cache instance to use an OracleAS Infrastructure anytime after installation.
- This instance cannot use OracleAS Single Sign-On, unless you configure it with an Oracle Internet Directory. You can install an Oracle Internet Directory if you install the OracleAS Infrastructure.

15.1.2 Requirements

The requirements are the same as those listed in Chapter 4, "Requirements".

15.1.3 Installation Sequence

You need to perform two installations:

- Install J2EE and Web Cache, as described in Section 7.8, "Installing a J2EE and Web Cache Without an Infrastructure".
- Install Oracle JDeveloper. Refer to *Oracle Developer Suite Installation Guide* for details.

You install these products in separate Oracle homes. The Oracle homes must be new directories (that is, they are not Oracle homes for other Oracle products).

You can install J2EE and Web Cache middle tier and Oracle JDeveloper in any order.

15.2 Portal and Wireless Developer Topology

This is a single-computer development topology containing an OracleAS Infrastructure and a Portal and Wireless middle tier. The OracleAS Infrastructure installation creates a new Oracle database and Oracle Internet Directory.

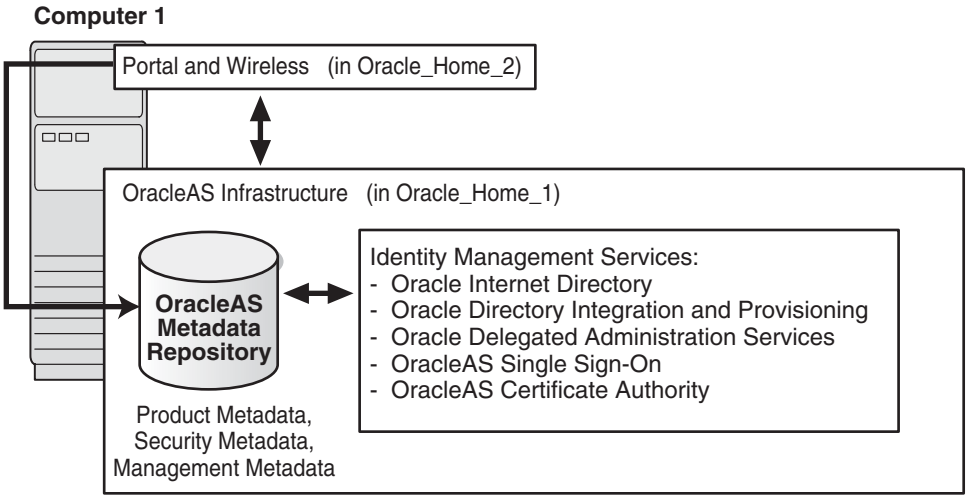
Target Users

Application developers, who can run and test their applications that access features provided by the included components

15.2.1 Description

This topology enables application developers to develop and test their Portal and Wireless applications. This topology requires a more powerful computer than the topology described in Section 15.1, "Java Developer Topology" because this topology runs an OracleAS Infrastructure and a Portal and Wireless middle tier on the same computer. The infrastructure and the middle tier are installed in different Oracle homes.

Figure 15–2 Portal and Wireless Developer Topology



15.2.2 Requirements

The requirements are the same as those listed in Chapter 4, "Requirements".

15.2.3 Installation Sequence

Create this topology in the following order:

1. Install OracleAS Infrastructure.

   Follow the steps in Section 6.20, "Installing OracleAS Infrastructure" to install an infrastructure with a new Oracle database to contain the OracleAS Metadata Repository. The procedure also installs a new Oracle Internet Directory.

2. Install the Portal and Wireless middle tier.

   Follow the steps in Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

You install them in different Oracle homes.

15.3 Forms, Reports, and Discoverer Developer Topology

This is a single-computer development topology containing:

- OracleAS Infrastructure that installs a new Oracle database and Oracle Internet Directory.
- Business Intelligence and Forms middle tier
- Forms Builder (part of Oracle Developer Suite)
- Reports Builder (part of Oracle Developer Suite)
- Discoverer Administrator (part of Oracle Developer Suite and Oracle Business Intelligence Tools)

Target Users

Forms, Reports, and Discoverer application developers

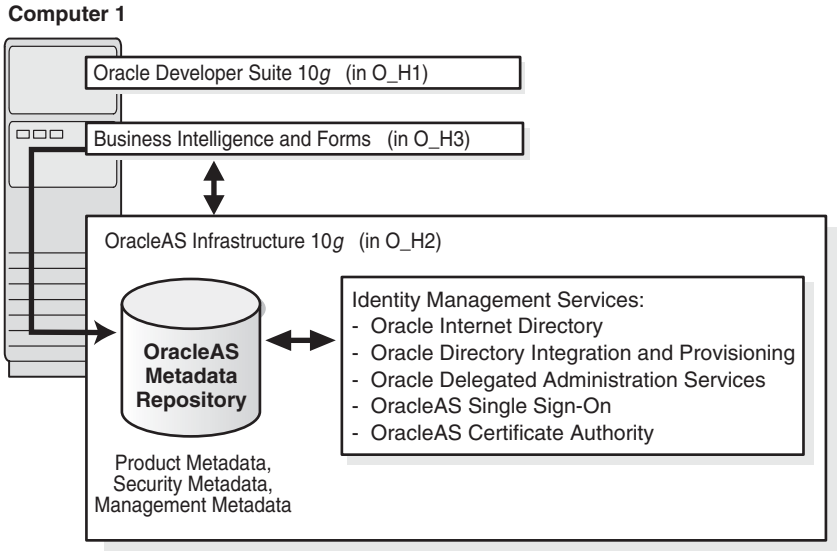
15.3.1 Description

This topology enables Forms and Reports developers to build and test their applications. Developers use Forms Builder and Reports Builder to develop their applications.

They can then deploy and run the applications on Oracle Application Server. The Business Intelligence and Forms middle tier provides the OracleAS Forms Services and OracleAS Reports Services components, which are needed to run the applications.

You install the OracleAS Infrastructure and the Business Intelligence and Forms middle tier in separate Oracle homes. Forms Builder and Reports Builder are in a third Oracle home.

Figure 15–3 Forms, Reports, and Discoverer Application Development Topology



15.3.2 Requirements

The requirements are the same as those listed in Chapter 4, "Requirements".

15.3.3 Installation Sequence

Install the items in the following order. Install each item in its own Oracle home.

1. Install the Oracle Developer Suite or Oracle Business Intelligence Tools, including Forms Builder, Reports Builder, and Discoverer Administrator. Refer to *Oracle Developer Suite Installation Guide* for details.
2. Install OracleAS Infrastructure.

   Follow the steps in Section 6.20, "Installing OracleAS Infrastructure".
3. Install the Business Intelligence and Forms middle tier.

   Follow the steps in Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

15.4 Integration Business-to-Business (B2B) Topology

This development topology enables you to design, deploy, monitor, and manage integrations between enterprises (also known as business-to-business (B2B) integrations). OracleAS Integration B2B enables trading partners to conduct business using RosettaNet, Electronic Data Interchange (EDI), or a custom business protocol.

Target Audience

- Users who design, deploy, monitor, and administer B2B integrations

15.4.1 Description

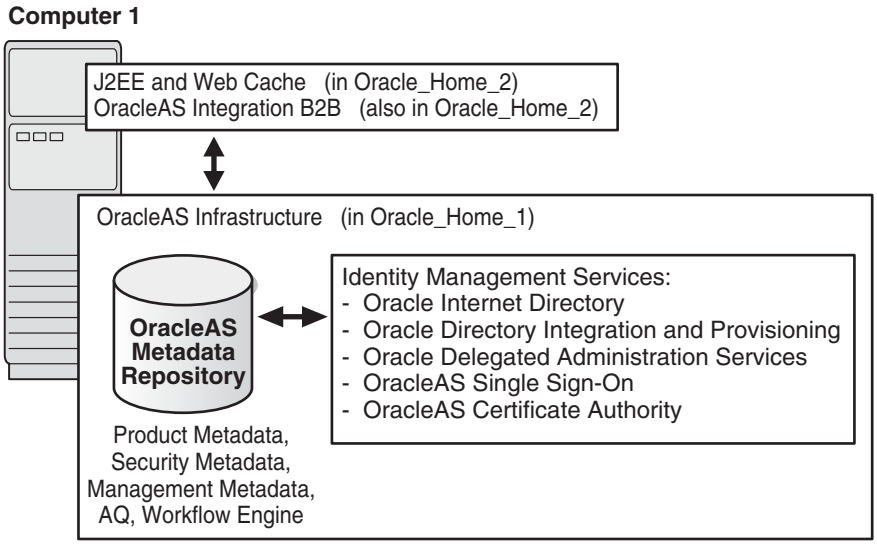
This development topology includes:

- OracleAS Infrastructure
- J2EE and Web Cache middle tier
- OracleAS Integration B2B, which provides an environment for the B2B exchange of services, information, and products. Refer to *Oracle Application Server Integration B2B User's Guide* for details.

You can find OracleAS Integration B2B on its own CD-ROM in the Oracle Application Server distribution. The OracleAS Integration B2B CD-ROM also contains the *Oracle Application Server Integration B2B Installation Guide*.

If you have the Oracle Application Server DVD, you can find OracleAS Integration B2B in the `b2b` directory.

Figure 15–4 Integration B2B Topology



15.4.2 Requirements

The requirements are the same as those listed in Chapter 4, "Requirements".

For OracleAS Integration B2B requirements, refer to *Oracle Application Server Integration B2B Installation Guide*, which is on the OracleAS Integration B2B CD-ROM or in the `b2b` directory on the Oracle Application Server DVD.

15.4.3 Assumptions

This topology makes the following assumptions:

- When you install OracleAS Infrastructure, you create a new Oracle Internet Directory.
- When you install OracleAS Infrastructure, you create a new database for the OracleAS Metadata Repository. This OracleAS Metadata Repository is also used by OracleAS Integration B2B.

15.4.4 Installation Sequence

Install the items in the following order, as shown in Figure 15–4.

1. In Oracle_Home_1, install an OracleAS Infrastructure with Oracle Identity Management services and OracleAS Metadata Repository. Refer to Section 6.20, "Installing OracleAS Infrastructure" for specific steps.

   This creates a database to contain the OracleAS Metadata Repository. It also creates an Oracle Internet Directory.

2. In Oracle_Home_2, install a J2EE and Web Cache middle tier. Refer to Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access".

   When the installer prompts for Oracle Internet Directory, enter the connect information for the Oracle Internet Directory created in step 1.

   When the installer prompts for the OracleAS Metadata Repository, select the OracleAS Metadata Repository installed in step 1.

3. Install OracleAS Integration B2B in the Oracle home where you installed the J2EE and Web Cache middle tier. Refer to *Oracle Application Server Integration B2B Installation Guide* (on the OracleAS Integration B2B CD-ROM or in the `b2b` directory on the Oracle Application Server DVD) for details on how to install OracleAS Integration B2B.

15.5 Departmental Topology with Separate OracleAS Metadata Repository for OracleAS Portal

This topology is smaller scale version of the topology described in the *Oracle Application Server Enterprise Deployment Guide*. It consists of an OracleAS Infrastructure with two metadata repositories, and multiple middle tiers.

It uses two metadata repositories in the following way:

- One OracleAS Metadata Repository is used by Oracle Identity Management components, such as Oracle Internet Directory and OracleAS Single Sign-On.
- The second OracleAS Metadata Repository is used by the Portal and Wireless middle tier. Components in this middle tier, such as OracleAS Portal and OracleAS Wireless, use this OracleAS Metadata Repository.

Target Users

This topology can be used by individual departments within an organization. Users who access this topology are internal to the organization. As such, this topology does not consider security requirements that involve external users.

15.5.1 Description

This topology (Figure 15–5) consists of an OracleAS Infrastructure, plus several middle tiers, including at least one Portal and Wireless middle tier. This topology uses two metadata repositories:

- one for Oracle Identity Management services (installed on computer 1). All the middle tiers use this metadata repository for Oracle Identity Management services.
- one for product metadata (installed on computer 2). The Portal and Wireless middle tier uses this metadata repository.

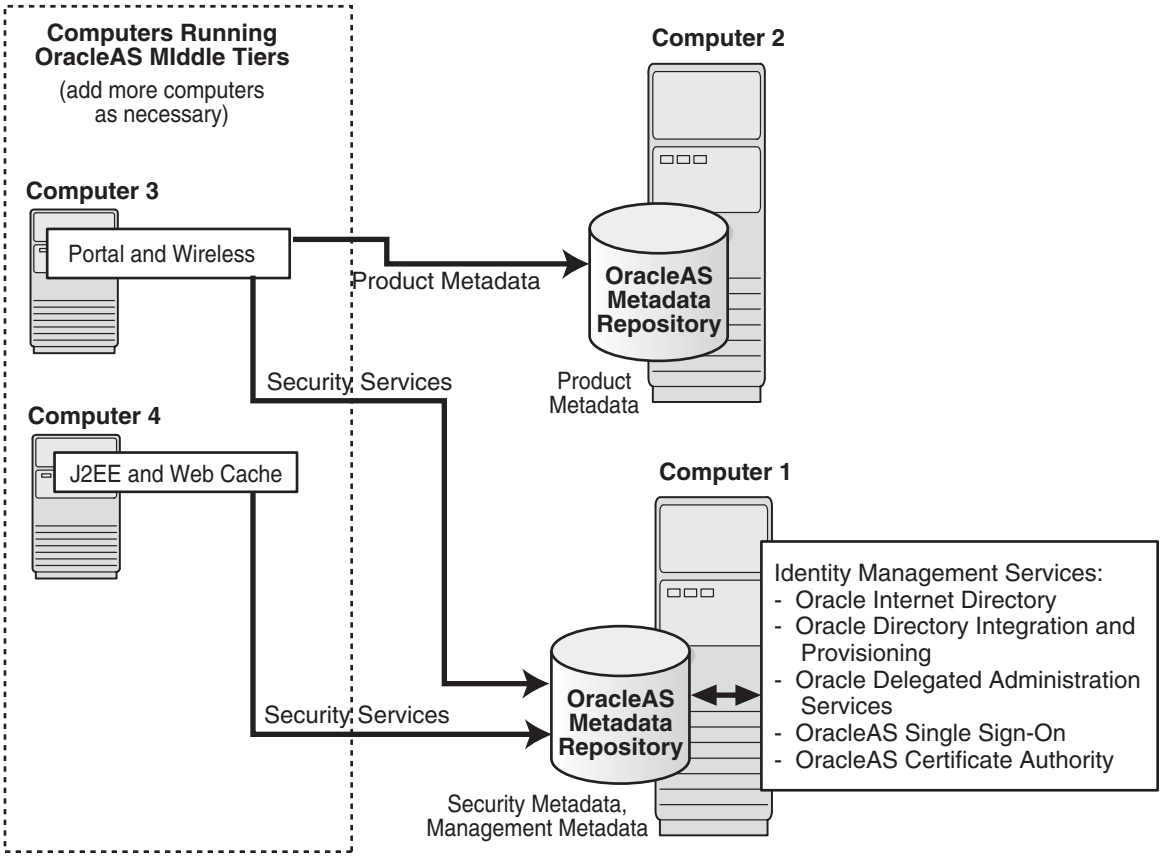
Expanding the Topology

You can install Oracle Application Server middle tiers on additional computers, as needed. Set these middle tiers to use either metadata repository.

Adding High Availability Features

You can install OracleAS Infrastructure in any of the high availability environments described in Chapter 10, "Installing in High Availability Environments: Overview".

Figure 15–5 Departmental Topology



15.5.2 Requirements

The requirements are the same as those listed in Chapter 4, "Requirements".

15.5.3 Assumptions

This topology makes the following assumptions:

- When you install OracleAS Infrastructure, you create a new Oracle Internet Directory.

15.5.4 Installation Sequence

Install the items in the following order. The computers are listed in Figure 15–5.

1. Computer 1: Install OracleAS Infrastructure with Oracle Identity Management services and OracleAS Metadata Repository. Refer to Section 6.20, "Installing OracleAS Infrastructure" for specific steps.

   This creates a database to contain the OracleAS Metadata Repository. It also creates an Oracle Internet Directory.

2. Computer 2: Install a second OracleAS Metadata Repository. Refer to Section 6.22, "Installing OracleAS Metadata Repository in a New Database" for steps.

   When the installer prompts you to register the OracleAS Metadata Repository, enter the connect information for the Oracle Internet Directory created in step 1.

The Portal and Wireless middle tier will use this second metadata repository for its product metadata. Refer to Section 6.12, "Can I Use Multiple Metadata Repositories?"

3. Computer 3: Install a Portal and Wireless middle tier. Refer to Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

   When the installer prompts for Oracle Internet Directory, enter the connect information for the Oracle Internet Directory created in step 1. This Oracle Internet Directory contains the registration for the OracleAS Metadata Repository installed in steps 1 and 2.

   When the installer prompts for the OracleAS Metadata Repository, select the OracleAS Metadata Repository installed in step 2.

4. Computer 4: Install a J2EE and Web Cache middle tier. Refer to Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access".

   When the installer prompts for Oracle Internet Directory, enter the connect information for the Oracle Internet Directory created in step 1.

   When the installer prompts for the OracleAS Metadata Repository, select the OracleAS Metadata Repository installed in step 1.

15.6 Development Life Cycle Support Topology

This topology is a combination of other topologies to support moving applications from test to stage to production environments.

- Test environment: Application developers test their applications in their own environments. Examples of testing environments:
  - Section 15.1, "Java Developer Topology"
  - Section 15.2, "Portal and Wireless Developer Topology"
  - Section 15.3, "Forms, Reports, and Discoverer Developer Topology"
- Stage environment: QA personnel test all applications before deploying them to the production environment. In this environment, you can use the topology described in Section 15.5, "Departmental Topology with Separate OracleAS Metadata Repository for OracleAS Portal". This topology in a stage environment runs applications from all departments, not just from a single department.
- Production environment: Applications are ready for use by users internal and external to the enterprise.

15.6.1 Moving Applications from Test to Stage

To move applications from a test to a stage environment, you deploy them on middle tiers in the stage environment. The applications use the Oracle Identity Management and OracleAS Metadata Repository of the stage environment.

If an application uses custom data in a database, you need to move that data from that database to a database in the stage environment.

15.6.2 Moving Applications from Stage to Production

You can move applications from a stage environment to a production by deploying the applications and moving any application-specific data from the stage environment to the production environment.

Another method is to configure the middle tier in the stage environment to use a different infrastructure (that is, point the middle tier to use the infrastructure in the production environment). You can use this feature to move middle tiers (and their applications) from stage to production.

You still need to move application-specific data stored in a stage database to a database in the production environment.

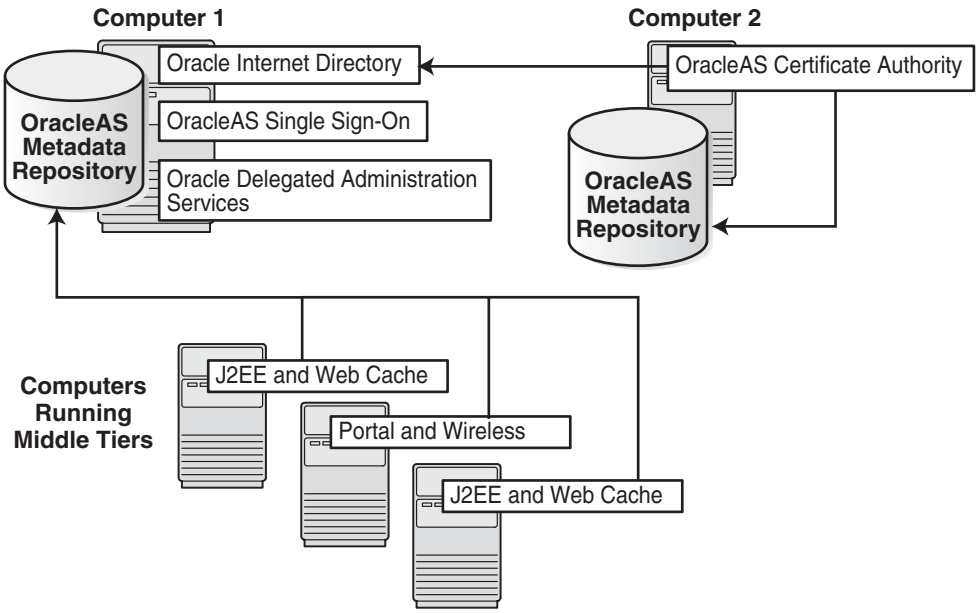
This method is convenient if you need additional computers for the production environment. In one step, you add a computer that already has a middle tier and deployed applications.

Refer to *Oracle Application Server Administrator's Guide* for details.

15.7 OCA Topology

In this topology, OCA has its own OracleAS Metadata Repository, and they run on a computer separate from other OracleAS Infrastructure components (Figure 15–6). The other components use a different OracleAS Metadata Repository.

Figure 15–6 Topology for OCA



15.7.1 Description

Although you can install OCA on the same computer as the other infrastructure components, you achieve greater security by installing OCA and its own OracleAS Metadata Repository on a separate computer:

- By not sharing the OracleAS Metadata Repository with other components, you isolate OCA from security breaks, whether accidental or malicious.
- You can place the computer on which OCA is running in a secure room.

15.7.2 Requirements

The requirements for the computers are listed in Chapter 4, "Requirements".

15.7.3 Installation Sequence

Install the items in the following order:

1. Computer 1: Install infrastructure components except for OCA. Refer to Section 6.20, "Installing OracleAS Infrastructure" for steps.

   Note: Do not select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, because you will install OCA on Computer 2.

2. Computer 2: Install OCA and a second OracleAS Metadata Repository. Refer to Section 6.26, "Installing OCA and OracleAS Metadata Repository Only" for details.

   During this installation, you register the OracleAS Metadata Repository on Computer 2 with the Oracle Internet Directory installed on Computer 1.

3. Install middle tiers. Ensure the middle tiers use the OracleAS Metadata Repository installed on Computer 1. Procedures for installing middle tiers are:

   - Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Oracle Identity Management Access"
   - Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms"

16

Post-Installation Tasks

Contents:

- Section 16.1, "State of Oracle Application Server Instances After Installation"
- Section 16.2, "Passwords for Oracle Application Server Components"
- Section 16.3, "NFS Installations"
- Section 16.4, "OracleAS File-Based Clustering"
- Section 16.5, "Backup and Recovery"
- Section 16.6, "SSL"
- Section 16.7, "Operating System Locale and NLS_LANG Environment Variable"
- Section 16.8, "Component Configuration After Installation"
- Section 16.9, "Components that Require Postinstallation Tasks"
- Section 16.10, "What to Do Next?"

16.1 State of Oracle Application Server Instances After Installation

After installation, the components that you have configured are started up (unless you have configured them to use ports lower than 1024, in which case you have to start them up manually).

You can view the Welcome page and the Application Server Control page in a browser. The URLs for these pages are shown in the last screen of the installer. You can view the contents of the last screen in the file `ORACLE_HOME/install/setupinfo.txt`.

You can use scripts or you can use the Oracle Enterprise Manager 10*g* Application Server Control to start and stop Oracle Application Server instances. Refer to *Oracle Application Server Administrator's Guide* for details.

16.2 Passwords for Oracle Application Server Components

By default, all passwords for Oracle Application Server components, with the exception of the OracleAS Metadata Repository schema passwords, are set to be the same as the Oracle Application Server instance password. For security reasons, you should change the passwords of the various components to have different values.

Refer to *Oracle Application Server Administrator's Guide* and the component guides in the Oracle Application Server Documentation Library for details on how to alter the passwords for the components you have installed.

16.3 NFS Installations

If you installed Oracle Application Server on an NFS disk, you need to edit the `LockFile` directive in the `ORACLE_HOME/Apache/Apache/conf/httpd.conf` file so that it points to a local disk. This file is used by the Oracle HTTP Server component.

Refer to *Oracle HTTP Server Administrator's Guide* for details.

16.4 OracleAS File-Based Clustering

If you want to set up OracleAS Clusters managed using a file-based repository, you need to perform the steps listed in the *Oracle Application Server High Availability Guide*.

Note that when you run the "`dcmctl joinFarm`" command, it invokes "`opmnctl stopall`", which stops all components. After the "`dcmctl joinFarm`" command completes, you have to run "`opmnctl startall`" to restart the components.

16.5 Backup and Recovery

After installation would be a good time to start backing up the files, and to set up your backup and recovery strategy. Refer to *Oracle Application Server Administrator's Guide* for details.

16.6 SSL

By default, most components are not configured for SSL. To enable SSL, refer to the SSL section in *Oracle Application Server Administrator's Guide*.

16.7 Operating System Locale and NLS_LANG Environment Variable

If you installed Oracle Application Server in a non-English language environment, check your settings as described in these sections:

- Section 16.7.1, "Check the Operating System Locale"
- Section 16.7.2, "Check the NLS_LANG Setting"

16.7.1 Check the Operating System Locale

To make sure the default locale is set properly, verify that the LC_ALL or LANG environment variables are set with the appropriate values. To check the current setting, run the `locale` command:

```
prompt> locale
```

16.7.2 Check the NLS_LANG Setting

To check the NLS_LANG setting:

1. Make sure the value of the NLS_LANG environment variable is compatible with the default locale setting of the operating system. Refer to *Oracle Application Server Globalization Guide* for details, including a list of files that set this variable. You might need to edit the value of the NLS_LANG variable in these files.
2. Check that the NLS_LANG setting in the `ORACLE_HOME/opmn/conf/opmn.xml` file is identical to the NLS_LANG environment variable.

Example: The NLS_LANG setting in the `opmn.xml` file might look something like this:

```
<environment>
     <variable id="TMP" value="/tmp"/>
     <variable id="NLS_LANG" value="JAPANESE_JAPAN.JA16SJIS"/>
</environment>
```

16.8 Component Configuration After Installation

If you did not configure a component during installation (that is, you did not select the component in the Select Configuration Options screen), you can configure some components after installation. Some components have dependencies that you have to complete before you can configure the component. Section 16.8.1, "Configuring mod_osso (Required for Oracle Delegated Administration Services)" describes how to configure mod_osso, which has to be configured before you can configure Oracle Delegated Administration Services.

16.8.1 Configuring mod_osso (Required for Oracle Delegated Administration Services)

If you did not configure Oracle Delegated Administration Services during installation, you can do it after installation using Oracle Enterprise Manager 10*g* Application Server Control.

Oracle Delegated Administration Services requires OracleAS Single Sign-On and mod_osso. mod_osso is an Oracle HTTP Server module that communicates with the Single Sign-On server. If mod_osso is not configured, you have to configure it before you can configure Oracle Delegated Administration Services. Here are the steps:

1. Ensure that OracleAS Single Sign-On is configured against Oracle Internet Directory. This is done for you if you have installed and configured these two components from the installer.
2. Check if mod_osso is configured in the ORACLE_HOME where you want to configure Oracle Delegated Administration Services.

   Examine the following line in the `ORACLE_HOME/Apache/Apache/conf/httpd.conf` file. ORACLE_HOME refers to the directory where you want to configure Oracle Delegated Administration Services.

   ```
   include "ORACLE_HOME/Apache/Apache/conf/mod_osso.conf"
   ```

   If the line starts with `#`, then it is commented out and mod_osso is not configured in this installation. Perform step 3 to configure mod_osso.

   If the line is not commented out, mod_osso is already configured. You can go ahead and configure Oracle Delegated Administration Services using Application Server Control. Go to step 5.
3. To configure mod_osso manually, perform these steps:
   a. Set the ORACLE_HOME environment variable to the full path of the directory where you want to configure Oracle Delegated Administration Services.
   b. Set the LD_LIBRARY_PATH environment variable to contain `$ORACLE_HOME/lib32` and `$ORACLE_HOME/network/lib`.
   c. Set the LD_LIBRARY_PATH_64 environment variable to contain `$ORACLE_HOME/lib`.

d. Run the following command (all on one line). **Note:** for the `-classpath` parameter, do not type any space characters after the colon (`:`) characters, as indicated by *<no spaces>*:

```
prompt> $ORACLE_HOME/jdk/bin/java
 -classpath .:$ORACLE_HOME/sso/lib/ossoreg.jar:<no spaces>
 $ORACLE_HOME/jlib/ojmisc.jar:<no spaces>
 $ORACLE_HOME/jlib/repository.jar:<no spaces>
 $ORACLE_HOME/j2ee/home/jazn.jar:$ORACLE_HOME/jdk/lib/dt.jar:<no spaces>
 $ORACLE_HOME/jdk/lib/tools.jar:$ORACLE_HOME/jlib/infratool.jar
 oracle.ias.configtool.UseInfrastructure i
 -f $ORACLE_HOME/config/infratool_mod_osso.properties
 -h OIDhost -p OIDport -u OIDadminName -w OIDclearTextPassword
 -o ORACLE_HOME -m ASinstanceName
 -infra infraGlobalDBName -mh host -sso true
 -sslp sslPort -sslf false
```

Table 16–1 describes the parameters where you have to supply values:

Table 16–1 Parameters for Configuring mod_osso

Parameter	Description
`-h` *OIDhost*	Specifies the name of the computer where Oracle Internet Directory is running. You can determine this value from the `OIDhost` parameter in the `ORACLE_HOME/config/ias.properties` file.
`-p` *OIDport*	Specifies the port number on which Oracle Internet Directory is listening. You can determine this value from the `OIDport` parameter in the `ORACLE_HOME/config/ias.properties` file.
`-u` *OIDadminName*	Specifies the login name for Oracle Internet Directory. Use the superuser: `cn=orcladmin`.
`-w` *OIDclearTextPassword*	Specifies the password for the Oracle Internet Directory user.
`-o` *ORACLE_HOME*	Specifies the full path to the directory where you installed OracleAS Infrastructure.
`-m` *ASinstanceName*	Specifies the name of the OracleAS Infrastructure instance where you want to configure mod_osso. You can determine this value from the `IASname` parameter in the `ORACLE_HOME/config/ias.properties` file.
`-infra` *infraGlobalDBname*	Specifies the name of the OracleAS Metadata Repository database. You can determine this value from the `InfrastructureDBCommonName` parameter in the `ORACLE_HOME/config/ias.properties` file.
`-mh` *host*	Specifies the full hostname (including the domain name) of the computer where you want to configure Oracle Delegated Administration Services.
`-sslp` *sslPort*	Specifies the SSL port for Oracle Internet Directory. You can determine this value from the `OIDsslport` parameter in the `ORACLE_HOME/config/ias.properties` file.

4. Restart OC4J and Oracle HTTP Server. You can do this using the `opmnctl` command.

```
prompt> $ORACLE_HOME/opmn/bin/opmnctl restartproc ias-component=OC4J
prompt> $ORACLE_HOME/opmn/bin/opmnctl restartproc ias-component=HTTP_Server
```

5. Once mod_osso is configured, you can configure Oracle Delegated Administration Services using the Application Server Control. Refer to *Oracle Internet Directory Administrator's Guide* for details.

16.9 Components that Require Postinstallation Tasks

If you plan to use any of the components listed in Table 16–2, you need to perform some steps specific to the component after installation before you can use the component. Table 16–2 lists the component guides that describe the steps.

Table 16–2 Components Requiring Post-Installation Steps

Component	Guide That Describes the Post-Installation Steps
OracleAS Portal	*Oracle Application Server Portal Configuration Guide*
OracleAS Wireless	*Oracle Application Server Wireless Administrator's Guide*
Oracle Ultra Search	*Oracle Ultra Search Administrator's Guide*
OracleBI Discoverer	To prepare your relational data for analysis, enable users and roles, and set up security, refer to the *Oracle Discoverer Administration Guide*. **Note:** You can find this guide on the Oracle Business Intelligence Tools CD. To find out about middle tier post-installation tasks, refer to the *Oracle Business Intelligence Discoverer Configuration Guide*.
OracleAS Reports Services	*Oracle Application Server Reports Services Publishing Reports to the Web*
OracleAS Personalization	*Oracle Application Server Personalization Administrator's Guide*
OracleAS Certificate Authority	*Oracle Application Server Certificate Authority Administrator's Guide*

16.10 What to Do Next?

After installing Oracle Application Server, you should read the *Oracle Application Server Administrator's Guide*. Specifically, you should read the "Getting Started After Installing Oracle Application Server" chapter.

You should also perform a complete Oracle Application Server environment backup after installing Oracle Application Server. This enables you to restore a working environment in case something goes wrong. For details on how to perform a complete Oracle Application Server environment backup, refer to *Oracle Application Server Administrator's Guide*.

You should also perform a complete Oracle Application Server environment backup after each successful patchset upgrade and after each successful configuration change.

A

Installing OracleAS Developer Kits

OracleAS Developer Kits provide APIs that enable you to develop OracleAS Portal, OracleAS Wireless, XML, and LDAP applications. You use Developer Kits in development environments, not in staging or production environments. Note that the OracleAS Developer Kits do not provide a complete IDE (integrated development environment). If you need an IDE, you can install Oracle JDeveloper, available with Oracle Developer Suite or with all editions of Oracle Application Server.

Perform the following procedure to install OracleAS Developer Kits.

Table A–1 Steps for Installing the OracleAS Developer Kits

	Screen	Action
1.	--	Start up the installer. Refer to Section 5.19, "Starting Oracle Universal Installer" for details.
2.	Welcome	Click **Next**.
3.	Specify Inventory Directory and Credentials	This screen appears only if this is the first installation of any Oracle product on this computer. **Enter the full path of the inventory directory**: Enter a full path to a directory for the installer's files. Enter a directory that is different from the Oracle home directory for the product files. Example: `/opt/oracle/oraInventory` **Specify operating system group name**: Select the name of the operating system group that will have write permission for the inventory directory. Example: `oinstall` Click **Next**.
4.	Run `orainstRoot.sh`	Run the `orainstRoot.sh` script in a different shell as the root user. The script is located in the `oraInventory` directory. You need to do this only if the OracleAS Developer Kits is the first Oracle product to be installed on this computer. After running the script, click **Continue**.
5.	Specify File Locations	**Name**: Enter a name to identify this Oracle home. This is not the name of the directory. Example: `OH_DEVKIT` **Path** (under Destination): Enter the full path to the destination directory. This is the Oracle home. Example: `/opt/oracle/OraDevKit` Click **Next**.

Table A–1 (Cont.) Steps for Installing the OracleAS Developer Kits

	Screen	Action
6.	Select a Product to Install	Select **OracleAS Developer Kits**. If you need to install additional languages, click **Product Languages**. Refer to Section 5.8, "Installing Additional Languages" for details. Click **Next**.
7.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a `staticports.ini` file, select **Manual** and enter the full path to your `staticports.ini` file in the provided field. Click **Next**.
8.	Specify Instance Name and ias_admin Password	**Instance Name**: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Refer to Section 5.9, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `devkits` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. Refer to Section 5.10, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click **Next**.
9.	Summary	Verify your selections and click **Install**.
10.	Install Progress	This screen shows the progress of the installation.
11.	Run `root.sh`	Run the `root.sh` script in a different shell as the root user. The script is located in this instance's Oracle home directory. Click **OK**.
12.	Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
13.	End of Installation	Click **Exit** to quit the installer.

B

Silent and Non-Interactive Installation

This appendix describes how to install Oracle Application Server in silent mode. This appendix contains the following topics:

- Section B.1, "Silent Installation"
- Section B.2, "Non-Interactive Installation"
- Section B.3, "Preinstallation"
- Section B.4, "Notes for Silent and Non-Interactive Installations"
- Section B.5, "Create the Response File"
- Section B.6, "Start the Installation"
- Section B.7, "Post-Installation"
- Section B.8, "Security Tips for Silent and Non-Interactive Installations"
- Section B.9, "Deinstallation"

B.1 Silent Installation

Silent installation eliminates the need to monitor the Oracle Application Server installation because there is no graphical output and no input by the user.

Silent installation of Oracle Application Server is accomplished by supplying the Oracle Universal Installer with a response file and specifying the `-silent` flag on the command line. The response file is a text file containing variables and parameter values which provide answers to the installer prompts.

If this is a first time installation of Oracle Application Server, you must create the `oraInst.loc` file before starting. File creation is described in Section B.3, "Preinstallation".

Following installation of Oracle Application Server, you need to run the `root.sh` script as the root user. The `root.sh` script detects settings of environment variables and enables you to enter the full path of the local bin directory.

Use silent installation of Oracle Application Server when there are similar installations on more than one computer. Additionally, use silent install when performing the Oracle Application Server installation from a remote location using the command line.

B.2 Non-Interactive Installation

Non-interactive installations also use a response file to automate the Oracle Application Server installation. In non-interactive installations, there is graphical output and users may enter input.

Non-interactive installation of Oracle Application Server is also accomplished by supplying the Oracle Universal Installer with a response file but without specifying the `-silent` flag on the command line. The response file is a text file containing variables and parameter values which provide answers to the installer prompts. If you have not provided responses to all of the installer prompts, you need to enter information during the installation.

If this is a first time installation of Oracle Application Server, you must create the `oraInst.loc` file before starting. File creation is described in Section B.3, "Preinstallation".

Following installation of Oracle Application Server, you need to run the `root.sh` script as the root user. The `root.sh` script detects settings of environment variables and enables you to enter the full path of the local bin directory.

Use non-interactive installation of Oracle Application Server when there are specific screens you want to observe during installation.

B.3 Preinstallation

If the `oraInst.loc` file does not exist in the `/etc` directory, you must create it before starting the silent and non-interactive installation of Oracle Application Server. This file is used by the installer.

1. Log in as the `root` user.

   ```
   prompt> su
   ```

2. Using a text editor such as vi or emacs, create the `oraInst.loc` file in the `/etc` directory. Enter the following line in the file:

   ```
   inventory_loc=oui_inventory_directory
   ```

   Replace *oui_inventory_directory* with the full path to the directory where you want the installer to create the inventory directory. Make sure that the `oinstall` operating system group has write permissions to this directory. For example:

   ```
   inventory_loc=/opt/oracle/oraInventory
   ```

   Make sure that the `oinstall` operating system group has write permissions to this directory. For more information about the inventory directory and the group that owns it, refer to Section 4.7.1, "Create a Group for the Inventory Directory".

3. Create an empty `/etc/oratab` file.

   ```
   # touch /etc/oratab
   ```

4. Exit from the `root` user.

   ```
   # exit
   ```

B.4 Notes for Silent and Non-Interactive Installations

This section describes special cases that are applicable when you are performing silent or non-interactive installations.

- Section B.4.1, "Installing OracleAS Certificate Authority"
- Section B.4.2, "Expanding a Middle Tier"

B.4.1 Installing OracleAS Certificate Authority

If you are installing OCA, check the following:

- If you are installing OCA against an existing Oracle Internet Directory, make sure the Oracle Internet Directory has OracleAS Single Sign-On configured. If not, the OCA Configuration Assistant will fail.
- If you are installing OCA with a new Oracle Internet Directory, make sure you are also configuring OracleAS Single Sign-On. If not, the OCA Configuration Assistant will fail.

In interactive mode, the installer performs the checks for you and displays a warning if the requirements are not met. However, in silent or non-interactive mode, the installer is not able to display a warning.

B.4.2 Expanding a Middle Tier

If you are expanding a middle tier, check the following:

- Stop all processes associated with the middle tier that you want to expand. Refer to Section 7.14, "Expanding a Middle Tier".
- Start the expansion installation in a new shell window, that is, a shell window that is started up **after** the first installation has completed.

B.5 Create the Response File

Before doing a silent or non-interactive installation, you must provide information specific to your installation in a response file. The installer will fail if you attempt an installation using a response file that is not configured correctly. Response files are text files that you can create or edit in a text editor.

B.5.1 Creating Response Files from Templates

Templates for response files are available in the `stage/Response` directory on Disk 1 of the Oracle Application Server CD-ROM. Response file templates are available for the following installation types:

Table B–1 Response File Templates in the stage/Response Directory

Installation Type	Filename
J2EE and Web Cache	`oracle.iappserver.iapptop.J2EE.rsp`
Portal and Wireless	`oracle.iappserver.iapptop.Portals.rsp`
Business Intelligence and Forms	`oracle.iappserver.iapptop.Business.rsp`
OracleAS Infrastructure: Oracle Identity Management and OracleAS Metadata Repository	`oracle.iappserver.infrastructure.Infrastructure.rsp`

Table B–1 (Cont.) Response File Templates in the stage/Response Directory

Installation Type	Filename
OracleAS Infrastructure: Oracle Identity Management only	`oracle.iappserver.infrastructure.Infrastructure_ID.rsp`
OracleAS Infrastructure: OracleAS Metadata Repository only	`oracle.iappserver.infrastructure.Infrastructure_Meta.rsp`
OracleAS Developer Kits	`oracle.iappserver.devcorner.DevKit.rsp`

Refer to the template files for descriptions of the parameters in the file.

Note: For Boolean parameters, specify either "true" or "false".

B.5.2 Creating Response Files by Using the Record Mode in the Installer

You can run the installer in record mode to save your inputs to a file that you can use later as a response file. This feature is useful if you need to perform the same installation on different computers.

To run the installer in record mode:

1. Start up the installer with the `-record` and `-destinationFile` parameters.

   ```
   prompt> /path/to/runInstaller -record -destinationFile newResponseFile
   ```

   Replace *newResponseFile* with the full path to the response file that you want the installer to create. Example: `/opt/oracle/myPortalResponse.rsp`.

2. Enter your values in the installer screens. The installer will write these values to the file specified in the `-destinationFile` parameter.

   When you get to the Summary screen, the installer automatically writes all your values to the specified file. At this point, you can complete the installation on this computer, or you can exit without performing the installation.

Secure information, such as passwords, is not written to the file, so you must modify the response file before you can use it.

For all installations, modify these parameters:

```
ACCEPT_LICENSE_AGREEMENT=true
oracle.iappserver.instance:szl_InstanceInformation={"instancename",
"instancepassword", "instancepassword"}
PreReqConfigSelections=""
nValidationRepositoryHost=0
nValidationRepository=0
nValidationStartProcPortals=0
nValidationStartProcBusiness=0
nValidationClusterSupport=0
nValidationStartProcCore=0
nValidationClusterRepository=0
oracle.iappserver.instance:nValidationInstanceInfo=0
silent=true
```

For middle-tier installations, modify these parameters:

```
oracle.iappserver.iapptop:startupProcesses=""
oracle.iappserver.iapptop:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
oracle.iappserver.iapptop:n_ValidationPreReqConfigSelections=0
oracle.iappserver.iapptop:nValidationPortListSelect=0
```

```
oracle.iappserver.iapptop:nValidationOID2=0
oracle.iappserver.iapptop:nValidationInstanceInfo=0
oracle.iappserver.iapptop:nValidationOID=0
```

For infrastructure installations, modify these parameters:

```
oracle.iappserver.infrastructure:startupProcesses=""
oracle.iappserver.infrastructure:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
oracle.iappserver.infrastructure:n_ValidationPreReqConfigSelections=0
oracle.iappserver.infrastructure:nValidationPortListSelect=0
oracle.iappserver.infrastructure:nValidationInstanceInfo=0
```

Refer to the generated response file for descriptions of the parameters in the file.

B.5.3 Example Response Files

The following sections shows example response files for the following Oracle Application Server installation types:

- Section B.5.3.1, "Example Response File for Standalone J2EE and Web Cache"
- Section B.5.3.2, "Example Response File for OracleAS Infrastructure"
- Section B.5.3.3, "Example Response File for Portal and Wireless"

> **Note:** Be sure that you read the description of each *parameter=value* in the provided sample files, and edit *value* accordingly for your environment.

B.5.3.1 Example Response File for Standalone J2EE and Web Cache

The following shows an example of a response file for a **silent** installation of standalone instance of J2EE and Web Cache as described in Section 7.8, "Installing a J2EE and Web Cache Without an Infrastructure".

Note that if you do not copy the CD-ROMs to the hard drive, the installer will prompt you to switch CD-ROMs during installation. To complete the installation without any prompting, you must copy the contents of the CD-ROMs to the hard drive and specify the `LOCATION_FOR_DISK`*n* parameters.

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME="dba"
FROM_LOCATION="/mount_point/Disk1/stage/products.xml"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
LOCATION_FOR_DISK2="/path/to/disk2/files"
LOCATION_FOR_DISK3="/path/to/disk3/files"
ORACLE_HOME="/local_location/oracle_home"
ORACLE_HOME_NAME="oracle_j2eehome_name"
TOPLEVEL_COMPONENT={"oracle.iappserver.iapptop","10.1.2.0.2"}
SHOW_SPLASH_SCREEN=false
SHOW_WELCOME_PAGE=false
SHOW_CUSTOM_TREE_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_SUMMARY_PAGE=false
SHOW_INSTALL_PROGRESS_PAGE=false
SHOW_REQUIRED_CONFIG_TOOL_PAGE=false
SHOW_CONFIG_TOOL_PAGE=false
SHOW_RELEASE_NOTES=true
SHOW_ROOTSH_CONFIRMATION=false
SHOW_END_SESSION_PAGE=false
```

```
SHOW_EXIT_CONFIRMATION=false
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
DEINSTALL_LIST={"oracle.iappserver.iapptop","10.1.2.0.2"}
SHOW_DEINSTALL_CONFIRMATION=false
SHOW_DEINSTALL_PROGRESS=true
CLUSTER_NODES={}
ACCEPT_LICENSE_AGREEMENT=true
SELECTED_LANGUAGES={"en"}
INSTALL_TYPE="J2EE and Web Cache"
oracle.iappserver.iapptop:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.infrastructure:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.devcorner:OPTIONAL_CONFIG_TOOLS="{}"
oracle.sysman.server:OPTIONAL_CONFIG_TOOLS="{}"
oracle.rdbms.sqlplus.isqlplus:OPTIONAL_CONFIG_TOOLS="{}"
oracle.options.ops.csscommon:OPTIONAL_CONFIG_TOOLS="{}"
oracle.networking.netca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.options.ops.vipca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.iapptop:szl_
PortListSelect={"YES","/private/jdoe/mystaticports.ini"}
oracle.iappserver.instance:szl_InstanceInformation={"j2ee", "password1",
"password1"}
oracle.iappserver.iapptop:szOIDwithSSLStatus="N"
oracle.iappserver.iapptop:startupProcesses=""
n_farmRepository=0
mailServerName=""
b_securityAccess=false
b_reportsStartup=false
b_formsStartup=false
b_configureWireless=false
b_configurePortal=false
b_configurePersonalization=false
b_configureJazn=true
b_configureDisco=false
b_configureCalypso=true
b_clusterSupport=false
b_FileBasedClustering=false
b_FarmRepository=false
oracle.iappserver.iapptop:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
PreReqConfigSelections=""
oracle.iappserver.iapptop:OIDport="389"
oracle.iappserver.iapptop:OIDhost=""
nValidationRepositoryHost=0
oracle.iappserver.iapptop:n_ValidationPreReqConfigSelections=0
nValidationStartProcPortals=0
nValidationStartProcBusiness=0
nValidationStartProcCore=0
oracle.iappserver.iapptop:nValidationPortListSelect=1
oracle.iappserver.iapptop:nValidationOID2=0
oracle.iappserver.iappdialog:nValidationOID2=0
oracle.iappserver.instance:nValidationInstanceInfo=0
oracle.java.jdbc.thin12:PROD_HOME="/local_location/oracle_home/oracle_java_jdbc_
thin12"
oracle.options.ano.ssl.owm:PROD_HOME="/local_location/oracle_home/oracle_options_
ano_ssl_owm"
oracle.networking.netclt:PROD_HOME="/local_location/oracle_
home/oracle.networking.netclt"
oracle.java.javavm.javatools:PROD_HOME="/local_location/oracle_
home/oracle.java.javavm.javatools"
oracle.xml.xsql:PROD_HOME="/local_location/oracle_home/oracle_xml_xsql"
```

```
oracle.options.ano.ssl:PROD_HOME="/local_location/oracle_home/oracle_options_ano_
ssl"
oracle.networking.netmgr:PROD_HOME="/local_location/oracle_
home/oracle.networking.netmgr"
oracle.networking.netca:PROD_HOME="/local_location/oracle_home/oracle_networking_
netca"
oracle.assistants.acf:PROD_HOME="/local_location/oracle_
home/oracle.assistants.acf"
oracle.assistants.emcf:PROD_HOME="/local_location/oracle_
home/oracle.assistants.emcf"
oracle.install.instcommon:PROD_HOME="/local_location/oracle_home/oracle_install_
instcommon"
oracle.rdbms.sqlplus:PROD_HOME="/local_location/oracle_home/oracle.rdbms.sqlplus"
oracle.rsf.net_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_net_rsf"
oracle.rdbms.aqapi:PROD_HOME="/local_location/oracle_home/oracle_rdbms_aqapi"
oracle.rdbms.xml.xsu:PROD_HOME="/local_location/oracle_home/oracle_rdbms_xml_xsu"
oracle.java.jdbc.thin14:PROD_HOME="/local_location/oracle_home/oracle_java_jdbc_
thin14"
oracle.java.jdbc.oci_common:PROD_HOME="/local_location/oracle_home/oracle_java_
jdbc_oci_common"
oracle.rsf.ssl_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_ssl_rsf"
oracle.rsf.nlsrtl_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_nlsrtl_
rsf"
oracle.rsf.nlsrtl_rsf.lbuilder:PROD_HOME="/local_location/oracle_home/oracle_rsf_
nlsrtl_rsf"
oracle.rsf.ssl_rsf.sslrsf_ic:PROD_HOME="/local_location/oracle_
home/oracle.rsf.ssl_rsf.sslrsf_ic"
oracle.xml.classgen.java:PROD_HOME="/local_location/oracle_home/oracle_xml_
classgen_java"
oracle.options.ops.opscf:PROD_HOME="/local_location/oracle_home/"
oracle.java.jdbc.jdbc_common:PROD_HOME="/local_location/oracle_home/oracle_java_
jdbc_jdbc_common"
oracle.rsf.plsql_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_plsql_rsf"
oracle.rsf.precomp_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_precomp_
rsf"
oracle.rsf.slax_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_slax_rsf"
oracle.rsf.agent_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_agent_rsf_
agent_rsf_cmp"
oracle.rsf.clntsh_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_clntsh_
rsf_clntsh_rsf_cmp"
oracle.rsf.rdbms_rsf:PROD_HOME="/local_location/oracle_home/"
oracle.rsf.has_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_has_rsf"
oracle.java.jdbc.thin14.thin14_ic:PROD_HOME="/local_location/oracle_home/oracle_
java_jdbc_thin14"
oracle.rsf.rdbms_rsf.rdbms_rsf_ic:PROD_HOME="/local_location/oracle_home/oracle_
rsf_rdbms_rsf_rdbms_rsf_ic"
oracle.rsf.xdk_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_rdbms_rsf"
oracle.rsf.dbjava_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_dbjava_
rsf"
oracle.rsf.ops_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_net_rsf"
oracle.xml.parser.java:PROD_HOME="/local_location/oracle_
home/oracle.xml.parser.java"
oracle.java.jdbc.oci_common.ocicommon_ic:PROD_HOME="/local_location/oracle_
home/oracle.java.jdbc.oci_common.ocicommon_ic"
oracle.rsf.oracore_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_oracore_
rsf"
silent=true
```

B.5.3.2 Example Response File for OracleAS Infrastructure

The following shows an example of a response file for a **silent** installation of OracleAS Infrastructure as described in Section 6.20, "Installing OracleAS Infrastructure".

Note that if you do not copy the CD-ROMs to the hard drive, the installer will prompt you to switch CD-ROMs during installation. To complete the installation without any prompting, you must copy the contents of the CD-ROMs to the hard drive and specify the `LOCATION_FOR_DISK`*n* parameters.

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME="dba"
FROM_LOCATION="/mount_point/Disk1/stage/products.xml"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
LOCATION_FOR_DISK2="/path/to/disk2/files"
LOCATION_FOR_DISK3="/path/to/disk3/files"
ORACLE_HOME="/local_location/oracle_home"
ORACLE_HOME_NAME="oracle_infrahome_name"
TOPLEVEL_COMPONENT={"oracle.iappserver.infrastructure","10.1.2.0.2"}
SHOW_SPLASH_SCREEN=false
SHOW_WELCOME_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_SUMMARY_PAGE=false
SHOW_INSTALL_PROGRESS_PAGE=false
SHOW_REQUIRED_CONFIG_TOOL_PAGE=false
SHOW_CONFIG_TOOL_PAGE=false
SHOW_RELEASE_NOTES=true
SHOW_ROOTSH_CONFIRMATION=false
SHOW_END_SESSION_PAGE=false
SHOW_EXIT_CONFIRMATION=false
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
DEINSTALL_LIST={"oracle.iappserver.infrastructure","10.1.2.0.2"}
SHOW_DEINSTALL_CONFIRMATION=false
SHOW_DEINSTALL_PROGRESS=true
CLUSTER_NODES={}
ACCEPT_LICENSE_AGREEMENT=true
oracle.iappserver.iapptop:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.infrastructure:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.devcorner:OPTIONAL_CONFIG_TOOLS="{}"
oracle.rdbms.sqlplus.isqlplus:OPTIONAL_CONFIG_TOOLS="{}"
oracle.sysman.server:OPTIONAL_CONFIG_TOOLS="{}"
oracle.networking.netca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.infrastructure:szl_
PortListSelect={"YES","/private/jdoe/mystaticports.ini"}
oracle.iappserver.instance:szl_InstanceInformation={"instancename",
"instancepassword", "instancepassword"}
oracle.iappserver.iappdialog:szOIDwithSSLStatus="N"
oracle.iappserver.infrastructure:startupProcesses=""
oracle.iappserver.infrastructure:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
PreReqConfigSelections=""
oracle.iappserver.iappdialog:OIDport="389"
oracle.iappserver.iappdialog:OIDhost="OIDhostname.us.oracle.com"
nValidationRepositoryHost=0
nValidationRepository=0
oracle.iappserver.infrastructure:n_ValidationPreReqConfigSelections=0
nValidationStartProcPortals=0
nValidationStartProcBusiness=0
nValidationClusterSupport=0
nValidationStartProcCore=0
oracle.iappserver.infrastructure:nValidationPortListSelect=0
```

```
nValidationClusterRepository=0
oracle.iappserver.iappdialog:nValidationOID2=0
oracle.iappserver.infrastructure:nValidationInstanceInfo=0
oracle.iappserver.instance:nValidationInstanceInfo=0
oracle.iappserver.iappdialog:nValidationOID=0
SELECTED_LANGUAGES={"en"}
INSTALL_TYPE="Identity Management and Metadata Repository"
szInstallUpgradeChoice=""
nValidationCompConfigInfraMeta=-1
b_launchOHS=true
b_launchEMCA=false
b_infrastructureUpgrade=false
b_configureSSO=true
b_configureOID=true
b_configureOCA=false
b_configureMETA=true
b_configureHA=false
b_configureDIP=true
b_configureDAS=true
b_configureCentralMon=false
HAhostName="HAhostname.us.oracle.com"
nValidationCompConfigInfraID=0
nValidationCompConfigInfra=2
infra902ORACLE_HOME=""
oracle.options.partitioning:PROD_HOME="/local_location/oracle_
home/oracle.options.partitioning"
oracle.cartridges.spatial:PROD_HOME="/local_location/oracle_
home/oracle.cartridges.spatial"
oracle.options.olap:PROD_HOME="/local_location/oracle_home/olap"
oracle.rdbms:PROD_HOME="/local_location/oracle_home/oracle_rdbms"
oracle.rdbms.xml:PROD_HOME="/local_location/oracle_home/oracle_rdbms_xml"
oracle.sysman.console.db:PROD_HOME="/local_location/oracle_home/oracle_sysman_
console_db"
oracle.java.jdbc.thin12:PROD_HOME="/local_location/oracle_home/oracle_java_jdbc_
thin12"
oracle.isearch.server:PROD_HOME="/local_location/oracle_home/oracle_rsf_ldap_rsf_
cmp"
oracle.cartridges.context:PROD_HOME="/local_location/oracle_
home/oracle.cartridges.context"
oracle.java.javavm:PROD_HOME="/local_location/oracle_home/oracle_java_javavm_cmp"
oracle.utilities.util:PROD_HOME="/local_location/oracle_home/oracle_utilities_
util"
oracle.options.ano.ssl.owm:PROD_HOME="/local_location/oracle_home/oracle_options_
ano_ssl_owm"
oracle.rdbms.csmig:PROD_HOME="/local_location/oracle_home/oracle_rdbms_expimp"
oracle.networking.netsrv:PROD_HOME="/local_location/oracle_
home/oracle.networking.netsrv"
oracle.assistants.dbma:PROD_HOME="/local_location/oracle_
home/oracle.assistants.dbma"
oracle.sysman.repository:PROD_HOME="/local_location/oracle_home/sysman"
oracle.assistants.dbca:PROD_HOME="/local_location/oracle_
home/oracle.assistants.dbca"
oracle.java.javavm.javatools:PROD_HOME="/local_location/oracle_
home/oracle.java.javavm.javatools"
oracle.rdbms.aqapi:PROD_HOME="/local_location/oracle_home/oracle_rdbms_aqapi"
oracle.rdbms.plsql:PROD_HOME="/local_location/oracle_home/oracle_rdbms_plsql"
oracle.rdbms.sqlldr:PROD_HOME="/local_location/oracle_home/oracle_rdbms_sqlldr"
oracle.rdbms.dbv:PROD_HOME="/local_location/oracle_home/oracle_rdbms_dbv"
oracle.rdbms.expimp:PROD_HOME="/local_location/oracle_home/oracle_rdbms_expimp"
oracle.rdbms.oci:PROD_HOME="/local_location/oracle_home/oracle_rdbms_oci"
```

```
oracle.p2k.ott:PROD_HOME="/local_location/oracle_home/oracle.p2k.ott"
oracle.cartridges.locator:PROD_HOME="/local_location/oracle_home/oracle_
cartridges_locator"
oracle.rdbms.hs_odbc:PROD_HOME="/local_location/oracle_home/oracle_rdbms_hs_odbc"
oracle.rdbms.hs_common:PROD_HOME="/local_location/oracle_home/oracle_rdbms_hs_
common"
oracle.rdbms.sqlplus:PROD_HOME="/local_location/oracle_home/oracle.rdbms.sqlplus"
oracle.options.ano.nis:PROD_HOME="/local_location/oracle_home/oracle_options_ano_
nis"
oracle.networking.netclt:PROD_HOME="/local_location/oracle_
home/oracle.networking.netclt"
oracle.rdbms.rman:PROD_HOME="/local_location/oracle_home/oracle_rdbms_rman"
oracle.utilities.util_common:PROD_HOME="/local_location/oracle_home/oracle_
utilities_util_common"
oracle.options.ops.csscommon:PROD_HOME="/local_location/oracle_home/oracle_rsf_
rdbms_rsf"
oracle.networking.netmgr:PROD_HOME="/local_location/oracle_
home/oracle.networking.netmgr"
oracle.networking.netca:PROD_HOME="/local_location/oracle_home/oracle_networking_
netca"
oracle.assistants.acf:PROD_HOME="/local_location/oracle_
home/oracle.assistants.acf"
oracle.assistants.emcf:PROD_HOME="/local_location/oracle_
home/oracle.assistants.emcf"
oracle.install.instcommon:PROD_HOME="/local_location/oracle_home/oracle_install_
instcommon"
oracle.isearch.client:PROD_HOME="/local_location/oracle_home"
oracle.isearch.is_common:PROD_HOME="/local_location/oracle_home"
oracle.options.ano.ssl:PROD_HOME="/local_location/oracle_home/oracle_options_ano_
ssl"
oracle.xml.xsql:PROD_HOME="/local_location/oracle_home/oracle_xml_xsql"
oracle.rsf.net_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_net_rsf"
oracle.rdbms.xml.xsu:PROD_HOME="/local_location/oracle_home/oracle_rdbms_xml_xsu"
oracle.java.jdbc.thin14:PROD_HOME="/local_location/oracle_home/oracle_java_jdbc_
thin14"
oracle.java.jdbc.jdbc_common:PROD_HOME="/local_location/oracle_home/oracle_java_
jdbc_jdbc_common"
oracle.rsf.ssl_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_ssl_rsf"
oracle.rdbms.dbscripts:PROD_HOME="/local_location/oracle_home/oracle_rdbms_
dbscripts"
oracle.rdbms.nid:PROD_HOME="/local_location/oracle_home/oracle_rdbms_nid"
oracle.rsf.oracore_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_oracore_
rsf"
oracle.rsf.nlsrtl_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_nlsrtl_
rsf"
oracle.rsf.plsql_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_plsql_rsf"
oracle.xml.classgen.java:PROD_HOME="/local_location/oracle_home/oracle_xml_
classgen_java"
oracle.p2k.precomp_common:PROD_HOME="/local_location/oracle_
home/oracle.p2k.precomp_common"
oracle.rsf.slax_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_slax_rsf"
oracle.rsf.ssl_rsf.sslrsf_ic:PROD_HOME="/local_location/oracle_
home/oracle.rsf.ssl_rsf.sslrsf_ic"
oracle.rsf.precomp_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_precomp_
rsf"
oracle.rdbms.gateways.plsql:PROD_HOME="/local_location/oracle_home/oracle_rdbms"
oracle.java.javavm.containers:PROD_HOME="/local_location/oracle_home/oracle_java_
j2ee_core"
oracle.rdbms.ovm:PROD_HOME="/local_location/oracle_home/oracle.rdbms.ovm"
oracle.cartridges.ordimg:PROD_HOME="/local_location/oracle_
```

```
home/oracle.cartridges.ordimg"
oracle.cartridges.ordcom:PROD_HOME="/local_location/oracle_
home/oracle.cartridges.ordcom"
oracle.options.intermedia.imcom:PROD_HOME="/local_location/oracle_
home/oracle.options.intermedia.imcom"
oracle.rsf.agent_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_agent_rsf_
agent_rsf_cmp"
oracle.options.intermedia.annotator:PROD_HOME="/local_location/oracle_home/oracle_
prod"
oracle.options.intermedia.imclient.imclisamples:PROD_HOME="/local_location/oracle_
home/oracle.interMedia.imclient"
oracle.options.intermedia.jai:PROD_HOME="/local_location/oracle_
home/oracle.options.intermedia.jai"
oracle.rsf.nlsrtl_rsf.lbuilder:PROD_HOME="/local_location/oracle_home/oracle_rsf_
nlsrtl_rsf"
oracle.rsf.clntsh_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_clntsh_
rsf_clntsh_rsf_cmp"
oracle.java.jdbc.thin14.thin14_ic:PROD_HOME="/local_location/oracle_home/oracle_
java_jdbc_thin14"
oracle.xml.transview:PROD_HOME="/local_location/oracle_home/oracle_xml_transview"
oracle.xml.transx:PROD_HOME="/local_location/oracle_home/oracle_xml_transx"
oracle.rdbms.advrep:PROD_HOME="/local_location/oracle_home/oracle_rdbms_advrep"
oracle.rsf.rdbms_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_rdbms_rsf"
oracle.options.odm:PROD_HOME="/local_location/oracle_home/dmt"
oracle.options.ops.opscf:PROD_HOME="/local_location/oracle_
home/oracle.options.ops.opscf"
oracle.rsf.xdk_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_rdbms_rsf"
oracle.rsf.dbjava_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_dbjava_
rsf"
oracle.options.ano.sns.hybrid:PROD_HOME="/local_location/oracle_home/oracle_
options_ano_sns_hybrid"
oracle.rsf.sqlplus_rsf:PROD_HOME="/local_location/oracle_home/oracle.rsf.sqlplus_
rsf"
oracle.rsf.has_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_has_rsf"
oracle.rsf.ops_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_net_rsf"
oracle.options.olap.cwmlite:PROD_HOME="/local_location/oracle_home"
oracle.options.olap.api:PROD_HOME="/local_location/oracle_home/oracle_options_
olap_api"
oracle.xml.parser.java:PROD_HOME="/local_location/oracle_
home/oracle.xml.parser.java"
oracle.cartridges.context.knowbase:PROD_HOME="/local_location/oracle_home/oracle_
cartridges_context_knowbase"
oracle.rsf.hybrid:PROD_HOME="/local_location/oracle_home/oracle_rsf_hybrid"
oracle.java.jdbc.oci_common:PROD_HOME="/local_location/oracle_home/oracle_java_
jdbc_oci_common"
oracle.java.jdbc.oci_common.ocicommon_ic:PROD_HOME="/local_location/oracle_
home/oracle.java.jdbc.oci_common.ocicommon_ic"
szl_OCARepositoryUserInput={}
szl_LDAP_LoadBalancerInfo={}
szl_HighAvailabilityHost={}
szlDCMClusterName={}
szRegisterMetaStatus=""
s_ssoPort="7777"
s_masterOIDport="389"
s_masterOIDhost="OIDhostname.us.oracle.com"
s_masterOIDSSLPort=""
n_replication=0
n_cluster=0
b_RegisterRepositoryOID_IMMR=false
b_RegisterRepositoryOID=false
```

```
b_HTTPListenSSLMode=true
b_HTTPLBRSSLMode=true
SSOselectStatus=""
SSOport="7777"
SSOhost="SSOhostname.us.oracle.com"
SSLPort=""
SSLOnly="False"
OIDpassword="infra12345"
OIDadminName="cn=orcladmin"
OIDRealm=""
DefaultLocation=""
DBhostPort={"DBhostname.us.oracle.com:1521"}
DBUsername=""
DBServiceName=""
DBSID=""
DBPort=""
DBPassword="infra12345"
DBHostname=""
szIdentityAdminContext=="dc=us,dc=oracle,dc=com"
nValidationSelectOCARepository=0
nValidationDCMClusterName=0
s_HTTPLBRPort=""
s_HTTPLBRHostname=""
n_multiBoxOrVirtualAddressingInstall=0
s_HTTPListenPort=""
nValidationODSPassword=0
nValidationOID_replication=0
nValidationRegisterMeta=0
nValidationOIDlogin_replication=0
nValidationHA=0
nValidationLDAPLoadBalancer=0
nValidationSpecifyRepository=0
silent=true
sl_keylengthInfo={""}
s_dnSelection=""
s_dnOrgval=""
s_dnOUval=""
s_dnCntval=""
s_dnCNval=""
s_dncustom=""
sl_dlgASMCfgSelectableDisks={}
s_superAdminPasswdType="S"
s_dlgStarterDBConfigCreateStarterDB="Create a starter database"
s_dlgASMCfgRedundancyValue="2 (Norm)"
s_dlgASMCfgRedundancySelected="Normal"
s_dlgASMCfgNewDisksSize="0"
s_dlgASMCfgExistingFreeSpace="0"
s_dlgASMCfgDiskGroupName="DATA"
s_dlgASMCfgDiskDiscoveryString=""
s_dlgASMCfgAdditionalSpaceNeeded=" MB"
s_dbRetChar="West European WE8MSWIN1252"
sl_dlgASMDskGrpSelectedGroup={}
s_dlgStarterDBConfigOptionSelected="General Purpose"
s_DataorASMret=""
s_rawDeviceMapFileLocation=""
sl_dlgASMCfgDiskSelections={}
s_dbSid="orcl"
s_globalDBName="orcl.domain.com"
s_mountPoint="/local_location/oradata"
s_silentinstallflag="1"
```

```
n_numentriesSelection=0
n_crypto=0
b_userpwdencryption=true
b_dbinstance_exist=false
s_existingSID=""
s_nameForOPERGrp="dba"
s_nameForDBAGrp="dba"
s_group="dba"
b_createDBRet=true
```

B.5.3.3 Example Response File for Portal and Wireless

The following shows an example of a response file for a **silent** installation of Portal and Wireless as described in Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

Note that if you do not copy the CD-ROMs to the hard drive, the installer will prompt you to switch CD-ROMs during installation. To complete the installation without any prompting, you must copy the contents of the CD-ROMs to the hard drive and specify the LOCATION_FOR_DISK*n* parameters.

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME="dba"
FROM_LOCATION="/mount_point/Disk1/stage/products.xml"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
LOCATION_FOR_DISK2="/path/to/disk2/files"
LOCATION_FOR_DISK3="/path/to/disk3/files"
ORACLE_HOME="/local_location/oracle_home"
ORACLE_HOME_NAME="oracle_home_name"
TOPLEVEL_COMPONENT={"oracle.iappserver.iapptop","10.1.2.0.2"}
SHOW_SPLASH_SCREEN=false
SHOW_WELCOME_PAGE=false
SHOW_CUSTOM_TREE_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_SUMMARY_PAGE=false
SHOW_INSTALL_PROGRESS_PAGE=false
SHOW_REQUIRED_CONFIG_TOOL_PAGE=false
SHOW_CONFIG_TOOL_PAGE=false
SHOW_RELEASE_NOTES=true
SHOW_ROOTSH_CONFIRMATION=false
SHOW_END_SESSION_PAGE=false
SHOW_EXIT_CONFIRMATION=false
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
DEINSTALL_LIST={"oracle.iappserver.iapptop","10.1.2.0.2"}
SHOW_DEINSTALL_CONFIRMATION=false
SHOW_DEINSTALL_PROGRESS=true
CLUSTER_NODES={}
ACCEPT_LICENSE_AGREEMENT=true
SELECTED_LANGUAGES={"en"}
INSTALL_TYPE="Portal and Wireless"
oracle.iappserver.iapptop:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.infrastructure:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.devcorner:OPTIONAL_CONFIG_TOOLS="{}"
oracle.sysman.server:OPTIONAL_CONFIG_TOOLS="{}"
oracle.rdbms.sqlplus.isqlplus:OPTIONAL_CONFIG_TOOLS="{}"
oracle.options.ops.csscommon:OPTIONAL_CONFIG_TOOLS="{}"
oracle.networking.netca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.options.ops.vipca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.iapptop:szl_
RepositoryUserInput={"hostname.domain:1521:orcl:orcl.domain"}
```

```
oracle.iappserver.iapptop:szl_PortListSelect={"NO",""}
oracle.iappserver.instance:szl_InstanceInformation={"instancename",
"instancepassword", "instancepassword"}
szl_ClusterRepository={}
szlSpecifyRepositoryID={}
oracle.iappserver.iapptop:szlSpecifyOIDLogin={"orcladmin", "password", "realm"}
oracle.iappserver.iapptop:szOIDwithSSLStatus="N"
oracle.iappserver.iapptop:startupProcesses=""
n_farmRepository=0
mailServerName=""
b_securityAccess=true
b_reportsStartup=false
b_formsStartup=false
b_configureWireless=false
b_configurePortal=true
b_configurePersonalization=false
b_configureJazn=true
b_configureDisco=false
b_configureCalypso=true
b_clusterSupport=false
b_FileBasedClustering=false
b_FarmRepository=false
oracle.iappserver.iapptop:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
PreReqConfigSelections=""
oracle.iappserver.iapptop:OIDport="389"
oracle.iappserver.iapptop:OIDhost="oidhost.us.oracle.com"
nValidationRepositoryHost=0
oracle.iappserver.iapptop:n_ValidationPreReqConfigSelections=0
nValidationStartProcPortals=2
nValidationStartProcBusiness=0
nValidationStartProcCore=0
oracle.iappserver.iapptop:nValidationPortListSelect=1
oracle.iappserver.iapptop:nValidationOID2=0
oracle.iappserver.iappdialog:nValidationOID2=0
oracle.iappserver.instance:nValidationInstanceInfo=0
oracle.java.jdbc.thin12:PROD_HOME="/local_location/oracle_home/oracle_java_jdbc_
thin12"
oracle.options.ano.ssl.owm:PROD_HOME="/local_location/oracle_home/oracle_options_
ano_ssl_owm"
oracle.utilities.util:PROD_HOME="/local_location/oracle_home/oracle_utilities_
util"
oracle.rdbms.csmig:PROD_HOME="/local_location/oracle_home/oracle_rdbms_expimp"
oracle.rdbms.plsql:PROD_HOME="/local_location/oracle_home/oracle_rdbms_plsql"
oracle.networking.netclt:PROD_HOME="/local_location/oracle_
home/oracle.networking.netctl"
oracle.java.javavm.javatools:PROD_HOME="/local_location/oracle_
home/oracle.java.javavm.javatools"
oracle.rdbms.sqlldr:PROD_HOME="/local_location/oracle_home/oracle_rdbms_sqlldr"
oracle.xml.xsql:PROD_HOME="/local_location/oracle_home/oracle_xml_xsql"
oracle.options.ano.ssl:PROD_HOME="/local_location/oracle_home/oracle_options_ano_
ssl"
oracle.networking.netmgr:PROD_HOME="/local_location/oracle_
home/oracle.networking.netmgr"
oracle.rdbms.expimp:PROD_HOME="/local_location/oracle_home/oracle_rdbms_expimp"
oracle.networking.netca:PROD_HOME="/local_location/oracle_home/oracle_networking_
netca"
oracle.rdbms.rman:PROD_HOME="/local_location/oracle_home/oracle_rdbms_rman"
oracle.utilities.util_common:PROD_HOME="/local_location/oracle_home/oracle_
utilities_util_common"
oracle.assistants.acf:PROD_HOME="/local_location/oracle_
```

```
home/oracle.assistants.acf"
oracle.assistants.emcf:PROD_HOME="/local_location/oracle_
home/oracle.assistants.emcf"
oracle.install.instcommon:PROD_HOME="/local_location/oracle_home/oracle_install_
instcommon"
oracle.rdbms.sqlplus:PROD_HOME="/local_location/oracle_home/oracle.rdbms.sqlplus"
oracle.rsf.net_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_net_rsf"
oracle.rdbms.aqapi:PROD_HOME="/local_location/oracle_home/oracle_rdbms_aqapi"
oracle.rdbms.xml.xsu:PROD_HOME="/local_location/oracle_home/oracle_rdbms_xml_xsu"
oracle.java.jdbc.thin14:PROD_HOME="/local_location/oracle_home/oracle_java_jdbc_
thin14"
oracle.java.jdbc.oci_common:PROD_HOME="/local_location/oracle_home/oracle_java_
jdbc_oci_common"
oracle.rsf.ssl_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_ssl_rsf"
oracle.rdbms.dbscripts:PROD_HOME="/local_location/oracle_home/oracle_rdbms_
dbscripts"
oracle.rdbms.nid:PROD_HOME="/local_location/oracle_home/oracle_rdbms_nid"
oracle.rsf.nlsrtl_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_nlsrtl_
rsf"
oracle.rsf.nlsrtl_rsf.lbuilder:PROD_HOME="/local_location/oracle_home/oracle_rsf_
nlsrtl_rsf"
oracle.rsf.ssl_rsf.sslrsf_ic:PROD_HOME="/local_location/oracle_
home/oracle.rsf.ssl_rsf.sslrsf_ic"
oracle.xml.classgen.java:PROD_HOME="/local_location/oracle_home/oracle_xml_
classgen_java"
oracle.options.ops.opscf:PROD_HOME="/local_location/oracle_
home/oracle.options.ops.opscf"
oracle.java.jdbc.jdbc_common:PROD_HOME="/local_location/oracle_home/oracle_java_
jdbc_jdbc_common"
oracle.rsf.plsql_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_plsql_rsf"
oracle.rsf.precomp_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_precomp_
rsf"
oracle.rsf.slax_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_slax_rsf"
oracle.rsf.agent_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_agent_rsf_
agent_rsf_cmp"
oracle.rsf.clntsh_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_clntsh_
rsf_clntsh_rsf_cmp"
oracle.rsf.rdbms_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_rdbms_rsf"
oracle.rsf.has_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_has_rsf"
oracle.java.jdbc.thin14.thin14_ic:PROD_HOME="/local_location/oracle_home/oracle_
java_jdbc_thin14"
oracle.rsf.rdbms_rsf.rdbms_rsf_ic:PROD_HOME="/local_location/oracle_home/oracle_
rsf_rdbms_rsf_rdbms_rsf_ic"
oracle.rsf.xdk_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_rdbms_rsf"
oracle.rsf.dbjava_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_dbjava_
rsf"
oracle.rsf.ops_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_net_rsf"
oracle.isearch.client:PROD_HOME="/local_location/oracle_home"
oracle.isearch.is_common:PROD_HOME="/local_location/oracle_home"
oracle.xml.parser.java:PROD_HOME="/local_location/oracle_
home/oracle.xml.parser.java"
oracle.java.jdbc.oci_common.ocicommon_ic:PROD_HOME="/local_location/oracle_
home/oracle.java.jdbc.oci_common.ocicommon._ic"
oracle.rsf.oracore_rsf:PROD_HOME="/local_location/oracle_home/oracle_rsf_oracore_
rsf"
silent=true
s_groupid="nobody"
s_group="get_group_error"
```

Note: The OracleAS Infrastructure *ORACLE_HOME*/install/portlist.ini and *ORACLE_HOME*/config/ias.properties files show port assignments.

B.6 Start the Installation

To make the installer use the response file, specify the location of the response file that you want to use as a parameter when starting the installer.

To perform a non-interactive installation:

```
prompt> setenv DISPLAY hostname:0.0
prompt> runInstaller -responseFile absolute_path_and_filename
```

To perform a silent installation, use the -silent parameter:

```
prompt> runInstaller -silent -responseFile absolute_path_and_filename
```

B.7 Post-Installation

The success or failure of the non-interactive and silent installations is logged in the installActions<time_stamp>.log file. Additionally, the silent installation creates the silentInstall<time_stamp>.log file. The log files are created in the oraInventory directory.

The silentInstall<time_stamp>.log file contains the following line if the installation was successful:

```
The installation of OracleAS <Installation Type> was successful.
```

The installActions<time_stamp>.log file contains specific information for each Oracle Application Server installation type.

See Also: Appendix F, "Configuration Assistants"

Note: Application Server Control Configuration Assistant and DCM Repository Backup Assistant success messages appear for first time installation of Oracle Application Server.

Note: If you perform a silent installation with the staticports.ini file for ports less than 1024, the OPMN Configuration Assistant fails, and all the remaining configuration assistants do not run.

After the failure, perform the operations described in Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

You must run the configuration assistants from the command line. The commands for running the configuration assistants are available from the file ORACLE_HOME/bin/configtoolcmds.pl.

B.8 Security Tips for Silent and Non-Interactive Installations

One of the pieces of information in the response file is the installation password. The password information is in clear text.

To minimize security issues regarding the password in the response file, follow these guidelines:

- Set the permissions on the response files so that they are readable only by the operating system user who will be performing the silent or non-interactive installation.
- If possible, remove the response files from the system after the silent or non-interactive installation is completed.

If you are installing the OracleAS Metadata Repository in silent or non-interactive mode, the installer creates these log files:

- `ORACLE_HOME/admin/<ORACLE_SID>/create/<ORACLE_SID>.log`
- `ORACLE_HOME/cfgtoollogs/<ORACLE_SID>.log`

where `<ORACLE_SID>` is the value of your database SID.

These log files contain database password information. If possible, you should remove these files from the system after reviewing their contents. These log files are not required for the operation of OracleAS Metadata Repository.

B.9 Deinstallation

You can perform a silent deinstallation of Oracle Application Server by supplying a silent deinstallation parameter to the response file you used for installation.

Add the following parameter to your installation response file:

```
REMOVE_HOMES={"<ORACLE_HOME to be removed>"}
```

For example:

```
REMOVE_HOME="/local_location/oracle_home"
```

> **Note:** You still need to follow the deinstallation steps described in Appendix E, "Deinstallation and Reinstallation". One of the key steps is to run the deconfig tool before running the silent deinstallation command. The silent deinstallation command only replaces the step where you run the installer interactively to deinstall the instance.

To perform a silent deinstallation, use the `-deinstall` parameter when entering the command:

```
prompt> runInstaller -silent -deinstall -responseFile absolute_path_and_filename
```

C

Default Port Numbers

By default, the installer assigns port numbers to components from a set of default port numbers. This appendix contains a list of these port numbers.

If you want to use a different set of port numbers, you have to create a file called `staticports.ini`, in which you list the port numbers that you want to use. Refer to Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

C.1 Method of Assigning Default Port Numbers

The installer assigns default port numbers to each component using the following method:

1. The installer checks if the default port number is in use. If it is not in use, the installer assigns it to the component.
2. If the default port number is already in use by an Oracle product or by any running application, the installer tries the lowest number in the port number range. It keeps trying the port numbers in the range until it finds one that is available.

C.2 Default Port Numbers

Table C–1 lists the default port numbers for components. The last column, Name in staticports.ini, specifies the component name as it appears in the `staticports.ini` file, which enables you to override the default port numbers. Refer to Section 4.6.3, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

Table C–1 Default Port Numbers and Ranges (Grouped by Component)

Component	Default Port	Port Number Range	Name in staticports.ini
Oracle Process Manager and Notification Server (OPMN)			
Oracle Notification Server Request Port	6003	6003 - 6099	`Oracle Notification Server Request port`
Oracle Notification Server Local Port	6100	6100 - 6199	`Oracle Notification Server Local port`
Oracle Notification Server Remote Port	6200	6200 - 6299	`Oracle Notification Server Remote port`
Oracle Application Server Containers for J2EE (OC4J)			

Table C–1 (Cont.) Default Port Numbers and Ranges (Grouped by Component)

Component	Default Port	Port Number Range	Name in staticports.ini
OC4J AJP	12501	12501 - 12600	Not settable through `staticports.ini`
OC4J RMI	12401	12401 - 12500	Not settable through `staticports.ini`
JMS	12601	12601 - 12700	Not settable through `staticports.ini`
IIOP	13301	13301 - 13400	Not settable through `staticports.ini`
IIOPS1	13401	13401 - 13500	Not settable through `staticports.ini`
IIOPS2	13501	13501 -13600	Not settable through `staticports.ini`
OracleBI Discoverer			
OracleBI Discoverer	--	--	Uses the same port as Oracle HTTP Server.
OracleBI Discoverer OSAgent	16001	16001 - 16020	`Discoverer OSAgent port`
OracleAS Forms Services			
OracleAS Forms Services	Uses the same port as Oracle HTTP Server		
Oracle HTTP Server			
Oracle HTTP Server Listener (OracleAS Web Cache **not** configured)	7777	7777 - 7877	`Oracle HTTP Server Listen port`
Oracle HTTP Server Listener (SSL)	4443	4443 - 4543	`Oracle HTTP Server Listen (SSL) port`
Oracle HTTP Server Listener (non-SSL, OracleAS Web Cache configured)	7778	7777 - 7877	`Oracle HTTP Server port`
Oracle HTTP Server Listener (SSL, OracleAS Web Cache configured)	4444	4443 - 4543	`Oracle HTTP Server SSL port`
Java Object Cache	7000	7000 - 7099	`Java Object Cache port`
DCM Java Object Cache	7100	7100 - 7199	`DCM Java Object Cache port`
DCM Discovery	7100	7100-7199	`DCM Discovery port`
SOAP server	9998	9998 - 9999	Not settable through `staticports.ini`
Port Tunneling	7501	7501 - 7599	Not settable through `staticports.ini`
Oracle HTTP Server Diagnostic port	7200	7200 - 7299	`Oracle HTTP Server Diagnostic port`
OracleAS Portal			
OracleAS Portal	--	--	Uses the same port as Oracle HTTP Server.
OracleAS Single Sign-On			
OracleAS Single Sign-On	--	--	Uses the same port as Oracle HTTP Server.

Table C–1 (Cont.) Default Port Numbers and Ranges (Grouped by Component)

Component	Default Port	Port Number Range	Name in staticports.ini
OracleAS Reports Services			
SQL*Net (for 6*i* backward compatibility only)	14040	14040 - 14049	`Reports Services SQL*Net port`
Discovery Service	14021	14021 - 14030	`Reports Services discoveryService port`
Bridge	14011	14011 - 14020	`Reports Services bridge port`
OracleAS Web Cache			
OracleAS Web Cache - HTTP Listener	7777	7777 - 7877	`Web Cache HTTP Listen port`
OracleAS Web Cache - HTTP Listener (SSL)	8250	8250 - 8350	`Web Cache HTTP Listen (SSL) port`
OracleAS Web Cache Administration	9400	9400 - 9499	`Web Cache Administration port`
OracleAS Web Cache Invalidation	9401	9400 - 9499	`Web Cache Invalidation port`
OracleAS Web Cache Statistics	9402	9400 - 9499	`Web Cache Statistics port`
OracleAS Wireless			
OracleAS Wireless	--	--	Uses the same port as Oracle HTTP Server.
Oracle Enterprise Manager 10*g* Application Server Control			
Application Server Control	1156	1156; 1810 - 1829	`Application Server Control port`
Oracle Management Agent	1157	1157; 1830 - 1849	Not settable through `staticports.ini`
Application Server Control - RMI	1850	1850 - 1869	`Application Server Control RMI port`
Application Server Control - SSL	1810	1810 - 1829	This port number is assigned after installation, when you configure Application Server Control for SSL. Refer to *Oracle Application Server Administrator's Guide* for details.
Enterprise Manager Console HTTP port (orcl)	5500		Not settable through `staticports.ini`
Enterprise Manager Agent port (orcl)	1831		Not settable through `staticports.ini`
Log Loader	44000	44000 - 44099	`Log Loader port`
Oracle Internet Directory			
Oracle Internet Directory	389 (refer to the Note on page 4-28)	13060 - 13129	`Oracle Internet Directory port`

Table C–1 (Cont.) Default Port Numbers and Ranges (Grouped by Component)

Component	Default Port	Port Number Range	Name in staticports.ini
Oracle Internet Directory (SSL)	636 (refer to the Note on page 4-28)	13130 - 13199	`Oracle Internet Directory (SSL) port`
OracleAS Certificate Authority (OCA)			
Server Authentication Virtual Host	6600	6600 - 6619	`Oracle Certificate Authority SSL Server Authentication port`
Mutual Authentication Virtual Host	6601	6600 - 6619	`Oracle Certificate Authority SSL Mutual Authentication port`

D

Ports to Open in Firewalls

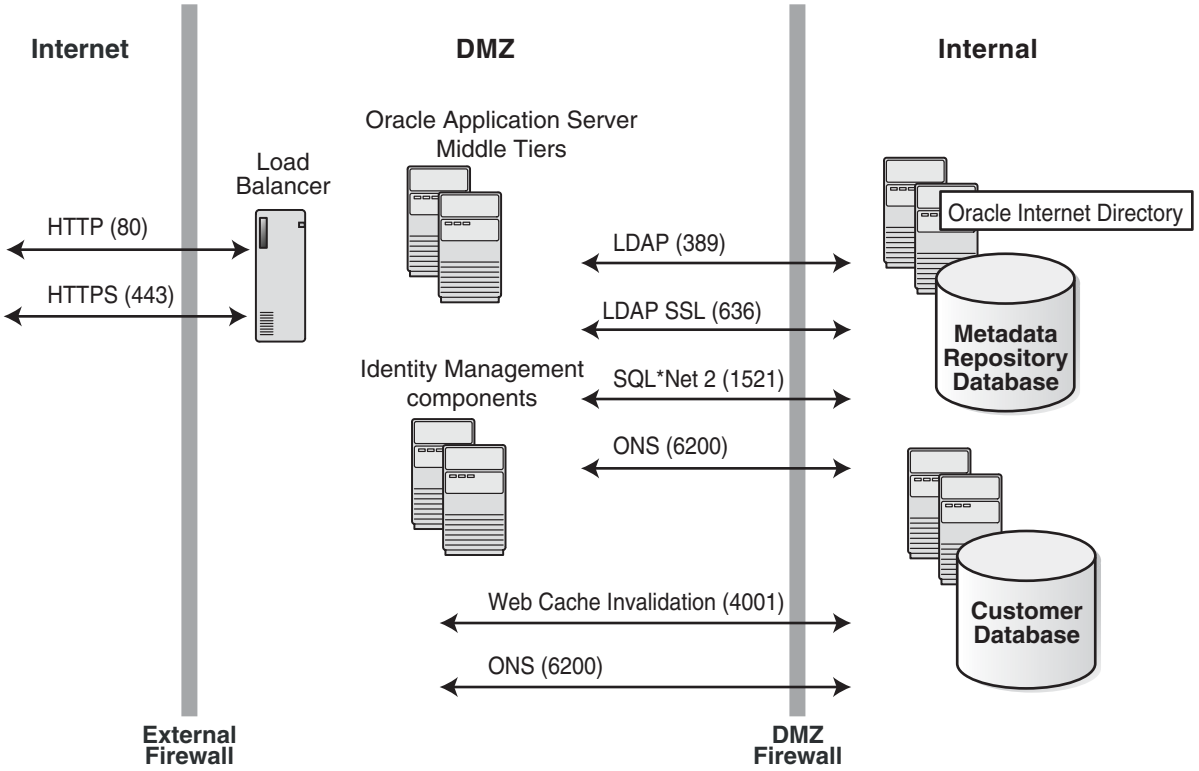
If you plan to install Oracle Application Server behind firewalls, you need to open certain ports in the firewall during installation (and also during runtime).

When you are installing middle-tiers or Oracle Identity Management components, you need access to the Oracle Internet Directory, OracleAS Metadata Repository, Oracle Notification Server, and OracleAS Web Cache (the invalidation port). You need to open ports used by these components in the firewall, as shown in Figure D–1:

- LDAP: port 389
- LDAP SSL: port 636
- SQL*Net 2: port 1521
- Oracle Notification Server: port 6200
- Web Cache Invalidation: port 9401

> **Note:** The port numbers listed here are the default ports for the components. You may have different ports in your environment.

Figure D–1 Ports Needed to Be Opened in the Firewall When Installing Oracle Application Server Behind Firewalls



E

Deinstallation and Reinstallation

This appendix guides you through the deinstallation and reinstallation process for Oracle Application Server.

- Section E.1, "New Tool: Deconfig Tool"
- Section E.2, "Deinstallation Procedure: Overview"
- Section E.3, "Deinstalling OracleAS Cold Failover Cluster Installations"
- Section E.4, "Deinstalling OracleAS Single Sign-On Instances in OracleAS Cluster (Identity Management)"
- Section E.5, "Deinstalling OracleAS Cluster (Identity Management)"
- Section E.6, "Deinstalling Middle Tiers"
- Section E.7, "Deinstalling OracleAS Infrastructure"
- Section E.8, "Deinstalling OracleAS Developer Kits"
- Section E.9, "Harmless Errors in the Log File"
- Section E.10, "Cleaning Up Oracle Application Server Processes"
- Section E.11, "Reinstallation"
- Section E.12, "Troubleshooting"

E.1 New Tool: Deconfig Tool

In this release, there is a new tool called the Deconfig tool that you need to run as part of the deinstallation procedure. This tool removes entries in OracleAS Metadata Repository and Oracle Internet Directory for the Oracle Application Server instance that you want to deinstall.

The Deconfig tool does not remove partner application entries. If you need to remove partner application entries, follow the steps in Section G.3.1, "Obsolete Partner URLs Still Remain on the OracleAS Single Sign-On Administration Screen".

The Deconfig tool does not remove OracleAS Clusters from the farm. If you are deinstalling OracleAS Cluster, you will need to run the dcmctl removecluster command after deinstalling the instances. Refer to Section E.5, "Deinstalling OracleAS Cluster (Identity Management)"for details.

To run the Deconfig tool, run the Perl interpreter on the `ORACLE_HOME/bin/deconfig.pl` script. Use the Perl interpreter provided with Oracle Application Server.

```
prompt> cd $ORACLE_HOME/bin
```

```
prompt> $ORACLE_HOME/perl/bin/perl deconfig.pl [-u oid_user]
           [-w password] [-r realm] [-dbp sys_db_password]
```

If you run it without any parameters, then the tool prompts you for the necessary information.

E.1.1 Parameters

-u *oid_user*

Specify the Oracle Internet Directory user.

You can specify the Oracle Internet Directory user using the user's simple name or the user's distinguished name (DN). For example, the user's simple name can be `jdoe@mycompany.com`, which corresponds to the DN `cn=jdoe,l=us,dc=mycompany,dc=com`.

The Oracle Internet Directory user needs to have privileges for deinstalling the components that are configured in the Oracle Application Server instance that you want to deinstall. These privileges are the same as for installing and configuring the component.

For example, if you are deinstalling an OracleAS Infrastructure instance that is running Oracle Delegated Administration Services and OracleAS Single Sign-On, make sure the user has privileges to configure these components. For a list of components and groups that grant the privileges, refer to Section 8.3, "Groups Required to Configure or Deinstall Components".

If you want to run the tool as the Oracle Internet Directory superuser, then be sure to use `cn=orcladmin`, and not just `orcladmin`. These are two different users. If you want more details about these users, refer to Section 8.1, "Default Users in Oracle Internet Directory".

-w *password*

Specify the password for the Oracle Internet Directory user.

-r *realm*

Specify the realm in which to authenticate the user. This value is required only if your Oracle Internet Directory has more than one realm.

-dbp *sys_db_password*

Specify the password for the SYS user in the database. This is the OracleAS Metadata Repository database used by Oracle Internet Directory.

This value is required only if you are deinstalling an Oracle Identity Management-only instance that has Oracle Internet Directory configured.

If you specify this parameter and it is not needed, the password value is simply not used.

-help or -h

You can also run the Deconfig tool with the `-h` or `-help` parameter to display help:

```
prompt> $ORACLE_HOME/perl/bin/perl deconfig.pl -h
 - or -
prompt> $ORACLE_HOME/perl/bin/perl deconfig.pl -help
```

E.1.2 Log Files Generated by the Deconfig Tool

The Deconfig tool writes its log file to the `ORACLE_HOME/cfgtoollogs/DeconfigureWrapper.log` file.

E.2 Deinstallation Procedure: Overview

Follow these high-level steps to deinstall Oracle Application Server (the details are provided in later sections):

1. Deinstall middle-tier instances first.
   a. Run the Deconfig tool on the instance.
   b. Run the installer and click the **Deinstall Products** button.
   c. Clean up any remaining files.
2. Then deinstall OracleAS Infrastructure instances.
   a. Run the Deconfig tool on the instance.
   b. Run the installer and click the **Deinstall Products** button.
   c. Clean up any remaining files.

Note:

- If you used OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository on an existing database, and you want to remove the OracleAS Metadata Repository, then select the "Remove" option in OracleAS Metadata Repository Creation Assistant. You can also use OracleAS Metadata Repository Creation Assistant to remove the registration from Oracle Internet Directory.
- If you remove an infrastructure instance, then all middle-tier instances that depend on that infrastructure will no longer work.

  If you want to keep the middle-tier instances, you can configure them to use services from another infrastructure. Refer to *Oracle Application Server Administrator's Guide* for details.

Items to Remove or Clean Up

To deinstall Oracle Application Server instances, you have to clean up the items listed in Table E–1. The procedures are described later in this appendix.

Table E–1 Items to Deinstall

Item to Clean Up	Tool to Use
Files from the Oracle home directory	Installer If the installer does not remove all the files, you can remove the remaining files using the `rm` command.
Entries for the deleted instance in the Inventory directory	Installer

Table E–1 (Cont.) Items to Deinstall

Item to Clean Up	Tool to Use
Instance name from Farm page	Installer
Entries for the deleted instance in the `/etc` directory	You have to remove the entries manually. Refer to: ▪ Step 7 on page E-5 if you are deinstalling middle tiers. ▪ Step 9 on page E-8 if you are deinstalling OracleAS Infrastructure. ▪ Step 6 on page E-8 if you are deinstalling OracleAS Developer Kits.
Entries for the deleted instance in Oracle Internet Directory	Deconfig tool

The installer does not permit custom deinstallation of individual components.

E.3 Deinstalling OracleAS Cold Failover Cluster Installations

If you are deinstalling an OracleAS Cold Failover Cluster installation:

1. Stop the clusterware agents or packages that monitor and fail over the environment. Refer to your clusterware documentation for details.
2. Then perform the steps described in this appendix.

E.4 Deinstalling OracleAS Single Sign-On Instances in OracleAS Cluster (Identity Management)

If you have multiple OracleAS Single Sign-On instances installed in a cluster against the same Oracle Internet Directory and you would like to deinstall some of the instances but keep others running, perform the following steps before running the Deconfig tool.

Note that if the OracleAS Single Sign-On instance that you wish to deinstall was the last instance to be installed against the Oracle Internet Directory, you should not perform this step. Instead, perform the steps in Section E.7, "Deinstalling OracleAS Infrastructure".

1. Open the file located at *ORACLE_HOME*`/deconfig/DeconfigWrapper.properties` for editing.
2. Search for the line that begins with "`SSO=`". For example, the line might look like the following:

```
SSO=/OraHome_1/jdk/bin/java -jar /OraHome_1/sso/lib/ossoca.jar deinstall
/OraHome_1 "%OID_USER%" %OID_PASSWORD%
```

3. Comment out the line by adding a pound (#) character at the beginning of the line. In the preceding example, the line would be changed to look like the following:

```
# SSO=/OraHome_1/jdk/bin/java -jar /OraHome_1/sso/lib/ossoca.jar deinstall
/OraHome_1 "%OID_USER%" %OID_PASSWORD%
```

After modifying the file, perform the steps in Section E.7, "Deinstalling OracleAS Infrastructure" to complete the deinstallation.

E.5 Deinstalling OracleAS Cluster (Identity Management)

To deinstall an OracleAS Cluster (Identity Management), perform the following steps.

1. Deinstall all instances that contain OracleAS Single Sign-On except for the last instance installed. Use the steps in Section E.4, "Deinstalling OracleAS Single Sign-On Instances in OracleAS Cluster (Identity Management)" to perform the deinstallation.
2. Deinstall the last OracleAS Single Sign-On instance using the steps in Section E.7, "Deinstalling OracleAS Infrastructure".
3. If you are using a Distributed OracleAS Cluster (Identity Management), deinstall the Oracle Internet Directory instances using the steps in Section E.7, "Deinstalling OracleAS Infrastructure".

E.6 Deinstalling Middle Tiers

To deinstall middle tiers:

1. Log in as the operating system user who installed the instance you want to deinstall.
2. Stop all processes associated with the instance you want to deinstall.

   Refer to *Oracle Application Server Administrator's Guide* for details on how to stop the processes.
3. Run the Deconfig tool.

   ```
   prompt> cd $ORACLE_HOME/bin
   prompt> $ORACLE_HOME/perl/bin/perl deconfig.pl [parameters]
   ```

   Refer to Section E.1, "New Tool: Deconfig Tool" for parameter details.
4. Start the installer.

   ```
   prompt> $ORACLE_HOME/oui/bin/runInstaller
   ```

5. Follow these steps in the installer.
   a. Welcome screen: Click **Deinstall Products**.
   b. Inventory screen: Select the instance you want to deinstall, and click **Remove**.
   c. Confirmation screen: Verify the components selected for deinstallation. Click **Yes** to continue.
   d. Deinstallation Progress screen: Monitor the progress of the deinstallation.
   e. Exit the installer when the deinstallation is complete.
6. Delete any remaining files in the Oracle home directory of the deleted instance.

   ```
   prompt> rm -rf $ORACLE_HOME
   ```

7. Remove the line for the deinstalled middle tier from the `/etc/oratab` file.

   Towards the end of the file, you should see lines that specify the Oracle home directory. Remove the line for the Oracle home that you deinstalled. For example, if your Oracle home is `/private1/j2ee`, the line would look like the following:

   ```
   *:/private1/j2ee:N
   ```

Note that OracleAS Portal entries in Oracle Internet Directory are not removed by the Deconfig tool or the installer.

8. Note that OracleAS Portal entries in Oracle Internet Directory are not removed by the Deconfig tool or the installer.

E.7 Deinstalling OracleAS Infrastructure

This section describes how to deinstall OracleAS Infrastructure instances. It includes the following topics:

- Section E.7.1, "Deinstallation Order"
- Section E.7.2, "Deinstallation Steps"

E.7.1 Deinstallation Order

The OracleAS Infrastructure instance could contain all the OracleAS Infrastructure components, or it could contain only a subset of the components, because you have a distributed OracleAS Infrastructure installation. Here are some common scenarios and their deinstallation order:

If you have an Oracle Identity Management + OracleAS Metadata Repository instance, you have only one instance to deinstall.

If you installed Oracle Identity Management and OracleAS Metadata Repository separately:

1. Deinstall the Oracle Identity Management instance.
2. Deinstall the OracleAS Metadata Repository.

If you have a distributed Oracle Identity Management:

1. Deinstall the instance(s) that are running OracleAS Single Sign-On, Oracle Delegated Administration Services, Oracle Directory Integration and Provisioning, and/or OCA.
2. Deinstall the instance running Oracle Internet Directory.
3. Deinstall the OracleAS Metadata Repository.

E.7.2 Deinstallation Steps

1. Log in as the operating system user who installed the instance you want to deinstall.
2. If OCA is configured on the instance you want to deinstall, run the following commands:

```
prompt> $ORACLE_HOME/oca/bin/ocactl stop
prompt> $ORACLE_HOME/oca/bin/cmdeinst ocaAdminPassword oidAdminPassword
```

Replace *ocaAdminPassword* with the password of the OCA administrator.

Replace *oidAdminPassword* with the password of the Oracle Internet Directory user who installed OCA. The user must belong to the following groups:

- Trusted Application Admins
- iAS Admins
- Repository Owners group for the metadata repository used by OCA

The "ocactl stop" command stops OCA services. The cmdeinst command performs the following actions:

- removes OCA entries from Oracle Internet Directory
- removes data from tables in the oca schema
- removes OCA files created by the OCA Configuration Assistant during installation

3. If Oracle Directory Integration and Provisioning is configured and running in the instance you want to deinstall, stop the Oracle Directory Integration and Provisioning server.

   Ensure that Oracle Internet Directory is running.

   You can stop Oracle Directory Integration and Provisioning by running the following command:

   ```
   prompt> cd $ORACLE_HOME/bin
   prompt> oidctl connect=db_connect_string server=odisrv instance=1 stop
   ```

   db_connect_string is the service name as listed in the file ORACLE_HOME/network/admin/tnsnames.ora.

   For any additional Oracle Directory Integration and Provisioning servers that you started, you must stop them too. Refer to instructions in the *Oracle Identity Management Integration Guide*.

4. If Oracle Internet Directory is configured as a replica, you need to delete this node from the directory replication group (DRG). Refer to Chapter 25, "Oracle Internet Directory Replication Administration", in the *Oracle Internet Directory Administrator's Guide* for steps.

5. Run the Deconfig tool.

   ```
   prompt> cd $ORACLE_HOME/bin
   prompt> $ORACLE_HOME/perl/bin/perl deconfig.pl [parameters]
   ```

   Refer to Section E.1, "New Tool: Deconfig Tool" for parameter details.

   Note: If you are deinstalling an instance that includes the Oracle Internet Directory or OracleAS Single Sign-On components, you need to run the Deconfig tool as the Oracle Internet Directory superuser (cn=orcladmin). If the instance does not include Oracle Internet Directory or OracleAS Single Sign-On, then you need to run the tool as a user with the proper privileges, as shown in Table 8–4.

6. Start the installer.

   ```
   prompt> $ORACLE_HOME/oui/bin/runInstaller
   ```

7. Follow these steps in the installer.

   a. Welcome screen: Click **Deinstall Products**.

   b. Inventory screen: Select the instance you want to deinstall, and click **Remove**.

   c. Confirmation screen: Verify the components selected for deinstallation. Click **Yes** to continue.

   d. Deinstallation Progress screen: Monitor the progress of the deinstallation.

e. Exit the installer when the deinstallation is complete.

8. Delete any remaining files in the deleted instance's Oracle home directory.

```
prompt> rm -rf $ORACLE_HOME
```

9. Remove lines for the deinstalled infrastructure instance from the `/etc/oratab` file.

   Towards the end of the file, you should see lines that specify the Oracle home directory. If you are deinstalling an infrastructure instance that contains a metadata repository, there will be two lines in the file:

   - one line that begins with a `*`
   - one line that begins with the database SID

   You need to remove both lines.

   For example, if the infrastructure instance is installed in `/private1/infra`, and it includes a metadata repository whose SID is `orcl`, the lines would look like the following:

```
orcl:/private1/infra:N
*:/private1/infra:N
```

E.8 Deinstalling OracleAS Developer Kits

1. Log in as the operating system user who installed OracleAS Developer Kits.
2. Stop all processes associated with the instance you want to deinstall.

   Refer to *Oracle Application Server Administrator's Guide* for details on how to stop the processes.

3. Start the installer.

```
prompt> $ORACLE_HOME/oui/bin/runInstaller
```

4. Follow these steps in the installer.
   a. Welcome screen: Click **Deinstall Products**.
   b. Inventory screen: Select the instance you want to deinstall, and click **Remove**.
   c. Confirmation screen: Verify the components selected for deinstallation. Click **Yes** to continue.
   d. Deinstallation Progress screen: Monitor the progress of the deinstallation.
   e. Exit the installer when the deinstallation is complete.
5. Delete any remaining files in the deleted instance's Oracle home directory.

```
prompt> rm -rf $ORACLE_HOME
```

6. Remove the line for the deinstalled OracleAS Developer Kits from the `/etc/oratab` file.

   Towards the end of the file, you should see lines that specify the Oracle home directory. Remove the line for the Oracle home that you deinstalled. For example, if your Oracle home is `/private1/devkit`, the line would look like the following:

```
*:/private1/devkit:N
```

E.9 Harmless Errors in the Log File

If you get the following "unable to delete file" and "unable to find make file" errors in the `oraInstall`*`timestamp`*`.err` file after you deinstall J2EE and Web Cache or Portal and Wireless instances, these are harmless error messages.

```
Ignoring Exception during de-install
oracle.sysman.oii.oiil.OiilDeinstallException:
An error occurred during runtime. oracle.sysman.oii.oiil.OiilDeinstallException:
An error occurred during runtime.
...
Ignoring Exception during de-install
oracle.sysman.oii.oiil.OiilDeinstallException:
Unable to delete file
/home/j2ee/sysman/emd/targets.xml
oracle.sysman.oii.oiil.OiilDeinstallException: Unable to delete file
/home/j2ee/sysman/emd/targets.xml
at instantiateFileEx.deinstallAction(instantiateFileEx.java:935)
...
Ignoring Exception during de-installoracle.sysman.oii.oiil.OiilDeinstallException:
Unable to find make file:
/home/j2ee/network/lib/ins_net_client.mk
oracle.sysman.oii.oiil.OiilDeinstallException: Unable to find make file:
/home/j2ee/network/lib/ins_net_client.mk
at ssmakeux.deinstallAction(ssmakeux.java:246)
...
```

E.10 Cleaning Up Oracle Application Server Processes

If you do not shut down Oracle Application Server processes before starting the installation, then you have to kill the processes because the files for these processes are deleted. To check for processes that are still running, run the `ps` command:

```
prompt> ps -ef
```

To kill a process, use the kill command:

```
prompt> kill -9 process_id
```

You can determine the *process_id* from the `ps` command.

If you need to shut down the `dcmctl` shell process, you can try exiting the shell by typing `exit`.

E.11 Reinstallation

The installer does not allow reinstallation of an Oracle Application Server instance in a directory that already contains an Oracle Application Server instance. To reinstall Oracle Application Server in the same directory, you have to deinstall and then install it.

E.12 Troubleshooting

Refer to Section G.3, "Deinstallation Problems and Solutions" for help with common deinstallation problems.

F

Configuration Assistants

This appendix lists the configuration assistants and the location of their log files.

- Section F.1, "Troubleshooting Configuration Assistants"
- Section F.2, "Description of Oracle Application Server Configuration Assistants"

F.1 Troubleshooting Configuration Assistants

Contents:

- Section F.1.1, "General Tips"
- Section F.1.2, "Configuration Assistant Result Codes"

F.1.1 General Tips

If a configuration assistant fails, try the following steps to correct the problem:

1. Review the log files for the failed configuration assistant. Configuration assistant log files are listed in Section F.2, "Description of Oracle Application Server Configuration Assistants". Try to fix the issue that caused the error.
2. If the failed configuration assistant has any dependencies, then run the dependencies again. You must do this even if the dependency completed successfully.
3. Run the failed configuration assistant again by selecting the configuration assistant in the installer and clicking **Retry**.

   If the configuration assistant fails again after you click **Retry**, remove the `/tmp/EM_CONFIG_INSTALL.lk` file and re-run the configuration assistant again.

   If the configuration assistant fails again after you click **Retry**, remove the component entry from the `ORACLE_HOME/sysman/emd/targets.xml` file. For example, the following lines show the OracleAS Web Cache entry in the `targets.xml` file:

```
<Target TYPE="oracle_webcache" NAME="instance2.domain.com_Web Cache"
DISPLAY_NAME="Web Cache">
   <Property NAME="HTTPPort" VALUE="7777" />
   <Property NAME="logFileName" VALUE="webcache.log" />
   <Property NAME="authrealm" VALUE="Oracle Web Cache Administrator" />
   <Property NAME="AdminPort" VALUE="4000" />
   <Property NAME="HTTPProtocol" VALUE="http" />
   <Property NAME="logFileDir" VALUE="/sysman/log" />
   <Property NAME="HTTPMachine" VALUE="domain.com" />
   <Property NAME="HTTPQuery" VALUE="" />
```

```
   <Property NAME="controlFile" VALUE="/ORACLE_HOME/webcache/bin/webcachectl" /
>
   <Property NAME="MonitorPort" VALUE="4002" />
   <Property NAME="HTTPPath" VALUE="/" />
   <Property NAME="authpwd" VALUE="administrator" />
   <Property NAME="authuser" VALUE="administrator" />
   <CompositeMembership>
      <MemberOf TYPE="oracle_ias" NAME="domain.com" ASSOCIATION="null" />
   </CompositeMembership>
</Target>
```

4. If an optional configuration assistant fails, and it does not have any dependencies, run the remaining configuration assistants. Uncheck the cancelled optional configuration assistant, highlight and check the next listed configuration assistant, and click **Retry**.
5. If configuration assistant failure occurs when running configuration assistant execution commands on the command line, then re-run the configuration assistant execution command again.

   You can use the generated script file named `configtoolcmds.pl` located in the `ORACLE_HOME/bin` directory to run the failed configuration assistant again. The `configtoolcmds.pl` script is generated after you exit the installer. During silent or non-interactive installation, the `configtoolcmds.pl` script is generated immediately after configuration assistant failure.
6. If you see a "Fatal Error. Reinstall" message, find the cause of the problem by analyzing the log files. You cannot recover from a fatal error by correcting the problem and continuing. You must remove the current installation and reinstall Oracle Application Server. The following tasks describe the recovery procedure:
   a. Deinstall the failed installation using the procedure described in Appendix E, "Deinstallation and Reinstallation".
   b. Correct the cause of the fatal error.
   c. Reinstall Oracle Application Server.
   d. If the fatal error reoccurs, then you must remove all Oracle installations from your computer.

F.1.2 Configuration Assistant Result Codes

If a configuration assistant fails, the bottom half of the installation screen displays the error message, and the configuration assistant writes its result code (Table F–1) to the following log file:

oraInventory`/logs/installActions`*timestamp*`.log`

Table F–1 Result Codes for Configuration Assistants

Result Code	Description
`0`	Configuration assistant succeeded
`1`	Configuration assistant failed
`-1`	Configuration assistant cancelled

F.2 Description of Oracle Application Server Configuration Assistants

Table F–2 lists the Oracle Application Server configuration assistants in alphabetical order. Different installations use different configuration assistants depending on installation type and configuration options you selected.

Note that the following paths use "/" as the directory delimiter. You might need to change it for your system.

Table F–2 Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
ADF Configuration Assistant	Integrates Oracle Application Development Framework Runtime Libraries with Oracle Enterprise Manager 10*g* Application Server Control. This configuration assistant requires the `ORACLE_HOME/jlib/emConfigInstall.jar` file.	`ORACLE_HOME/oraInventory/logs/installActions`*`timestamp`*`.log`
Application Server Control Configuration Assistant	Starts the Oracle Management Agent and the Application Server Control to deploy applications through the Oracle Enterprise Manager 10*g* Application Server Control.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`
Database Configuration Assistant	Configures the OracleAS Metadata Repository for OracleAS Infrastructure.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`
Database Migration Assistant	Migrates an older version of the infrastructure database to the current version of the infrastructure database. Before running this migration assistant, make sure the database is up and running.	`ORACLE_HOME/assistants/dbma/logs`
Database-managed OracleAS Cluster Assistant	Enables cluster configuration for selected databases.	`ORACLE_HOME/config/infratool_dcm_repository.log` `ORACLE_HOME/cfgtoollogs/infratool_dcm_repository.log`
DCM Repository Backup Assistant	Enables you to back up your DCM repository.	`ORACLE_HOME/dcm/logs`
Delegated Administration Service Configuration Assistant	Sets up the Oracle Delegated Administration Services URL in Oracle Internet Directory and adds the necessary access control privileges to the DAS entity. Before running this configuration assistant, make sure the Infrastructure Instance Configuration Assistant was run successfully.	`ORACLE_HOME/cfgtoollogs/dasca.log`
Directory Integration Platform Configuration Assistant	Registers and starts the directory integration server when configured with Oracle Internet Directory. Before running this configuration assistant, make sure Oracle Internet Directory is properly configured.	`ORACLE_HOME/cfgtoollogs/dipca.log`

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location

Discoverer Configuration Assistant	Performs the following tasks:
	■ reads the contents of the `discoconfig5.properties` file
	■ adds entries to the `targets.xml` file
	■ adds a provider with a few parameters
	■ adds an entry to `opmn.xml`
	■ reloads OPMN
	■ registers the Discoverer session
		`ORACLE_HOME/oraInventory/logs/installActions`*`timestamp`*`.log`
		
		`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`

File-Based Farm Repository Configuration Assistant	Configures a file-based repository for Oracle Application Server components.	`ORACLE_HOME/config/infratool_filebased_repository.log`
		
		`ORACLE_HOME/cfgtoollogs/infratool_filebased_repository.log`

Forms Configuration Assistant	Configures the OracleAS Forms Services server and integrates OracleAS Forms Services with Oracle Enterprise Manager 10*g* Application Server Control. It adds an entry to `targets.xml` file. Before running this configuration assistant, make sure that OracleAS Infrastructure is up and running.	`ORACLE_HOME/forms90/config/formsConfig.log`

HTTP Server Configuration Assistant	Configures Oracle HTTP Server, registers it with Oracle Enterprise Manager 10*g* Application Server Control, and adds an entry to the `ORACLE_HOME/sysman/emd/targets.xml` file.	`ORACLE_HOME/Apache/Apache/logs`
		
		`ORACLE_HOME/Apache/Apache/httpd.log`
		
		`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`

Infrastructure Database Registration Assistant	Registers the OracleAS Metadata Repository with Oracle Internet Directory.	`ORACLE_HOME/cfgtoollogs/infratool_ldaporacfg.log`

Infrastructure Instance Configuration Assistant	Updates the `ORACLE_HOME/config/ias.properties` file, registers the instance with Oracle Internet Directory, and creates the `ldap.ora` file with Oracle Internet Directory credentials in the `ORACLE_HOME/network/admin` file.
	Before running this configuration assistant, check that:
	■ the LD_LIBRARY_PATH environment variable includes `ORACLE_HOME/lib32` and `ORACLE_HOME/network/lib`
	■ the LD_LIBRARY_PATH_64 environment variable includes `ORACLE_HOME/lib`
	■ the PATH environment variable includes `ORACLE_HOME/lib` and `ORACLE_HOME/network/lib`
		`ORACLE_HOME/config/infratool_instance_jazn.log`
		
		`ORACLE_HOME/cfgtoollogs/infratool_instance_jazn.log`

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
Infrastructure mod_osso Configuration Assistant.	Registers mod_osso, plugs mod_osso into Oracle HTTP Server, and provides integration with OracleAS Single Sign-On to authenticate users. The registration enables Oracle HTTP Server installed with OracleAS Infrastructure to act as a partner application to OracleAS Single Sign-On. Applications that run under Oracle HTTP Server can register and protect their URL with mod_osso. When the URL is requested, mod_osso authenticates the user with OracleAS Single Sign-On to allow access to the URL.	ORACLE_HOME/config/infratool_mod_osso.log ORACLE_HOME/cfgtoollogs/infratool_mod_osso.log
Infrastructure Schema Configuration Assistant	Registers the Infrastructure schemas with Oracle Internet Directory. Before running this configuration assistant, check that: ■ the LD_LIBRARY_PATH environment variable includes ORACLE_HOME/lib32 and ORACLE_HOME/network/lib ■ the LD_LIBRARY_PATH_64 environment variable includes ORACLE_HOME/lib ■ the PATH environment variable includes ORACLE_HOME/lib and ORACLE_HOME/network/lib ■ the Internet Directory Configuration Assistant and the Database Configuration Assistant were run successfully	ORACLE_HOME/config/schemaload.log ORACLE_HOME/cfgtoollogs/schemaload.log
Infrastructure Upgrade Instance Configuration Assistant	Removes ACL entries on the SSO schema. Before running this configuration assistant, check that: ■ the LD_LIBRARY_PATH environment variable includes ORACLE_HOME/lib32 and ORACLE_HOME/network/lib ■ the LD_LIBRARY_PATH_64 environment variable includes ORACLE_HOME/lib	ORACLE_HOME/config/infratool_infra_upgrade.log
Internet Directory Configuration Assistant	Starts up Oracle Internet Directory, loads the LDAP schemas, and sets up the Oracle Identity Management realm. Before running this configuration assistant, check that the database was created successfully, the listener is up and running, and the tnsnames.ora file is configured.	ORACLE_HOME/cfgtoollogs/oidca.log
Java Security Configuration Assistant	Changes the default password, and sets or reassigns new passwords for JAAS security.	ORACLE_HOME/cfgtoollogs/jaznca.log
OC4J Configuration Assistant	Integrates OC4J with Application Server Control. It performs the following steps: ■ Add entries to the targets.xml file. ■ Add entries to the iasadmin.properties file. This configuration assistant requires the deploy.ini file.	ORACLE_HOME/cfgtoollogs/configtools*timestamp*.log

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
OC4J Instance Configuration Assistant	Configures OC4J instances for deployed Oracle Application Server applications.	ORACLE_HOME/cfgtoollogs/configtools*timestamp*.log
OPMN Configuration Assistant	Starts OPMN and OPMN-managed processes.	ORACLE_HOME/cfgtoollogs/configtools*timestamp*.log ORACLE_HOME/cfgtoollogs/ipm.log ORACLE_HOME/cfgtoollogs/ons.log
OPMN Configuration Assistant - start DAS instance	Starts Oracle Delegated Administration Services instance through OPMN.	ORACLE_HOME/cfgtoollogs/configtools*timestamp*.log ORACLE_HOME/cfgtoollogs/ipm.log ORACLE_HOME/cfgtoollogs/ons.log
OPMN Configuration Assistant - start OCA	Starts OCA through OPMN.	ORACLE_HOME/cfgtoollogs/configtools*timestamp*.log ORACLE_HOME/cfgtoollogs/ipm.log ORACLE_HOME/cfgtoollogs/ons.log
OPMN Configuration Assistant - start Oracle HTTP Server	Starts Oracle HTTP Server through OPMN.	ORACLE_HOME/cfgtoollogs/configtools*timestamp*.log ORACLE_HOME/cfgtoollogs/HTTP_Server~1
OCA Configuration Assistant	Configures a self-signed certificate authority, integrated with OracleAS Single Sign-On for authentication. Before running this configuration assistant, check that Oracle Internet Directory, OracleAS Metadata Repository, OracleAS Single Sign-On, and the Repository API are configured.	ORACLE_HOME/cfgtoollogs/oca_install.log
OracleAS File-Based Farm Repository Configuration Assistant	Configures a file-based farm repository.	ORACLE_HOME/config/infratool_filebased_repository.log ORACLE_HOME/cfgtoollogs/infratool_filebased_repository.log
OracleAS Instance Configuration Assistant	Adds an entry for the instance to the ORACLE_HOME/config/target2add.xml file.	ORACLE_HOME/cfgtoollogs/configtools*timestamp*.log
OracleAS Randomize Password Configuration Assistant	Changes the default password of all schemas.	None

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
Oracle mod_osso Configuration Assistant	Registers mod_osso during installation, plugs mod_osso into Oracle HTTP Server, and provides integration with OracleAS Single Sign-On to authenticate users. The registration enables Oracle HTTP Server installed with the Oracle Application Server middle tier to act as a partner application to OracleAS Single Sign-On. Applications running under Oracle HTTP Server can register and protect their URL with mod_osso. When the URL is requested, mod_osso authenticates the user with OracleAS Single Sign-On to allow access to the URL.	`ORACLE_HOME/config/j2ee_mod_osso.log` `ORACLE_HOME/cfgtoollogs/j2ee_mod_osso.log`
Oracle Net Configuration Assistant	Configures the database listener and the middle tiers to use LDAP naming by default.	`ORACLE_HOME/cfgtoollogs/installActions`*`timestamp`*`.log`
Personalization Configuration Assistant	Configures OracleAS Personalization.	`ORACLE_HOME/oraInventory/logs/installActions`*`timestamp`*`.log`
Portal Configuration Assistant	Configures OracleAS Portal. Before running this configuration assistant, check that the OracleAS Infrastructure is up and running.	`ORACLE_HOME/cfgtoollogs/install.log`
Register DCM Plug-Ins With Oracle Enterprise Manager 10*g* Configuration Assistant	Registers DCM plug-ins with Oracle Enterprise Manager 10*g*.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log` `ORACLE_HOME/dcm/logs/dcmctl_logs`
Replication Configuration Assistant	For ASR replica installations, it writes the new Oracle Internet Directory metadata to the master Oracle Internet Directory. For LDAP replica installations, it configures LDAP-based replication between the master Oracle Internet Directory and the new Oracle Internet Directory replica with default configuration. It then starts the Oracle Internet Directory replication server and helps configure Oracle Internet Directory replication. Before running this configuration assistant, check that the Oracle Internet Directory servers for the master and the new replica are up and running.	`ORACLE_HOME/ldap/log/remtool.log`
Reports Configuration Assistant	Configures the OracleAS Reports Services server and integrates OracleAS Reports Services with Oracle Enterprise Manager 10*g* Application Server Control. Before running this configuration assistant, check that OracleAS Infrastructure is up and running.	`ORACLE_HOME/cfgtoollogs/reportsConfig.log`
Single Sign-On Configuration Assistant	Configures OracleAS Single Sign-On. Before running this configuration assistant, check that Oracle Internet Directory, OracleAS Metadata Repository, and the Repository API are configured.	`ORACLE_HOME/sso/log/ssoca.log` `ORACLE_HOME/sso/log/ssoreg.log`

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
Ultra Search Configuration Assistant	Performs the following tasks: ■ Deploys and configures Oracle Ultra Search within the Oracle Application Server middle tier. ■ Creates Oracle Ultra Search back-end application entities and Oracle Ultra Search administration privilege groups. ■ Creates application entities for the Oracle Ultra Search middle tier. ■ Upgrades and cleans up Oracle Ultra Search metadata in the OracleAS Metadata Repository.	`ORACLE_HOME/cfgtoollogs/ultrasearch_config.log`
Unlock Metadata Repository Schemas Configuration Assistant	Unlocks the schemas in the OracleAS Metadata Repository. This configuration assistant is run for Oracle Identity Management installations.	`ORACLE_HOME/config/infratool_unlock_schema.log`
Use Infrastructure Configuration Assistant	Updates the `ORACLE_HOME/config/ias.properties` file, registers the instance with Oracle Internet Directory, and creates the `ldap.ora` file with Oracle Internet Directory credentials in the `ORACLE_HOME/network/admin` directory. Before running this configuration assistant, check that the PATH environment variable includes the `ORACLE_HOME/lib` and ORACLE_HOME directories.	`ORACLE_HOME/config/j2ee_instance_jazn.log` `ORACLE_HOME/cfgtoollogs/j2ee_instance_jazn.log`
Use Metadata Repository Configuration Assistant	Configures OracleAS Metadata Repository for the Oracle Application Server middle tier. This includes the ability to expand J2EE and Web Cache middle tiers to a larger installation type. Before running this configuration assistant, check that: ■ the LD_LIBRARY_PATH environment variable includes `ORACLE_HOME/lib32` and `ORACLE_HOME/network/lib` ■ the LD_LIBRARY_PATH_64 environment variable includes `ORACLE_HOME/lib`	`ORACLE_HOME/config/infratool_midtier_upgrade.log`
Web Cache Configuration Assistant	Configures OracleAS Web Cache and registers it with Oracle Enterprise Manager 10*g* Application Server Control.	`ORACLE_HOME/cfgtoollogs/configtools`*timestamp*`.log`
Wireless Configuration Assistant	Configures OracleAS Wireless.	`ORACLE_HOME/wireless/logs/wireless_CA.out` `ORACLE_HOME/cfgtoollogs/wireless_CA.out`
OracleAS Wireless SDK Configuration Assistant	Configures the Wireless Development Kit.	`ORACLE_HOME/wireless/logs/wdk_ca.out` `ORACLE_HOME/cfgtoollogs/wdk_ca.out`

G

Troubleshooting

This appendix describes solutions to common problems that you might encounter when installing Oracle Application Server. It contains the following sections:

- Section G.1, "General Troubleshooting Tips"
- Section G.2, "Installation Problems and Solutions"
- Section G.3, "Deinstallation Problems and Solutions"
- Section G.4, "Need More Help?"

G.1 General Troubleshooting Tips

If you encounter an error during installation:

- Read the *Oracle Application Server Release Notes* for the latest updates. The release notes are available with the platform-specific documentation. The most current version of the release notes is available on Oracle Technology Network:

  `http://www.oracle.com/technology/documentation`

- Verify that your computer meets the requirements specified in Chapter 4, "Requirements".
- If you are installing a middle tier, check that the OracleAS Infrastructure with which you want to associate the middle tier is running during installation.
- If you entered incorrect information on one of the installation screens, return to that screen by clicking **Back** until you see the screen.
- If a configuration assistant failed, check the log file for that configuration assistant. Section F.2, "Description of Oracle Application Server Configuration Assistants" lists the configuration assistants and the location of their log files. If you do not see log files from some configuration assistants in the `ORACLE_HOME/cfgtoollogs` directory, exit the installer. This causes the installer to copy the log files to that directory.
- If an error occurred while the installer is copying or linking files:

  1. Note the error and review the installation log files.
  2. Remove the failed installation by following the steps in Appendix E, "Deinstallation and Reinstallation".
  3. Correct the issue that caused the error.
  4. Restart the installation.

G.2 Installation Problems and Solutions

This section describes common installation problems and solutions:

- Section G.2.1, "Location of Log Files"
- Section G.2.2, "Message About Installing in a Non-Empty Directory"
- Section G.2.3, "Installer Disappears After Running the Preinstallation Checks"
- Section G.2.4, "Unable to Clean Up a Failed Installation"
- Section G.2.5, "Forgot the Password for the cn=orcladmin Account"
- Section G.2.6, "cn=orcladmin Account Becomes Locked"
- Section G.2.7, "User Interface Does Not Display in the Desired Language, or Does Not Display Properly"
- Section G.2.8, "Installer Does Not Display Correct Database Name for OracleAS Metadata Repository"
- Section G.2.9, "Configuration Assistant Failures - General"
- Section G.2.10, "OracleAS Randomize Password Configuration Assistant Failures"
- Section G.2.11, "Database Configuration Assistant (DBCA) Failures"
- Section G.2.12, "Harmless Error Message from Database Configuration Assistant (DBCA)"
- Section G.2.13, "OPMN Configuration Assistant - Start HTTP Server Failures"
- Section G.2.14, "OPMN Configuration Assistant - Start DAS Instance Failures"
- Section G.2.15, "OPMN Configuration Assistant - Start OCA Failures"
- Section G.2.16, "Re-running chgtocfmt Does Not Work"
- Section G.2.17, "WARNING: DCM service may not be available at this time"

G.2.1 Location of Log Files

There are two sets of log files:

- The installer writes the following log files:
  - `oraInventory_location/logs/installActions`*`timestamp`*`.log`
  - `oraInventory_location/logs/oraInstall`*`timestamp`*`.err`
  - `oraInventory_location/logs/oraInstall`*`timestamp`*`.out`
  - `Oracle_Home/install/make.log`
- The configuration assistants write log files in the `ORACLE_HOME/cfgtoollogs` directory.

  Note that if you want to access the log files created by the configuration assistants, you need to exit the installer first. The log files are inaccessible if the installer is still in use.

G.2.2 Message About Installing in a Non-Empty Directory

Problem

The installer displays a message that you are installing into a non-empty directory.

Solution

If you started an installation and went beyond the Specify File Locations screen, but did not complete the installation, the installer has already created the Oracle home directory that you specified. If you later try to install again in the same directory, which contains some files created by the installer, the installer gives a warning that the directory is not empty.

Steps to take:

1. In the warning dialog, click **No** to return to the Specify File Locations screen.
2. In the Specify File Locations screen, click **Installed Products**. This displays the Inventory screen.

   If your Oracle home is listed in the Inventory screen, then you have to deinstall the Oracle home. Refer to Appendix E, "Deinstallation and Reinstallation" for details.

   If your Oracle home is not listed in the Inventory screen, then you can just delete the files from the Oracle home and continue with the installation.

G.2.3 Installer Disappears After Running the Preinstallation Checks

Problem

The installer disappears after running pre-installation checks

Solution

The directory that is the mount point of the CD-ROM or DVD was mounted with incorrect permissions, and this caused the `pwd` command to not work correctly. When you run `pwd`, it returns "cannot determine current directory".

To fix:

1. Unmount the CD-ROM.
2. Change permissions of the mount directory to 755.
3. Remount the CD-ROM.

The installer should now run correctly.

G.2.4 Unable to Clean Up a Failed Installation

If your installation was not successful, you have to deinstall it first before you can install Oracle Application Server again. Refer to Appendix E, "Deinstallation and Reinstallation" for instructions.

G.2.5 Forgot the Password for the cn=orcladmin Account

Problem

You forgot the password for the cn=orcladmin account.

Solution

You can reset the password in the database. The DSE root attribute name is `orclsupassword`.

Note that after a certain number of failed attempts to connect, the cn=orcladmin account becomes locked. In this case, you have to unlock the account. Refer to the

section, Section G.2.6, "cn=orcladmin Account Becomes Locked", for instructions on how to unlock the account.

G.2.6 cn=orcladmin Account Becomes Locked

Problem

The cn=orcladmin account becomes locked after ten failed attempts to connect. This is controlled by the password policy. Ten failed attempts is the default value.

Solution

If you know the cn=orcladmin password, you can unlock the account by running the following command:

```
prompt> ORACLE_HOME/bin/oidpasswd connect=dbsid unlock_su_acct=true
```

where *dbsid* is the SID for the database. For example:

```
prompt> ORACLE_HOME/bin/oidpasswd connect=orcl unlock_su_acct=true
OID DB user password: enter_ODS_password
OID superuser account unlocked successfully.
```

The command prompts for the password of the ODS schema. By default, the ODS password is the same as for the cn=orcladmin and ias_admin accounts, which you entered during installation.

To change the password policy, refer to *Oracle Internet Directory Administrator's Guide*.

G.2.7 User Interface Does Not Display in the Desired Language, or Does Not Display Properly

Problem

Messages do not appear in the desired language, or messages are not displayed correctly

Solution

Currently, Oracle Application Server does not support adding or removing languages after installation.

If you are serving non-English content, be sure you add all the languages that you need during installation. To add languages during installation, click the **Product Languages** button in the "Select a Product to Install" screen. To see which languages are installed by default, refer to Section 5.8, "Installing Additional Languages".

If you are serving non-English content and forgot to click the Product Languages in the installation, the user interface might not display properly because the required fonts were not installed. You can fix this by installing the fonts from the "OracleAS Metadata Repository Upgrade Assistant and Utilities" CD-ROM or from the Oracle Application Server DVD.

1. Insert and mount the "OracleAS Metadata Repository Upgrade Assistant and Utilities" CD-ROM or the Oracle Application Server DVD.
2. CD-ROM: Copy the contents of the `utilities/fonts` directory on the CD-ROM to the `ORACLE_HOME/jdk/jre/lib/fonts` directory.

   DVD: Copy the contents of the `repca_utilities/utilities/fonts` directory on the DVD to the `ORACLE_HOME/jdk/jre/lib/fonts` directory.

G.2.8 Installer Does Not Display Correct Database Name for OracleAS Metadata Repository

Problem

During middle-tier installation, in the Select OracleAS Metadata Repository screen, which is the screen where you select the OracleAS Metadata Repository that you want to use for the middle tier, the installer does not display correctly the names of the available OracleAS Metadata Repository databases.

Solution

Check the log file *oraInventory*`/logs/installActions`*timestamp*`.log`. If you see the following lines:

```
*** Select OracleAS Metadata Repository Page***
Error:*** Alert: Error validating repository on multiple hosts and ports.
A database hostname or port is missing.
```

then it means that your OracleAS Metadata Repository database name contains `PORT` or `HOST` in uppercase characters. To fix the problem, change the name of the database so that it does not contain `PORT` or `HOST` in uppercase characters.

G.2.9 Configuration Assistant Failures - General

This section describes general tips for troubleshooting configuration assistant failures. Refer to the next sections for specific configuration assistant failures.

See Also: Appendix F, "Configuration Assistants"

Problem

Configuration assistant failed

Solution

Configuration assistants fail from a variety of causes. Some things you can check are:

- Check that the listener, database, and Oracle Internet Directory associated with the OracleAS Infrastructure are up and running. If not, start them up and click the **Retry** button to rerun the configuration assistant that failed.
- Check the log files for the failed configuration assistant to determine the problem. The log files are located in the `ORACLE_HOME/cfgtoollogs` directory.

  Fix the problem indicated in the log file, and click **Retry** to rerun the failed configuration assistant.

G.2.10 OracleAS Randomize Password Configuration Assistant Failures

Before rerunning OracleAS Randomize Password Configuration Assistant, you need to perform these steps:

1. Start Oracle Directory Manager.
2. Enter the Oracle Internet Directory hostname, port, user name, and password.
3. Expand **Entry Management** > **cn=OracleContext** > **cn=Products** > **cn=IAS** > **cn=IAS Infrastructure Databases**.
4. Select **orclreferencename=***your_globaldb_name*.

5. For each schema under the *your_globaldb_name* tree, there is an `orclreferencename` entry. For the `orclreferencename` entry:
   - Change the value of the `orclpassword` attribute to the schema name. For example, if `wireless` is the schema name, change the `orclpassword` attribute value to `wireless`.
   - Change `orclflexattribute1` to **false**.

   Click **Apply**.

   Perform these steps for all the schemas except `ODS` and `OEM_REPOSITORY`.
6. Using SQL*Plus, log in to the database where the OracleAS Randomize Password Configuration Assistant failure is occurring, and run the following script.

   ```
   prompt> sqlplus "sys/password as sysdba"
   SQL> @ORACLE_HOME/assistants/dbca/admin/unlock.sql
   ```

   password specifies the password for the SYS user.
7. Rerun the OracleAS Randomize Password Configuration Assistant.

G.2.11 Database Configuration Assistant (DBCA) Failures

Problem

DBCA fails with the following error:

```
Open wallet failedoracle.net.config.ServiceAliasException
at oracle.net.config.ServiceAlias.<init>(Compiled Code)
at oracle.net.config.Service.<init>(Compiled Code)
at oracle.net.config.DatabaseService.<init>(Compiled Code)
at oracle.sysman.assistants.util.NetworkUtils.registerDBWithDirSrvc(NetworkUtils.j
ava:1137)
at oracle.sysman.assistants.dbca.backend.DirServiceStep.executePreReqImpl(Compiled
Code)
at oracle.sysman.assistants.dbca.backend.PrerequisiteStep.executeImpl(Prerequisite
Step.java:149)
at oracle.sysman.assistants.dbca.backend.Step.execute(Compiled Code)
at oracle.sysman.assistants.dbca.backend.PostDBCreationStep.executeImpl(Compiled
Code)
at oracle.sysman.assistants.dbca.backend.Step.execute(Compiled Code)
at oracle.sysman.assistants.dbca.backend.Host$ModeRunner.run(Compiled Code)
at java.lang.Thread.run(Thread.java:466)
ERROR :oracle.sysman.assistants.util.NetAPIException
```

Solution

This error occurs if the `TNS_ADMIN` environment variable is set. The `TNS_ADMIN` environment variable should not be set (refer to Section 4.9.6, "TNS_ADMIN"). If it is set, unset it and rerun DBCA by clicking the **Retry** button in the Configuration Assistants screen.

G.2.12 Harmless Error Message from Database Configuration Assistant (DBCA)

If you see the following "error copying OC4J config files" message in your log file, the message is harmless and can be ignored.

```
Nov 25, 2004 9:07:30 PM oracle.sysman.emcp.EMConfig updateReposVars
INFO: Updating file /ASInstalls/ASInfra/sysman/emdrep/config/repository.variables
```

```
...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig addPortEntries
INFO: Updating file /ASInstalls/ASInfra/install/portlist.ini ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateEmdProps
INFO: Updating file /ASInstalls/ASInfra/sysman/config/emd.properties ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateConfigFiles
INFO: targets.xml file is updated successfully
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateEmomsProps
INFO: Updating file
/ASInstalls/ASInfra/sysman/config/emoms.properties ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateConfigFiles
INFO: emoms.properties file is updated successfully
Nov 25, 2004 9:07:40 PM oracle.sysman.emcp.EMConfig copyOC4JDir
WARNING: Error copying OC4J config files from
/ASInstalls/ASInfra/oc4j/j2ee/OC4J_DBConsole to
/ASInstalls/ASInfra/oc4j/j2ee/OC4J_DBConsole_hostname.domain_portaldb
Nov 25, 2004 9:07:40 PM oracle.sysman.emcp.EMConfig startOMS
INFO: Starting the DBConsole ...
Nov 25, 2004 9:08:26 PM oracle.sysman.emcp.EMConfig perform
INFO: DBConsole is started successfully
```

G.2.13 OPMN Configuration Assistant - Start HTTP Server Failures

Problem

The OPMN Configuration Assistant - Start HTTP Server fails when you re-run it.

Solution

The problem is that Oracle HTTP Server is already running. Before re-running the configuration assistant, stop Oracle HTTP Server with the following command:

```
prompt> $ORACLE_HOME/opmn/bin/opmnctl stopproc ias-component=HTTP_Server
```

Then re-run the OPMN Configuration Assistant - Start HTTP Server.

G.2.14 OPMN Configuration Assistant - Start DAS Instance Failures

Problem

The OPMN Configuration Assistant - Start DAS Instance fails when you re-run it.

Solution

The problem is that the Oracle Delegated Administration Services instance is already running. Before re-running the configuration assistant, stop the Oracle Delegated Administration Services instance with the following command:

```
prompt> $ORACLE_HOME/opmn/bin/opmnctl stopproc ias-component=OC4J_Security
```

Then re-run the OPMN Configuration Assistant - Start DAS Instance.

G.2.15 OPMN Configuration Assistant - Start OCA Failures

Problem

The OPMN Configuration Assistant - Start OCA fails when you re-run it.

Solution

The problem is that the OCA instance is already running. Before re-running the configuration assistant, stop the OCA instance with the following command:

```
prompt> $ORACLE_HOME/opmn/bin/opmnctl stopproc ias-component=OC4J instancename=oca
```

Then re-run the OPMN Configuration Assistant - Start OCA.

G.2.16 Re-running chgtocfmt Does Not Work

Problem

Re-running the `chgtocfmt` script to change back to the original configuration does not work. The hostnames are not converted back to the physical hostname, but the script does not show any errors.

Solution

You can re-run the `chgtocfmt` script to change back to the original configuration only if you installed the middle tier in a single Oracle home (that is, on the shared disk). Re-running the script in a separate Oracle home installation does not work. To make it work in a separate Oracle home installation, try this workaround:

1. In the *ORACLE_HOME*`/config/ias.properties` file, set the `VirtualHostName` parameter to the virtual hostname that you used in the first run of the `chgtocfmt` script.
2. Re-run the `chgtocfmt` script.
3. In the *ORACLE_HOME*`/config/ias.properties` file, set the `VirtualHostName` parameter to the physical hostname.

G.2.17 WARNING: DCM service may not be available at this time

Problem

When installing the first node of an OracleAS Cluster (Identity Management), the Java Security Configuration Assistant may return the following message:

```
WARNING: DCM service may not be available at this time to synchronize $ORACLE_
HOME/j2ee/home/config/jazn-data.xml file.
```

This is due to a failure in updating the DCM repository and could happen if your load balancer virtual server is not configured to return immediately to the calling client when the backend services to which it forwards traffic are unavailable.

Solution

Perform the following steps to correct the problem:

1. Run the following command after installation completes:

   ```
   prompt> $ORACLE_HOME/dcm/bin/dcmctl updateConfig -ct jazn
   ```

2. Verify that the `dcmctl updateConfig` command did not return any errors.
3. Use the following command to verify that the password is correct:

   ```
   prompt> $ORACLE_HOME/jdk/bin/java
                  -Doracle.security.jazn.config=./jazn/install/jazn.xml
                  -jar jazn.jar -checkpasswd jazn.com admin -pw admin_password
   ```

G.3 Deinstallation Problems and Solutions

This section describes common problems related to deinstallation:

- Section G.3.1, "Obsolete Partner URLs Still Remain on the OracleAS Single Sign-On Administration Screen"
- Section G.3.2, "Unable to Reuse Instance Name of a Deleted Instance"
- Section G.3.3, "Unable to Reuse Database Name"
- Section G.3.4, "Deconfiguration Failed on Distributed OracleAS Cluster (Identity Management)"

G.3.1 Obsolete Partner URLs Still Remain on the OracleAS Single Sign-On Administration Screen

Problem

After deinstallation, some partner application entries that are obsolete remain on the OracleAS Single Sign-On Administration screen.

Solution

Run the command to de-register the entries for the obsolete partner applications. The command is similar to the command for registration, except that the `-update_mode` parameter is set to `DELETE`.

Make sure your LD_LIBRARY_PATH environment variable contains `$ORACLE_HOME/lib32`, and that your LD_LIBRARY_PATH_64 environment variable contains `$ORACLE_HOME/lib`. Then run the command (all on one line):

```
prompt> $ORACLE_HOME/jdk/bin/java
 -jar $ORACLE_HOME/sso/lib/ossoreg.jar
 -oracle_home_path $ORACLE_HOME
 -site_name hostname.domain
 -config_mod_osso TRUE
 -mod_osso_url http://hostname.domain:port
 -u userid
 -update_mode DELETE
```

For `-site_name` *hostname.domain*, specify the computer where the middle tier is installed. Include also the domain name.

For `-mod_osso_url http://`*hostname.domain:port*, specify the computer where the middle tier is installed, and the port number on which Oracle HTTP Server is listening.

For `-u` *userid*, specify the operating system user who can start up the middle-tier processes.

For a detailed explanation of the parameters, refer to chapter 4 of *Oracle Application Server Single Sign-On Administrator's Guide*.

G.3.2 Unable to Reuse Instance Name of a Deleted Instance

Problem

You get an error when you try to name a new Oracle Application Server instance using the name of an instance that you deleted.

Solution

The name of the deleted instance must be removed from Oracle Internet Directory before you can reuse it. To remove entries for a deleted instance from Oracle Internet Directory, perform these steps:

1. Start up Oracle Directory Manager. Oracle home refers to the home where you installed Oracle Internet Directory.

   ```
   prompt> $ORACLE_HOME/bin/oidadmin
   ```

2. In the Connect screen, enter the Oracle Internet Directory connect information. Log in as the Oracle Internet Directory superuser (`cn=orcladmin`).
3. Expand **Entry Management** > **cn=OracleContext** > **cn=Products** > **cn=IAS** > **cn=IAS Instances**.
4. Under **cn=IAS Instances**, select the instance that you want to delete.
5. From the menu, select **Edit > Delete**.
6. Expand **Entry Management** > **cn=OracleContext** > **cn=Groups**.
7. Select **cn=IASAdmins**.
8. In the Properties tab, remove the instance from the `uniquemember` field by editing the field. Do **not** select **Edit > Delete** from the menu.
9. Click **Apply**.

G.3.3 Unable to Reuse Database Name

Problem

You get an error when you try to use the same global database name or SID as the one that you deleted.

Solution

You might see this problem if you deinstall OracleAS Metadata Repository but not Oracle Internet Directory, and you want to reuse the Oracle Internet Directory and the same database name or SID when you install another OracleAS Metadata Repository. The Oracle Internet Directory still contains the name of the deleted OracleAS Metadata Repository. You need to remove this name before you can reuse it.

> **Note:** Do **not** perform this procedure if you are deinstalling a middle tier.

1. Start up Oracle Directory Manager. Oracle home refers to the home where you installed Oracle Internet Directory.

   ```
   prompt> $ORACLE_HOME/bin/oidadmin
   ```

2. In the Connect screen, enter the Oracle Internet Directory connect information. Log in as the Oracle Internet Directory superuser (`cn=orcladmin`).
3. Expand **Entry Management** > **cn=OracleContext** > **cn=Products** > **cn=Portal** > **cn=UltraSearch** > **cn=Database Instances** > **orclApplicationCommonName=***infrastructure_database_name*.
4. Delete all the child entries under **orclApplicationCommonName=***infrastructure_database_name*, starting with the inner-most child entry. To delete an entry,

right-click each child entry and select **Delete** from the pop-up menu. Click **Yes** in the Confirmation dialog. When deleting child entries, you may get some error messages. You can ignore these error messages.

5. After you have deleted all the entries under **orclApplicationCommonName=***infrastructure_database_name*, right-click this entry and delete it.
6. Expand **Entry Management**.

   Expand the Default Subscriber entry. You need to expand each term separately. For example: if your default subscriber is "dc=us,dc=oracle,dc=com", you need to expand "dc=com", then expand "dc=oracle", then expand "dc=us".

   Then expand **cn=OracleContext** > **cn=Products** > **cn=Portal** > **cn=UltraSearch** > **cn=Database Instances** > **cn=***infrastructure_database_name*.
7. Delete all the child entries under **cn=***infrastructure_database_name*, starting with the inner-most child entry. To delete an entry, right-click each child entry and select **Delete** from the pop-up menu. Click **Yes** in the Confirmation dialog. When deleting child entries, you may get some error messages. You can ignore these error messages.
8. After you have deleted all the entries under **cn=***infrastructure_database_name*, right-click this entry and delete it.
9. Click **Apply**.

G.3.4 Deconfiguration Failed on Distributed OracleAS Cluster (Identity Management)

Problem

When running deconfiguring the first OracleAS Single Sign-On node on a Distributed OracleAS Cluster (Identity Management) configured as in Section 12.4.2, "Case 2: Client ---[HTTPS]---> Load Balancer ---[HTTPS]---> Oracle HTTP Server", the Deconfig tool fails. The log file located at `$ORACLE_HOME/sso/log/ssoreg.log` has the following error:

```
Unable to open file $ORACLE_HOME/Apache/Apache/conf/osso/osso.conf.
Please check the file path.
SSO registration tool failed.  Please check the error in this log file, correct
the problem and re-run the tool.
```

Solution

The Deconfig tool failed because it was unable to find the `$ORACLE_HOME/Apache/Apache/conf/osso/osso-https.conf` file. Perform the following steps to correct this problem:

1. Create a link from `osso-https.conf` to `osso.conf`:

   ```
   cd $ORACLE_HOME/Apache/Apache/conf/osso
   ln osso-https.conf osso.conf
   ```
2. Run the Deconfig tool again.

G.4 Need More Help?

If this appendix does not solve the problem you encountered, try these other sources:

- *Oracle Application Server Release Notes*, available on the Oracle Technology Network:

  http://www.oracle.com/technology/documentation

- Oracle*MetaLink*:

  http://metalink.oracle.com

If you do not find a solution for your problem, then open a service request.

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