Oracle® Application Server

Installation Guide

10*g* Release 2 (10.1.2) for Solaris Operating System (SPARC)

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Oracle Application Server Installation Guide 10*g* Release 2 (10.1.2) for Solaris Operating System (SPARC)

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Part No. B14088-02

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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 are comfortable running some 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.

Documentation Accessibility

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Structure

This guide contains the following chapters and appendixes:

Chapter 1, "Summary of Installation Steps"
This chapter provides an overview of the installation steps.

Chapter 2, "What's New in the Installation"

This chapter describes new features in Oracle Application Server that affect the installation procedure.

Chapter 3, "Compatibility with Earlier Releases"

This chapter just gives a pointer to the *Oracle Application Server Upgrade and Compatibility Guide*, which covers compatibility topics.

Chapter 4, "Requirements"

This chapter lists the requirements for installing and running Oracle Application Server.

Chapter 5, "Things You Should Know Before Starting the Installation"

This chapter provides an overview of Oracle Application Server and its components. Understanding how the components fit together can help you make some installation decisions.

Chapter 6, "Installing OracleAS Infrastructure"

This chapter describes the OracleAS Infrastructure components (the OracleAS Metadata Repository and the Identity Management components). It also provides procedures on how to install the infrastructure in different configurations.

Chapter 7, "Installing Middle Tiers"

This chapter describes the different types of middle tiers: J2EE and Web Cache, and Portal and Wireless.

Chapter 8, "Configuring Oracle Internet Directory for Oracle Application Server Installation Privileges"

This chapter describes how to add users to groups in Oracle Internet Directory so that they can install Oracle Application Server instances against the same Oracle Internet Directory.

Chapter 9, "Installing Oracle Internet Directory in Replicated Mode"

This chapter describes how to install the master Oracle Internet Directory and Oracle Internet Directory replicas.

Chapter 10, "Installing in High Availability Environments: Overview and Common Requirements"

This chapter gives an overview of the supported high availability environments: OracleAS Cold Failover Cluster, OracleAS Cluster (Identity Management), and OracleAS Disaster Recovery.

Chapter 11, "Installing in High Availability Environments: OracleAS Cold Failover Cluster"

This chapter gives details on how to install Oracle Application Server in an OracleAS Cold Failover Cluster environment.

Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)"

This chapter gives details on how to install Oracle Application Server in an OracleAS Cluster (Identity Management) environment.

Chapter 13, "Installing in High Availability Environments: OracleAS Disaster Recovery"

This chapter gives details on how to install Oracle Application Server in an OracleAS Disaster Recovery environment.

Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database"

This chapter just gives a pointer to the *Oracle Application Server Metadata Repository Creation Assistant User's Guide*.

Chapter 15, "Recommended Topologies"

This chapter describes how to create recommended development and deployment topologies for Oracle Application Server.

Chapter 16, "Post-Installation Tasks"

This chapter describes additional set-up steps that you should do after installation.

Appendix A, "Installing OracleAS Developer Kits"

This appendix describes how to install the OracleAS Developer Kits.

Appendix B, "Silent and Non-Interactive Installation"

This appendix describes how to install Oracle Application Server using response files.

Appendix C, "Default Port Numbers"

This appendix lists the port numbers assigned to components by the installer.

Appendix D, "Ports to Open in Firewalls"

This appendix shows the ports that you have to open in a firewall if you are installing and running Oracle Application Server in such environments.

Appendix E, "Deinstallation and Reinstallation"

This appendix describes how to remove Oracle Application Server from your computer.

Appendix F, "Configuration Assistants"

This appendix describes the configuration assistants run by the installer.

Appendix G, "Troubleshooting"

This appendix describes how to solve problems that might arise during installation and deinstallation.

Related Documents

For additional information, see the following manuals:

- *Oracle Application Server Administrator's Guide*
- *Oracle Application Server Concepts*
- *Oracle Application Server High Availability Guide*

Conventions

This guide uses the following conventions:

Convention	Meaning
boldface text	Boldface type in text indicates objects (such as buttons and fields) on screens.
`code`	Text in the code font indicates filenames, commands, or contents of configuration files.
`italicized code`	Italicized code font indicates placeholder text that you need to replace with an appropriate value.
[ ]	Brackets enclose optional clauses from which you can choose one or none.
. . .	Ellipses indicate that extraneous information have been omitted.

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:
   - *Oracle Application Server Release Notes*

     You can find the latest version of the release notes on Oracle Technology Network (`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 4.1, "System Requirements"
   - Section 4.2, "Operating System Patches"
   - Section 4.3, "Operating System Packages"
   - Section 4.4, "Kernel Parameters"
   - Section 4.5, "Ports"
   - Section 4.6, "Operating System Groups"
   - Section 4.7, "Operating System User"
   - Section 4.8, "Environment Variables"
   - Section 4.9, "The /etc/hosts File"
   - Section 4.10, "Network Topics"
   - Section 4.11, "Font Packages for Java"
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 and Common Requirements".

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. This chapter is mostly of interest to users who have installed previous versions of Oracle Application Server.

To see a list of new features in the product itself, visit the Oracle Technology Network site (`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, "New Kernel Parameter Required by OracleAS Web Cache"
- Section 2.9, "Generating Installation Statistics"

2.1 OracleAS Metadata Repository Uses Oracle Database 10*g*

In the 10*g* (9.0.4) releases, 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* 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 6.28, "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 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 and Common Requirements"
- 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 want 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 4.5.3, "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 New Kernel Parameter Required by OracleAS Web Cache

In earlier releases, you had to check the values of kernel parameters on computers where you plan to install the OracleAS Metadata Repository.

In this release, there is an additional check for the `rlim_fd_max` parameter. This parameter is required by the OracleAS Web Cache component.

For details, see Section 4.4, "Kernel Parameters".

2.9 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 on 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 `/var/opt/oracle/oraInst.loc` file to find out where this directory is on your computer.

Table 2–1 (Cont.) Installer Options for Generating Installation Statistics

Option	Description
`-printmemory`	Use this option to get information on 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 `/var/opt/oracle/oraInst.loc` file to find out where this directory is on your computer.
`-printdiskusage`	Use this option to get information on 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 `/var/opt/oracle/oraInst.loc` file to find out where this directory is on your computer.

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

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

3

Compatibility with Earlier Releases

For information on 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, "System Requirements"	Lists requirements such as supported operating systems, processor speed, memory, disk space, and swap space.
Section 4.2, "Operating System Patches"	Lists the required patches.
Section 4.3, "Operating System Packages"	Lists the required packages.
Section 4.4, "Kernel Parameters"	Lists required values for kernel parameters.
Section 4.5, "Ports"	Describes how to configure components to use ports other than the default ports.
Section 4.6, "Operating System Groups"	Describes why the operating system user who installs Oracle Application Server should belong to certain operating system groups.
Section 4.7, "Operating System User"	Describes why you should create an operating system user to install Oracle Application Server.
Section 4.8, "Environment Variables"	Describes how to set or unset environment variables required for installation.
Section 4.9, "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 4.10, "Network Topics"	Describes network issues such as installing Oracle Application Server on a remote computer, using a remote CD-ROM/DVD-ROM drive, or installing from a hard disk.
Section 4.11, "Font Packages for Java"	Describes the font packages required if you want to run using different character sets.
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 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-ROM (in the `application_server` directory).

CD-ROM:

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

DVD-ROM:

```
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 on the types of checks performed, see Section 4.12, "Prerequisite Checks Performed by the Installer".

Table 4–2 System Requirements

Item	Requirement
Operating system	Solaris 8 or Solaris 9 See Section 4.2, "Operating System Patches" for a list of required patches. **Checked by Installer:** Yes
IP	The computer's IP address must be static. Oracle Application Server does not support computers using Solaris DHCP. Oracle Application Server supports DHCP computers on Linux and Microsoft Windows. **Checked by Installer:** No
Hostname	Ensure that your hostnames are not longer than 255 characters.

Support for 32-bit and 64-bit applications	The operating system must be configured to support 32-bit and 64-bit applications. To check this, run the `isainfo` command with the `-v` option:
	`prompt> /usr/bin/isainfo -v`
	`64-bit sparcv9 applications`
	`32-bit sparc applications`
	If the output does not show both lines, you need to reconfigure your computer. Check with your system administrator.
	Checked by Installer: No

Processor Type	The processor must have a SPARC v9 architecture. This is because Oracle Application Server 10*g* Release 2 (10.1.2) uses the Sun Java 1.4.1 HotSpot Server VM, which no longer supports SPARC v8 and older processors.
	To determine the processor type, run the `psrinfo` command with the `-v` option. The output must show "`sparcv9`":
	`prompt> /usr/sbin/psrinfo -v`
	`Status of processor 0 as of: 02/10/03 13:21:20`
	`Processor has been on-line since 02/04/03 15:45:07.`
	`The sparcv9 processor operates at 450 MHz,`
	`and has a sparcv9 floating point processor.`
	Checked by Installer: No

Table 4–2 (Cont.) System Requirements

Item	Requirement

Processor Speed	450 MHz or greater recommended. Oracle recommends a multiple CPU computer.
	To determine the processor speed, run the `psrinfo` command with the `-v` option:
	`prompt> /usr/sbin/psrinfo -v`
	`Status of processor 0 as of: 02/10/03 13:21:20`
	`  Processor has been on-line since 02/04/03 15:45:07.`
	`  The sparcv9 processor operates at 450 MHz,`
	`  and has a sparcv9 floating point processor.`
	Checked by Installer: No

Memory	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 OracleAS Developer Kits: 256 MB **Notes:** ■ The installer checks the amount of memory on your computer and will not let you proceed 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, see Section 4.1.1, "Memory Requirements for Running Multiple Instances on the Same Computer". ■ These are minimum values that are enough to install and run Oracle Application Server. 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 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. See the *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 shared 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. To determine the amount of memory, use the `prtconf` command: `prompt> /usr/sbin/prtconf | grep Memory` **Checked by Installer:** Yes

Table 4–2 (Cont.) System Requirements

Item	Requirement
Disk space	OracleAS Infrastructure: ■ OracleAS Metadata Repository and Identity Management: 3.93 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. ■ Identity Management only: 1.54 GB ■ OracleAS Metadata Repository only: 3.93 GB Oracle Application Server middle tier: ■ J2EE and Web Cache: 750 MB ■ Portal and Wireless: 1.2 GB OracleAS Developer Kits: 520 MB To determine the amount of free disk space, use the `df` command: `prompt> df -k dir` Replace *dir* with the directory where you plan to install Oracle Application Server or with the parent directory if the directory does not exist yet. For example, if you plan to install Oracle Application Server in `/opt/oracle/infra`, replace *dir* with `/opt/oracle` or `/opt/oracle/infra`. **Checked by Installer:** No
Space in `/tmp` directory	250 MB To determine the amount of free 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 environment variable. See Section 4.8.6, "TMP" for details. **Checked by Installer:** Yes

Table 4–2 (Cont.) System Requirements

Item	Requirement

Swap space	1.5 GB or greater of available swap space
	To determine the amount of available swap space, use the `swap` command:
	`prompt> /usr/sbin/swap -l`
	The value in the "free" column indicates the number of free blocks, where a block is 512 bytes. To convert blocks to KB, divide the number by 2. For example, 2,000,000 free blocks is equivalent to 1,000,000 KB.
	If you do not have enough swap space, perform the following tasks:
	1. Log in as the root user, and create an empty swap file:
	`prompt> su`
	`Password: root_user_password`
	`# mkfile sizem swap_file_name`
	Append an "m" to the size to specify the size in megabytes (example: `900m`). The minimum size of this file must be greater than the difference between the currently available swap space and required swap space. For example, if you have 100 MB of free swap space, then this swap file must be at least 1400 MB.
	2. Add the file to the swap space using the following command:
	`# /usr/sbin/swap -a swap_file_name`
	3. Add a line to `/etc/vfstab` file. If you do not add the line, the new swap space will not persist when you restart the computer.
	`/path/to/swap/file - - swap - no -`
	Replace */path/to/swap/file* with the location of the swap file.
	4. Verify the new swap space size:
	`prompt> /usr/sbin/swap -l`
	Checked by Installer: Yes

Monitor	256 color display To determine your monitor's display capabilities: 1. Check that the DISPLAY environment variable is set properly. See Section 4.8.4, "DISPLAY" for details. To test, see if you are able to run `/usr/openwin/bin/xclock`. 2. Run the `xwininfo` command. `prompt> /usr/openwin/bin/xwininfo` Look for the "Depth" line. You need a depth of at least 8 (bits per pixel). **Checked by Installer:** Yes

Table 4–2 (Cont.) System Requirements

Item	Requirement
Supported browsers	Oracle Enterprise Manager is supported on the following browsers: ■ Microsoft Internet Explorer 5.5, 6.0 (supported on Microsoft Windows only) ■ On Windows XP with SP2, use the Microsoft Internet Explorer 6.0.2900.2180.xpsp_sp2_rtm.040803-2158. This is the version packaged with SP2. ■ Netscape 7.1, 7.2 ■ Mozilla 1.5. You can download Mozilla from http://www.mozilla.org. Note that Firefox, the standalone Mozilla browser, is currently not certified. But check the Oracle*MetaLink* site (http://metalink.oracle.com) for the most current list of certified browsers. 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 using a non-supported browser, you will get a warning message.

4.1.1 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

4.1.2 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. See the *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. See the *Oracle Application Server Administrator's Guide* for details.

4.2 Operating System Patches

Table 4–4 lists the Solaris operating system patches that you must install before installing. These are patches that make up the "J2SE patch cluster". You can download the patches from:

http://sunsolve.sun.com

Refer to the README file included with the patch for instructions on installing it.

Note: Although the patches listed in Table 4–4 are current at the time of publication, Sun Microsystems, Inc. often updates the list of required patches for J2SE. Click the "Readme" link on the following URL for the most current list of patches: http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/J2SE

Table 4–4 Required Patches for Solaris Operating Systems

Operating System	Patches Required
Solaris 8	■ 108652-82 or higher: X11 6.4.1: Xsun patch ■ 108921-21 or higher: CDE 1.4: dtwm patch ■ 108940-62 or higher: Motif 1.2.7 and 2.1.1: Runtime library patch ■ 108773-18 or higher: IIIM and X input and output method patch ■ 111310-01 or higher: /usr/lib/libdhcpagent.so.1 patch ■ 109147-28 or higher: Linker patch ■ 111308-04 or higher: /usr/lib/libmtmalloc.so.1 patch ■ 112438-03 or higher: /kernel/drv/random patch ■ 108434-17 or higher: 32-bit shared library patch for C++ ■ 108435-17 or higher: 64-bit shared library patch for C++ ■ 111111-04 or higher: /usr/bin/nawk patch ■ 112396-02 or higher: /usr/bin/fgrep patch ■ 110386-03 or higher: RBAC feature patch ■ 111023-03 or higher: /kernel/fs/mntfs and /kernel/fs/sparcv9/mntfs patch ■ 111317-05 or higher: /sbin/init and /usr/sbin/init patch ■ 113648-03 or higher: /usr/sbin/mount patch ■ 115827-01 or higher: /sbin/sulogin and /sbin/netstrategy patch ■ 116602-01 or higher: /sbin/uadmin and /sbin/hostconfig patch ■ 108987-13 or higher: Patch for patchadd and patchrm ■ 108528-29 or higher: Kernel update patch ■ 108989-02 or higher: /usr/kernel/sys/acctctl and /usr/kernel/sys/exacctsys patch ■ 108993-36 or higher: LDAP2 client, libc, libthread and libnsl libraries patch ■ 109326-14 or higher: libresolv.so.2 and in.named patch ■ 110615-11 or higher: sendmail patch
Solaris 9	■ 113096-03 or higher: X11 6.6.1: OWconfig patch ■ 112785-35 or higher: X11 6.6.1: Xsun patch

How to Get a List of Operating System Patches Installed on Your Computer

To determine which patches are installed on your computer:

1. Run the `showrev` command with the `-p` option. The following command saves the sorted output to a file called `patchList`.

```
prompt> showrev -p | sort > patchList
```

2. Open the file in a text editor, such as vi or emacs, and search for patch numbers.

How the Installer Checks for Operating System Patches

The installer searches for the required patch versions on your computer. If it does not find an exact match, it displays a warning message in the shell where you started the installer.

```
CD-ROM:  prompt> mount_point/10.1.2disk1/runInstaller
DVD-ROM: prompt> mount_point/application_server/runInstaller
...
... installer performs prerequisite checks here ...
...
Some optional pre-requisite checks have failed. Continue? (y/n) [n] n
```

The installer gives you a choice to exit or continue.

Type **n** to exit the installer if you do not have all the patches. You should download and install the patches.

Type **y** to continue only if you are sure all the required patches are installed.

4.3 Operating System Packages

Check that your computer contains the following operating system packages. If the packages are not present, the installer cannot continue.

- SUNWarc
- SUNWbtool
- SUNWhea
- SUNWlibm
- SUNWlibms
- SUNWsprot
- SUNWsprox
- SUNWtoo
- SUNWi1of (the character after the "i" is the number 1, not the letter "ell")
- SUNWxwfnt
- SUNWi1cs (the character after the "i" is the number 1, not the letter "ell")
- SUNWi15cs (the character after the "i" is the number 1, not the letter "ell")

The last two packages (SUNWi1cs and SUNWi15cs) are required for the ISO8859-1 and ISO8859-15 codesets.

To check if an operating system package is installed on your computer, run the pkginfo command with the name of the package. The syntax for running pkginfo is:

```
pkginfo package_name1 package_name2 ...
```

For example, to check if all of the listed packages are installed on your computer, run the following command:

```
prompt> pkginfo SUNWarc SUNWbtool SUNWhea SUNWlibm SUNWlibms SUNWsprot SUNWsprox
SUNWtoo SUNWi1of SUNWxwfnt SUNWi1cs SUNWi15cs
```

If your computer is missing a package, contact your system administrator.

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 shown in Table 4–5 and Table 4–6.

Kernel parameter values are stored in the `/etc/system` file. If your `/etc/system` file does not specify the parameters, you have to add lines to the file to specify them.

Notes:

- The values for kernel parameters are required only for computers that will be running the OracleAS Metadata Repository or OracleAS Web Cache. The installer checks the kernel parameter values only if you are installing these components.
- If any kernel parameter values do not meet the requirements, the installer displays an error message. You will not be able to continue the installation until you update the kernel parameters to the required values.
- If you update kernel parameter values, you need to restart your computer for the new values to take effect.

Table 4–5 Kernel Parameters Required by OracleAS Web Cache

Parameter	Line in /etc/system Showing the Minimum Value	Description
`rlim_fd_max`	`set rlim_fd_max=65536`	Defines the hard limit on file descriptors that a single process can have open. To determine the current setting, run this command: `prompt> ulimit -Hn`

Table 4–6 Kernel Parameters Required by OracleAS Metadata Repository

Parameter	Line in /etc/system Showing the Minimum Value	Description
semmni	set semsys:seminfo_semmni=100	Defines the maximum number of semaphore sets in the entire system.
semmns	set semsys:seminfo_semmns=256	Defines the maximum semaphores on the system. The 256 is only a minimum value for computers that will be running a single database (the OracleAS Metadata Repository that you are installing). If you are already running a database on the computer, see "To determine the minimum value for the semmns parameter" on page 4-10.
semmsl	set semsys:seminfo_semmsl=256	Defines the minimum recommended value, for initial installation only.
shmmax	set shmsys:shminfo_ shmmax=4294967295	Defines the maximum allowable size of one shared memory segment (4 GB = 4294967295).
shmmin	set shmsys:shminfo_shmmin=1	Defines the minimum allowable size of a single shared memory segment. **Note**: This parameter is not used in Solaris 9.
shmmni	set shmsys:shminfo_shmmni=100	Defines the maximum number of shared memory segments in the entire system.
shmseg	set shmsys:shminfo_shmseg=10	Defines the maximum number of shared memory segments one process can attach. **Note**: This parameter is not used in Solaris 9.

To determine the minimum value for the semmns parameter

If you are installing the OracleAS Metadata Repository on a computer that is not already running an Oracle database (that is, the OracleAS Metadata Repository will be the only Oracle database running on the computer), set the `semmns` parameter to a minimum of 256.

If you are installing the OracleAS Metadata Repository on a computer that is already running an Oracle database, set the `semmns` parameter to the sum of the `processes` initialization parameter for each Oracle database (including the OracleAS Metadata Repository), adding the largest one twice, and then adding an additional 10 for each database.

The default value of the `processes` parameter for the OracleAS Metadata Repository database is 150.

Example: The computer is already running an Oracle database, and its `processes` parameter is set at 200. In this case, you must set the `semmns` parameter to at least 770:

- Sum of the `processes` parameter for all Oracle database: 200 for the existing database + 150 for the OracleAS Metadata Repository that you are installing = 350
- Add the largest one twice: 200 + 200 = 400
- Add 10 for each database: 10 + 10 = 20
- Total: 350 + 400 + 20 = 770

To determine the value of the `processes` parameter for an Oracle database, run the following command in SQL*Plus:

```
prompt> sqlplus "sys/password as sysdba"
```

```
SQL> show parameters processes
```

password specifies the password for the SYS user.

To add or update kernel parameter values:

1. Become root user on the computer where you need to change the values.
2. Make a backup copy of the `/etc/system` file. For example, the following command makes a backup copy called `system.back`.

   ```
   # cp /etc/system /etc/system.back
   ```

3. Using a text editor such as vi or emacs, update the values or add new lines in the `/etc/system` file as necessary. For example, the following lines show sample values for the parameters:

   ```
   set semsys:seminfo_semmni=300
   set semsys:seminfo_semmns=800
   set semsys:seminfo_semmsl=256
   set shmsys:shminfo_shmmax=4294967295
   set shmsys:shminfo_shmmin=1
   set shmsys:shminfo_shmmni=512
   set shmsys:shminfo_shmseg=150
   ```

   Tip: The comment character for the `/etc/system` file is the asterisk (`*`), not `#`.

4. Restart the computer for the new values to take effect.

4.5 Ports

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

- Section 4.5.1, "Checking If a Port Is in Use"
- Section 4.5.2, "Using Default Port Numbers"
- Section 4.5.3, "Using Custom Port Numbers (the "Static Ports" Feature)"
- Section 4.5.4, "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 done 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.

4.5.1 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
```

4.5.2 Using Default Port Numbers

If you want to use the default port numbers for components, you do not have to do anything. See 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.

Tip: 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, 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.

Note: In the default configuration of the Solaris operating system, 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. See Appendix C, "Default Port Numbers" for a list of default port numbers.

4.5.3 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 4.5.3.1, "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.

4.5.3.1 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

# 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-ROM as a template:

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

Table 4–7 Location of the staticports.ini File on CD-ROM and DVD-ROM

Media	Location of staticports.ini File
CD-ROM	Disk 1: *mount_point*`/1012disk1/stage/Response/staticports.ini`
DVD-ROM	*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. See the *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 see the assigned ports.

Notes on 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. See the appropriate 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. See the Note on page 4-12 for details.
- If you plan to set port numbers for Oracle HTTP Server and OracleAS Web Cache, be sure you read Section 4.5.3.3, "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`.

4.5.3.2 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 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.

4.5.3.3 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.

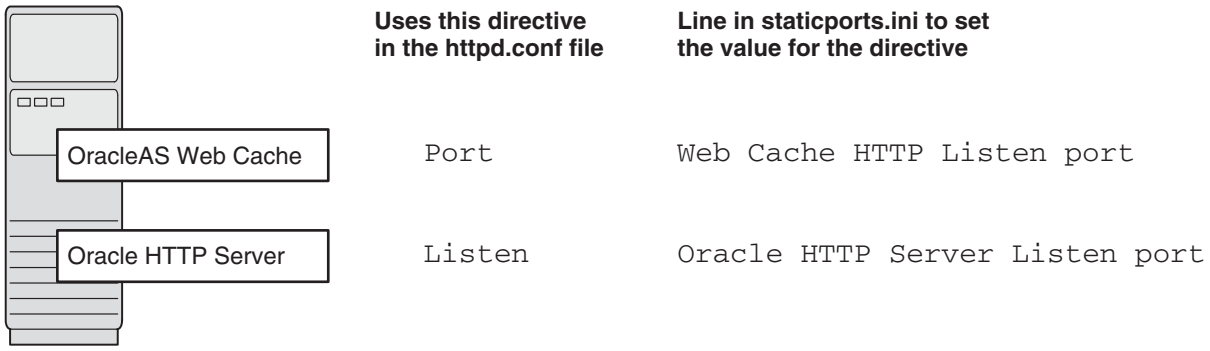
   Oracle HTTP Server uses the port specified by the `Listen` directive. To set this port, use this line in the `staticports.ini` file:

   ```
   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



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:

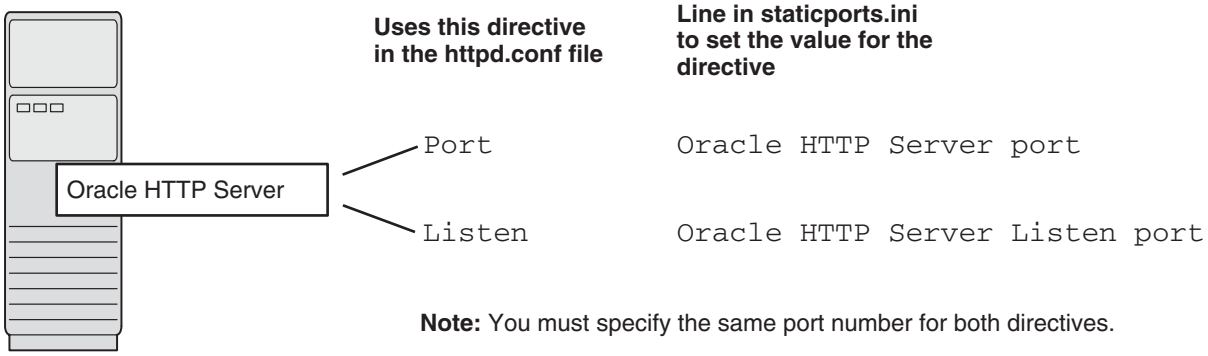
```
Oracle HTTP Server port = 8080
Oracle HTTP Server Listen port = 8080
```

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



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

4.5.3.4 Examples

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

- Section 4.5.3.4.1, "Configure Oracle HTTP Server to Use Ports 80 and 443 With OracleAS Web Cache as the Front-End"
- Section 4.5.3.4.2, "Configure Oracle HTTP Server to Use Ports 80 and 443 Without OracleAS Web Cache"

4.5.3.4.1 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, see these guides: *Oracle HTTP Server Administrator's Guide* and *Oracle Application Server Web Cache Administrator's Guide*.

4.5.3.4.2 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. See the Note on page 4-17 for details.

4.5.4 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. See the following sections for details.

- Section 4.5.4.1, "If Port 1521 Is In Use by an Existing Oracle Database"
- Section 4.5.4.2, "If Port 1521 Is In Use by Some Other Application"

4.5.4.1 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 4–8 shows scenarios and outcomes.

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

Table 4–8 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. See Section 4.5.4.1.1, "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. See Section 4.5.4.1.3, "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. See Section 4.5.4.1.2, "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. See Section 4.5.4.1.3, "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 Solaris: Version 10.1.0.3.0 - Production on 31-AUG-2004 19:10:54

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

Connecting to
(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=test-sun.us.oracle.com)(PORT=1521)))
TNSLSNR for Solaris: Version 10.1.0.3.0 - Production
        TNS for Solaris: Version 10.1.0.3.0 - Production
        Unix Domain Socket IPC NT Protocol Adaptor for Solaris: Version 10.1.0.3.0
- Production
        Oracle Bequeath NT Protocol Adapter for Solaris: Version 10.1.0.3.0 -
Production
The command completed successfully
```

4.5.4.1.1 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 (10.1.2). 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.

See any of the procedures that install an OracleAS Metadata Repository in Chapter 6, "Installing OracleAS Infrastructure" (for example, Section 6.19, "Installing OracleAS Infrastructure" or Section 6.20, "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 above is very important. You only need to run one listener (the new listener) to support both databases.

4.5.4.1.2 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.

4.5.4.1.3 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.

4.5.4.2 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. See the *Oracle Application Server Administrator's Guide* for instructions on how to do this.

4.6 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. See Section 4.6.1, "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. See Section 4.6.2, "Create Groups for Database Administrators".

To create a local operating system group, use the Solaris Management Console:

1. Set the DISPLAY environment variable to point to the monitor where you want the Solaris Management Console window to appear. See Section 4.8.4, "DISPLAY" if you need help setting the environment variable.
2. Start up the Solaris Management Console.

   ```
   prompt> /usr/sadm/bin/smc
   ```

3. In the left frame, expand **This Computer**, then expand **System Configuration**.
4. Click **Users**. This displays the Log In window.
5. In the Log In window, log in as the root user.
6. In the left frame, expand **Users** and select **Groups**.
7. Select Action > Add Group.
8. In **Group Name**, enter the name of the group.
9. (optional) In **Group ID Number**, enter an ID number for the group.
10. Click **OK**.

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

4.6.1 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 `/var/opt/oracle/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.

4.6.2 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 4–9 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 (see Table 4–9). You can enter the same operating system group for both fields.

4.7 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 `/var/opt/oracle/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 4–10 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.

Table 4–10 (Cont.) Properties of the Operating System User Who Runs the Installer

Item	Description
Group identifier	The primary group of the `oracle` user must have write permission for the `oraInventory` directory. See Section 4.6.1, "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, use the Solaris Management Console:

1. Set the DISPLAY environment variable to point to the monitor where you want the Solaris Management Console window to appear. See Section 4.8.4, "DISPLAY" if you need help setting the environment variable.
2. Start up the Solaris Management Console.

   ```
   prompt> /usr/sadm/bin/smc
   ```

3. In the left frame, expand **This Computer**, then expand **System Configuration**.
4. Click **Users**. This displays the Log In window.
5. In the Log In window, in **User Name**, enter `root`. In **Password**, enter the root password.
6. In the left frame, expand **Users** and select **User Accounts**.
7. Select Action > Add User > With Wizard.
8. In **User Name**, enter the name of the user (`oracle`). The **Full Name** and **Description** fields are optional. Click **Next**.
9. In **User ID Number**, accept the default value. Click **Next**.
10. Select **User Must Use This Password At First Login**, and enter a password for the user. Click **Next**.
11. In **Primary Group**, select the primary group for the user. This is the group you created earlier to own the inventory directory. See Section 4.6.1, "Create a Group for the Inventory Directory". Click **Next**.
12. In **Path**, enter a home directory for the user. Click **Next**.
13. Review the mail server information for the user and click **Next**.
14. Review the user information and click **Finish** to create the user.

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, see your operating system documentation or contact your system administrator.

4.8 Environment Variables

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

Table 4–11 summarizes whether you set or unset an environment variable.

Table 4–11 Environment Variable Summary

Environment variable	Set or Unset
ORACLE_HOME and ORACLE_SID	Must not be set.
PATH, CLASSPATH, and LD_LIBRARY_PATH	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	Optional. If unset, defaults to `/tmp`.
TNS_ADMIN	Must not be set.

4.8.1 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
  ```

4.8.2 ORACLE_HOME and ORACLE_SID

These environment variables must not be set.

4.8.3 PATH, CLASSPATH, and LD_LIBRARY_PATH

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

4.8.4 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:

```
$ /usr/openwin/bin/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).

Visit Oracle Technology Network (http://www.oracle.com/technology) for information about obtaining and installing XVFB or other virtual frame buffer solutions. Search OTN for "frame buffer".

4.8.5 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.3.14, "Database Configuration Assistant (DBCA) Failures" shows such an error.
- The `/etc` and the `/var/opt/oracle` directories 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` or `/var/opt/oracle`, do the following steps before installing Oracle Application Server.

1. If you have the `tnsnames.ora` file in `/etc` or `/var/opt/oracle`, 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.

4.8.6 TMP

During installation, the installer needs to write temporary files to a "temporary" directory. By default, the "temporary" directory is `/tmp`.

If you want the installer to use a directory other than `/tmp`, set the TMP environment variable to the full path of an alternate directory. This directory must meet the requirements listed in Table 4–2.

Example (C shell):

```
% setenv TMP /tmp2
```

Example (Bourne or Korn shell):

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

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 The /etc/hosts File

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

- Section 4.9.1, "Location of the Default Identity Management Realm"
- Section 4.9.2, "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. See the following subsections for details.

4.9.1 Location of the Default Identity Management Realm

The installer reads the `hosts` file to construct the location of the default 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 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 Identity Management realm. This is probably not the value that you want for the default 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 Identity Management realm in the Custom Namespace field on the "Specify Namespace in Internet Directory" screen.

4.9.2 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
```

4.10 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-ROM 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 4.10.1, "Installing on Multihomed (Multi-IP) Computers"
- Section 4.10.2, "Copying CD-ROMs or DVD-ROM to Hard Drive, and Installing from the Hard Drive"
- Section 4.10.3, "Installing from a Remote CD-ROM or DVD-ROM Drive"
- Section 4.10.4, "Installing on Remote Computers"

4.10.1 Installing on Multihomed (Multi-IP) Computers

If you are installing Oracle Application Server on a computer with multiple network cards, the installer uses the first name in the `/etc/hosts` file. If this is not the name that you want to use, you can do one of the following:

- Re-order the lines in the `/etc/hosts` file so the desired hostname appears first, run the installer, then revert the file back to its original state after installation.
- If you do not want to edit the `/etc/hosts` file, you can start up the installer with the OUI_HOSTNAME parameter. Specify the hostname that you want to use in this parameter. For example:

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

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

Instead of installing from the Oracle Application Server CD-ROMs or DVD-ROM, you can copy the contents of the CD-ROMs or DVD-ROM 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-ROM drives.

(You can install from remote CD-ROM or DVD-ROM drives; see Section 4.10.3, "Installing from a Remote CD-ROM or DVD-ROM 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 (see 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-ROM. 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-ROM, the `application_server` directory is approximately 1.6 GB.

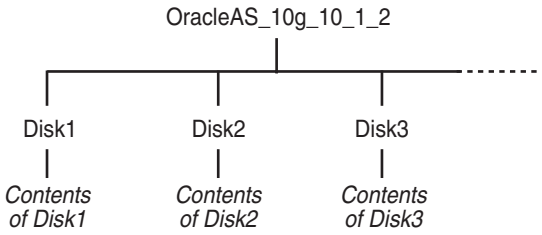
This space is in addition to the space required for installing Oracle Application Server (listed in Table 4–2).

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_10_1_2` 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-ROM

1. (optional) Create a directory to contain the `application_server` directory.

2. Copy the `application_server` directory from the DVD-ROM 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
```

4.10.3 Installing from a Remote CD-ROM or DVD-ROM Drive

If the computer where you want to install Oracle Application Server does not have a CD-ROM or DVD-ROM drive, you can perform the installation from a remote CD-ROM or DVD-ROM drive. Check that you have performed these steps:

- You need to share the remote CD-ROM or DVD-ROM drive through NFS.

  On the remote computer, which has the CD-ROM or DVD-ROM drive:

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

     DVD-ROM: Insert the Oracle Application Server DVD-ROM into the DVD-ROM drive.

  2. Share the CD-ROM or DVD-ROM drive.

     CD-ROM:

     ```
     prompt> su
     Password: root_password
     # share -F nfs -o ro /cdrom/1012disk1
     ```

     The path `/cdrom/10.1.2disk1` specifies the path to the CD-ROM in the CD-ROM drive. You can use any path you like.

     DVD-ROM:

     ```
     prompt> su
     Password: root_password
     # share -F nfs -o ro /cdrom
     ```

     The path `/cdrom` specifies the path to the DVD-ROM in the DVD-ROM drive. You can use any path you like.

  On the local computer, access the CD-ROM or DVD-ROM and run the installer as follows:

  CD-ROM:

  ```
  prompt> /net/remote_computer_hostname/cdrom/10.1.2disk1/runInstaller
  ```

  DVD-ROM:

  ```
  prompt> /net/remote_computer_hostname/cdrom/application_server/runInstaller
  ```

  Replace *remote_computer_hostname* with the name of the remote computer.

- This bullet point, switching CD-ROMs, does not apply to DVDs.

  When the installer prompts you to switch CD-ROMs, you need to unshare the CD-ROM drive, eject the CD-ROM, insert the requested CD-ROM, and share the CD-ROM drive again. If you do not unshare, you will not be able to eject the CD-ROM.

> **Note:** The installer must be running when you are switching CD-ROMs. Do **not** exit the installer when switching CD-ROMs. If you exit the installer, it is unable to continue from where it left off. In addition, the partial installation that it created is not usable, and may need to be removed manually.

On the remote computer (which has the CD-ROM drive):

```
prompt> su
Password: root_password
# unshare /cdrom/10.1.2disk1
# eject cdrom
... Remove the CD-ROM, and insert the CD-ROM requested by the installer (for
... example, Disk 2).
... Share the CD-ROM.
# share -F nfs -o ro /cdrom/10.1.2disk2
```

4.10.4 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 4.7, "Operating System User". Ensure that the user has set the environment variables correctly, as described in Section 4.8, "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. See Section 5.16, "Starting the 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.

4.10.5 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:

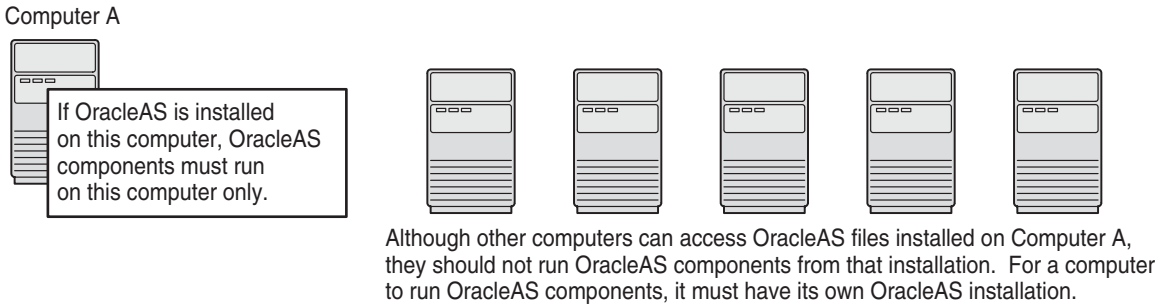
```
prompt> exportfs -i /vol/vol1
```

To check the latest certification list for any updates, visit Oracle Technology Network (http://www.oracle.com/technology).

4.10.6 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



4.10.7 Support for NIS and NIS+

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

4.11 Font Packages for Java

You may need different character settings for different locales. For Solaris Font Packages for Java, you always need both `SUNWi1of` and `SUNWxwfnt` font packages for all locales. You may need additional font packages depending on your locale. For a list of Solaris Font Packages, see:

http://java.sun.com/j2se/1.4.1/font-requirements.html

4.12 Prerequisite Checks Performed by the Installer

Table 4–12 lists the checks performed by the installer:

Table 4–12 Prerequisite Checks Performed by the Installer

Item	Description
Operating system version	See Table 4–2 for supported versions.
Operating system patches	See Section 4.2, "Operating System Patches" for a list of required patches.
Operating system packages	See Section 4.3, "Operating System Packages" for a list of required packages.
Operating system kernel parameters	See Section 4.4, "Kernel Parameters" for a list of required kernel parameters.
Memory	See Table 4–2 for recommended values.
Swap space	See Table 4–2 for recommended values.
TMP space	See 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 4–12 (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 (see 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) (see Section 5.4, "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. See Section 4.5.4, "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. See the *Oracle Application Server Administrator's Guide* for details.
Static port conflicts	The installer checks the ports listed in the `staticports.ini` file, if specified. See Section 4.5, "Ports".
Monitor	The installer checks that the monitor is configured to display at least 256 colors.

Table 4–12 (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` or `/var/opt/oracle` 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 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 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`

5

Things You Should Know Before Starting the Installation

Contents:

- Section 5.1, "Basic Concepts"
- Section 5.2, "Order of Installation"
- Section 5.3, "Where Do I Install Oracle Application Server?"
- Section 5.4, "Oracle Home Directory"
- Section 5.5, "First-Time Installation of Any Oracle Product"
- Section 5.6, "Installing Additional Languages"
- Section 5.7, "Oracle Application Server Instances and Instance Names"
- Section 5.8, "The ias_admin User and Restrictions on its Password"
- Section 5.9, "Comparing Installing Components against Configuring Components"
- Section 5.10, "Installing Oracle9i Application Server Release 2 (9.0.2) on the Same Computer"
- Section 5.11, "Where Does the Installer Write Files?"
- Section 5.12, "Why Do I Need to be Able to Log In as Root at Certain Times During Installation?"
- Section 5.13, "Running root.sh During Installation"
- Section 5.14, "Connecting to Oracle Internet Directory Through SSL Connections"
- Section 5.15, "Setting the Mount Point for the CD-ROM or DVD-ROM"
- Section 5.16, "Starting the Oracle Universal Installer"

5.1 Basic Concepts

Oracle Application Server is made up of:

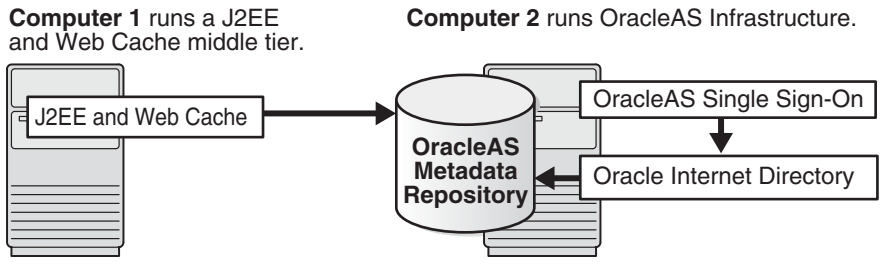
- Oracle Application Server middle tier
- OracleAS Infrastructure

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



5.2 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. (But see Section 7.4, "Configuration Options for the J2EE and Web Cache Middle Tier")

5.3 Where Do I Install Oracle Application Server?

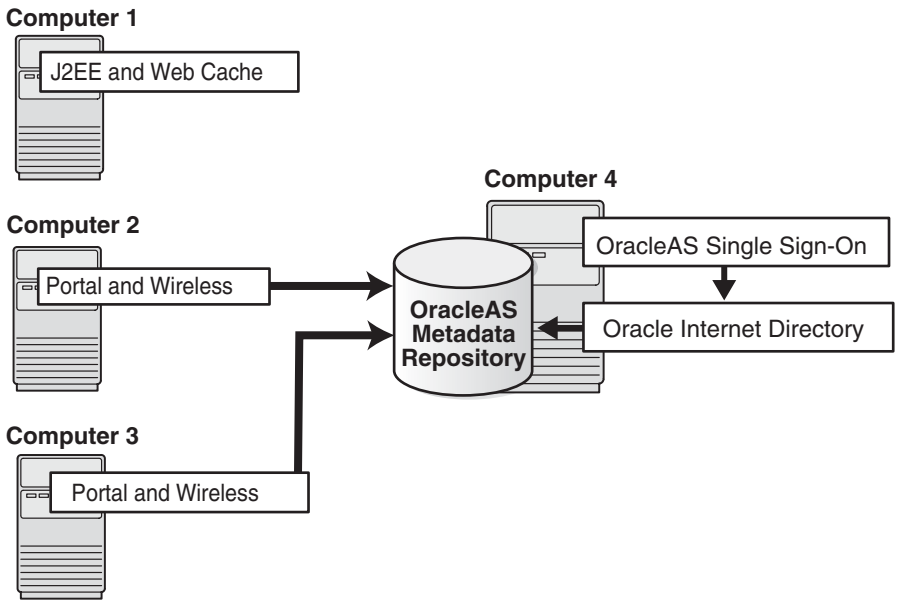
You can install the middle tiers and the infrastructure on the same computer or on separate computers. You can get better performance if you install the infrastructure on its own computer, and the middle tiers on other computers.

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.

See 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.

5.4 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_10_1_2`, and you can name it "Infra_10_1_2".

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/infra10_1_2`" 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.

5.4.1 Installing in an Existing Oracle Home

Generally, you cannot install Oracle Application Server in an existing Oracle home. See "Oracle home directory" on page 4-33 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. See Section 7.14, "Expanding a Middle Tier" for details.

5.4.2 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 5.4.1, "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. See Section G.3.4, "Message About Installing in a Non-Empty Directory" for instructions on how to clean up the directory.

5.5 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. See Section 4.7, "Operating System User".

5.6 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. See Section G.3.10, "User Interface Does Not Display in the Desired Language, or Does Not Display Properly".

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.

5.7 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 "infra10_1_2" or "J2EE_10_1_2". 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.

There is no maximum length restriction for instance names.

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 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. See the *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. See the *Distributed Configuration Management Reference Guide* for details about `dcmctl`.

5.8 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`). Or you can just 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. See the *Oracle Application Server Administrator's Guide* for details.

5.9 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. See the *Oracle Application Server Administrator's Guide* for details.

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

If you want to install Oracle9i Application Server Release 2 (9.0.2) and Oracle Application Server 10*g* Release 2 (10.1.2) on the same computer, make sure you install Release 2 (9.0.2) first.

For information on compatibility with earlier releases, see the *Oracle Application Server Upgrade and Compatibility Guide*.

5.11 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.
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.
`/var/opt/oracle` 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.
`/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. See Section 4.8.6, "TMP" for details.

5.12 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 `/var/opt/oracle` directory.

5.13 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 ...
```

5.14 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** checkbox.

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. See the *Oracle HTTP Server Administrator's Guide* for details.

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

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

If you are using the Solaris Volume Management software (installed by default with Solaris Operating Environment), then the CD-ROM or DVD-ROM is mounted automatically at `/cdrom` when you insert the CD-ROM or DVD-ROM. For example, when you insert Oracle Application Server Disk 1 into the CD-ROM drive, you can access its contents at `/cdrom/10.1.2disk1`.

If you are not using the Solaris Volume Management software, then you must mount the CD-ROM or DVD-ROM manually. To manually mount or unmount the CD-ROM or DVD-ROM, you must have root privileges. Be sure to unmount the CD-ROM or DVD-ROM before removing it from the drive.

Follow these steps to mount a CD-ROM or DVD-ROM manually:

1. Log in as the root user.

   ```
   prompt> su
   Password:
   ```

2. Create the CD-ROM or DVD-ROM mount point directory:

   ```
   # mkdir mount_point
   ```

3. Mount the CD-ROM or DVD-ROM drive on the mount point directory:

   ```
   # mount options device_name mount_point
   ```

   The following example mounts the CD-ROM manually on `/cdrom`, without using the Solaris Volume Management software. Execute the following commands as root user:

   ```
   # mkdir /cdrom
   # mount -r -F hsfs device_name /cdrom
   ```

   You can also use the same commands and options to mount the DVD-ROM.

4. Log out from the root user.

   ```
   # exit
   ```

5.16 Starting the Oracle Universal Installer

1. If your computer does not mount CD-ROMs or DVDs automatically, you need to set the mount point manually. See Section 5.15, "Setting the Mount Point for the CD-ROM or DVD-ROM" for details.
2. Log in as the `oracle` user.
3. CD-ROM users: Insert Oracle Application Server Disk 1 into the CD-ROM drive.

   DVD-ROM users: Insert the Oracle Application Server DVD-ROM into the DVD-ROM drive.
4. Run the Oracle Universal Installer using the command shown after the notes:

Notes:

- 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 `cd` command below changes your current directory to your home directory.

CD-ROM:

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

DVD-ROM:

```
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 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 and SYSTEM 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 OracleAS Certificate Authority After Installation?"	■ Section 6.19, "Installing OracleAS Infrastructure" ■ Section 6.20, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory" ■ Section 6.21, "Installing OracleAS Metadata Repository in a New Database" ■ Section 6.22, "Installing Identity Management Components Only (Including Oracle Internet Directory)" ■ Section 6.23, "Installing Identity Management Components Only (Excluding Oracle Internet Directory)" ■ Section 6.24, "Installing Oracle Internet Directory Only" ■ Section 6.25, "Installing OracleAS Certificate Authority and OracleAS Metadata Repository Only" ■ Section 6.26, "Install Fragment: The First Few Screens of the Installation" ■ Section 6.27, "Install Fragment: The Last Few Screens of the Installation" ■ Section 6.28, "Install Fragment: Database Screens" ■ Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens"

6.1 Infrastructure Installation Types

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

Table 6–2 OracleAS Infrastructure Components

Infrastructure Components	Description
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 ■ Identity Management metadata ■ Management metadata See 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 Identity Management components, OracleAS Metadata Repository, or both. These are the installation types for the OracleAS Infrastructure:

- Identity Management and OracleAS Metadata Repository
- 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 components. These components are always installed and configured, regardless of which installation type you selected.

See 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 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 Identity Management components on another computer. Within the Identity Management option, you can install 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 Identity Management" option causes the installer to create a new database and populate it with the OracleAS Metadata Repository.

To use an existing database, see 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 Identity Management components on the same computer, select the "Identity Management and OracleAS Metadata Repository" option. The installer installs the components in the proper order. See Section 6.19, "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:

   - Section 6.21, "Installing OracleAS Metadata Repository in a New Database"
   - For information on how to install the OracleAS Metadata Repository in an existing database, see the *Oracle Application Server Metadata Repository Creation Assistant User's Guide*.

2. Install the Identity Management components.

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

   See Section 6.22, "Installing 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. See 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 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, see 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 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

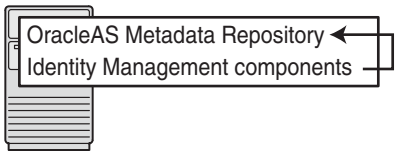
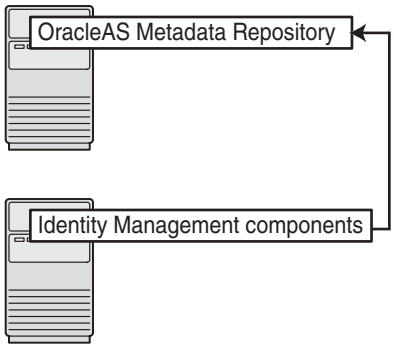
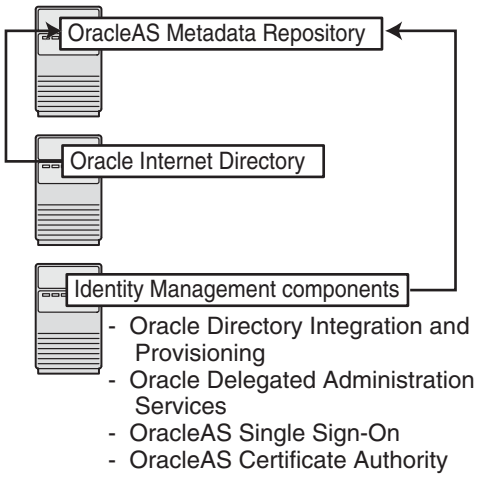
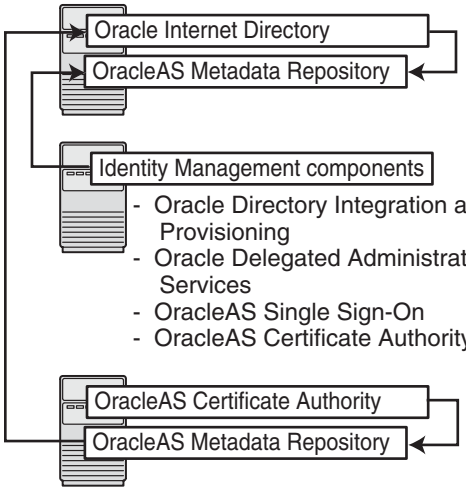
Configuration	Description / How to Install
	In this configuration, the OracleAS Metadata Repository and the Identity Management components run from the same Oracle home. To install this configuration, install the OracleAS Metadata Repository and the Identity Management components at the same time. For installation steps, see Section 6.19, "Installing OracleAS Infrastructure".
	In this configuration, the OracleAS Metadata Repository and the Identity Management components run on separate computers. To install this configuration: 1. Install the OracleAS Metadata Repository first. See Section 6.21, "Installing OracleAS Metadata Repository in a New Database". Alternatively, you can install the OracleAS Metadata Repository in an existing database. See Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database". 2. Then install the Identity Management components. See Section 6.22, "Installing Identity Management Components Only (Including Oracle Internet Directory)".
	In this configuration, the OracleAS Metadata Repository runs on one computer, Oracle Internet Directory runs on a second computer, and the remaining Identity Management components run on a third computer. To install this configuration: 1. Install the OracleAS Metadata Repository first. See Section 6.21, "Installing OracleAS Metadata Repository in a New Database". Alternatively, you can install the OracleAS Metadata Repository in an existing database. See Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database". 2. Install Oracle Internet Directory. See Section 6.24, "Installing Oracle Internet Directory Only". 3. Install the remaining Identity Management components. See Section 6.23, "Installing Identity Management Components Only (Excluding Oracle Internet Directory)".

Table 6–3 (Cont.) OracleAS Infrastructure Configurations

Configuration	Description / How to Install
	In this configuration, you want OracleAS Certificate Authority to use its own OracleAS Metadata Repository (for security reasons). Other Identity Management components use another OracleAS Metadata Repository. To install this configuration: 1. Install OracleAS Metadata Repository and Identity Management components, but not OracleAS Certificate Authority. You can install all these items in the same Oracle home (see the first configuration), or you can distribute them. The figure shows a distributed configuration. 2. Install OracleAS Certificate Authority with its own OracleAS Metadata Repository. See Section 6.20, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory".

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

6.5 Tips for Installing Identity Management Components Separately

If you are installing 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 OracleAS Certificate Authority 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, see the *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.

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.

See 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, see *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 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, see Section 6.19, "Installing OracleAS Infrastructure".	Automatic	Randomized
Install the OracleAS Metadata Repository against an existing Oracle Internet Directory See Section 6.20, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory".	Automatic	Randomized
Install an Oracle Internet Directory against an existing OracleAS Metadata Repository See Section 6.24, "Installing Oracle Internet Directory Only".	Automatic	Randomized (the metadata repository schemas are given new randomized passwords)
Install the OracleAS Metadata Repository only (without installing 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 6.21, "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 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.

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.

- Identity Management schemas

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

- Management schemas

  These schemas are used by components such as DCM.

If you are interested in seeing the names of all the schemas, see the *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 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. See Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database" for details.

  b. When you install the Portal and Wireless 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 Identity Management Access feature and the Database-Based Farm feature, you need to register the second metadata repository with the Oracle Internet Directory.

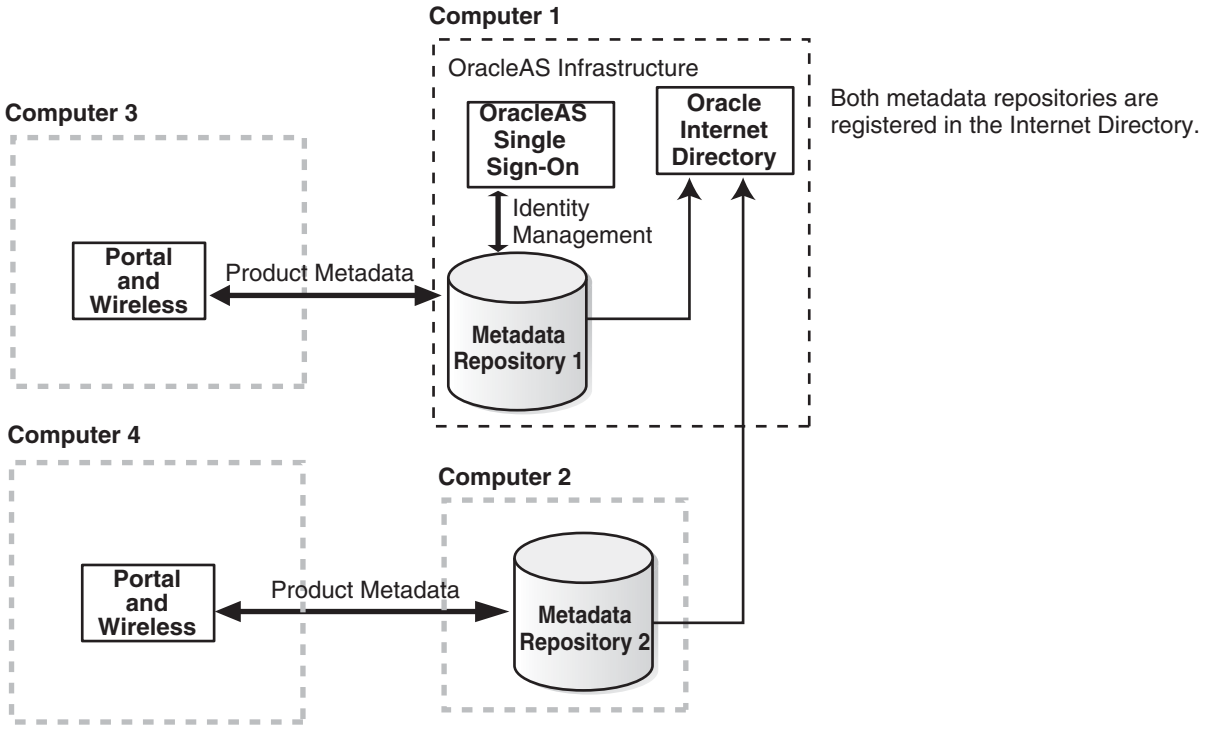
  - If you need only the Database-Based Farm feature, you do not need to register the second metadata repository. The reason for this is that you might not have an Oracle Internet Directory.

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

- Computer 1 runs a metadata repository and Identity Management components. The 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

See Chapter 10, "Installing in High Availability Environments: Overview and Common Requirements" for details.

6.14 Restrictions on the Passwords for the SYS and SYSTEM Users

When you install the OracleAS Metadata Repository in a new database, the installer prompts you to set the passwords for the SYS and SYSTEM 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`). Or you can just 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. See Section 4.9, "The /etc/hosts File".

If you plan to integrate your 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. See the *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 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 OracleAS Certificate Authority After Installation?

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

When you install OracleAS Certificate Authority 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 OracleAS Certificate Authority only.

  OracleAS Certificate Authority will share the OracleAS Metadata Repository that you installed earlier. If you are installing OracleAS Certificate Authority 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.)

  See Section 6.23, "Installing Identity Management Components Only (Excluding Oracle Internet Directory)" for details. In the Select Configuration Options screen, select **OracleAS Certificate Authority (OCA)** only.

- Install OracleAS Certificate Authority with its own OracleAS Metadata Repository.

  See Section 15.6, "OracleAS Certificate Authority Topology" for details.

6.19 Installing OracleAS Infrastructure

Perform this procedure to install an OracleAS Metadata Repository and 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, see Section 6.20, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory".

If you want to use an existing database for the OracleAS Metadata Repository, see 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. See Section 6.26, "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 fullpath 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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
5.	OracleAS Certificate Authority screens	If you select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens where you need to enter OracleAS Certificate Authority information. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens".
6.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.28, "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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.20 Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory

Perform this procedure to install 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 OracleAS Certificate Authority 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 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 Identity Management components without OracleAS Metadata Repository, follow the procedure in Section 6.23, "Installing 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. See Section 6.26, "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. See 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 fullpath 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 at which Oracle Internet Directory is listening. See 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.

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

	Screen	Action
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. See 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.	OracleAS Certificate Authority screens	If you select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens where you need to enter OracleAS Certificate Authority information. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens".
7.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.28, "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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.21 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 Identity Management components.

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

	Screen	Action
1.	--	Start the installer. See Section 5.16, "Starting the 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_10_1_2` 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/mr_10_1_2` 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**. See Section 5.6, "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, see Section 4.8.6, "TMP".
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. See 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. See Section 6.28, "Install Fragment: Database Screens".
14.	--	Finish the installation. See Section 6.27, "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;`

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

Perform this procedure to install 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 (see Chapter 14, "Installing the OracleAS Metadata Repository

in an Existing Database") or in a new database (Section 6.21, "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 Identity Management Components Only (Including Oracle Internet Directory)

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ▪ In the Select Installation Type screen, select **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. See 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 fullpath 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: `asdb.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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.

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

	Screen	Action
6.	Enter information to configure OracleAS Certificate Authority	Provide the information as prompted by the OracleAS Certificate Authority screens. See Section 6.29, "Install Fragment: OracleAS Certificate Authority 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

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

Perform this procedure to install 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 Identity Management Components Only (Excluding Oracle Internet Directory)

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **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. See 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 fullpath 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. See 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. See 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 Identity Management Components Only (Excluding Oracle Internet Directory)

	Screen	Action
6.	Enter information to configure OracleAS Certificate Authority	Provide the information as prompted by the OracleAS Certificate Authority screens. See Section 6.29, "Install Fragment: OracleAS Certificate Authority 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.24 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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **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 fullpath 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: `asdb.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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
7.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.25 Installing OracleAS Certificate Authority and OracleAS Metadata Repository Only

Perform this procedure to install the OracleAS Certificate Authority and the OracleAS Metadata Repository components only. This scenario is used by the Section 15.6, "OracleAS Certificate Authority Topology".

Prerequisites: Oracle Internet Directory version 9.0.4 or later

Table 6–11 Steps for Installing OracleAS Certificate Authority and OracleAS Metadata Repository

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "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**. 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 fullpath 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. See 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.	OracleAS Certificate Authority screens	Enter information to configure OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens".

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

	Screen	Action
7.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.28, "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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_oca_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.26 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

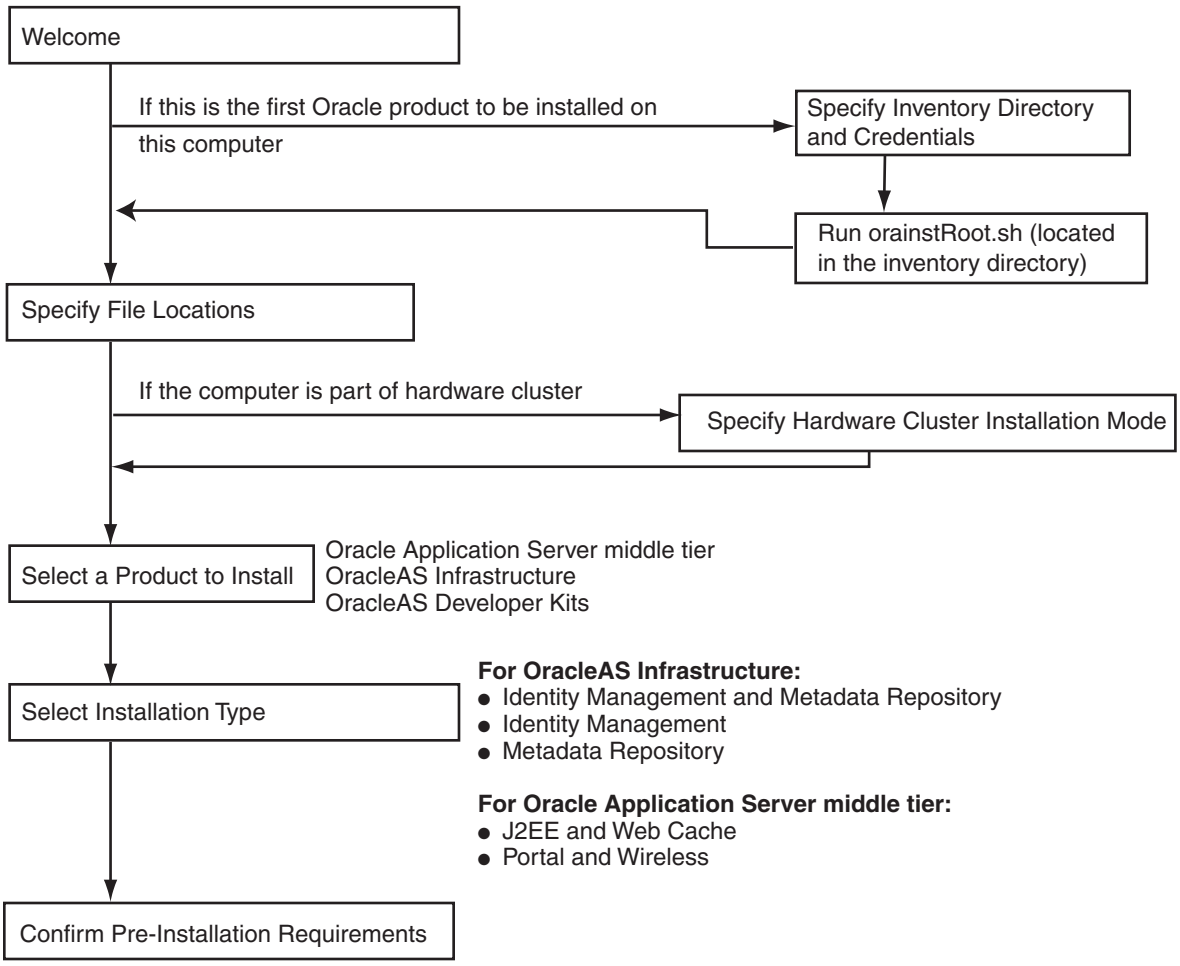
	Screen	Action
1.	--	Start the installer. See Section 5.16, "Starting the Oracle Universal Installer" for details.
2.	Welcome	Click Next.
3.	Specify Inventory Directory and Credentials	This screen appears only if this is the first installation of any Oracle product on this computer. Enter the full path 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_10_1_2` 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_10_1_2` 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**. See Section 5.6, "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: ■ **Identity Management and OracleAS Metadata Repository** ■ **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, see Section 4.8.6, "TMP".
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 to install a 10*g* Release 2 (10.1.2) infrastructure. If you want to upgrade, see the *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



6.27 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.

6.28 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 (_), 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: `asdb.mydomain.com` **Note:** Be sure that you do not enter two or more periods together, for example, `asdb..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: `asdb` Database Character Set: Select the character set to use. See also Section 6.15, "Support for NE8ISO8859P10 and CEL8ISO8859P14 Characters Sets". **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 `asdb`, then the data files will be located in `/u02/oradata/asdb`. 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.

6.29 Install Fragment: OracleAS Certificate Authority 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 OracleAS Certificate Authority against the same OracleAS Metadata Repository. When you are installing Identity Management components only against an existing OracleAS Metadata Repository, be sure that the metadata repository does not already have an instance of OracleAS Certificate Authority configured against it.

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

Table 6–15 OracleAS Certificate Authority Screens

	Screen	Action
1.	Select OracleAS Metadata Repository	This screen appears only if you are configuring OracleAS Certificate Authority **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 OracleAS Certificate Authority to use. Click Next.

Table 6–15 (Cont.) OracleAS Certificate Authority Screens

	Screen	Action
2.	Specify OCA Distinguished Name	OracleAS Certificate Authority 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 drop-down 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 OracleAS Certificate Authority. 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 OracleAS Certificate Authority 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 OracleAS Certificate Authority. This password is also used by the OracleAS Certificate Authority Configuration Assistant. You can change the password after installation using the `ocactl` command. See the OracleAS Certificate Authority 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 Identity Management Access" ■ Section 7.10, "Installing J2EE and Web Cache in a Database-Based Farm Repository but Without Identity Management Access" ■ Section 7.11, "Installing J2EE and Web Cache in a File-Based Farm Repository but Without Identity Management Access" ■ Section 7.12, "Installing J2EE and Web Cache in a File-Based Farm Repository and with Identity Management Access" ■ Section 7.13, "Installing Portal and Wireless" ■ 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

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

Middle Tiers and Infrastructure

The Portal and Wireless type requires an OracleAS Infrastructure, because components in these middle-tier types 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 **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. See 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.

Table 7–2 Components in the Middle Tier

	J2EE and Web Cache	Portal and Wireless
Oracle HTTP Server	Yes	Yes
Oracle Application Server Containers for J2EE (OC4J)	Yes	Yes
OracleAS Web Cache	Yes	Yes
Oracle Enterprise Manager Application Server Control	Yes	Yes
OracleAS Portal		Yes
OracleAS Wireless		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.

If you do not know what you want, but you have the disk space, you can install the Portal and Wireless 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 to a Portal and Wireless. See Section 7.14, "Expanding a Middle Tier"

Table 7–3 lists some features and appropriate middle-tier types:

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 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
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, see the *Oracle Application Server Wireless Administrator's Guide*. For information on developing Oracle Sensor Edge Server components, see the *Oracle Application Server Wireless Developer's Guide*.	OracleAS Wireless

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. See 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 above, 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 Identity Management components.

Identity Management Access	Select this option if your applications need 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. See 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, see the *Distributed Configuration Management Reference Guide* and the *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, see the *Distributed Configuration Management Reference Guide* and the *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, see Chapter 3, "Configuring the Application Infrastructure for myJ2EECompany.com", in the *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 **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 **Identity Management Access** in the Select Configuration Options screen. If you select both, the installer does not prompt you to enter the `DCM` password.

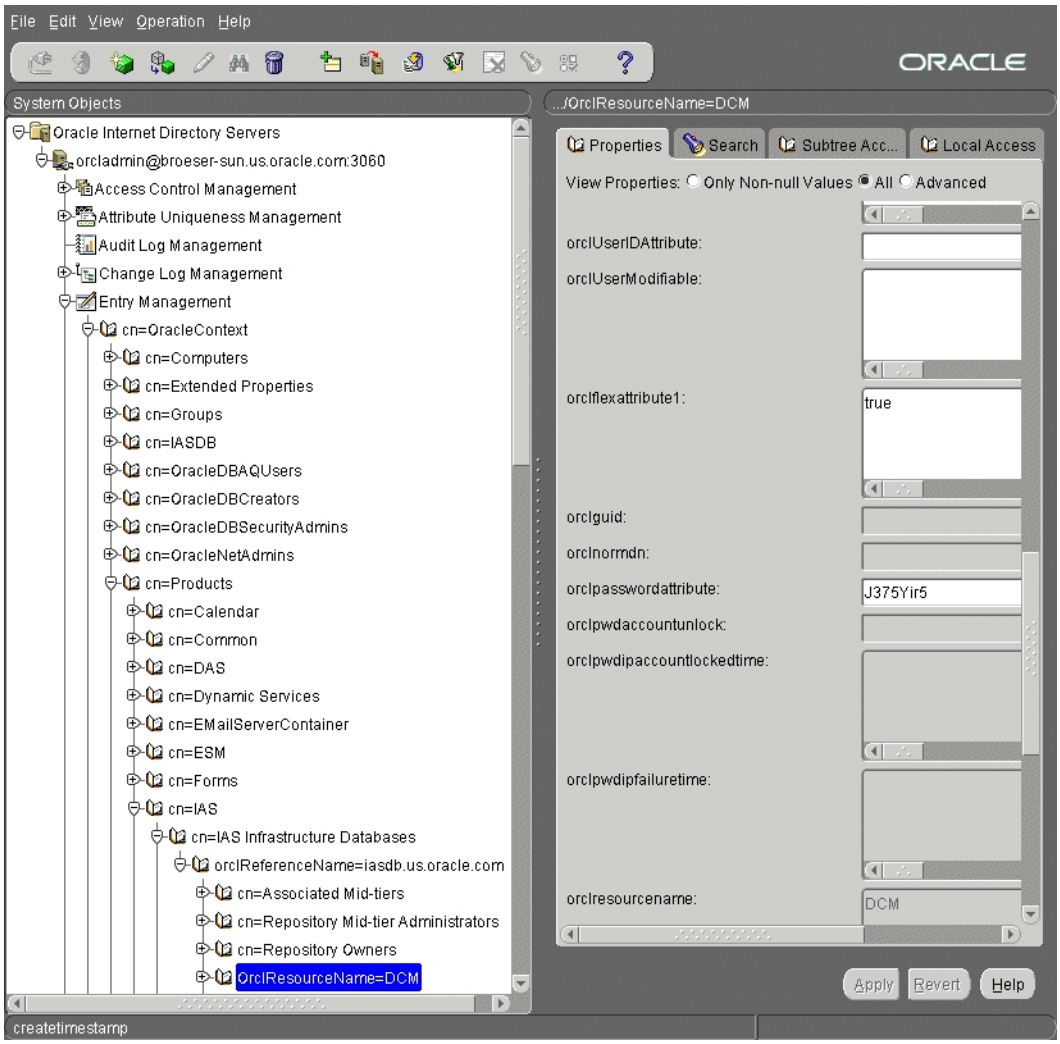
To determine the random password in Oracle Internet Directory:

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 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 10*g* Release 2 (10.1.2), make sure you followed the steps on upgrading Oracle Internet Directory 9.2.0.x to 10*g* Release 2 (10.1.2) as documented in the *Oracle Application Server Upgrade and Compatibility Guide*. The instructions are in the "Upgrading the 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. See 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 fullpath 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
4.	--	Finish the installation. See 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 Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier in a database-based farm repository and with Identity Management Access.

Prerequisite: OracleAS Infrastructure

Table 7–6 Steps for Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See 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 fullpath 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, see 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. See 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 Identity Management Access

	Screen	Action
7.	Select Metadata Repository for OracleAS Cluster	Select the OracleAS Metadata Repository from the dropdown 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `j2ee_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See 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 Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier in a database-based farm repository, but without 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 Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See 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 fullpath 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 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`. See 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: `asdb.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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `j2ee_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
7.	--	Finish the installation. See 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 Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier in a file-based farm repository but without Identity Management access.

Table 7–8 Steps for Installing J2EE and Web Cache in a File-Based Farm Repository but Without Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See 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 fullpath 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 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 above, 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
7.	--	Finish the installation. See 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 Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier in a file-based farm repository and with 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 Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See 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 fullpath 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 above, 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, see 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 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. See 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.13 Installing Portal and Wireless

Perform this procedure to install a Portal and Wireless middle tier.

Prerequisite: OracleAS Infrastructure

Table 7–10 Steps for Installing Portal and Wireless

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See 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**.
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**
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 fullpath to your staticports.ini file in the provided field. Click **Next**.

Table 7–10 (Cont.) Steps for Installing Portal and Wireless

	Screen	Action
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, see 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. See 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**.
7.	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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example 1: `PW_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See 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 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

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**.

Remember that the Portal and Wireless type requires an 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, see the *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. See Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Notes: ■ 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**.
3.	Select Configuration Options	Select the components that you need, and click **Next**. For Portal and Wireless, the options are: ■ **OracleAS Portal** ■ **OracleAS Wireless**

Table 7–11 (Cont.) Steps for Expanding a Middle Tier

	Screen	Action
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 fullpath 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, see 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 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. See 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.	Specify ias_admin Password	ias_admin Password: Enter the password for the ias_admin user of the middle tier you are expanding. Click **Next**.
9.	--	Finish the installation. See 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. See Section 5.16, "Starting the 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_10_1_2` 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_10_1_2` Click Next.

Table 7–12 (Cont.) First Few Screens of the Middle-tier Installation

	Screen	Action
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.
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**. See Section 5.6, "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** 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, see Section 4.8.6, "TMP".
9.	Confirm Pre-Installation Requirements	Verify that you meet all the requirements listed on the screen. Click **Next**.

See 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.

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 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, see "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. See 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, see "To Determine the Metadata Repository Used by OracleAS Single Sign-On" on page 8-6.
OracleAS Certificate Authority, 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:
OracleAS Certificate Authority, configured against a new OracleAS Metadata Repository (that is, you are installing and configuring OracleAS Certificate Authority and OracleAS Metadata Repository in the same installation session)	■ Trusted Application Admins ■ iAS Admins
J2EE and Web Cache Middle-tier Features	
Identity Management Access only	■ iAS Admins
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 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.
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.

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`.

   passwd - 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 asdb.oracle.com, and userB can see only the repository for asdb1.oracle.com.

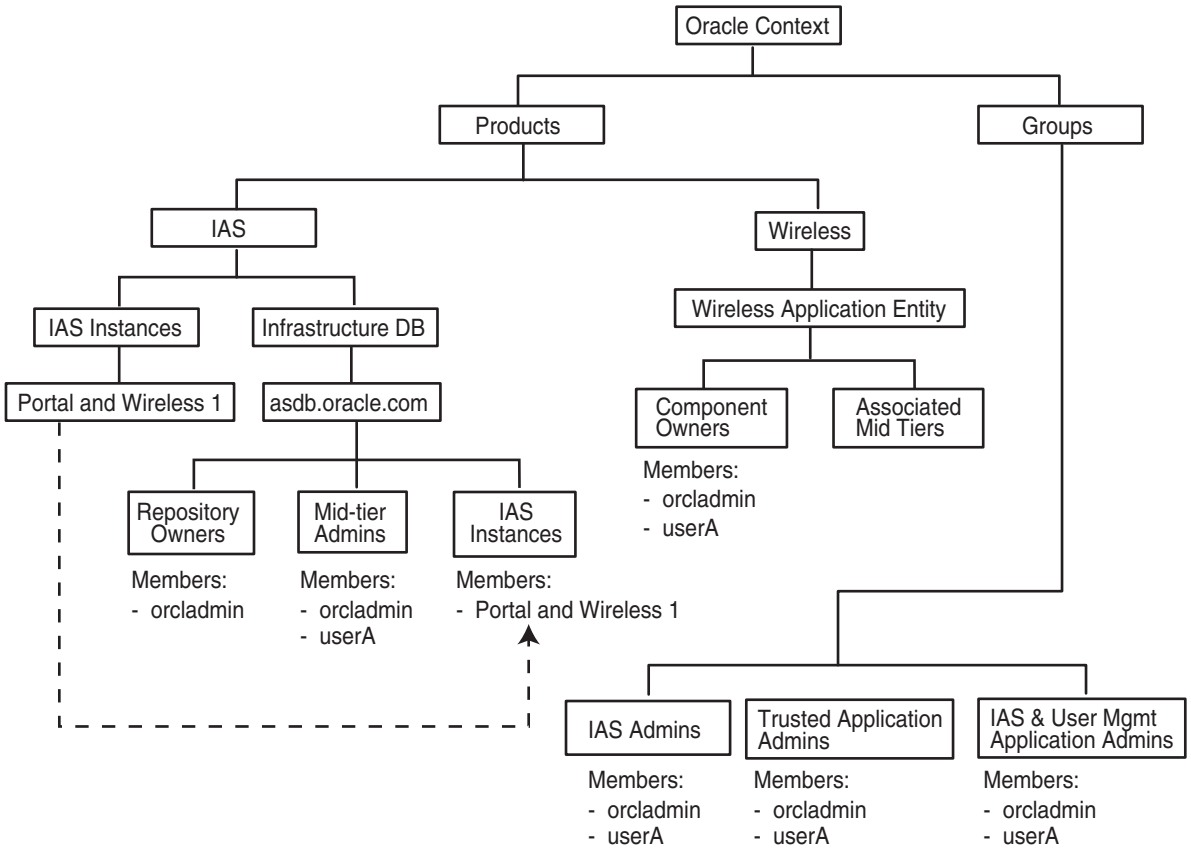
8.4.2 Groups Required to Install Middle-tier Components

To install middle-tier components, such as OracleAS Portal and OracleAS Wireless, the user must belong to additional groups. See 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 asdb 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



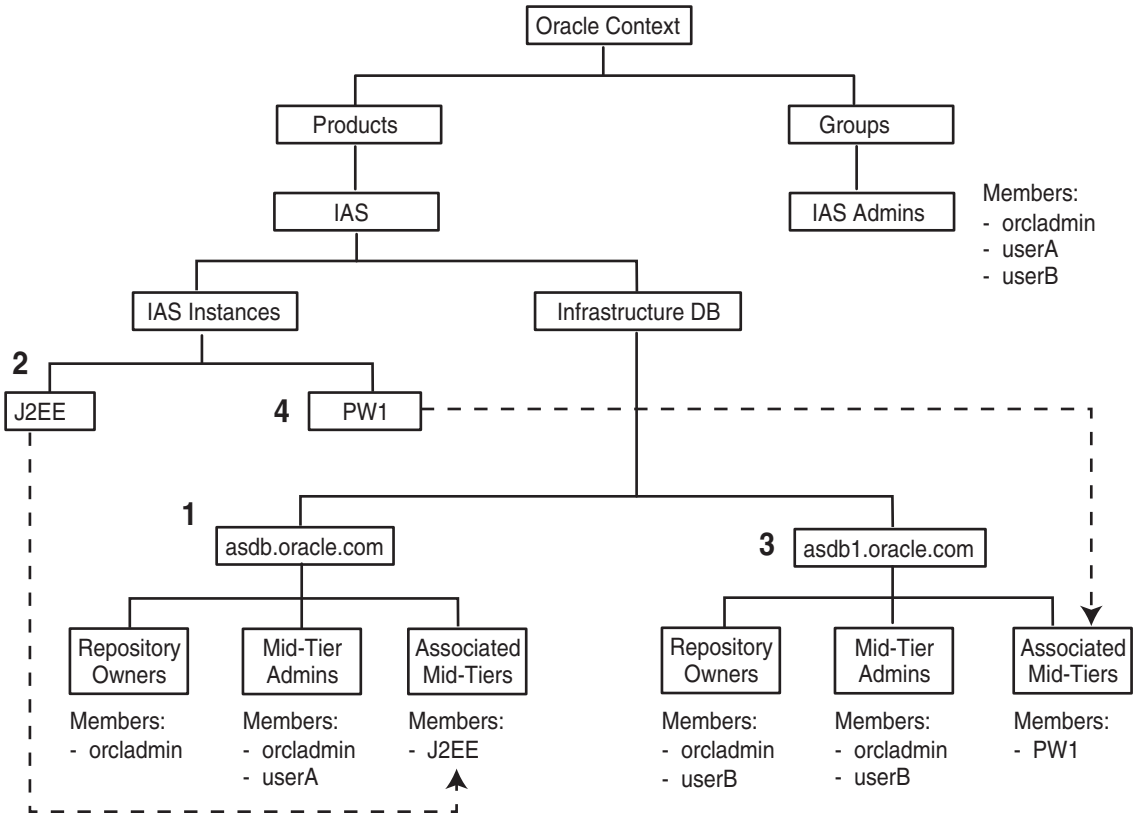
8.5 Groups Required to Install Additional Metadata Repositories

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 "asdb.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 "asdb.oracle.com"

  This enables userA to use the "asdb.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 "asdb.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. See Section 8.5, "Groups Required to Install Additional Metadata Repositories".

The installer registers this new repository with Oracle Internet Directory by creating the "asdb1.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 "asdb1.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 "asdb1.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. See the *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, see Section 8.8.1.1, "Navigating to "Global" Groups".

   To navigate to metadata repository groups, see Section 8.8.1.2, "Navigating to Metadata Repository Groups".

   To navigate to component groups, see 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.

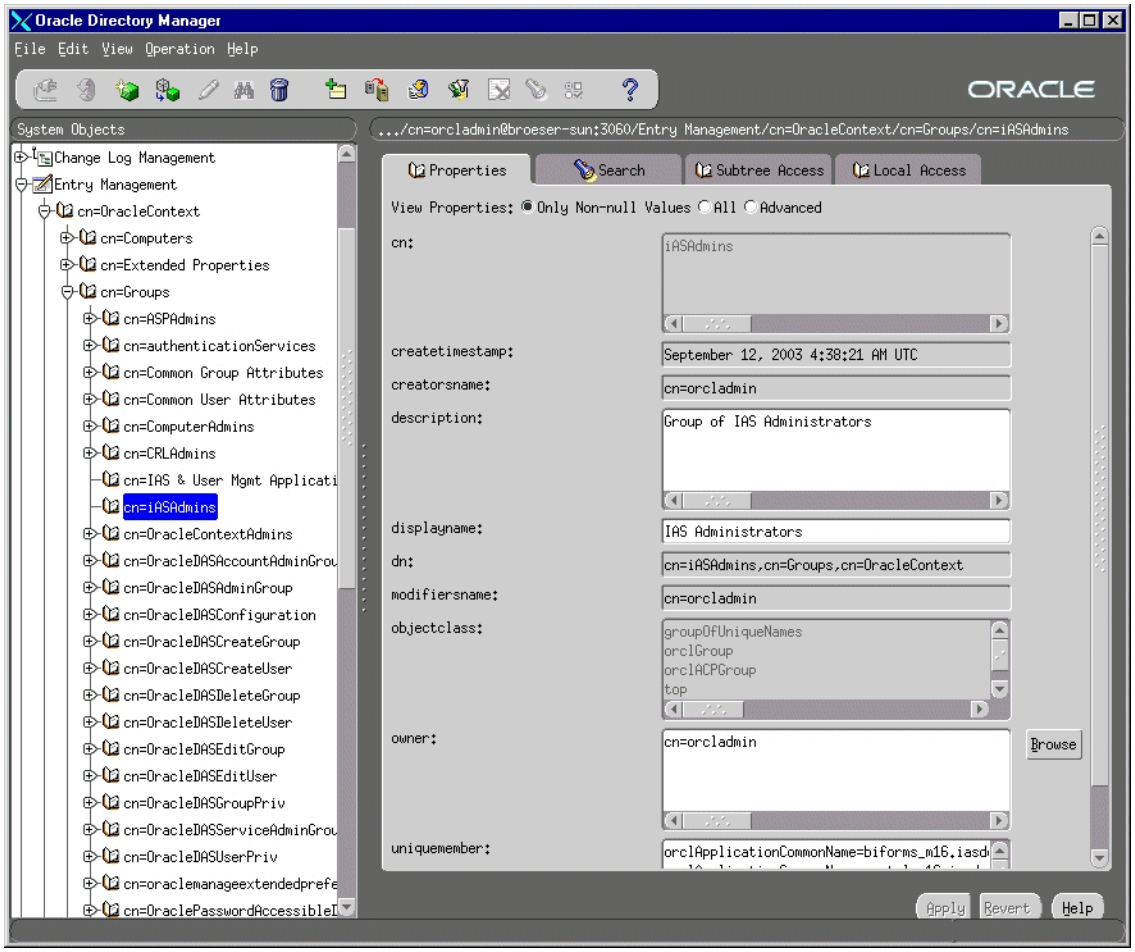
8.8.1.1 Navigating to "Global" Groups

The "global" groups are listed in Table 8–1.

The general navigation path is as follows. See 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



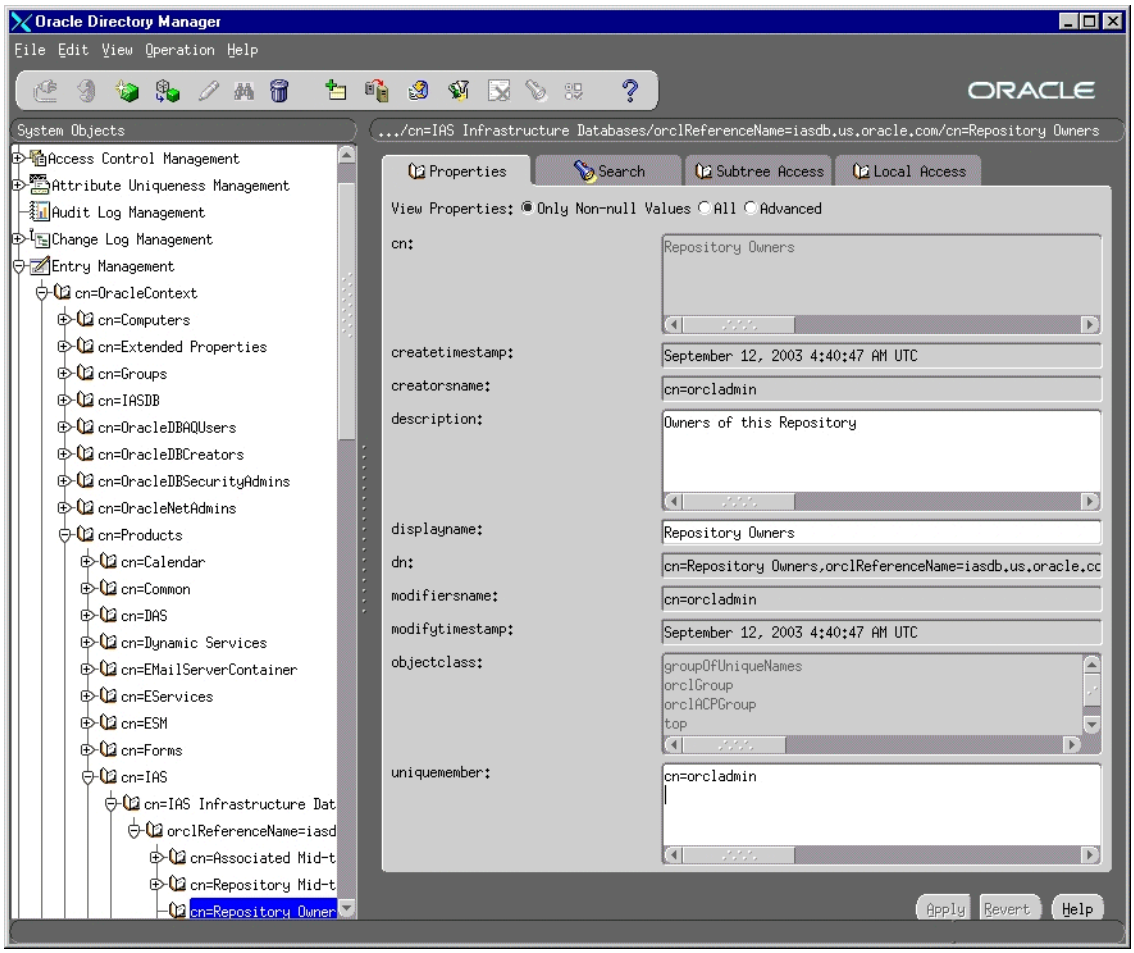
8.8.1.2 Navigating to Metadata Repository Groups

The metadata repository groups are listed in Table 8–2.

The general navigation path is as follows. See 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 asdb.us.oracle.com database selected.

Figure 8–4 Using Oracle Directory Manager to Add Users to Metadata Repository Groups



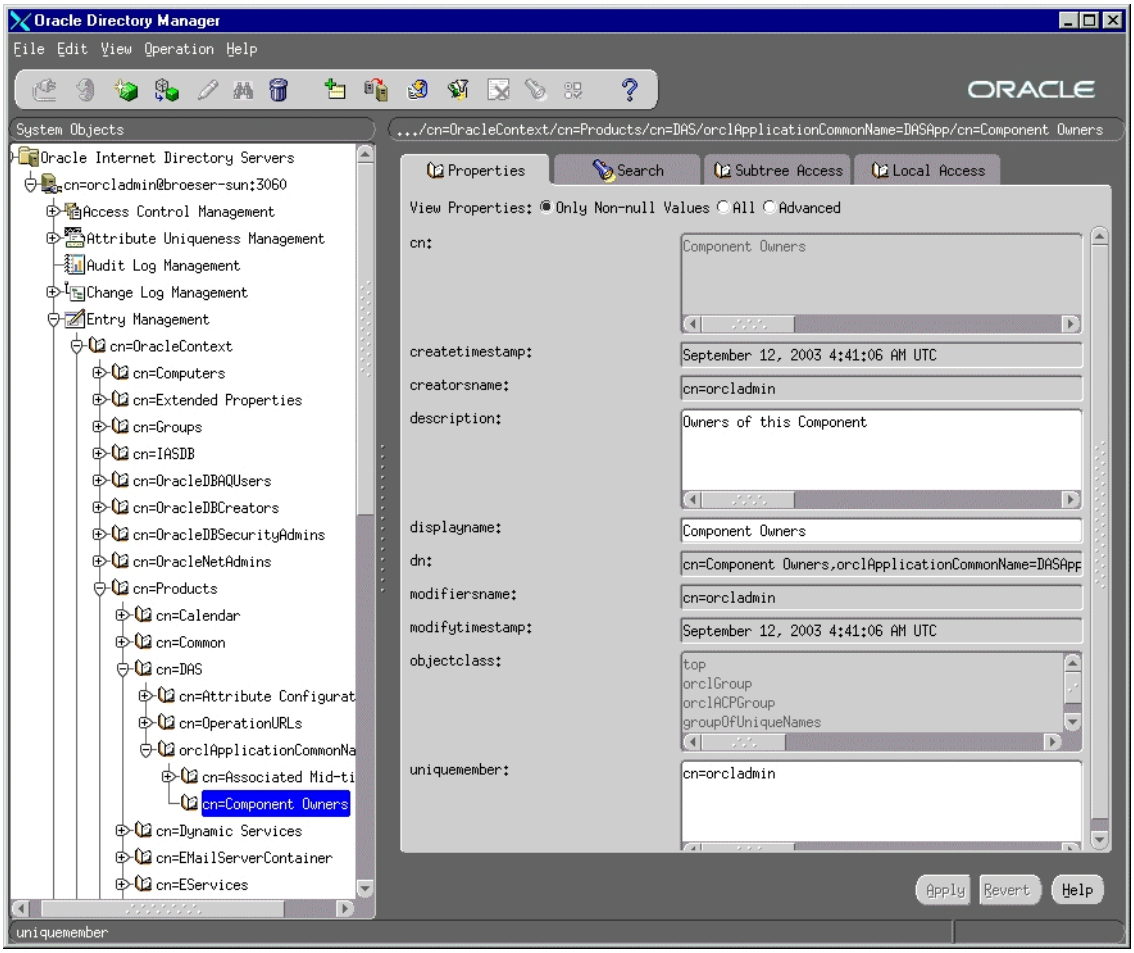
8.8.1.3 Navigating to Component Groups

The component groups are listed in Table 8–3.

The general navigation path is as follows. See 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. See 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.

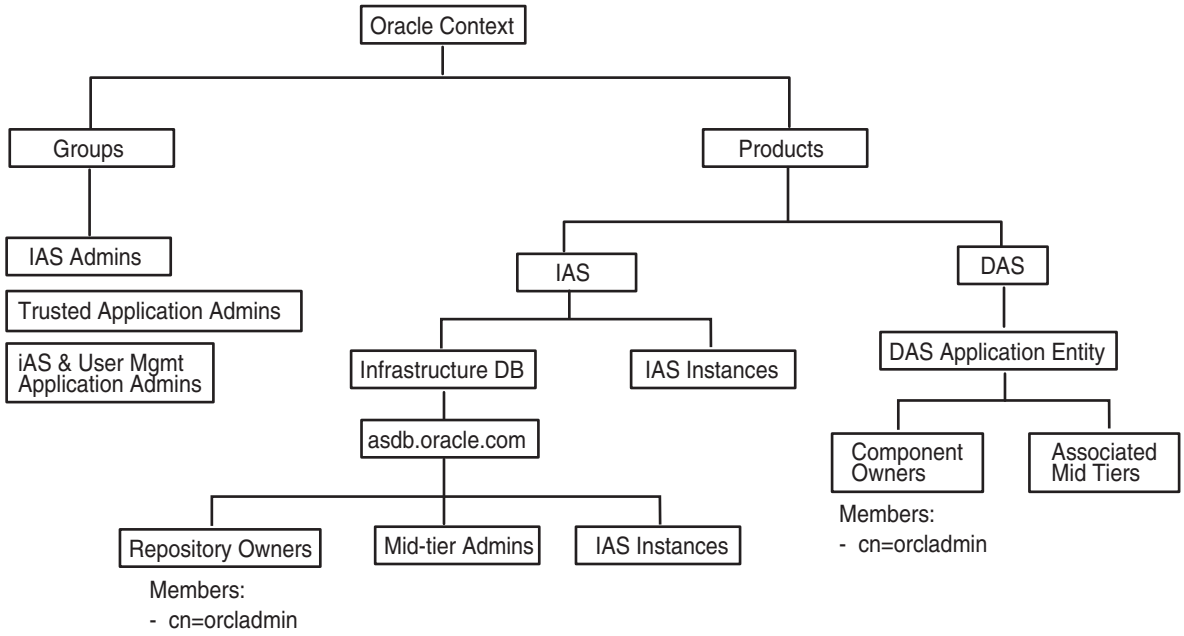
8.9 Contents of a New Oracle Internet Directory

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. See 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. See 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, see the following guides:

- For information on Oracle Internet Directory replication concepts and administration, see the *Oracle Internet Directory Administrator's Guide*.
- For information on Oracle Internet Directory replication deployment scenarios, see the *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.

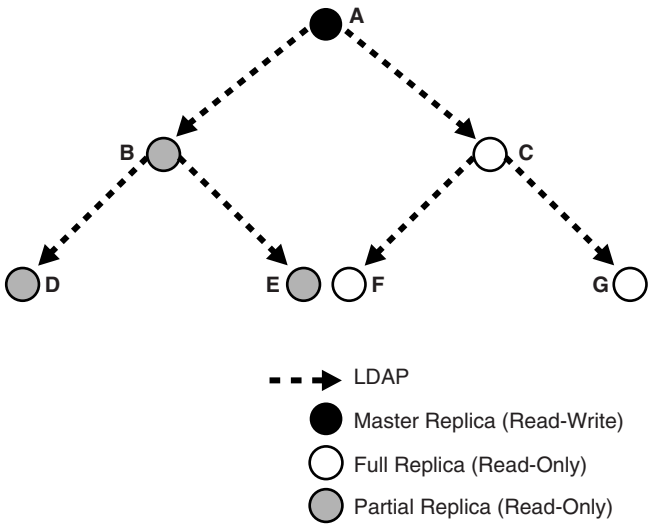
- Section 9.1.1, "Fan-Out Replication (LDAP Replication)"
- Section 9.1.2, "Multimaster Replication (Advanced Replication)"

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.

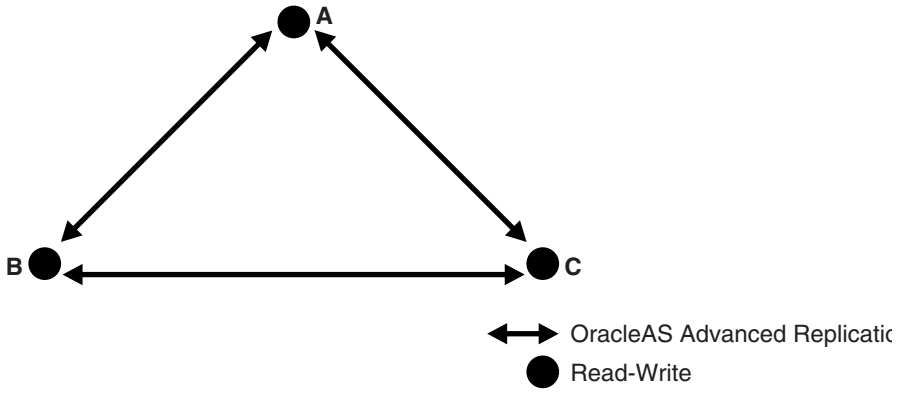
The procedure for installing replicas is different. When installing a replica, you must select the **High Availability and Replication** option in the Select Configuration Options screen, and you need to provide connect information to the master Oracle Internet Directory.

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. See the *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.

Notes:

- 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 6.19, "Installing OracleAS Infrastructure".
- To install a master Oracle Internet Directory with an existing database, follow the procedure in Section 6.22, "Installing Identity Management Components Only (Including Oracle Internet Directory)" or Section 6.24, "Installing Oracle Internet Directory Only".

You can also install a master Oracle Internet Directory in high availability environments. See 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. See Section 6.26, "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 **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**.

Table 9–1 (Cont.) Installing an Oracle Internet Directory Replica with a New Database

	Screen	Action
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 fullpath 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. See the *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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See 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 OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority 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: `asdb.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: `asdb` 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 `asdb`, then the data files will be located in `/u02/oradata/asdb`. 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. See Section 6.14, "Restrictions on the Passwords for the SYS and SYSTEM 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **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. See Section 5.8, "The ias_admin User and Restrictions on its Password" for password requirements. Example: `welcome99` Click **Next**.
13.	--	Finish the installation. See Section 6.27, "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. See Section 6.26, "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 **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 fullpath 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. **Notes**: ■ 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: `asdb.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. See the *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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See 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 OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.
11.	Specify OracleAS 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` 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. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
12.	--	Finish the installation. See Section 6.27, "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 and Common Requirements

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, see the *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 (Identity Management)"
- Section 10.1.3, "OracleAS Disaster Recovery"

For a quick summary of the high availability configurations, see Section 10.1.4, "Summary of Differences".

10.1.1 OracleAS Cold Failover Cluster

OracleAS Cold Failover Cluster configurations have the following characteristics:

- Active and passive nodes. The active node handles all the requests. The passive node becomes the active node when the active node fails. A failover event occurs and the requests are routed to the passive node.
- Shared disk. Typically, you install Oracle Application Server on the shared disk. The active and passive nodes have access to the shared disk, but only one node (the active node) mounts the shared disk at any given time.
- Virtual IP and hostname. You need to set up a virtual IP and hostname for the active and passive nodes. During installation, you provide the virtual hostname. Clients use the virtual hostname to access the Oracle Application Server in an

OracleAS Cold Failover Cluster configuration (for example, the virtual hostname is used in URLs). The virtual IP and hostname points to the active node. If the active node fails, the virtual IP and hostname switches to point to the new active node.

You can install OracleAS Infrastructure and the middle tier in OracleAS Cold Failover Cluster configurations. See Chapter 11, "Installing in High Availability Environments: OracleAS Cold Failover Cluster" for details.

10.1.2 OracleAS Cluster (Identity Management)

OracleAS Cluster (Identity Management) configurations have the following characteristics:

- Active nodes. All the nodes in an OracleAS Cluster (Identity Management) configuration are active. This means that all the nodes can handle requests. If a node fails, the remaining nodes handle all the requests.
- Load balancer. You need a load balancer to load-balance the requests to all the active nodes. During installation, you enter the virtual server name configured on your load balancer. During runtime, clients use the virtual server name to access the OracleAS Cluster (Identity Management) configuration. The load balancer then directs the request to the appropriate node.

OracleAS Cluster (Identity Management) is used for installing Identity Management components in a high availability configuration. It is not used for middle tiers. For details on OracleAS Cluster (Identity Management), see 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 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, see 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

Table 10–1 (Cont.) Differences Among the High Availability Configurations

	OracleAS Cold Failover Cluster	OracleAS Cluster (Identity Management)	OracleAS Disaster Recovery
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. Identity Management components

   If you are distributing the 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

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. See 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.

See Section 4.6, "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. See Section 4.6, "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 Oracle Application Server in a high availability configuration do not have existing oraInventory directories.

You need to do this because you want the installer to prompt you to enter a location for the oraInventory directory. The location of the existing oraInventory directory might not be ideal for the Oracle Application Server instance that you are about to install. For example, in OracleAS Cold Failover Cluster, you want the oraInventory directory to be on the shared storage. If the installer finds an existing oraInventory directory, it will automatically use it and will not prompt you to enter a location.

To check if a node contains an oraInventory directory that could be detected by the installer:

1. On each node, check for the `/var/opt/oracle/oraInst.loc` file.

   If a node does not contain the 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 `oracle` directory to something else so that the installer does not see it. The installer then prompts you to enter a location for the oraInventory directory.

   The following example renames the `oracle` directory to `oracle.orig` (you need to be root to do this):

```
prompt> su
Password: root_password
# cd /var/opt
# mv oracle oracle.orig
```

When you run the installer to install Oracle Application Server, the installer creates a new `/var/opt/oracle` directory and new files in it. You might need both `oracle` and `oracle.orig` directories. Do not delete either one or rename one over the other.

The installer uses the `/var/opt/oracle` directory and its files. Be sure that the right `oracle` directory is in place before running the installer (for example, if you are deinstalling or expanding a product).

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, "Pre-Installation 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 (Identity Management) Configuration"
- Section 11.6, "Installing a Distributed OracleAS Cold Failover Cluster (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"

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). See Section 11.3.
- Distributed OracleAS Cold Failover Cluster (Infrastructure). See Section 11.4.
- OracleAS Cold Failover Cluster (Identity Management). See Section 11.5.
- Distributed OracleAS Cold Failover Cluster (Identity Management). See Section 11.6.
- OracleAS Cold Failover Cluster (Middle-Tier). See Section 11.9.

11.2 Pre-Installation Steps for OracleAS Cold Failover Cluster

Before installing Oracle Application Server in an OracleAS Cold Failover Cluster, perform these procedures:

- Section 11.2.1, "Check That Clusterware Is Running"
- Section 11.2.2, "Map the Virtual Hostname and Virtual IP Address"
- Section 11.2.3, "Set Up a File System That Can Be Mounted from Both Nodes"
- Section 11.2.4, "Review Recommendations for Automatic Storage Management (ASM)"

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 Check That Clusterware Is Running

For OracleAS Cold Failover Cluster, each node in a cluster must be running hardware vendor clusterware. If you are running Oracle Cluster Ready Services (CRS), you still need the clusterware from the hardware vendor. Running CRS without the hardware vendor clusterware is not supported for OracleAS Cold Failover Cluster.

To check that the clusterware is running, use the command appropriate for your clusterware.

11.2.2 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 do you map the virtual hostname and IP address to the secondary node, which is now the active node.

The following example configures a virtual hostname called `vhost.mydomain.com`, with a virtual IP of 138.1.12.191:

1. Become the root user.

```
prompt> su
Password: root_password
```

2. Determine the public network interface.

```
# ifconfig -a
lo0: flags=1000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4> mtu 8232 index 1
        inet 127.0.0.1 netmask ff000000
lo0:1: flags=1008849<UP,LOOPBACK,RUNNING,MULTICAST,PRIVATE,IPv4> mtu 8232 index
1
        inet 172.16.193.1 netmask ffffffff
ge0: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 2
        inet 138.1.13.146 netmask fffffc00 broadcast 138.1.15.255
        ether 8:0:20:fd:1:23
hme0: flags=1008843<UP,BROADCAST,RUNNING,MULTICAST,PRIVATE,IPv4> mtu 1500 index
3
        inet 172.16.1.1 netmask ffffff80 broadcast 172.16.1.127
        ether 8:0:20:fd:1:23
hme0:2: flags=1008843<UP,BROADCAST,RUNNING,MULTICAST,PRIVATE,IPv4> mtu 1500
index 3
        inet 172.16.194.6 netmask fffffffc broadcast 172.16.194.7
ge1: flags=1008843<UP,BROADCAST,RUNNING,MULTICAST,PRIVATE,IPv4> mtu 1500 index
4
        inet 172.16.0.129 netmask ffffff80 broadcast 172.16.0.255
        ether 8:0:20:fd:1:23
```

   From the output, `ge0` is the public network interface. It is not a loopback interface and not a private interface.

3. Add the virtual IP to the `ge0` network interface.

```
# ifconfig ge0 addif 138.1.12.191 up
```

   "ge0" and the IP address are values specific to this example. Replace them with values appropriate for your cluster.

4. Check that new interface was added:

```
# ifconfig -a
lo0: flags=1000849<UP,LOOPBACK,RUNNING,MULTICAST,IPv4> mtu 8232 index 1
        inet 127.0.0.1 netmask ff000000
lo0:1: flags=1008849<UP,LOOPBACK,RUNNING,MULTICAST,PRIVATE,IPv4> mtu 8232 index
1
        inet 172.16.193.1 netmask ffffffff
ge0: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 2
        inet 138.1.13.146 netmask fffffc00 broadcast 138.1.15.255
        ether 8:0:20:fd:1:23
ge0:1: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 2
        inet 138.1.12.191 netmask ffff0000 broadcast 138.1.255.255
hme0: flags=1008843<UP,BROADCAST,RUNNING,MULTICAST,PRIVATE,IPv4> mtu 1500 index
3
        inet 172.16.1.1 netmask ffffff80 broadcast 172.16.1.127
        ether 8:0:20:fd:1:23
hme0:2: flags=1008843<UP,BROADCAST,RUNNING,MULTICAST,PRIVATE,IPv4> mtu 1500
index 3
        inet 172.16.194.6 netmask fffffffc broadcast 172.16.194.7
ge1: flags=1008843<UP,BROADCAST,RUNNING,MULTICAST,PRIVATE,IPv4> mtu 1500 index
4
```

```
        inet 172.16.0.129 netmask ffffff80 broadcast 172.16.0.255
        ether 8:0:20:fd:1:23
```

The virtual IP appears in the `ge0:1` entry. During installation, when you enter "vhost.mydomain.com" as the virtual hostname in the Specify Virtual Hostname screen, the installer checks that "vhost.mydomain.com" is a valid interface.

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, become superuser and remove the virtual IP.

   If the failed node fails completely (that is, it does not boot up), you can skip this step and go to step 2. If the node fails partially (for example, disk or memory problems), and the node is still ping-able, you have to perform this step.

   ```
   prompt> su
   Password: root_password
   # ifconfig ge0 removeif 138.1.12.191
   ```

   "ge0" and the IP address are values specific to this example. Replace them with values appropriate for your cluster.

2. On the secondary node, add the virtual IP to the `ge0` network interface.

   ```
   # ifconfig ge0 addif 138.1.12.191 up
   ```

   "ge0" and the IP address are values specific to this example. Replace them with values appropriate for your cluster.

3. On the secondary node, check that the new interface was added:

   ```
   # ifconfig -a
   ...
   ge0:1: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu 1500 index 2
           inet 138.1.12.191 netmask ffff0000 broadcast 138.1.255.255
   ...
   ```

11.2.3 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 OracleAS Infrastructure
- The oraInventory directory

For disk space requirements for OracleAS Infrastructure, see Section 4.1, "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.

11.2.4 Review Recommendations for Automatic Storage Management (ASM)

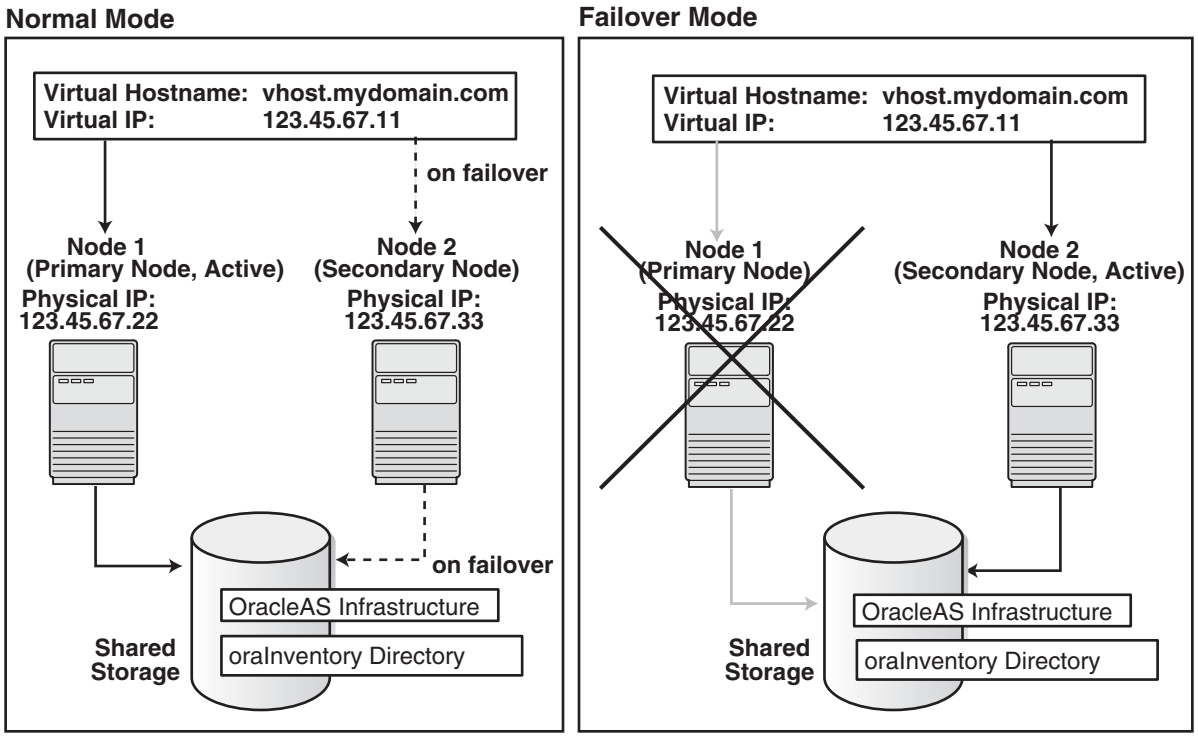
If you plan to use ASM instances for the OracleAS Metadata Repository database, consider these recommendations:

- 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.

11.3 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

URL for:	Example URL
Application Server Control	http://vhost.mydomain.com:1810

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.

If you want to install and run the middle tiers on the same cluster that is running the OracleAS Infrastructure, see 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, "Check That Clusterware Is Running" ■ Section 11.2.2, "Map the Virtual Hostname and Virtual IP Address" ■ Section 11.2.3, "Set Up a File System That Can Be Mounted from Both Nodes" ■ Section 11.2.4, "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.

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, "Pre-Installation Steps for OracleAS Cold Failover Cluster".

Step 2 Install OracleAS Infrastructure

For OracleAS Cold Failover Cluster (Infrastructure), you install both OracleAS Metadata Repository and 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. See Section 5.16, "Starting the 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**.
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_10_1_2` 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 drop down list. If you select an existing Oracle home, the installer will not display the next screen, Specify Hardware Cluster Installation Mode. Example: `/mnt/app/oracle/OraInfra_10_1_2` Click **Next**.

Table 11–2 (Cont.) Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
6.	Specify Hardware Cluster Installation Mode	This screen appears only if you have Oracle Cluster Ready Services installed. It is OK if you do not see this screen; Oracle Cluster Ready Services is not required for OracleAS Cold Failover Cluster. Select Local Installation because you are installing OracleAS Infrastructure on the shared storage. Click **Next**.
7.	Select a Product to Install	Select **OracleAS Infrastructure** to install an infrastructure. If you need to install additional languages, click **Product Languages**. See Section 5.6, "Installing Additional Languages" for details. Click **Next**.
8.	Select Installation Type	Select **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, see Section 4.8.6, "TMP".
9.	Confirm Pre-Installation Requirements	Verify that you meet all the listed requirements, and click **Next**.
10.	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**. If this option is greyed out, return to the Specify Hardware Cluster Installation Mode screen and make sure you selected **Local Installation** instead of **Cluster Installation**. Click **Next**.
11.	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 fullpath to your staticports.ini file in the provided field. Click **Next**.
12.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
13.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
14.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.

Table 11–2 (Cont.) Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
15.	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**.
16.	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: `asdb.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: `asdb` 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 `asdb`, then the data files will be located in `/u02/oradata/asdb`. Click Next.
17.	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. See Section 6.14, "Restrictions on the Passwords for the SYS and SYSTEM Users" for rules on setting passwords for these accounts. Click Next.
18.	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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **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. See Section 5.8, "The ias_admin User and Restrictions on its Password" for password requirements. Example: `welcome99` Click **Next**.
19.	--	Finish the installation. See Section 6.27, "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
   ```

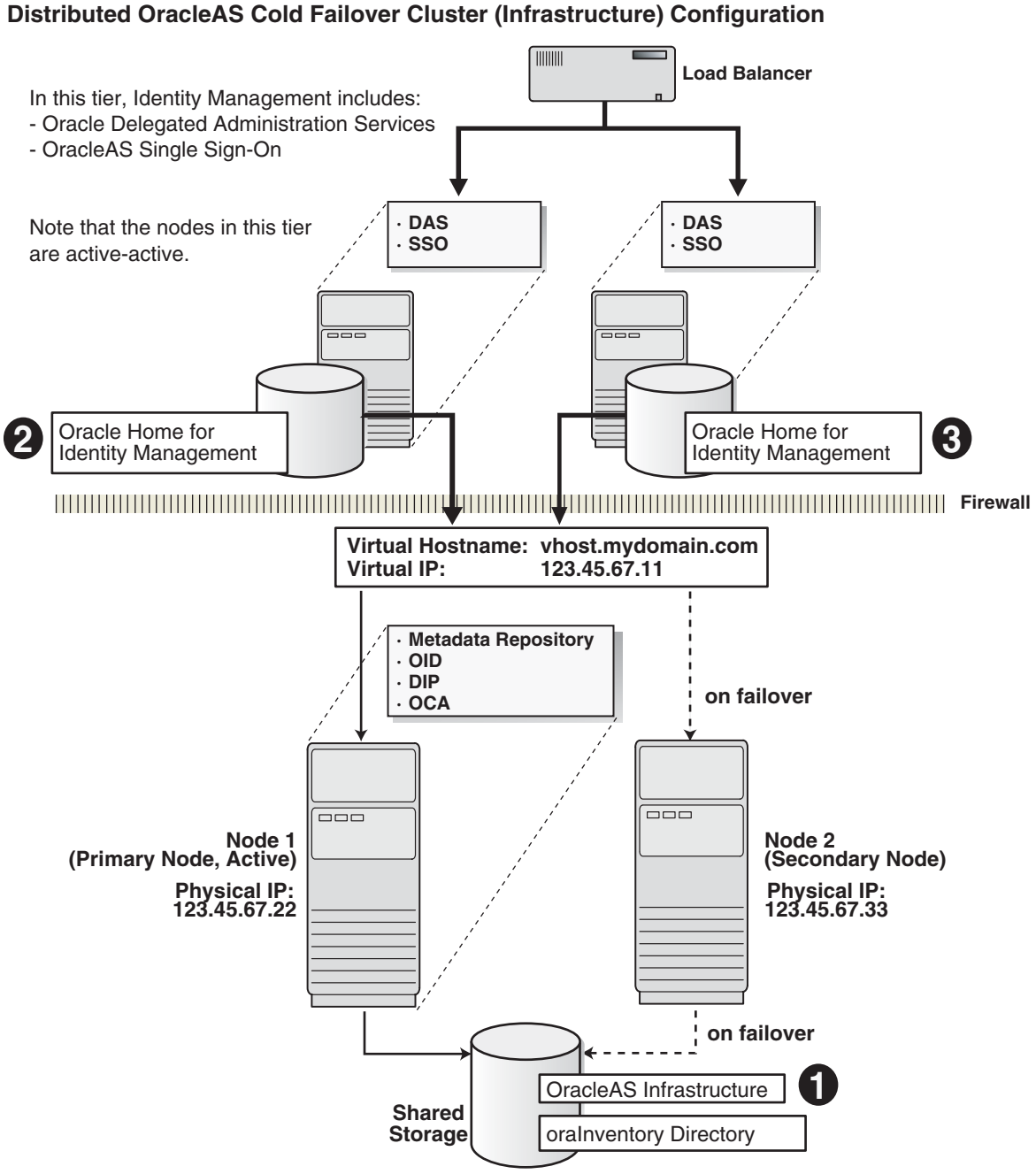
   ORACLE_HOME is where you installed the OracleAS Cold Failover Cluster (Infrastructure).

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, Oracle Directory Integration and Provisioning, and OracleAS Certificate Authority 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.

To install the components in this configuration, perform these steps:

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 11.2.1, "Check That Clusterware Is Running" ■ Section 11.2.2, "Map the Virtual Hostname and Virtual IP Address" ■ Section 11.2.3, "Set Up a File System That Can Be Mounted from Both Nodes" ■ Section 11.2.4, "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 and Oracle Delegated Administration Services.
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, "Pre-Installation 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 Identity Management components (except for OracleAS Single Sign-On and Oracle Delegated Administration Services) 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 11-7, except that in the Select Configuration Options screen, do not select **OracleAS Single Sign-On** and **OracleAS Delegated Administration Services**.

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 (Identity Management) Configuration

Figure 11–3 shows an OracleAS Cold Failover Cluster (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 Identity Management components. You install the 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 Identity Management.

During normal operation, node 1, which is the primary node, is the active node. It mounts both shared disks to access the Identity Management and database files, runs the Identity Management and database processes, and handles all requests.

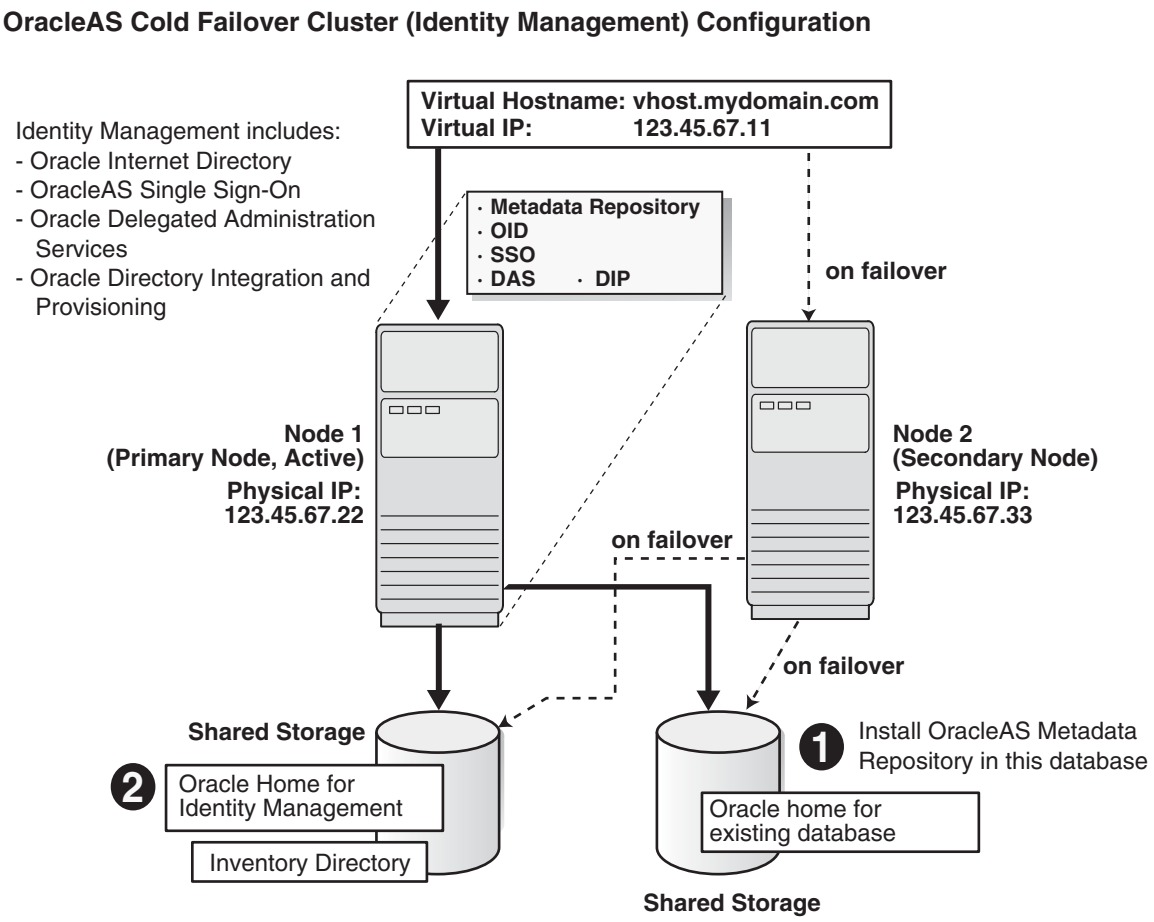
If node 1 goes down for any reason, the clusterware fails over the Identity Management and database processes to node 2. Node 2 becomes the active node, mounts both shared disks, runs the processes, and handles all requests.

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:1810

Figure 11–3 OracleAS Cold Failover Cluster (Identity Management) Configuration



11.5.1 OracleAS Cold Failover Cluster (Identity Management): Overview of Installation Steps

To create an OracleAS Cold Failover Cluster (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 (Identity Management) Configuration

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.1, "Check That Clusterware Is Running" ■ Section 11.2.2, "Map the Virtual Hostname and Virtual IP Address" ■ Section 11.2.3, "Set Up a File System That Can Be Mounted from Both Nodes" ■ Section 11.2.4, "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 Identity Management Components	Install the Identity Management components.

11.5.2 OracleAS Cold Failover Cluster (Identity Management): Details of Installation Steps

Perform the following steps to install Oracle Application Server in an OracleAS Cold Failover Cluster (Identity Management) configuration.

Step 1 Perform Pre-Installation Steps

Perform the pre-installation steps listed in Section 11.2, "Pre-Installation Steps for OracleAS Cold Failover Cluster".

Step 2 Install OracleAS Metadata Repository

You use the OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository in an existing database. See the *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. See Section 11.8, "Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment" for details.

Step 3 Install the Identity Management Components

You install the 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 Identity Management Components

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: a) The Select Hardware Cluster Installation Mode screen appears only if Oracle Cluster Ready Services is installed. If this screen appears, select Single Node or Cold Failover Cluster Installation because you are installing Identity Management on the shared disk. It is OK if you do not see this screen because Oracle Cluster Ready Services is not required for OracleAS Cold Failover Cluster. b) In the Select Installation Type screen, select **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 fullpath 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: `asdb.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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
7.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.

Table 11–5 (Cont.) Installing Identity Management Components

	Screen	Action
8.	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**.
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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
10.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

11.6 Installing a Distributed OracleAS Cold Failover Cluster (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 (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 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:

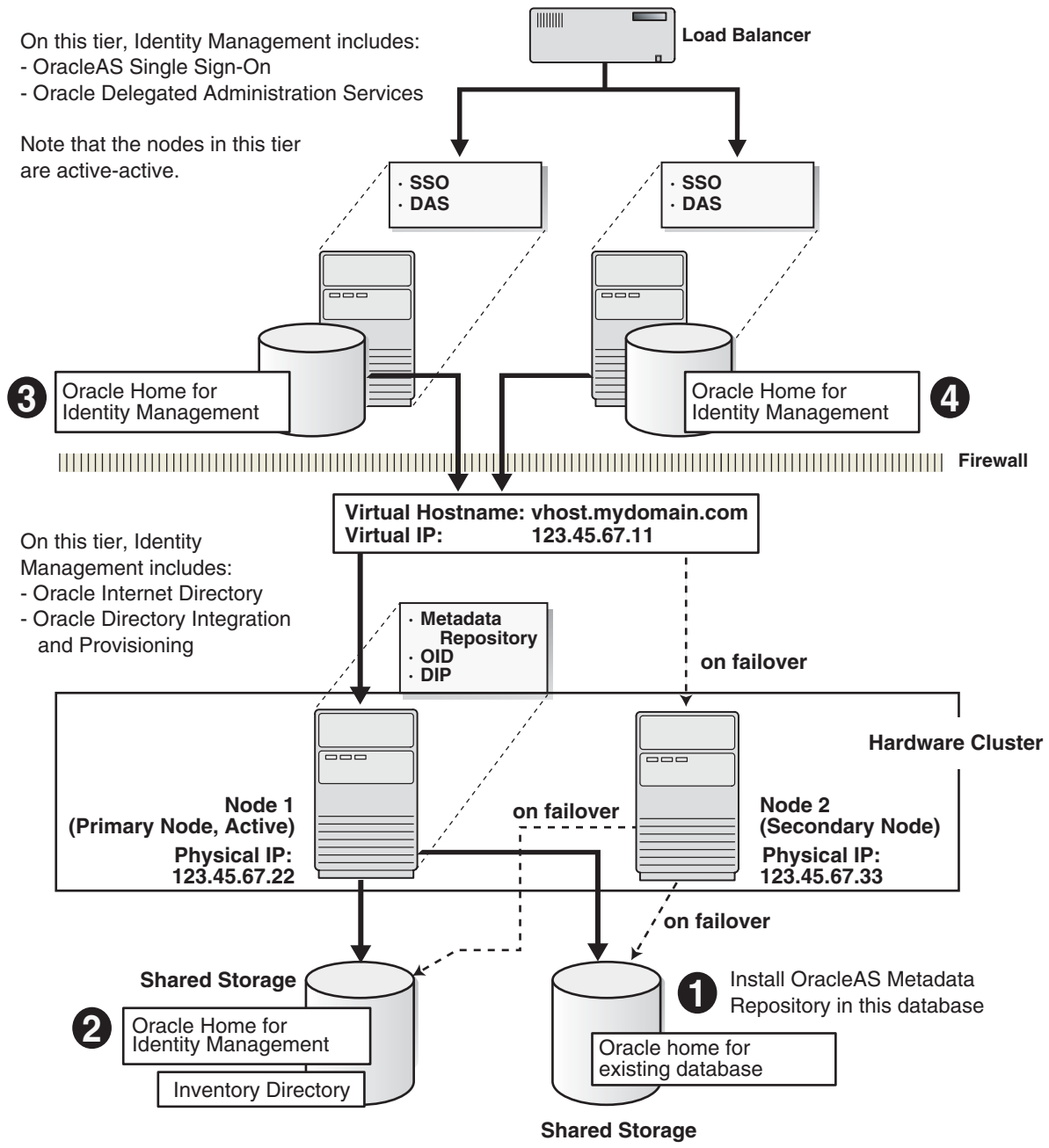
URL for:	Example URL
Oracle HTTP Server Welcome page	http://vhost.mydomain.com:7777
Oracle HTTP Server, secure mode	https://vhost.mydomain.com:4443
Application Server Control	http://vhost.mydomain.com:1810

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://loadbalance1.mydomain.com:7777
Oracle HTTP Server, secure mode	https://loadbalance1.mydomain.com:4443
Application Server Control	http://loadbalance1.mydomain.com:1810

Figure 11–4 Distributed OracleAS Cold Failover Cluster (Identity Management) Configuration



11.6.1 Distributed OracleAS Cold Failover Cluster (Identity Management): Overview of Installation Steps

To create a distributed OracleAS Cold Failover Cluster (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 (Identity Management) Configuration

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.1, "Check That Clusterware Is Running" ■ Section 11.2.2, "Map the Virtual Hostname and Virtual IP Address" ■ Section 11.2.3, "Set Up a File System That Can Be Mounted from Both Nodes" ■ Section 11.2.4, "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 (Identity Management): Details of Installation Steps

Step 1 Perform Pre-Installation Steps

Perform the pre-installation steps listed in Section 11.2, "Pre-Installation Steps for OracleAS Cold Failover Cluster".

Step 2 Install OracleAS Metadata Repository

You use the OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository in an existing database. See the *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. See 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

You 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 **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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: a) The Select Hardware Cluster Installation Mode screen appears only if Oracle Cluster Ready Services is installed. If this screen appears, select Single Node or Cold Failover Cluster Installation because you are installing Identity Management on the shared disk. It is OK if this screen does not appear because Oracle Cluster Ready Services is not required for OracleAS Cold Failover Cluster. b) In the Select Installation Type screen, select **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 fullpath 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: `asdb.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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.

Table 11–7 (Cont.) Installing Oracle Internet Directory and Oracle Directory Integration and Provisioning

	Screen	Action
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.	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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_dip_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 6.27, "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

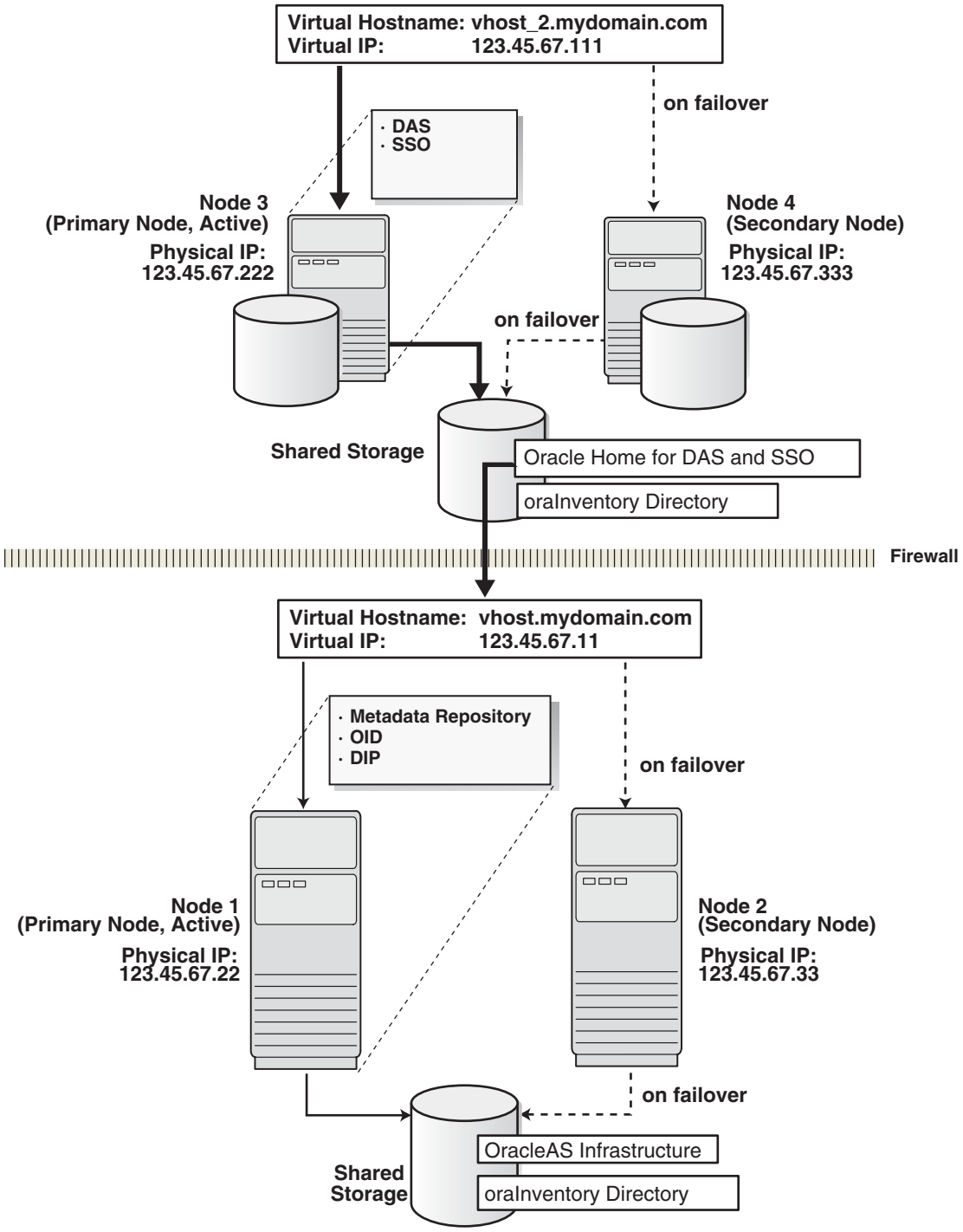
The configuration described in this section is similar to that described in Section 11.4, "Installing a Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration". The difference is that in the configuration described in this section,

OracleAS Single Sign-On and Oracle Delegated Administration Services run in an OracleAS Cold Failover Cluster configuration.

You need two sets of clustered nodes. See 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

Note: The installation order for this configuration is different from other configurations. Instead of completing the installations on one tier, then moving on to install the components on the next tier, you have to perform an installation from a node on one tier, then perform an installation from a node on the other tier. Then you have to delete the installations so that you can perform the same installations from the other nodes on each tier. You have to perform the installation steps in this order so that you do not get the error message that you are trying to re-register the same components with Oracle Internet Directory.

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 11.2.1, "Check That Clusterware Is Running". You need clusterware for all nodes. ■ Section 11.2.2, "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 11.2.3, "Set Up a File System That Can Be Mounted from Both Nodes". You need two shared disks, one for each set of nodes. ■ Section 11.2.4, "Review Recommendations for Automatic Storage Management (ASM)"
2.	Create staticports.ini Files	Create two staticports.ini files, one for each set of nodes. This is to ensure that the installer configures the components with the same ports.
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 11-7, 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.	Remove the Oracle Home for the OracleAS Metadata Repository and Oracle Internet Directory	From node 1, delete the Oracle home directory for the OracleAS Metadata Repository and Oracle Internet Directory.
8.	Remove the Oracle Home for Oracle Delegated Administration Services and OracleAS Single Sign-On	From node 3, delete the Oracle home directory for Oracle Delegated Administration Services and OracleAS Single Sign-On.

Table 11–8 (Cont.) Overview of Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in an OracleAS Cold Failover Cluster

	Step	Description
9.	Install OracleAS Metadata Repository and Oracle Internet Directory	From node 2, install OracleAS Metadata Repository and Oracle Internet Directory on the shared disk. Use the same values (Oracle home name, Oracle home directory, instance name, and so on) that you used in step 3.
10.	Install Oracle Delegated Administration Services and OracleAS Single Sign-On	From node 4, install Oracle Delegated Administration Services and OracleAS Single Sign-On on the shared disk. Use the same values (Oracle home name, Oracle home directory, instance name, and so on) that you used in step 4.
11.	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, "Pre-Installation Steps for OracleAS Cold Failover Cluster".

Step 2 Create staticports.ini Files

Create two staticports.ini files, one for each set of nodes. You need to have a staticports.ini file because you need to ensure that you get the same ports when you install from either node. For information on staticports.ini, see Section 4.5.3, "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 11-7, 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 fullpath 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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: a) The Select Hardware Cluster Installation Mode screen appears only if Oracle Cluster Ready Services is installed. If this screen appears, select Single Node or Cold Failover Cluster Installation because you are installing Identity Management on the shared disk. It is OK if this screen does not appear because Oracle Cluster Ready Services is not required for OracleAS Cold Failover Cluster. b) In the Select Installation Type screen, select **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.
3.	Specify Port Configuration Options	Select **Manual** and enter the fullpath to your staticports.ini file in the provided field. You created the staticports.ini file in step 2, "Create staticports.ini Files" on page 11-28. 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. See 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 OID 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.

Table 11–9 (Cont.) Installing Oracle Delegated Administration Services and OracleAS Single Sign-On

	Screen	Action
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. See Section 5.7, "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. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 6.27, "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* 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 Remove the Oracle Home for the OracleAS Metadata Repository and Oracle Internet Directory

From node 1, remove the Oracle home for the OracleAS Metadata Repository and Oracle Internet Directory. You need to remove it because you will be installing it again in the same directory from node 2.

Step 8 Remove the Oracle Home for Oracle Delegated Administration Services and OracleAS Single Sign-On

From node 3, remove the Oracle home for Oracle Delegated Administration Services and OracleAS Single Sign-On. You need to remove it because you will be installing it again in the same directory from node 4.

Step 9 Install OracleAS Metadata Repository and Oracle Internet Directory

From node 2, install the OracleAS Metadata Repository and Oracle Internet Directory. Use the same value for Oracle home, instance name, SID, and so on when you installed it from node 1. Follow the steps in step 3, "Install OracleAS Metadata Repository and Oracle Internet Directory" on page 11-28.

Step 10 Install Oracle Delegated Administration Services and OracleAS Single Sign-On

From node 4, install Oracle Delegated Administration Services and OracleAS Single Sign-On. Use the same value for Oracle home, instance name, SID, and so on when you installed it from node 3. Follow the steps in step 4, "Install Oracle Delegated Administration Services and OracleAS Single Sign-On from Node 3" on page 11-29.

Step 11 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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **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 **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)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	Select **Automatic**. Click **Next**.

Table 11–10 (Cont.) Installing the OracleAS Metadata Repository Only

	Screen	Action
4.	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. See 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.
5.	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.
6.	Select High Availability Option	Select **Virtual Host**. 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. See Section 6.28, "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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
10.	--	Finish the installation. See Section 6.27, "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 (see Figure 11–6).

In an OracleAS Cold Failover Cluster (Middle-Tier) configuration, you have an active node and a passive node, but unlike OracleAS Cold Failover Cluster (Infrastructure), you do not need a shared disk (unless you are using OracleAS JMS with file-based persistence). You install the Oracle homes for the middle tiers on the local storage of each node.

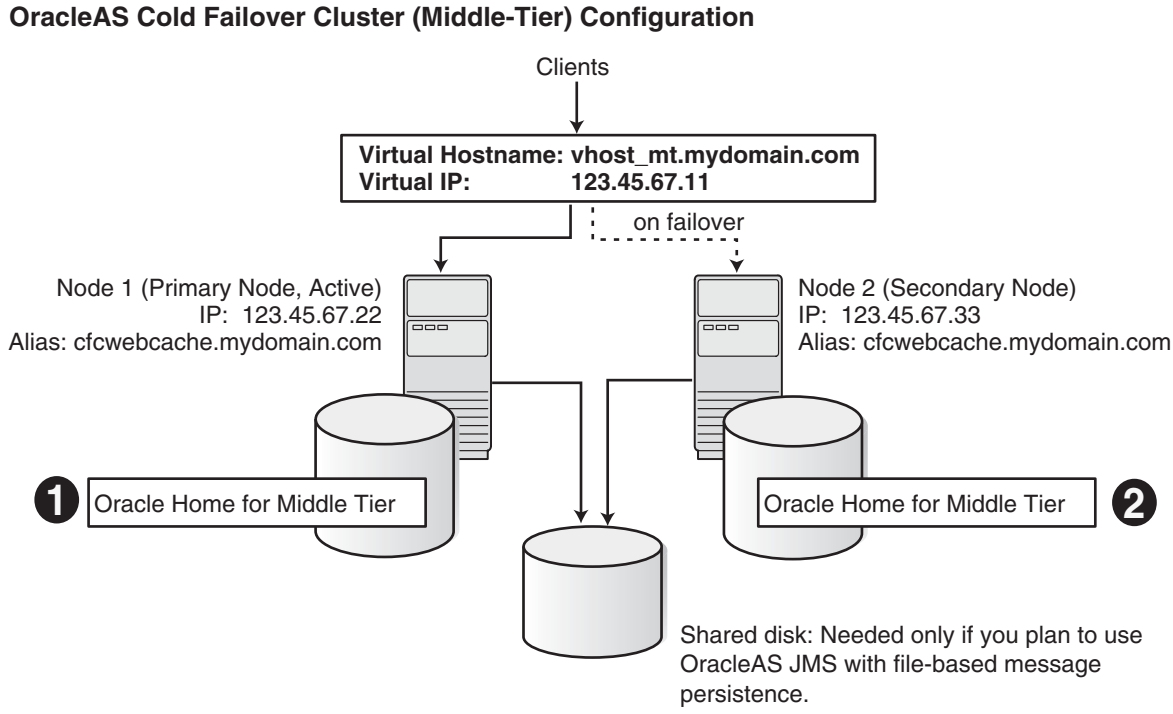
Virtual Hostname

Clients access the active node (for example, `node1`) using the virtual hostname (`vhost_mt.mydomain.com` in Figure 11–6). If `node1` fails, the virtual hostname points to `node2`, and `node2` becomes the active node.

Shared Disk Optional

You need a shared disk only if you are using OracleAS JMS with file-based persistence. You place the persistence file on the shared disk.

Figure 11–6 OracleAS Cold Failover Cluster (Middle-Tier) Configuration



11.9.1 Pre-Installation Steps

Before installing the middle tier, perform the following pre-installation steps:

- Section 11.9.1.1, "Create an Alias for the Hostnames"
- Section 11.9.1.2, "Set up staticports.ini File"

11.9.1.1 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 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. See Section 4.5.3, "Using Custom Port Numbers (the "Static Ports" Feature)" for details on creating the staticports.ini file.

11.9.2 Installing the Middle Tiers

You install the middle tiers on the local storage of each node.

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 11.9.1.2, "Set up staticports.ini File" 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, see Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access".

To install Portal and Wireless middle tiers, see Section 7.13, "Installing Portal and Wireless".

To install the OracleBI Discoverer component, you install it from the Oracle Business Intelligence CD-ROM. OracleBI Discoverer is **not** part of the J2EE and Web Cache or the Portal and Wireless middle tiers.

11.9.3 Post-Installation Steps

Before the middle tiers can run in cold failover cluster mode, perform the following post-installation steps:

- Section 11.9.3.1, "(optional) Configure the Middle-Tier Instances to Use SSL"
- Section 11.9.3.2, "Back up the Installations (Middle Tier and OracleAS Infrastructure)"
- Section 11.9.3.3, "Enable the Virtual IP for the OracleAS Cold Failover Cluster (Middle-Tier) on the Active Node"
- Section 11.9.3.4, "Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence"
- Section 11.9.3.5, "Stop All Oracle Application Server Processes Except OPMN"
- Section 11.9.3.6, "Update Component Configuration on Node1"
- Section 11.9.3.7, "Update Component Configuration on Node 2"

11.9.3.1 (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.

11.9.3.2 Back up the Installations (Middle Tier and OracleAS Infrastructure)

Before performing the post-installation steps, back up the middle tiers and the OracleAS Infrastructure, including the OracleAS Metadata Repository and the Identity Management components. See the *Oracle Application Server Administrator's Guide* for instructions on how to perform backups.

11.9.3.3 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:

```
# ifconfig interface_name addif virtual_IP up
```

See Section 11.2.2, "Map the Virtual Hostname and Virtual IP Address" for details.

11.9.3.4 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.

11.9.3.5 Stop All Oracle Application Server Processes Except OPMN

On node1, stop all Oracle Application Server processes and start up OPMN only. You can do this with the following commands:

```
prompt> ORACLE_HOME/bin/emctl stop iasconsole
prompt> ORACLE_HOME/opmn/bin/opmnctl stopall
prompt> ORACLE_HOME/opmn/bin/opmnctl start
```

11.9.3.6 Update Component Configuration on Node1

Perform the following steps to update some component configuration on the middle-tier Oracle home that you installed on `node1`.

Table 11–11 shows the sample values used in the steps. Replace the sample values with your actual values.

Table 11–11 Sample Values Used in the Steps Below

Item	Sample Value
Physical hostnames for the nodes	`node1` and `node2`
Alias for the physical hostnames	`cfcwebcache`
Virtual hostname for the middle tiers	`vhost_mt`

Notes:

- You only need to perform the steps for the components that you installed and configured. For example, if you did not install OracleAS Portal, you can skip the OracleAS Portal sections. See Table 11–12.
- For the files that you need to modify, you should make a backup copy first, in case you need to revert to the original version.

Table 11–12 Update Configuration Steps

	Required for J2EE and Web Cache Middle Tier?	Required for Portal and Wireless Middle Tier?	Required for OracleBI Discoverer? (see (1) below)
Step 1: "Modify Oracle HTTP Server"	Yes	Yes	Yes
Step 2: "Modify OracleAS Web Cache"	Only if you configured OracleAS Web Cache	Yes	Yes
Step 3: "Modify OracleAS Portal"	No	Only if you configured OracleAS Portal	No
Step 4: "Modify OracleAS Wireless"	No	Only if you configured OracleAS Wireless	No
Step 5: "Modify OracleBI Discoverer"	See (1) below.	See (1) below.	Yes
Step 6: "Verify the Changes"	No	Yes	Yes
Step 7: "Modify OracleAS JMS"	Only if you plan to use OracleAS JMS	Only if you plan to use OracleAS JMS	No
Step 8: "Fail over the Virtual IP to Node 2"	Yes	Yes	Yes

(1) In this release, you install OracleBI Discoverer from the Oracle Business Intelligence CD-ROM. OracleBI Discoverer is not part of the J2EE and Web Cache or the Portal and Wireless installation.

Step 1 Modify Oracle HTTP Server

1. Change all occurrences of the physical hostname (example: `node1`) to the virtual hostname (example: `vhost_mt`), where `node1` appears as a hostname, in the following files.

   Note that if `node1` is used as part of the Oracle Application Server instance name, do not change it.

   ORACLE_HOME refers to the directory where you installed the middle tier.

   - *ORACLE_HOME*`/Apache/Apache/conf/httpd.conf`
   - *ORACLE_HOME*`/Apache/Apache/conf/ssl.conf` (for SSL-enabled middle tiers)
   - *ORACLE_HOME*`/Apache/Apache/conf/mod_oc4j.conf`
   - *ORACLE_HOME*`/Apache/Apache/htdocs/index.html`

2. Update the DCM repository with the changes.

   ```
   prompt> $ORACLE_HOME/dcm/bin/dcmctl updateConfig -ct ohs
   ```

3. Reregister mod_osso as a partner application.

   a. Set the ORACLE_HOME environment variable to the full path of the directory where you installed the middle tier.

   b. Set the LD_LIBRARY_PATH environment variable to include *ORACLE_HOME*`/lib32`.

   c. Set the LD_LIBRARY_PATH_64 environment variable to include *ORACLE_HOME*`/lib`.

   d. Run the following command (all on one line):

For **non-SSL** middle tiers:

```
prompt> $ORACLE_HOME/jdk/bin/java
   -jar $ORACLE_HOME/sso/lib/ossoreg.jar
   -site_name vhost_mt.mydomain.com
   -mod_osso_url http://vhost_mt.mydomain.com:port
   -config_mod_osso TRUE
   -oracle_home_path $ORACLE_HOME
   -u oracle
   -config_file $ORACLE_HOME/Apache/Apache/conf/osso/osso.conf
   -admin_info cn=orcladmin
```

For the *port* value in the `-mod_osso_url` parameter, you can look in the `Port` directive in the *ORACLE_HOME*`/Apache/Apache/conf/httpd.conf` file.

For **SSL** middle tiers:

Differences from the non-SSL middle tier: (1) use "`https`" instead of "`http`" in the `-mod_osso_url` parameter, and (2) determine the port number by looking in the `ssl.conf` file instead of the `httpd.conf` file.

```
prompt> $ORACLE_HOME/jdk/bin/java
   -jar $ORACLE_HOME/sso/lib/ossoreg.jar
   -site_name vhost_mt.mydomain.com
   -mod_osso_url https://vhost_mt.mydomain.com:port
   -config_mod_osso TRUE
   -oracle_home_path $ORACLE_HOME
   -u oracle
   -config_file $ORACLE_HOME/Apache/Apache/conf/osso/osso.conf
   -admin_info cn=orcladmin
```

For the *port* value in the `-mod_osso_url` parameter, you can look in the `Port` directive in the *ORACLE_HOME*`/Apache/Apache/conf/ssl.conf` file.

Step 2 Modify OracleAS Web Cache

1. In *ORACLE_HOME*`/webcache/webcache.xml`, change the `CACHE` directive by replacing the physical hostname (example: `node1`) with the alias (example: `cfcwebcache`):

   ```
   <CACHE  NAME="cfcwebcache.mydomain.com-WebCache"
      ORACLEHOME="/home/oracle/j2ee"  HOSTNAME="cfcwebcache.mydomain.com"
      VOTES="1"  CAPACITY="30"  WCDEBUGON="NO"  CHRONOSONPERNODE="NO">
   ```

2. Change all occurrences of the physical hostname (example: `node1`) to the virtual hostname (example: `vhost_mt`), where `node1` appears as a hostname, in the following files.

   Note that if `node1` is used as part of the Oracle Application Server instance name, do not change it.

   - *ORACLE_HOME*`/webcache/webcache.xml`
   - *ORACLE_HOME*`/webcache/docs/welcome.html`

Step 3 Modify OracleAS Portal

1. Change all occurrences of the physical hostname (example: `node1`) to the virtual hostname (example: `vhost_mt`), 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.

- *ORACLE_HOME*`/portal/conf/cache.xml`

2. In *ORACLE_HOME*`/portal/conf/iasconfig.xml`, make the following changes:
   - Add the following lines as the first directive in `IASConfig`:

```
<IASFarm  Name="CFCFarm.vhost_mt.mydomain.com"  Host="vhost_
mt.mydomain.com">
   <WebCacheComponent  AdminPort="4003"  ListenPort="7780"
     InvalidationPort="4004"  InvalidationUsername="invalidator"
     InvalidationPassword="welcome1"  SSLEnabled="false" />
</IASFarm>
```

     You can determine the port numbers by looking in the `ORACLE_HOME/install/portlist.ini` file, as shown in Table 11–13:

Table 11–13 Ports for the IASFarm Directive

Port in IASFarm Directive	Line in portlist.ini File
AdminPort	WebCache Administration port
ListenPort	WebCache HTTP Listen port
InvalidationPort	WebCache Invalidation port

   - Change the `WebCacheDependency` section in the `PortalInstance` directive to:

```
<WebCacheDependency ContainerType="IASFarm"
 Name="CFCFarm.vhost_mt.mydomain.com" />
```

     The value for `Name` must match the `Name` value in the `IASFarm` directive.

   - Encrypt the password in the file by running this command:

```
prompt> cd $ORACLE_HOME/portal/conf
prompt> ./ptlconfig -encrypt
```

3. Get the password for the PORTAL schema. You need this value for the next step.
   a. Start up Oracle Directory Manager.

```
prompt> $ORACLE_HOME/bin/oidadmin
```

   b. Log in to Oracle Internet Directory as the `cn=orcladmin` superuser.
   c. Expand the following entries:

      Entry management > **cn=OracleContext** > **cn=Products** > **cn=IAS** > **cn=IAS Infrastructure Databases** > **orclReferenceName=***Global_SID*.

      On the left side, expand **orclReferenceName=***Global_SID* and select **OrclResourceName=PORTAL**.

      On the right side, the password for the PORTAL schema is displayed in the **orclpasswordattribute** field.

4. Register the URL changes with OracleAS Portal:

```
prompt> cd $ORACLE_HOME/portal/conf
prompt> ./ptlconfig -dad portal -pw portal_schema_password -wc -site
```

5. Reregister mod_osso as a partner application. Do this step only if you did not do it in Step 1, "Modify Oracle HTTP Server".

   a. Set the ORACLE_HOME environment variable to the full path of the directory where you installed the middle tier.

   b. Set the LD_LIBRARY_PATH environment variable to include *ORACLE_HOME*/lib32.

   c. Set the LD_LIBRARY_PATH_64 environment variable to include *ORACLE_HOME*/lib.

   d. Run the following command (all on one line):

      For **non-SSL** middle tiers:

```
prompt> $ORACLE_HOME/jdk/bin/java
   -jar $ORACLE_HOME/sso/lib/ossoreg.jar
   -site_name vhost_mt.mydomain.com
   -mod_osso_url http://vhost_mt.mydomain.com:port
   -config_mod_osso TRUE
   -oracle_home_path $ORACLE_HOME
   -u oracle
   -config_file $ORACLE_HOME/Apache/Apache/conf/osso/osso.conf
   -admin_info cn=orcladmin
```

      For the *port* value in the -mod_osso_url parameter, you can look in the Port directive in the *ORACLE_HOME*/Apache/Apache/conf/httpd.conf file.

      For **SSL** middle tiers:

      Differences from the non-SSL middle tier: (1) use "https" instead of "http" in the -mod_osso_url parameter, and (2) determine the port number by looking in the ssl.conf file instead of the httpd.conf file.

```
prompt> $ORACLE_HOME/jdk/bin/java
   -jar $ORACLE_HOME/sso/lib/ossoreg.jar
   -site_name vhost_mt.mydomain.com
   -mod_osso_url https://vhost_mt.mydomain.com:port
   -config_mod_osso TRUE
   -oracle_home_path $ORACLE_HOME
   -u oracle
   -config_file $ORACLE_HOME/Apache/Apache/conf/osso/osso.conf
   -admin_info cn=orcladmin
```

      For the *port* value in the -mod_osso_url parameter, you can look in the Port directive in the *ORACLE_HOME*/Apache/Apache/conf/ssl.conf file.

6. Restart the components:

```
prompt> $ORACLE_HOME/opmn/bin/opmnctl startall
prompt> $ORACLE_HOME/bin/emctl start iasconsole
```

7. Update the OracleAS Wireless Portal Service URL Reference.

   a. Login to OracleAS Portal using the virtual hostname. For example:

      For non-SSL middle tiers, use "http://vhost_mt.mydomain.com:port/pls/portal".

      For SSL-based middle tiers, use "https://vhost_mt.mydomain.com:port/pls/portal".

   b. Click **Login**, and enter the administrator username and password.

c. Click the **Administrator** tab.

d. Click **Global Settings** under **Services**.

e. Click the **Mobile** tab.

f. Change the OracleAS Wireless Portal Service URL entry in the OracleAS Wireless Information section to use the virtual hostname (example: `vhost_mt.mydomain.com`).

g. Click **Apply**.

Step 4 Modify OracleAS Wireless

Use the OracleAS Portal configuration tool to change the wireless URL:

1. Change all occurrences of the physical hostname (example: `node1`) to the virtual hostname (example: `vhost_mt`), 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.

   - *ORACLE_HOME*`/wireless/config/iaswcfg.xml`

2. Register the wireless device portal with OracleAS Single Sign-On:

   For **non-SSL** middle tiers:

```
prompt> cd $ORACLE_HOME/wireless/bin
prompt> reRegisterSSO.sh http://vhost_mt.mydomain.com:port/ptg/rm
          $ORACLE_HOME "cn=orcladmin"
```

   For **SSL** middle tiers:

```
prompt> cd $ORACLE_HOME/wireless/bin
prompt> reRegisterSSO.sh https://vhost_mt.mydomain.com:port/ptg/rm
          $ORACLE_HOME "cn=orcladmin"
```

Step 5 Modify OracleBI Discoverer

Note that in this release, you install OracleBI Discoverer from the Oracle Business Intelligence CD-ROM. OracleBI Discoverer is not part of the J2EE and Web Cache or the Portal and Wireless installation.

Change all occurrences of the physical hostname (example: `node1`) to the virtual hostname (example: `vhost_mt`), 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.

- *ORACLE_HOME*`/discoverer/config/configuration.xml`
- *ORACLE_HOME*`/j2ee/properties/oc4j_bi_forms.properties`
- *ORACLE_HOME*`/j2ee/OC4J_BI_Forms/config/oc4j.properties`

Step 6 Verify the Changes

1. Log in to `http://`*vhost_mt.mydomain.com:port*`/pls/portal`. If you have enabled SSL on your middle tiers, use `https` instead of `http` in the URL.
2. Click **Login** and enter the administrator username and password.
3. Click the **Administrator** tab.
4. Click **Global Settings** under **Services**.

5. Click **Configuration**.
6. Verify that the host entry in **Default JPDK Instance** is based on the virtual hostname (example: *vhost_mt.mydomain.com*).
7. Click the **Cache** tab.
8. Verify that the **Host name** entry in **Web Cache Host Settings** is based on the virtual hostname (example: *vhost_mt.mydomain.com*).
9. Click the **Mobile** tab.
10. Verify that the **OracleAS 10g Wireless Portal Service URL** entry in the **OracleAS 10g Wireless Information** section is based on the virtual hostname (example: *vhost_mt.mydomain.com*).
11. Go back to the **Administrator** tab.
12. Click **Search Settings** under **Services**.
13. Verify that the host name in **Oracle Text Base URL** is based on the virtual hostname (example: *vhost_mt.mydomain.com*).

Step 7 Modify OracleAS JMS

1. 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>
```

2. 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>
```

3. 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
```

Step 8 Fail over the Virtual IP to Node 2

1. Stop all Oracle Application Server processes on `node1`.

```
prompt> $ORACLE_HOME/bin/emctl stop iasconsole
prompt> $ORACLE_HOME/opmn/bin/opmnctl stopall
```

2. Fail over the virtual hostname *vhost_mt.mydomain.com* from `node1` to `node2`.

   On `node1`, run the following command as root:

```
# ifconfig interface removeif virtual_ip_address
```

On node2, run the following command as root:

```
# ifconfig interface addif virtual_ip_address up
```

3. If you are using OracleAS JMS persistent queues, fail over the shared disk.

11.9.3.7 Update Component Configuration on Node 2

Perform these steps on the middle-tier Oracle home that you installed on node2:

- Step 1: "Stop All Oracle Application Server Processes, and Start OPMN only"
- Step 2: "Copy Configuration Files from node1 to node2"
- Step 3: "Update the DCM Repository"
- Step 4: "Modify OracleAS Portal"
- Step 5: "Modify OracleBI Discoverer"
- Step 6: "Modify OracleAS JMS"
- Step 7: "Restart the Oracle Application Server Processes"

Step 1 Stop All Oracle Application Server Processes, and Start OPMN only

If any Oracle Application Server processes are running, stop them. Start up OPMN only.

```
prompt> $ORACLE_HOME/bin/emctl stop iasconsole
prompt> $ORACLE_HOME/opmn/bin/opmnctl stopall
prompt> $ORACLE_HOME/opmn/bin/opmnctl start
```

Step 2 Copy Configuration Files from node1 to node2

Oracle HTTP Server:

- *ORACLE_HOME*/Apache/Apache/conf/httpd.conf
- *ORACLE_HOME*/Apache/Apache/conf/ssl.conf (for SSL-enabled middle tiers)
- *ORACLE_HOME*/Apache/Apache/conf/mod_oc4j.conf
- *ORACLE_HOME*/Apache/Apache/conf/osso/osso.conf
- *ORACLE_HOME*/Apache/Apache/htdocs/index.html

OracleAS Web Cache:

- *ORACLE_HOME*/webcache/webcache.xml
- *ORACLE_HOME*/webcache/docs/welcome.html

OracleAS Portal:

- *ORACLE_HOME*/portal/conf/cache.xml

OracleAS Wireless

- *ORACLE_HOME*/wireless/config/iaswcfg.xml

Step 3 Update the DCM Repository

To update the DCM repository, run the following command on node2:

```
prompt> $ORACLE_HOME/dcm/bin/dcmctl updateConfig -ct ohs
```

Step 4 Modify OracleAS Portal

Make the following changes to *ORACLE_HOME*/portal/conf/iasconfig.xml:

- Add the following lines as the first directive in IASConfig:

```
<IASFarm  Name="CFCFarm.vhost_mt.mydomain.com"  Host="vhost_mt.mydomain.com">
   <WebCacheComponent  AdminPort="4003"  ListenPort="7780"
       InvalidationPort="4004"  InvalidationUsername="invalidator"
       InvalidationPassword="welcome1"  SSLEnabled="false"/>
</IASFarm>
```

  These values should be the same as the ones on node1. See Step 3, "Modify OracleAS Portal" on page 11-38.

- Change the WebCacheDependency section in the PortalInstance directive to:

```
<WebCacheDependency ContainerType="IASFarm"
   Name="CFCFarm.vhost_mt.mydomain.com" />
```

  The value for Name must match the Name value in the IASFarm directive.

- Encrypt the password in the file by running this command:

```
prompt> $ORACLE_HOME/portal/conf/ptlconfig -encrypt
```

Step 5 Modify OracleBI Discoverer

Change all occurrences of the physical hostname (example: node2) to the virtual hostname (example: vhost_mt), where node2 appears as a hostname.

Note that if node2 is used as part of the Oracle Application Server instance name, do not change it.

- *ORACLE_HOME*/discoverer/config/configuration.xml
- *ORACLE_HOME*/j2ee/properties/oc4j_bi_forms.properties
- *ORACLE_HOME*/j2ee/OC4J_BI_Forms/config/oc4j.properties

Step 6 Modify OracleAS JMS

1. Fail over the *vhost_mt.mydomain.com* virtual IP and the shared disk from node1 to node2.
2. 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>
   ```

3. 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 persistence-file 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>
   ```

4. Update the DCM repository.

```
prompt> $ORACLE_HOME/dcm/bin/dcmctl updateConfig -ct oc4j
```

Step 7 Restart the Oracle Application Server Processes

Run the following commands to restart the components:

```
prompt> $ORACLE_HOME/opmn/bin/opmnctl startall
prompt> $ORACLE_HOME/bin/emctl start iasconsole
```

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 11–7 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 11–8), 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 11–9), 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_infra.mydomain.com:7777
Oracle HTTP Server, secure mode	https://vhost_infra.mydomain.com:4443

URL for:	Example URL
Application Server Control	http://vhost_infra.mydomain.com:1810

Figure 11–7 OracleAS Cold Failover Cluster (Infrastructure) with OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes

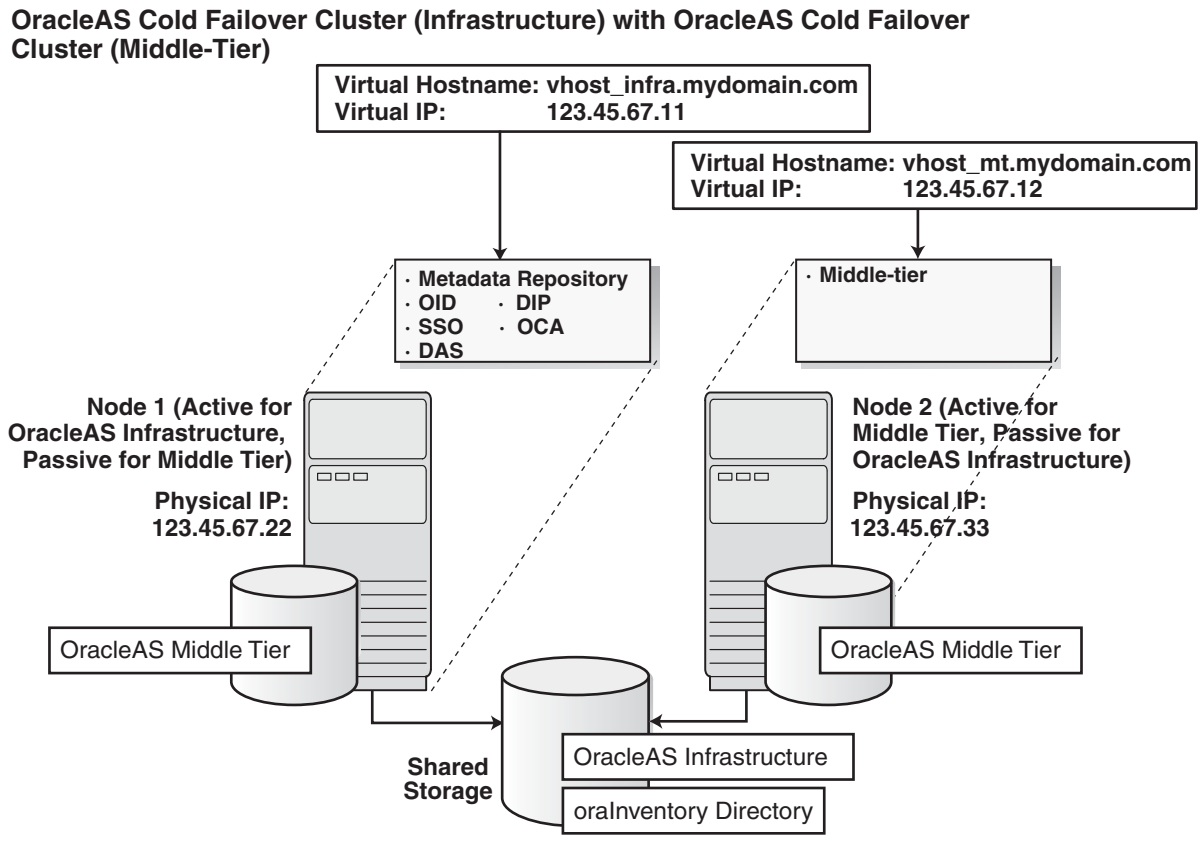


Figure 11–8 If Node 1 Fails

OracleAS Cold Failover Cluster (Infrastructure) with OracleAS Cold Failover Cluster (Middle-Tier)

If Node 1 Fails

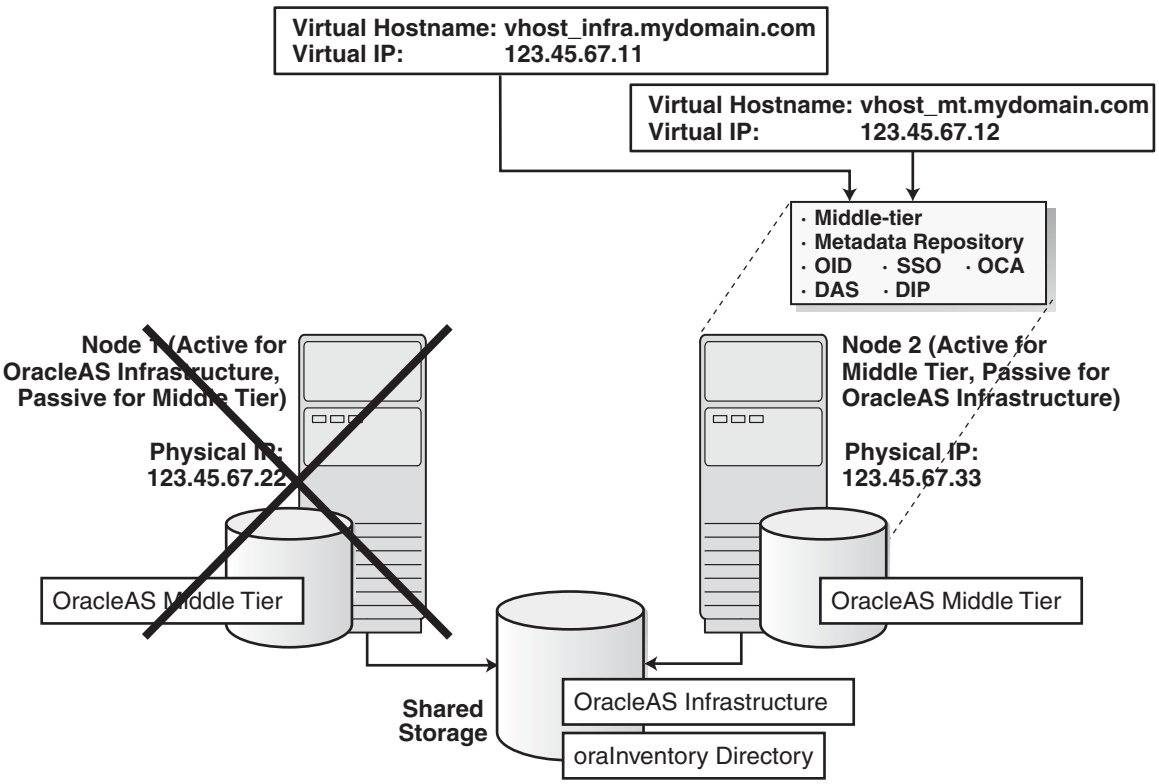
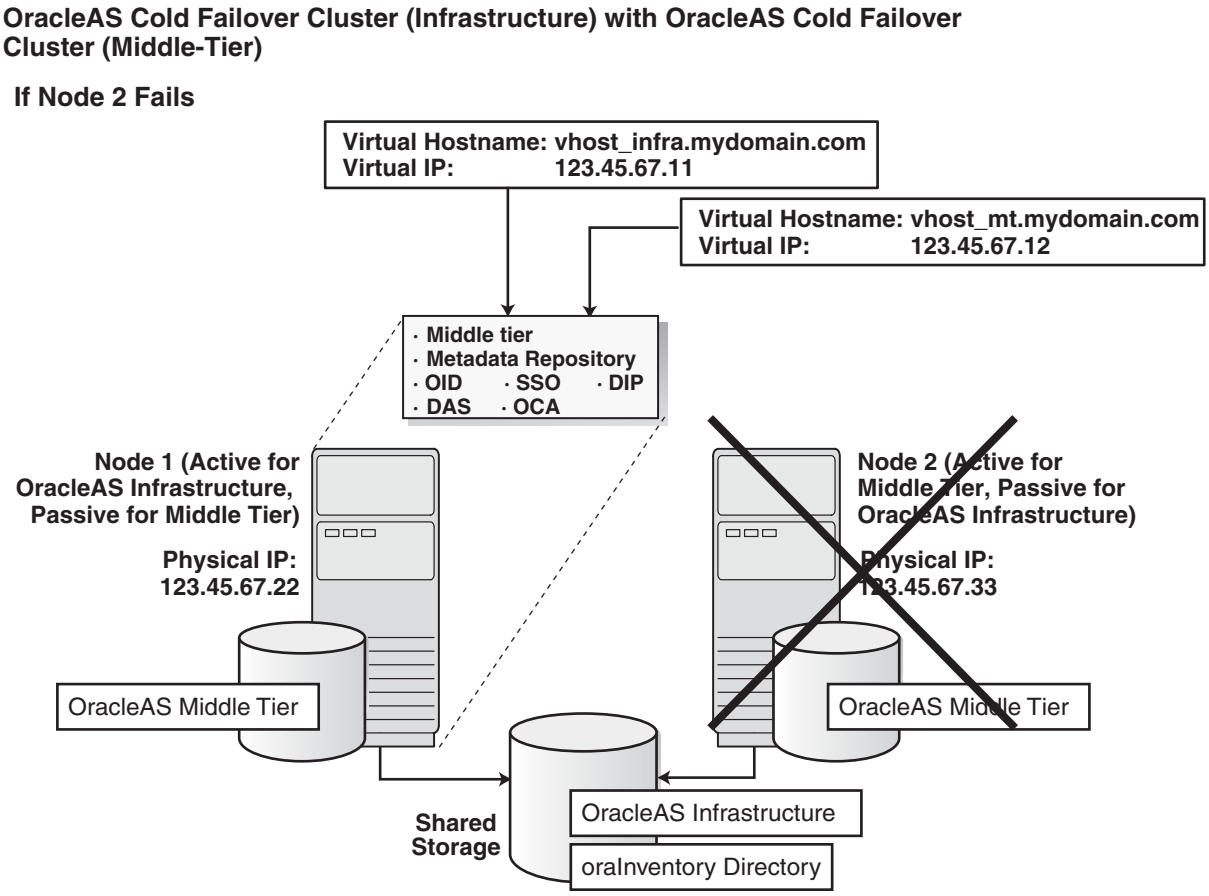


Figure 11–9 If Node 2 Fails



11.10.1 Installation Steps

To create this configuration:

1. Set up the environment.
   - Section 11.2.1, "Check That Clusterware Is Running"
   - Section 11.2.2, "Map the Virtual Hostname and Virtual IP Address"
   - Section 11.2.3, "Set Up a File System That Can Be Mounted from Both Nodes"
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. See 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, see Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access".
   - To install a Portal and Wireless middle tier, see Section 7.13, "Installing Portal and Wireless".

11.10.2 Post-Installation Steps

Perform the post-installation steps for `node1` and `node2` listed in Section 11.9.3, "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 the /var/opt/oracle Directory to the Other Node"
- Section 11.11.3, "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 the /var/opt/oracle Directory to the Other Node

After the OracleAS Infrastructure installation is complete, copy the `/var/opt/oracle` directory from the node where you performed the installation to the other node in the OracleAS Cold Failover Cluster. This ensures that you can run the installer to update the Oracle home from either node in the cluster.

Be sure to keep the two `/var/opt/oracle` directories in sync. Whenever you run the installer to update the infrastructure, you need to copy the `oracle` directory to the other node.

The `/var/opt/oracle` directory is not used during runtime by Oracle Application Server. It is used only by the installer.

11.11.3 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, see 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 /var/opt/oracle Directory 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. See Section 4.5.3, "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 /var/opt/oracle Directory 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 `/var/opt/oracle` directory 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 /var/opt
# mv oracle oracle.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 /var/opt
# mv oracle oracle.mt       see (1)
# mv oracle.infra oracle    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 `/var/opt/oracle` directory 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".
  - In the Specify Hardware Cluster Installation Node screen (if displayed), select **Local Installation**.

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, "Pre-Installation 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, "Post-Installation 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 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. See 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 Real Application Clusters or cold failover cluster database. You will install the OracleAS Metadata Repository on this database using the OracleAS Metadata Repository Creation Assistant.

Note: For OracleAS Cluster (Identity Management) configurations, you never select the "**Identity Management and OracleAS Metadata Repository**" option in the installer. You always select the **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). See Section 12.5.
- Distributed OracleAS Cluster (Identity Management). See Section 12.6.

12.2 Pre-Installation 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 to Direct Requests to Node 1 Initially"
- 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 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.

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 number.

- Configure a virtual server name for HTTP connections. For this virtual server, you also need to configure two ports: one for SSL and one 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.

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 access these virtual server names.

12.2.4 Configure Your LDAP Virtual Server to Direct Requests to Node 1 Initially

Note that this procedure applies only to the LDAP virtual server configured on your load balancer. This does not apply to the HTTP virtual server configured on your load balancer.

Before you start the installation, configure your LDAP virtual server to direct requests to node 1 only. 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 Identity Management components on node 1.
3. Install Identity Management components on node 2.
4. Add node 2 to the LDAP virtual server.
5. Install 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. See 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. See 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. See 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.

Example

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: Select this option.

In `opmn.xml`, the installer sets the `ssl-enabled` line in the Oracle HTTP Server section to `true`.

Example

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`

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.

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
```

Example

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

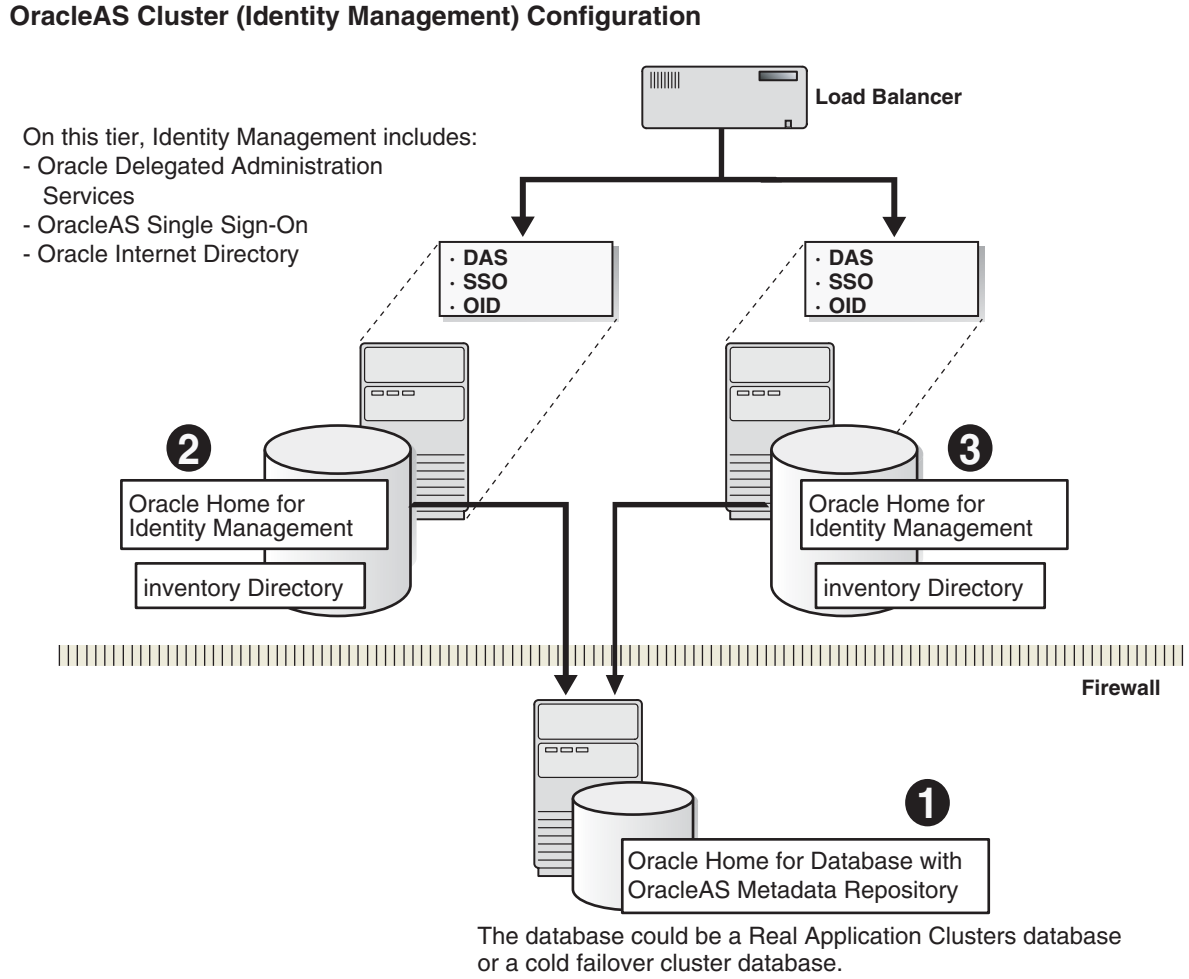
In this configuration, you need an existing database that is already running in a high availability environment, such as a Real Application Clusters database. You also need additional nodes (at least two nodes) to run Identity Management components. In this configuration, Oracle Internet Directory, OracleAS Single Sign-On, and Oracle Delegated Administration Services run on each node. If you want to distribute these

components, see Section 12.6, "Installing a Distributed OracleAS Cluster (Identity Management) Configuration".

These nodes are accessed through a load balancer. See Figure 12–1.

You install the OracleAS Metadata Repository in your existing database, then install 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 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. See the *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 Identity Management components.

Note that the procedure for installing Identity Management components on the first node is different from installing the components on subsequent nodes. To install the components on subsequent nodes, see 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, "Ensure that the OracleAS Metadata Repository Is Not Registered with any Oracle Internet Directory"
- Section 12.5.3.3, "Select the Same Components for Each Node"
- Section 12.5.3.4, "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 above, 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 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.

12.5.3.3 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.

12.5.3.4 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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **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 fullpath to your staticports.ini file in the provided field. You need to use staticports.ini file for OracleAS Cluster (Identity Management) configurations. See Section 12.5.3.1, "Create staticports.ini File". Click **Next**.

Table 12–4 (Cont.) Steps for Installing OracleAS Cluster (Identity Management) on the First Node

	Screen	Action
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: `asdb.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). 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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
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. In scenario 2, enter the name of the computer running Oracle Internet Directory. Notes on the port values (see 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**.

Table 12–4 (Cont.) Steps for Installing OracleAS Cluster (Identity Management) on the First Node

	Screen	Action
9.	Specify HTTP Load Balancer Host and Ports	See 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. **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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
11.	--	Finish the installation. See Section 6.27, "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 Identity Management components. Use this procedure to install Identity Management components on nodes other than the first. For the first node, see 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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **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 fullpath to your staticports.ini file in the provided field. You need to use staticports.ini file for OracleAS Cluster (Identity Management) configurations. See 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 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 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: `asdb.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. See 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. 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**.

Table 12–5 (Cont.) Steps for Installing OracleAS Cluster (Identity Management) on Subsequent Nodes

	Screen	Action
8.	Specify OID 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.
9.	Specify HTTP Load Balancer Host and Ports	See 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. **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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
11.	--	Finish the installation. See Section 6.27, "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 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. See Figure 12–2.

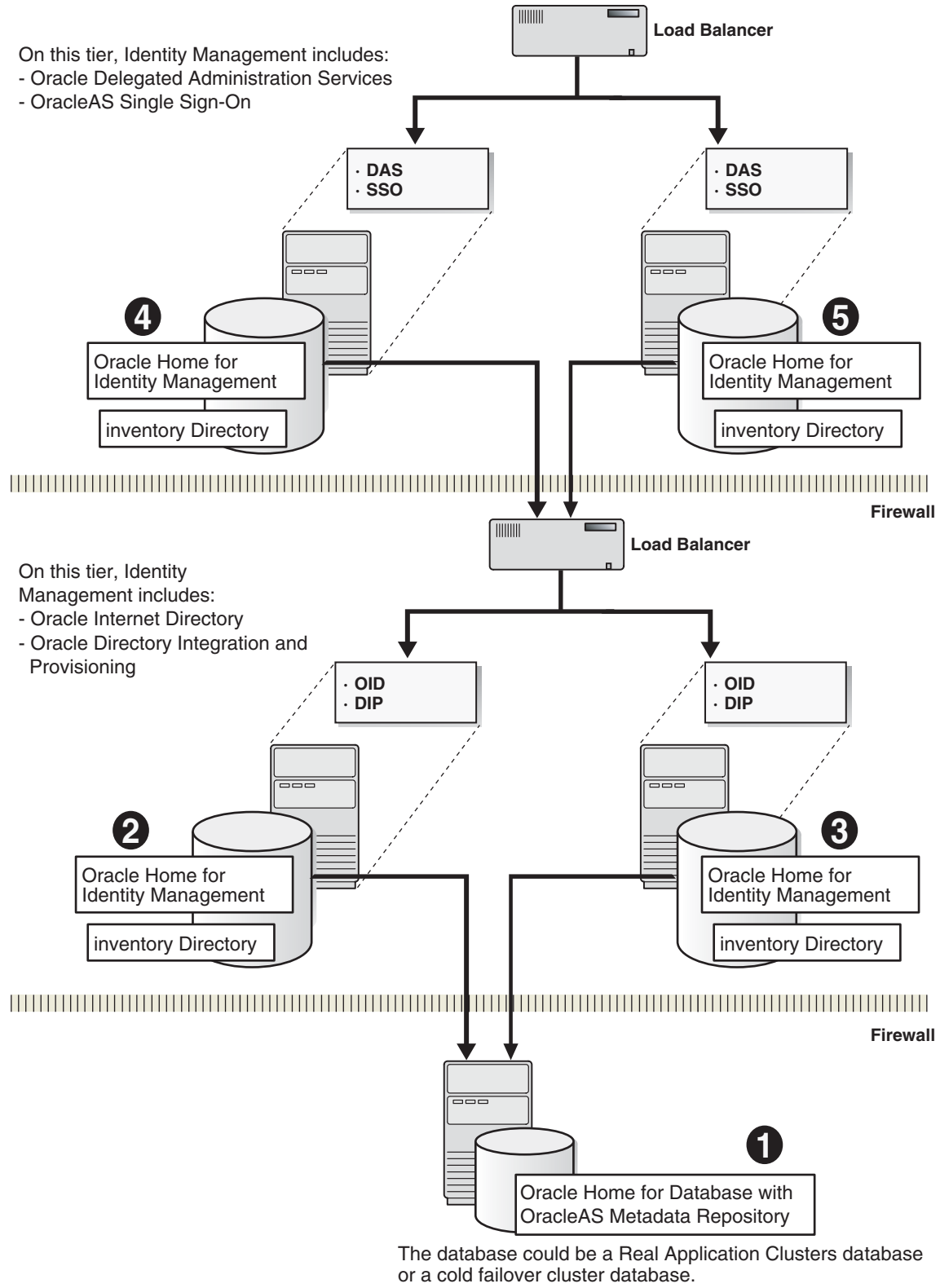
Oracle Directory Integration and Provisioning Is Started on the First Node Only

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. See the *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 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, see Section 12.6.4, "Installing Oracle Internet Directory on Subsequent Nodes".

Key Points

- 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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **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 fullpath to your staticports.ini file in the provided field. You need to use staticports.ini file for OracleAS Cluster (Identity Management) configurations. See Section 12.6.3.1, "Set up staticports.ini File". 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
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: `asdb.mydomain.com` Click Next.
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 Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_das_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 6.27, "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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **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: `asdb.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. See Section 12.2.2, "Synchronize Clocks on All Nodes". Click **OK**.

Table 12–7 (Cont.) Steps for Installing Oracle Internet Directory in a Distributed OracleAS Cluster (Identity Management) on Subsequent Nodes

	Screen	Action
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**.
7.	Register with Oracle Internet Directory	Enter connect information for the first 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. See 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**: Do not select this option. Click **Next**.
8.	Specify OID 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.
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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_das_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "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 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 above, 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

Key Points

- 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.
- Also 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. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **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 fullpath to your staticports.ini file in the provided field. You need to use staticports.ini file for OracleAS Cluster (Identity Management) configurations. See 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**.

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
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**.
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. **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. Click **Next**.
8.	Specify OID 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. See 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	See 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. **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 12–8 (Cont.) Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in a Distributed OracleAS Cluster (Identity Management) Configuration

	Screen	Action
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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `das_sso_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
11.	--	Finish the installation. See Section 6.27, "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. See Section 12.5.5, "If the Cluster Configuration Assistant Failed" for details.

12.7 Post-Installation Steps

After installing 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. See Section 12.2.4, "Configure Your LDAP Virtual Server to Direct Requests to Node 1 Initially".

12.8 Installing Middle Tiers Against OracleAS Cluster (Identity Management) Configurations

Pre-Installation

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.

Post-Installation

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, "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.

Generally, the standby site mirrors the production site: 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. 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. See Section 13.2.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site" for details.

Figure 13–1 shows an example 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.

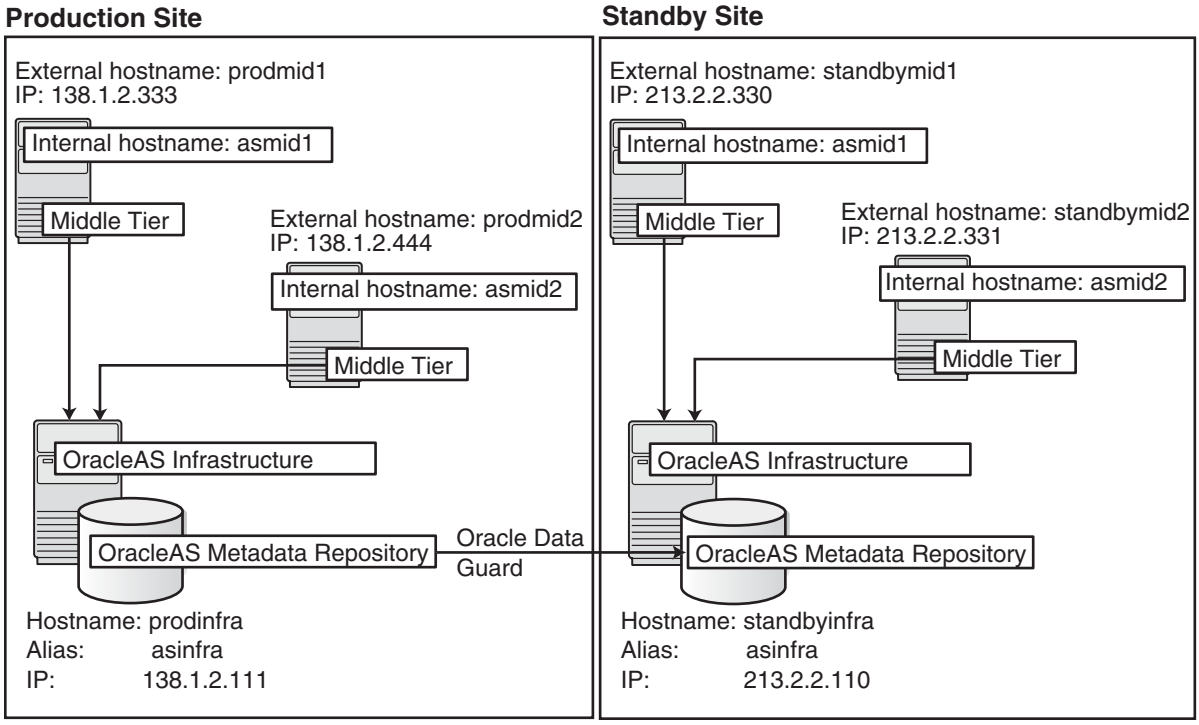
You need to synchronize two types of data. The synchronization method depends on the type of data:

- 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).

See the *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. See Section 4.5.3, "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, edit the `/etc/nodename` file to specify the new local fully qualified name. The following example sets the name to `iasmid1.oracle.com`. (The example in Figure 13–1 uses this name.)

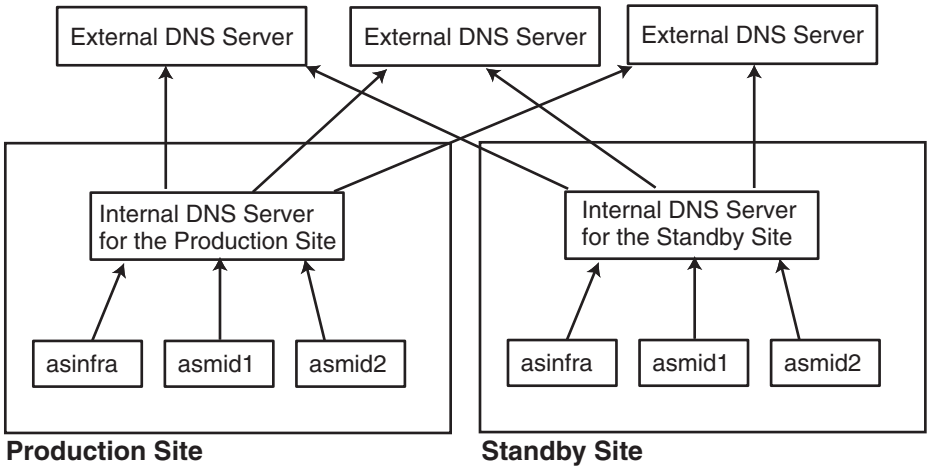
   ```
   iasmid1.oracle.com
   ```

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. Above 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. See 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 `/etc/nodename`).

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.

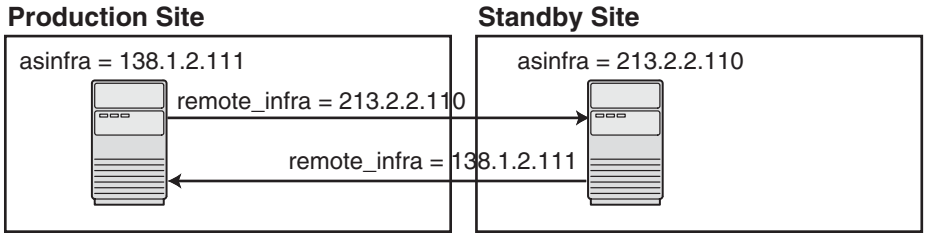
In the `/etc/resolv.conf` file for each node on the production site, replace the existing name server IP address with the IP address of the internal DNS server for the production site.

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 (the `-s` option displays the IP address of the node):

```
prompt> ping -s 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 -s 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 -s 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 -s prodmid2        ping the second production midtier node
PING prodmid2: 56 data byes
```

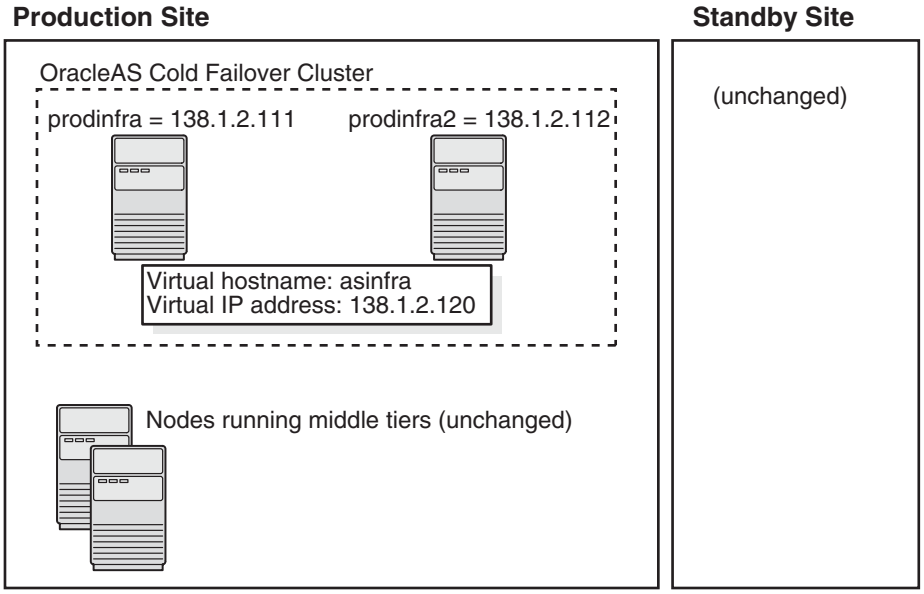
```
64 bytes from prodmid2.oracle.com (138.1.2.444): icmp_seq=0. time=0. ms
^C

prompt> ping -s 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. See 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. See 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. Install middle tiers on the production site.
4. Install middle tiers on the standby site.

13.3.1 Installing the OracleAS Infrastructure

You must install the 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. See Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration" for the screen sequence. Note the following points:

- Select Hardware Cluster Installation Mode screen: it is OK if this screen does not appear. See Table 11–2, step 6.
- Select Configuration Options screen: be sure you select **High Availability and Replication**. See Table 11–2, step 10.
- Specify Virtual Hostname screen: enter an alias as the virtual address (for example, asinfra.oracle.com). See Table 11–2, step 15.

13.3.2 Installing Middle Tiers

You can install any type of middle tier that you like:

For installing J2EE and Web Cache, see Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access".

For installing Portal and Wireless, see Section 7.13, "Installing Portal and Wireless".

Note the following points:

- 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 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, see the *Oracle Application Server High Availability Guide*.

14

Installing the OracleAS Metadata Repository in an Existing Database

Please see the *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, "Integration Business-to-Business (B2B) Topology"	Development	Yes
Section 15.4, "Departmental Topology with Separate OracleAS Metadata Repository for OracleAS Portal"	Deployment	Yes
Section 15.5, "Development Life Cycle Support Topology"	Development and Deployment	n/a
Section 15.6, "OracleAS Certificate Authority Topology"	Deployment	Yes

For More Topologies: For enterprise topologies, see the *Oracle Application Server Enterprise Deployment Guide*.

15.1 Java Developer Topology

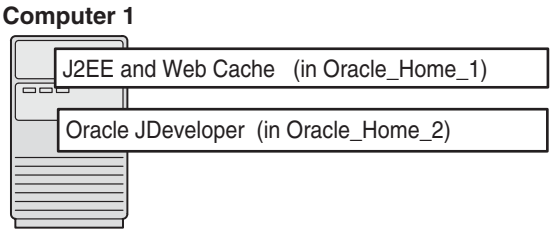
This is a single-computer development topology on which you can build, run, and test J2EE applications. It does not require an OracleAS Infrastructure.

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.

Notes

- 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. See the *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.

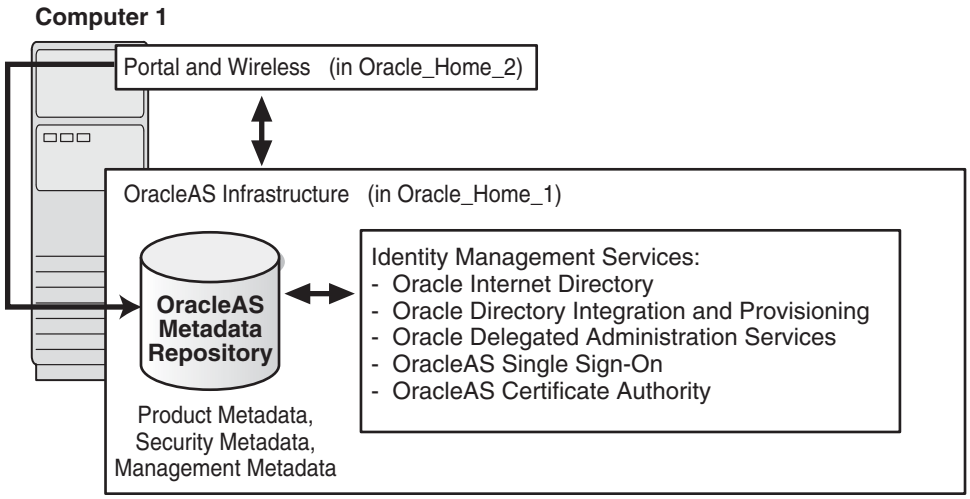
Target Users

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 6.19, "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".

You install them in different Oracle homes.

15.3 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

15.3.1 Description

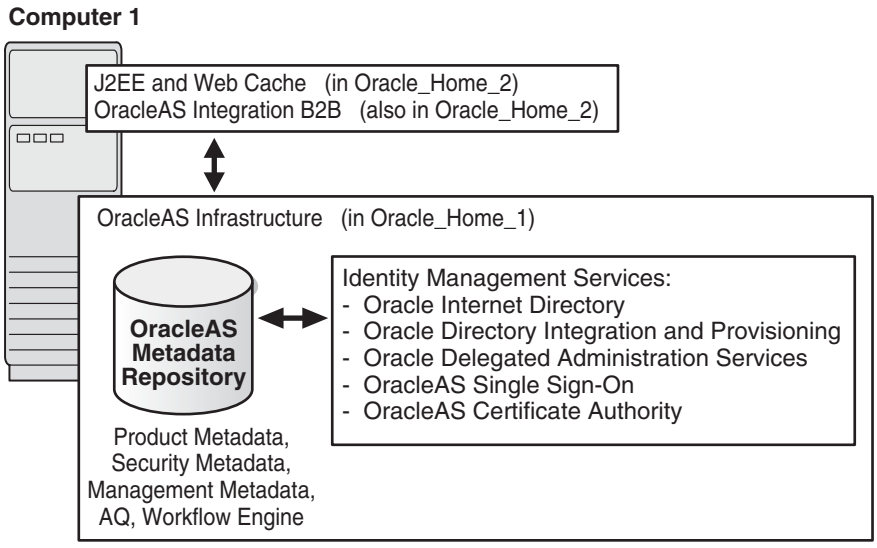
This development topology includes:

- OracleAS Infrastructure
- J2EE and Web Cache middle tier
- OracleAS Integration B2B, which provides an environment for the B2B exchange of services, information, and products. See the *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-ROM, you can find OracleAS Integration B2B in the `b2b` directory.

Figure 15–3 Integration B2B Topology



15.3.2 Requirements

The requirements are the same as those listed in Chapter 4, "Requirements".

For OracleAS Integration B2B requirements, see the *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.

15.3.3 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.

15.3.4 Installation Sequence

Install the items in the following order (see Figure 15–3).

1. In Oracle_Home_1, install an OracleAS Infrastructure with Identity Management services and OracleAS Metadata Repository. See Section 6.19, "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. See Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with 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. See the *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.

15.4 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 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.

15.4.1 Description

This topology (Figure 15–4) 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 Identity Management services (installed on computer 1). All the middle tiers use this metadata repository for Identity Management services.
- one for product metadata (installed on computer 2). The Portal and Wireless middle tier uses this metadata repository.

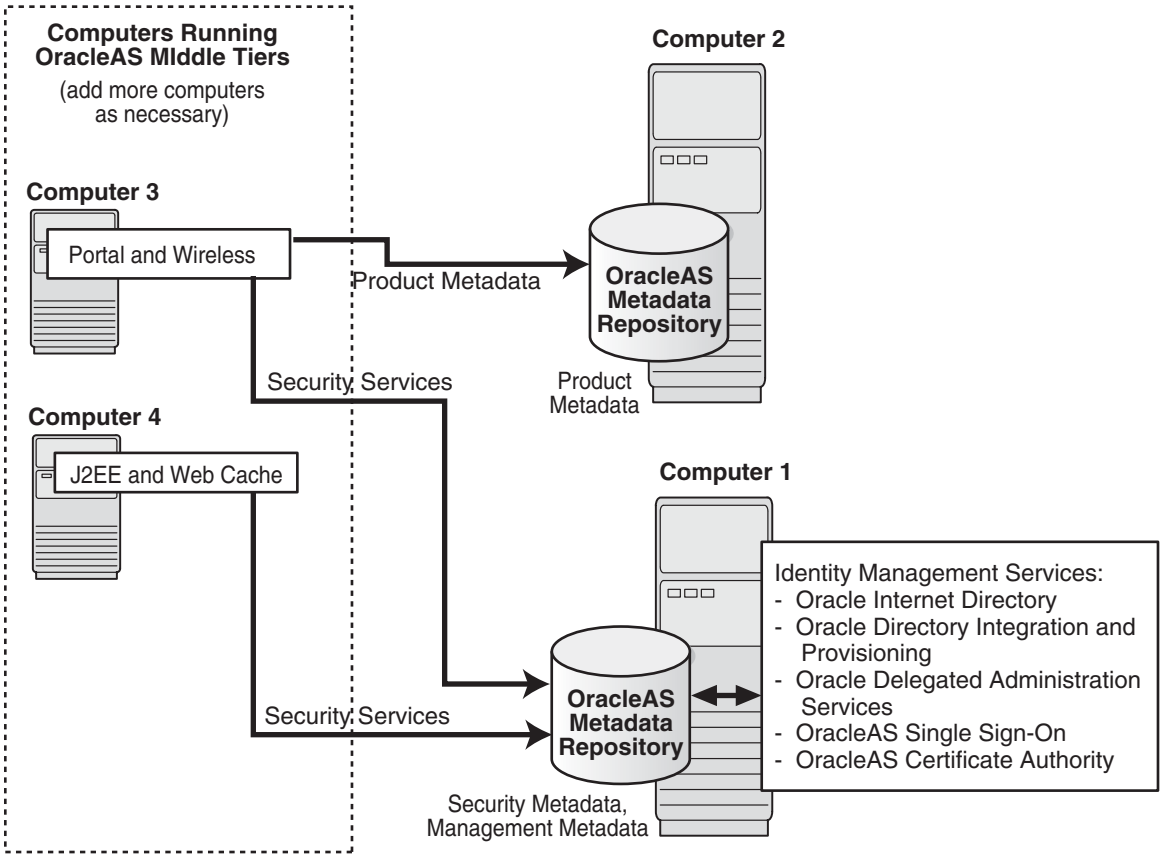
Expanding the Topology

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 and Common Requirements".

Figure 15–4 Departmental Topology



15.4.2 Requirements

The requirements are the same as those listed in Chapter 4, "Requirements".

15.4.3 Assumptions

This topology makes the following assumptions:

- When you install OracleAS Infrastructure, you create a new Oracle Internet Directory.

15.4.4 Installation Sequence

Install the items in the following order. The computers are listed in Figure 15–4.

1. Computer 1: Install OracleAS Infrastructure with Identity Management services and OracleAS Metadata Repository. See Section 6.19, "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. See Section 6.21, "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. See Section 6.12, "Can I Use Multiple Metadata Repositories?"

3. Computer 3: Install a Portal and Wireless middle tier. See Section 7.13, "Installing Portal and Wireless".

   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. See Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with 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.

15.5 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"
- 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 15.4, "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.

15.5.1 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 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.

15.5.2 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.

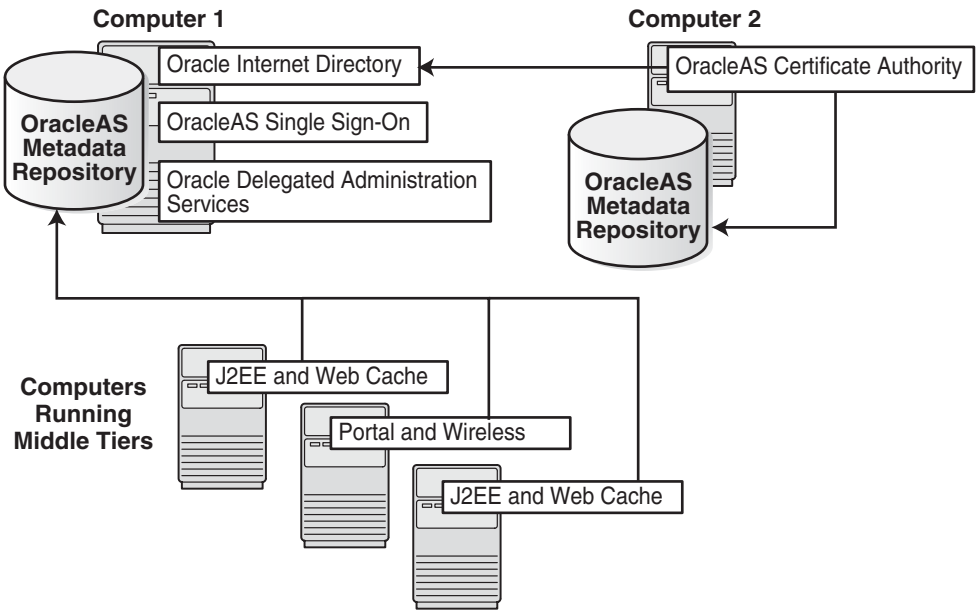
This method is convenient if you need additional computers for the production environment. In one step, you add a computer that already has a middle tier and deployed applications.

See the *Oracle Application Server Administrator's Guide* for details.

15.6 OracleAS Certificate Authority Topology

In this topology, OracleAS Certificate Authority has its own OracleAS Metadata Repository, and they run on a computer separate from other OracleAS Infrastructure components (Figure 15–5). The other components use a different OracleAS Metadata Repository.

Figure 15–5 Topology for OracleAS Certificate Authority



15.6.1 Description

Although you can install OracleAS Certificate Authority on the same computer as the other infrastructure components, you achieve greater security by installing OracleAS Certificate Authority and its own OracleAS Metadata Repository on a separate computer:

- By not sharing the OracleAS Metadata Repository with other components, you isolate OracleAS Certificate Authority from security breaks, whether accidental or malicious.
- You can place the computer on which OracleAS Certificate Authority is running in a secure room.

15.6.2 Requirements

The requirements for the computers are listed in Chapter 4, "Requirements".

15.6.3 Installation Sequence

Install the items in the following order:

1. Computer 1: Install infrastructure components except for OracleAS Certificate Authority. See Section 6.19, "Installing OracleAS Infrastructure" for steps.

   Note: Do not select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, because you will install OracleAS Certificate Authority on Computer 2.

2. Computer 2: Install OracleAS Certificate Authority and a second OracleAS Metadata Repository. See Section 6.25, "Installing OracleAS Certificate Authority 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 Identity Management Access"
   - Section 7.13, "Installing Portal and Wireless"

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 Post-Installation 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 Application Server Control to start and stop Oracle Application Server instances. See the *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.

See the *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.

See the *Oracle HTTP Server Administrator's Guide* for details.

16.4 OracleAS File-Based Clustering

If you want to set up OracleAS Cluster managed using 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. See the *Oracle Application Server Administrator's Guide* for details.

16.6 SSL

By default, most components are not configured for SSL. To enable SSL, see the SSL section in the *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, please 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. See the *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 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. See the *Oracle Internet Directory Administrator's Guide* for details.

16.9 Components that Require Post-Installation 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 User'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, see the *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 Oracle Application Server Java Edition.

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. See Section 5.16, "Starting the 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_10_1_2` Path (under Destination): Enter the full path to the destination directory. This is the Oracle home. Example: `/opt/oracle/OraDevKit_10_1_2` 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**. See Section 5.6, "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 fullpath 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. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `devkits_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "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, "Pre-Installation"
- 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, "Pre-Installation".

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, "Pre-Installation".

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 Pre-Installation

1. Log in as the root user.

   ```
   prompt> su
   ```

2. As root user, create the `/var/opt/oracle` directory, if it does not already exist.

   ```
   # mkdir /var/opt/oracle
   ```

3. Create the `/var/opt/oracle/oraInst.loc` file. This file specifies the inventory directory that the installer will use.

   Using a text editor such as vi or emacs, 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. 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, see Section 4.6.1, "Create a Group for the Inventory Directory".

4. Create an empty `/var/opt/oracle/oratab` file.

   ```
   # touch /var/opt/oracle/oratab
   ```

5. 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 OracleAS Certificate Authority, check the following:

- If you are installing OracleAS Certificate Authority against an existing Oracle Internet Directory, make sure the Oracle Internet Directory has OracleAS Single Sign-On configured. If not, the OracleAS Certificate Authority Configuration Assistant will fail.
- If you are installing OracleAS Certificate Authority with a new Oracle Internet Directory, make sure you are also configuring OracleAS Single Sign-On. If not, the OracleAS Certificate Authority 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. See 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.Core.rsp`
Portal and Wireless	`oracle.iappserver.iapptop.Portals.rsp`
OracleAS Infrastructure: 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: 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`

See 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
```

See 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","10.1.2.0.0"}
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","10.1.2.0.0"}
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_10_1_2", "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 6.19, "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","10.1.2.0.0"}
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","10.1.2.0.0"}
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="asdb"
s_globalDBName="asdb.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".

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","10.1.2.0.0"}
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","10.1.2.0.0"}
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:asdb:asdb.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. See Section 4.5.3, "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. See Section 4.5.3, "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 Management and Notification (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	3301	3301 - 3400	Not settable through staticports.ini
OC4J RMI	3201	3201 - 3300	Not settable through staticports.ini
JMS	3701	3701 - 3800	Not settable through staticports.ini
IIOP	3401	3401 - 3500	Not settable through staticports.ini
IIOPS1	3501	3501 - 3600	Not settable through staticports.ini
IIOPS2	3601	3601 - 3700	Not settable through staticports.ini
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`
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.
OracleAS Web Cache			
OracleAS Web Cache - HTTP Listener	7777	7777 - 7877	`Web Cache HTTP Listen port`
OracleAS Web Cache - HTTP Listener (SSL)	4443	4443 - 4543	`Web Cache HTTP Listen (SSL) port`
OracleAS Web Cache Administration	4000	4000 - 4300	`Web Cache Administration port`

Table C–1 (Cont.) Default Port Numbers and Ranges (Grouped by Component)

Component	Default Port	Port Number Range	Name in staticports.ini
OracleAS Web Cache Invalidation	4001	4000 - 4300	`Web Cache Invalidation port`
OracleAS Web Cache Statistics	4002	4000 - 4300	`Web Cache Statistics port`
OracleAS Wireless			
OracleAS Wireless	--	--	Uses the same port as Oracle HTTP Server.
Oracle Enterprise Manager Application Server Control			
Application Server Control	1810	1810 - 1829	`Application Server Control port`
Oracle Management Agent	1830	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. See the *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 (but see the Note on page 4-12)	3060 - 3129	`Oracle Internet Directory port`
Oracle Internet Directory (SSL)	636 (but see the Note on page 4-12)	3130 - 3199	`Oracle Internet Directory (SSL) port`
OracleAS Certificate Authority (OCA)			
Server Authentication Virtual Host	4400	4400 - 4419	`Oracle Certificate Authority SSL Server Authentication port`
Mutual Authentication Virtual Host	4401	4400 - 4419	`Oracle Certificate Authority SSL Mutual Authentication port`

D

Ports to Open in Firewalls

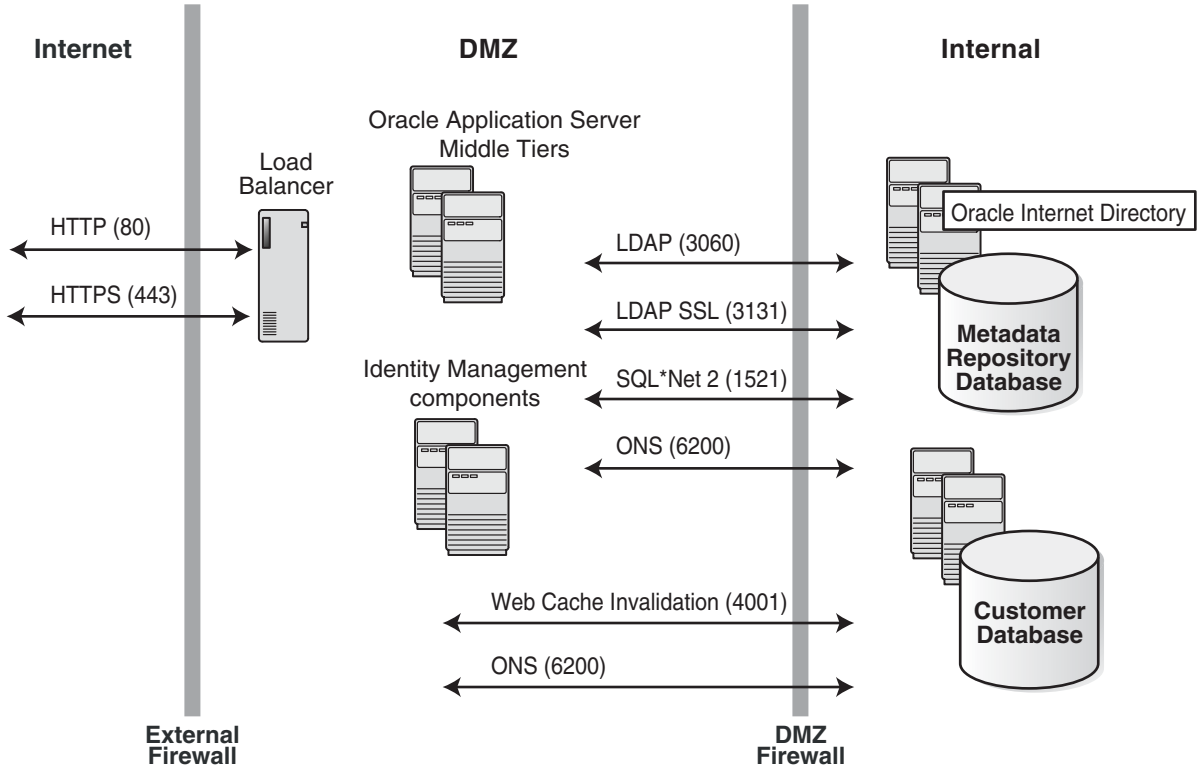
If you plan to install Oracle Application Server behind firewalls, you need to open certain ports in the firewall during installation (and also during runtime).

When you are installing middle-tiers or 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 3060
- LDAP SSL: port 3131
- SQL*Net 2: port 1521
- Oracle Notification Server: port 6200
- Web Cache Invalidation: port 4001

> **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 Middle Tiers"
- Section E.5, "Deinstalling OracleAS Infrastructure"
- Section E.6, "Deinstalling OracleAS Developer Kits"
- Section E.7, "Harmless Errors in the Log File"
- Section E.8, "Cleaning Up Oracle Application Server Processes"
- Section E.9, "Reinstallation"
- Section E.10, "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.

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, 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, see Section 8.3, "Groups Required to Configure or Deinstall Components".

If you want to run the tool as the Oracle Internet Directory superuser, be sure to use `cn=orcladmin`, and not just `orcladmin`. These are two different users. If you want more details about these users, see 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 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.

Notes:

- 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, 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, 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. See the *Oracle Application Server Administrator's Guide* for details.

Items to Remove or Clean Up

To deinstall Oracle Application Server 10*g* Release 2 (10.1.2) 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
Instance name from Farm page	Installer
Entries for the deleted instance in the `/var/opt/oracle` directory	You have to remove the entries manually. See: ■ Step 7 on page E-4 if you are deinstalling middle tiers. ■ Step 9 on page E-6 if you are deinstalling OracleAS Infrastructure. ■ Step 6 on page E-7 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. See your clusterware documentation for details.
2. Then perform the steps described in this appendix.

If you do not take the resources offline, the installer will hang during the deinstallation because the clusterware agents are trying to fail over the resources.

E.4 Deinstalling 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.

   See the *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]
   ```

   See 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 deleted instance's Oracle home directory.

   ```
   prompt> rm -rf $ORACLE_HOME
   ```
7. Remove the line for the deinstalled middle tier from the `/var/opt/oracle/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
   ```
8. Note that OracleAS Portal entries in Oracle Internet Directory are not removed by the Deconfig tool or the installer.

E.5 Deinstalling OracleAS Infrastructure

This section describes how to deinstall OracleAS Infrastructure instances.

E.5.1 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 Identity Management + OracleAS Metadata Repository instance, you have only one instance to deinstall.

If you installed Identity Management and OracleAS Metadata Repository separately:

1. Deinstall the Identity Management instance.
2. Deinstall the OracleAS Metadata Repository.

If you have a distributed 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 OracleAS Certificate Authority.
2. Deinstall the instance running Oracle Internet Directory.
3. Deinstall the OracleAS Metadata Repository.

E.5.2 Deinstallation Steps

1. Log in as the operating system user who installed the instance you want to deinstall.
2. If OracleAS Certificate Authority 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 OracleAS Certificate Authority administrator.

   Replace *oidAdminPassword* with the password of the Oracle Internet Directory user who installed OracleAS Certificate Authority. The user must belong to the following groups:

   - Trusted Application Admins
   - iAS Admins
   - Repository Owners group for the metadata repository used by OracleAS Certificate Authority

   The "`ocactl stop`" command stops OCA services. The `cmdeinst` command performs the following actions:

   - removes OracleAS Certificate Authority entries from Oracle Internet Directory
   - removes data from tables in the `oca` schema
   - removes OracleAS Certificate Authority files created by the OracleAS Certificate Authority 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. See the 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). See 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]
   ```

   See 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 `/var/opt/oracle/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 `asdb`, the lines would look like the following:

```
asdb:/private1/infra:N
*:/private1/infra:N
```

E.6 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.

   See the *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 `/var/opt/oracle/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.7 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.8 Cleaning Up Oracle Application Server Processes

If you forgot to shut down Oracle Application Server processes before starting the installation, 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.9 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.10 Troubleshooting

See Section G.4, "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 installation log files listed in Section G.1, "Log Files".
2. 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.
3. If the failed configuration assistant has any dependencies, then run the dependencies again. You must do this even if the dependency completed successfully.
4. 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>
```

5. 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**.
6. 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 execute 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.
7. 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 paths below use "/" as the directory delimiter. You might need to change it for your system. For example, use "\" if you are on a Windows 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 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 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 the 9.0.2 infrastructure database to a 10*g* Release 2 (10.1.2) 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`
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`

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location

HTTP Server Configuration Assistant	Configures Oracle HTTP Server, registers it with Oracle Enterprise Manager 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`

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`

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
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 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
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 OracleAS Certificate Authority 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

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
OracleAS Certificate Authority 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
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`
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 Configuration Assistant	Registers DCM plug-ins with Oracle Enterprise Manager.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log` `ORACLE_HOME/dcm/logs/dcmctl_logs`

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
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
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
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 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

Table F–2 (Cont.) Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
Web Cache Configuration Assistant	Configures OracleAS Web Cache and registers it with Oracle Enterprise Manager 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, "Log Files"
- Section G.2, "General Troubleshooting Tips"
- Section G.3, "Installation Problems and Solutions"
- Section G.4, "Deinstallation Problems and Solutions"
- Section G.5, "Need More Help?"

G.1 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

G.2 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.3 Installation Problems and Solutions

This section describes common installation problems and solutions:

- Section G.3.1, "Location of Log Files"
- Section G.3.2, "Linking Failed, ORA Errors"
- Section G.3.3, "Prerequisite Checks Fail at the Start of Installation"
- Section G.3.4, "Message About Installing in a Non-Empty Directory"
- Section G.3.5, "Messages About SHMMAX and SEMMSL"
- Section G.3.6, "Installer Disappears After Running the Pre-Installation Checks"
- Section G.3.7, "Unable to Clean Up a Failed Installation"
- Section G.3.8, "Forgot the Password for the cn=orcladmin Account"
- Section G.3.9, "cn=orcladmin Account Becomes Locked"
- Section G.3.10, "User Interface Does Not Display in the Desired Language, or Does Not Display Properly"
- Section G.3.11, "Installer Does Not Display Correct Database Name for OracleAS Metadata Repository"
- Section G.3.12, "Configuration Assistant Failures - General"
- Section G.3.13, "OracleAS Randomize Password Configuration Assistant Failures"
- Section G.3.14, "Database Configuration Assistant (DBCA) Failures"
- Section G.3.15, "Harmless Error Message from Database Configuration Assistant (DBCA)"
- Section G.3.16, "OPMN Configuration Assistant - Start HTTP Server Failures"
- Section G.3.17, "OPMN Configuration Assistant - Start DAS Instance Failures"
- Section G.3.18, "OPMN Configuration Assistant - Start OracleAS Certificate Authority Failures"

G.3.1 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.3.2 Linking Failed, ORA Errors

Problem

Linking failed, and ORA errors were displayed during installation

Solution

Exit the installer and check the log files for any error message. In particular, check the `ORACLE_HOME/install/make.log` file.

Remove the failed installation. Before reinstalling Oracle Application Server, make sure that your computer meets all the requirements listed in Chapter 4, "Requirements".

Check especially the following requirements:

- Check that the kernel parameters are set to the proper values. Note that if you change the value of a kernel parameter, you must exit the installer and restart your computer for the new value to take effect.
- Check that you are installing Oracle Application Server in a valid directory. For example, you cannot install Oracle Application Server in a database Oracle home. See Table 4–12 for a complete list.

G.3.3 Prerequisite Checks Fail at the Start of Installation

Problem

The prerequisite checks that are run at the start of installation failed

Solution

If the prerequisite checks display warnings about missing operating system patches or patch bundles, the patch may actually be missing, or it may have been superseded. If your computer contains the patch that supersedes it, you can ignore the warning.

G.3.4 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. See 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.3.5 Messages About SHMMAX and SEMMSL

Problem

The installer displays messages about SHMMAX and SEMMSL when installing the OracleAS Metadata Repository

Solution

Check the following in the `/etc/system` file:

- The installer does not recognize commented-out entries in the `/etc/system` file for kernel parameters. It reads the commented-out entries and fails if the commented lines are below the required values. You have to remove such lines from the file.
- The installer ignores entries in the file that have syntax errors. Make sure that the lines for the required kernel parameters do not have any syntax errors.
- The installer does not read very large values (greater than 2 GB) correctly. It interprets the very large values as small values. Make sure the values for the required kernel parameters are under 2 GB.

G.3.6 Installer Disappears After Running the Pre-Installation Checks

Problem

The installer disappears after running pre-installation checks

Solution

The directory that is the mount point of the CD-ROM or DVD-ROM 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.3.7 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.3.8 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. See the next section, Section G.3.9, "cn=orcladmin Account Becomes Locked", for instructions on how to unlock the account.

G.3.9 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=asdb 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, see the *Oracle Internet Directory Administrator's Guide*.

G.3.10 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, see Section 5.6, "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-ROM.

1. Insert and mount the "OracleAS Metadata Repository Upgrade Assistant and Utilities" CD-ROM or the Oracle Application Server DVD-ROM.
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-ROM: Copy the contents of the `repca_utilities/utilities/fonts` directory on the DVD-ROM to the `ORACLE_HOME/jdk/jre/lib/fonts` directory.

G.3.11 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 these lines:

```
*** Select OracleAS Metadata Repository Page***
Error:*** Alert: Error validating repository on multiple hosts and ports.
A database hostname or port is missing.
```

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.3.12 Configuration Assistant Failures - General

This section describes general tips for troubleshooting configuration assistant failures. See 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.3.13 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.3.14 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 (see Section 4.8.5, "TNS_ADMIN"). If it is set, unset it and rerun DBCA by clicking the **Retry** button in the Configuration Assistants screen.

G.3.15 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
/AS1012Installs/AS1012Infra/sysman/emdrep/config/repository.variables ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig addPortEntries
INFO: Updating file /AS1012Installs/AS1012Infra/install/portlist.ini ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateEmdProps
INFO: Updating file /AS1012Installs/AS1012Infra/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
/AS1012Installs/AS1012Infra/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
/AS1012Installs/AS1012Infra/oc4j/j2ee/OC4J_DBConsole to
/AS1012Installs/AS1012Infra/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.3.16 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.3.17 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
```

Then re-run the OPMN Configuration Assistant - Start DAS Instance.

G.3.18 OPMN Configuration Assistant - Start OracleAS Certificate Authority Failures

Problem

The OPMN Configuration Assistant - Start OracleAS Certificate Authority fails when you re-run it.

Solution

The problem is that the OracleAS Certificate Authority instance is already running. Before re-running the configuration assistant, stop the OracleAS Certificate Authority 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 OracleAS Certificate Authority.

G.4 Deinstallation Problems and Solutions

This section describes common problems related to deinstallation:

- Section G.4.1, "Obsolete Partner URLs Still Remain on the OracleAS Single Sign-On Administration Screen"
- Section G.4.2, "Unable to Reuse Instance Name of a Deleted Instance"
- Section G.4.3, "Unable to Reuse Database Name"

G.4.1 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, see chapter 4 of the *Oracle Application Server Single Sign-On Administrator's Guide*.

G.4.2 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.4.3 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.5 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, open a service request.

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