

Oracle® Application Server 10g

Installation Guide

10g (9.0.4) for hp HP-UX PA-RISC (64-bit) and Linux x86

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Oracle Application Server 10g Installation Guide 10g (9.0.4) for hp HP-UX PA-RISC (64-bit) and Linux x86

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Oracle Application Server 10g Installation Guide 10g (9.0.4) for hp HP-UX PA-RISC (64-bit) and Linux x86

Part No. B10842-03

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Preface

The *Oracle Application Server 10g Installation Guide* covers requirements, new features in the Oracle Universal Installer, Oracle Application Server concepts that affect installation, compatibility with other products, and troubleshooting tips. In addition, the guide also provides information for installing Oracle Application Server in different topologies: topologies range from simple single-computer development environments to complex multi-computer Enterprise Data Center environments.

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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.

Structure of This Guide

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 Versions"

This chapter describes possible side-effects when you install and run Oracle Application Server on a computer that is already running other products.

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 10g"

This chapter describes the OracleAS Infrastructure 10g 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, Portal and Wireless, and Business Intelligence and Forms.

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 in High Availability Environments"

This chapter describes how to install Oracle Application Server in OracleAS Cold Failover Cluster, OracleAS Active Failover Cluster, and OracleAS Disaster Recovery environments.

Chapter 10, "Installing the OracleAS Metadata Repository in an Existing Database"

This chapter describes how to install the OracleAS Metadata Repository in an existing database.

Chapter 11, "Recommended Topologies"

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

Chapter 12, "Post-Installation Tasks"

This chapter lists the components that require additional set-up steps after installation.

Appendix A, "Installing OracleAS Developer Kits 10g"

This appendix describes how to install the OracleAS Developer Kits 10g.

Appendix B, "Troubleshooting"

This appendix describes how to solve problems that might arise during installation. It also describes the configuration assistants run by the installer.

Appendix C, "Deinstallation and Reinstallation"

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

Appendix D, "Silent and Non-Interactive Installation"

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

Appendix E, "Default Port Numbers"

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

Appendix F, "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 G, "URLs for Components"

This appendix lists the URLs that you can use to access components after installation.

Appendix H, "Contents of the "OracleAS RepCA and Utilities" CD-ROM"

This appendix lists the contents of the OracleAS RepCA and Utilities CD-ROM.

Appendix I, "Red Hat Enterprise Linux AS/ES Installation Notes"

This appendix provides some information about using Oracle Application Server with Red Hat Enterprise Linux AS/ES.

Appendix J, "Installing Oracle Cluster Management Software on Linux"

This appendix provides information about installing Oracle Cluster Management Software on Linux.

Information Specific to HP-UX

The following sections contain information specific to HP-UX:

- [Table 4–1, "Hardware Requirements for HP-UX Systems"](#)
- [Section 4.3.1, "Configuring Kernel Parameters on HP-UX"](#)
- [Section 4.2.1, "Checking the Software Requirements for HP-UX"](#)
- [Section 5.14, "Setting the Mount Point for the Discs"](#)
- [Section 9.1.2.1, "Checking HP Serviceguard on HP-UX"](#)

Information Specific to Linux

The following sections contain information specific to Linux:

- [Table 4–2, "Hardware Requirements for Linux Systems"](#)
- [Section 4.3.2, "Configuring the Kernel Parameters on Linux"](#)
- [Section 4.2.2, "Checking the Software Requirements for Linux"](#)
- [Section 4.7.8, "LD_BIND_NOW \(Linux Only\)"](#)
- [Section 4.10, "Prerequisite Checks Performed by the Installer"](#)
- [Section 5.14, "Setting the Mount Point for the Discs"](#)
- [Section 9.1.2.2, "Checking Red Hat Cluster Manager on Linux"](#)
- [Section 9.1.2.3, "Checking Oracle Cluster Management Software on Linux"](#)
- [Appendix I, "Red Hat Enterprise Linux AS/ES Installation Notes"](#)
- [Appendix J, "Installing Oracle Cluster Management Software on Linux"](#)
- [Section 12.1, "Linux Installations"](#)

Related Documents

For more information, see the following guides:

- *Oracle Application Server 10g Administrator's Guide*
- *Oracle Application Server 10g Concepts*

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>code</code>	Text in the code font indicates filenames, commands, or contents of configuration files.
<i>italicized code</i>	Italicized code 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.

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 10g Release Notes*
You can find the latest version of the release notes document on Oracle Technology Network (<http://otn.oracle.com/documentation/ias.html>).
 - Note 248904.1, "ALERT Oracle Application Server 10g (9.0.4) Support Status and Alerts"
You can find this note at *OracleMetaLink* (<http://metalink.oracle.com>). The easiest way to access the note is to click the Advanced Search button at the top of the *OracleMetaLink* site, and search for Doc ID "248904.1".
2. Check that the computers where you want to run Oracle Application Server meet the requirements. This includes:
 - [Section 4.1, "Check Hardware Requirements"](#)
 - [Section 4.2, "Check the Software Requirements"](#)
 - [Section 4.3, "Check Kernel Parameters"](#)
 - [Section 4.4, "Ports"](#)
 - [Section 4.5, "Operating System Groups"](#)

-
- [Section 4.6, "Operating System User"](#)
 - [Section 4.7, "Environment Variables"](#)
 - [Section 4.8, "The /etc/hosts File"](#)
 - [Section 4.9, "Network Topics"](#)
3. Read [Chapter 5, "Things You Should Know Before Starting the Installation"](#) to get a big picture of how the different parts of Oracle Application Server work together. This chapter describes the OracleAS Infrastructure 10g, 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 10g"](#) 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 a high availability environment such as OracleAS Cold Failover Cluster or Oracle Data Guard, read [Chapter 9, "Installing in High Availability Environments"](#) to learn how to install Oracle Application Server in such environments. To run Oracle Application Server with a Real Application Clusters database, see [Section 10.8, "Installing OracleAS Metadata Repository in a Real Application Clusters Database"](#).
 6. Choose a topology. You can install Oracle Application Server on multiple computers to improve scalability, availability, security, and performance. [Chapter 11, "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 10g"](#) 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.

What's New in the Installation

This chapter describes new features in the Oracle Universal Installer. This chapter is mostly useful to users who have installed earlier releases of Oracle9iAS Release 2 (9.0.2) and Release 2 (9.0.3).

To see a list of new features in the product itself, visit the Oracle Technology Network site (<http://otn.oracle.com>).

Contents:

- Section 2.1, "Option of Installing OracleAS Metadata Repository in an Existing Database"
- Section 2.2, "Custom Port Numbers"
- Section 2.3, "One ias_admin User Per Oracle Application Server Instance"
- Section 2.4, "emtab File No Longer Created or Used"
- Section 2.5, "New Operating System Patches Required"
- Section 2.6, "Space in /var/tmp No Longer Required During Installation"
- Section 2.7, "/etc/hosts File Does Not Need to Be in a Specific Format (in Most Cases)"
- Section 2.8, "Support for High Availability Configurations"
- Section 2.9, "Support for Selecting OracleAS Cluster Type During Installation"
- Section 2.10, "Support for Secure Installations"
- Section 2.11, "Support for IP Address and Hostname Changes After Installation"
- Section 2.12, "Changed Terminology"
- Section 2.13, "Configuration Assistant Enhancements"

- [Section 2.14, "More Prerequisite Checks"](#)
- [Section 2.15, "Removed Restrictions"](#)
- [Section 2.16, "Support for Generating Installation Statistics"](#)
- [Section 2.17, "Support for Off Network and DHCP Installations on Linux"](#)

2.1 Option of Installing OracleAS Metadata Repository in an Existing Database

In Release 2 (9.0.2), the installer automatically created a new Oracle9i database and populated it with the OracleAS Metadata Repository. It was not possible to install the OracleAS Metadata Repository in an existing database.

In 10g (9.0.4), the installer can install a new database seeded with the OracleAS Metadata Repository or it can use an existing Oracle9i database (you need to provide the connect information for the database). If you want to use an existing database, you need to run the new Oracle Application Server Repository Creation Assistant tool, available on the "OracleAS RepCA and Utilities" CD-ROM, to populate the existing database with the OracleAS Metadata Repository. You would do this before running the installer to install other Oracle Application Server components.

See [Chapter 10, "Installing the OracleAS Metadata Repository in an Existing Database"](#) for details, including database requirements.

2.2 Custom Port Numbers

In 10g (9.0.4), you can specify custom port numbers for components, instead of having the installer assign default port numbers. This feature is called the "static ports" feature. To use static ports, you set up a file with component names and desired port numbers. The installer uses the values from the file instead of the default port numbers.

See [Section 4.4.2, "Using Custom Port Numbers \(the "Static Ports" Feature\)"](#) for details.

2.3 One ias_admin User Per Oracle Application Server Instance

In Release 2 (9.0.2), if you install Oracle Application Server on a computer that already has an Oracle Application Server instance (using the same operating system user to perform the installations), you would need to enter the password of the

existing `ias_admin` user during installation, because the instances share the same `ias_admin` user.

In 10g (9.0.4), each instance of Oracle Application Server has its own `ias_admin` user. Even if you install multiple Oracle Application Server instances on the same computer using the same operating system user, you would need to provide new passwords for each `ias_admin` user.

2.4 emtab File No Longer Created or Used

Oracle Application Server 10g (9.0.4) does not create or use the `emtab` file because each Oracle Application Server instance has its own Oracle Enterprise Manager Application Server Control (or Application Server Control, for short).

In 10g (9.0.4), the Application Server Control does not have the concept of "primary installation".

If you installed Release 2 (9.0.2) on your computer, you might have the `emtab` file from that release.

2.5 New Operating System Patches Required

Release 2 (9.0.2) required JDK 1.3.1. This release, 10g (9.0.4), ships with JDK 1.4.2 for Linux and requires JDK 1.4.1.05 or higher for HP-UX. On HP-UX, JDK 1.4.1.05 requires additional system patches. You must check if your computer has the updated patches. See [Section 4.2, "Check the Software Requirements"](#) for a list of patches.

2.6 Space in /var/tmp No Longer Required During Installation

In 10g (9.0.4), the installer does not require any disk space in the `/var/tmp` directory. However, some components may write to `/var/tmp` during runtime.

2.7 /etc/hosts File Does Not Need to Be in a Specific Format (in Most Cases)

In Release 2 (9.0.2), you had to ensure the content in the `/etc/hosts` file followed a specific format.

In 10g (9.0.4), this is no longer required. However, the installer still uses this file for a few items. See [Section 4.8, "The /etc/hosts File"](#) for details.

2.8 Support for High Availability Configurations

In 10g (9.0.4), the installer can detect hardware clusters and install Oracle Application Server on clustered nodes. A new screen in the installer displays all the nodes in a cluster, and you select the nodes where you want the installer to install Oracle Application Server.

Oracle Application Server can run in OracleAS Active Failover Cluster, OracleAS Cold Failover Cluster, and OracleAS Disaster Recovery environments. See [Chapter 9, "Installing in High Availability Environments"](#) for details.

Oracle Application Server can also run in a Real Application Clusters environment. See [Section 10.8, "Installing OracleAS Metadata Repository in a Real Application Clusters Database"](#) for details.

2.9 Support for Selecting OracleAS Cluster Type During Installation

In 10g (9.0.4), when you install the J2EE and Web Cache middle tier type, the "Select Configuration Options" screen prompts you to select either file-based clustering or database-based clustering. See [Section 7.4, "Configuration Options for the J2EE and Web Cache Middle Tier"](#) for details.

2.10 Support for Secure Installations

In 10g (9.0.4), you can specify that Oracle Application Server components connect to Oracle Internet Directory using SSL only. See [Section 5.13, "Connecting to Oracle Internet Directory Through SSL Connections"](#) for details.

2.11 Support for IP Address and Hostname Changes After Installation

Oracle Application Server supports IP address changes after installation for all installation types except for the OracleAS Developer Kits 10g installation type.

For hostname changes, this is supported only for computers running Oracle Application Server middle tiers. It is not supported for computers running OracleAS Infrastructure 10g or OracleAS Developer Kits 10g.

If you change the hostname or IP address after installation (using operating system commands or editing operating system configuration files), you need to use Application Server Control to update the information in Oracle Application Server configuration files. See the *Oracle Application Server 10g Administrator's Guide* for details.

2.12 Changed Terminology

[Table 2–1](#) lists terms updated in 10g (9.0.4). The 10g (9.0.4) documentation set uses the new terms.

Table 2–1 Updated Terms

Term in Release 2 (9.0.2)	Term in 10g (9.0.4)
Oracle Enterprise Manager Web site	Oracle Enterprise Manager Application Server Control, or Application Server Control for short
Oracle Management Server	Oracle Management Service

2.13 Configuration Assistant Enhancements

In 10g (9.0.4), configuration assistants now have these features:

- The configuration assistants now write log files in a central location.
- The configuration assistants now write more understandable error messages in the log files.
- You can now rerun configuration assistants that have failed.

For details, see [Appendix B, "Troubleshooting"](#).

2.14 More Prerequisite Checks

In 10g (9.0.4), the installer performs more prerequisite checks to ensure that your computer meets the minimum requirements. See [Section 4.10, "Prerequisite Checks Performed by the Installer"](#) for a list of checks.

2.15 Removed Restrictions

The following restrictions that were in Release 2 (9.0.2) are now removed:

- NFS installations are now supported.
- When you install a middle tier on a computer that already has other middle tiers, you need to select which farm the middle tier should belong to. The installer no longer automatically assigns middle tiers to existing farms.
- Silent installations no longer require X windows, but interactive installations still require it.

2.16 Support for Generating Installation Statistics

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

- `-printtime` prints the time taken for installation.
- `-printmemory` prints the memory used for installation.
- `-printdiskusage` prints the disk space used for installation.

Example: the following command prints information for all three items:

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

2.17 Support for Off Network and DHCP Installations on Linux

You can install Oracle Application Server 10g (9.0.4) on a Linux system that is not on a network and you can install Oracle Application Server 10g (9.0.4) on a Linux system that is configured to use DHCP.

Compatibility with Earlier Versions

Contents:

- [Section 3.1, "Compatibility with Release 2 \(9.0.2\) and Release 2 \(9.0.3\)"](#)
- [Section 3.2, "Interoperability Issues and Workarounds"](#)
- [Section 3.3, "10g \(9.0.4\) Metadata Repository Against a 9.0.2 Infrastructure"](#)
- [Section 3.4, "10g \(9.0.4\) Middle Tiers, 10g \(9.0.4\) Metadata Repository, and 9.0.2 Identity Management"](#)
- [Section 3.5, "10g \(9.0.4\) Middle Tiers and 9.0.2 Infrastructure"](#)
- [Section 3.6, "9.0.2/9.0.3/10g \(9.0.4\) Middle Tiers, 10g \(9.0.4\) Identity Management"](#)

3.1 Compatibility with Release 2 (9.0.2) and Release 2 (9.0.3)

10g (9.0.4) can interoperate with 9.0.2 and 9.0.3 in the following ways:

- Middle tiers from 10g (9.0.4) can use a 9.0.2 infrastructure. A 9.0.2 infrastructure can support middle tiers from 9.0.2, 9.0.3, and 10g (9.0.4). If you want to run different releases of middle tiers against a 9.0.2 infrastructure, read [Section 3.5, "10g \(9.0.4\) Middle Tiers and 9.0.2 Infrastructure"](#).

Note that 9.0.2 or 9.0.3 middle tiers **cannot** use a 10g (9.0.4) OracleAS Metadata Repository, but they can use 10g (9.0.4) Identity Management components. See [Table 3-1](#) for details.

- For J2EE and Web Cache middle tiers in OracleAS Clusters, database-managed or file-based, all the members of an OracleAS Cluster must be of the same release (for example, all from 10g (9.0.4)). You cannot mix releases within an OracleAS Cluster. You can cluster only J2EE and Web Cache middle tier types.

[Table 3–1](#) shows a compatibility matrix for Oracle Application Server releases.

Notes about the table:

- The "[OracleAS Metadata Repository](#)" column refers to all schemas in the metadata repository **except** for the schemas for Oracle Internet Directory and OracleAS Single Sign-On.
- The "[Identity Management](#)" column refers to the Identity Management components, plus schemas for Oracle Internet Directory and OracleAS Single Sign-On.

Table 3–1 Oracle Application Server Compatibility Matrix

Oracle Application Server Middle Tier	OracleAS Metadata Repository	Identity Management	Supported?	See:
9.0.2 or 9.0.3	9.0.2	9.0.2	Yes	<i>Oracle9i Application Server Installation Guide for Release 2 (9.0.2)</i>
9.0.2 or 9.0.3	9.0.2	10g (9.0.4)	Yes	Section 3.6, "9.0.2/9.0.3/10g (9.0.4) Middle Tiers, 10g (9.0.4) Identity Management"
9.0.2 or 9.0.3	10g (9.0.4)	9.0.2	No	n/a
9.0.2 or 9.0.3	10g (9.0.4)	10g (9.0.4)	No	n/a
10g (9.0.4)	9.0.2	9.0.2	Yes	Section 3.5, "10g (9.0.4) Middle Tiers and 9.0.2 Infrastructure"
10g (9.0.4)	9.0.2	10g (9.0.4)	Yes	Section 3.6, "9.0.2/9.0.3/10g (9.0.4) Middle Tiers, 10g (9.0.4) Identity Management"
10g (9.0.4)	10g (9.0.4)	9.0.2	Yes	Section 3.4, "10g (9.0.4) Middle Tiers, 10g (9.0.4) Metadata Repository, and 9.0.2 Identity Management"
10g (9.0.4)	10g (9.0.4)	10g (9.0.4)	Yes	This guide

If you want to upgrade to 10g (9.0.4), see the *Oracle Application Server 10g Upgrading to 10g (9.0.4)* guide.

3.2 Interoperability Issues and Workarounds

This section describes the known issues and workarounds that you should be aware of when you have a configuration that includes different versions (9.0.2, 9.0.3, and 10g (9.0.4)) of application server instances. [Table 3–2](#) lists the issues and the configurations in which they occur:

Table 3–2 Interoperability Issues and the Configurations in Which They Appear

Issue	10g (9.0.4) Middle Tiers, 10g (9.0.4) Metadata Repository, and 9.0.2 Identity Management	10g (9.0.4) Middle Tiers and 9.0.2 Infrastructure	9.0.2/9.0.3/10g (9.0.4) Middle Tiers, 10g (9.0.4) Identity Management
Oracle Enterprise Manager for 9.0.2/9.0.3 and 10g (9.0.4) Uses the Same Port (Port 1810)			x
Unable to Log In to OracleAS Portal		x	
OracleAS Forms Services Gives Error FRM-92102	x	x	
10g (9.0.4) Instances Cannot Be Accessed from 9.0.2 or 9.0.3 Farm Page	x	x	x
dcmctl getState Command from a 10g (9.0.4) Instance Cannot Be Used With 9.0.2 or 9.0.3 Instances	x	x	x
UDDI: Ping the Servlet Endpoint Returns "500 Internal Server Error"		x	
Oracle Delegated Administration Services: "Resource Access Information" Section Shows Incorrect User Resources		x	
OracleAS Wireless: Name Link Missing in Address Book			x
Oracle Enterprise Manager: No Rollup Metrics for 9.0.2 Middle Tiers		x	
Web Clipping: Error Messages in Installer Log Files	x	x	

3.2.1 Oracle Enterprise Manager for 9.0.2/9.0.3 and 10g (9.0.4) Uses the Same Port (Port 1810)

In 9.0.2 and 9.0.3, the installer assigns port 1810 to the Oracle Enterprise Manager Web Site, regardless of whether or not the port is already in use. If the computer where you plan to install the 9.0.2/9.0.3 instances already has a 10g (9.0.4) instance,

the Oracle Enterprise Manager Application Server Control component for the 10g (9.0.4) instance might already be using port 1810.

Tip: In 10g (9.0.4), you can specify custom port numbers to use for each component. See [Section 4.4.2, "Using Custom Port Numbers \(the "Static Ports" Feature\)"](#).

For the Application Server Control component, you might want to specify a port other than 1810, so that the 9.0.2 and 9.0.3 instances can use port 1810.

For the case where Oracle Enterprise Manager 9.0.2/9.0.3 and 10g (9.0.4) are configured on the same port (1810), you can change the port used by the 10g (9.0.4) Oracle Enterprise Manager to a different port. You can then run both Oracle Enterprise Managers at the same time. To change the port on the 10g (9.0.4) Oracle Enterprise Manager, perform these steps:

1. In the 10g (9.0.4) home, edit the `ORACLE_HOME/sysman/j2ee/config/emd-web-site.xml` file and change the port value from 1810 to an unused port. The following example sets the port to 1814:

```
<web-site host="[ALL]" port="1814" display-name="Oracle Enterprise Manager
iAS Console Website" secure="false">
```

If the 9.0.2/9.0.3 instance is using 1810, it is also likely that the instance is using port 1811 for RMI operations. With the 9.0.2/9.0.3 Oracle Enterprise Manager running, check which port in the 1810-1829 range is unused, and use this value.

You can run the `netstat` command to determine which ports are in use. The following example checks if port 1814 is in use.

```
prompt> netstat -n | grep 1814
```

2. Also in the 10g (9.0.4) home, enter the same port number in the `ORACLE_HOME/sysman/emd/targets.xml` file. The port number is specified in the `StandaloneConsoleURL` property of the `oracle_ias` target.

```
<Target TYPE="oracle_ias" NAME="infra.myhost.oracle.com" VERSION="1.0">
... lines not shown ...
<Property NAME="StandaloneConsoleURL"
VALUE="http://myhost.oracle.com:1814/emd/console"/>
```

Once you have updated these two files, you can run BOTH the 9.0.2/9.0.3 and 10g (9.0.4) Oracle Enterprise Managers at the same time.

3.2.2 Unable to Log In to OracleAS Portal

If you have installed OracleAS Portal against a 9.0.2 metadata repository (see [Section 3.5, "10g \(9.0.4\) Middle Tiers and 9.0.2 Infrastructure"](#)), you have to run the OracleAS Upgrade Assistant before you can access the OracleAS Portal using the 10g (9.0.4) middle tier URL. See the *Oracle Application Server 10g Upgrading to 10g (9.0.4)* for details on how to run the Upgrade Assistant.

If you do not run the Upgrade Assistant, you can access Portal using the 9.0.2 middle tier URL.

An exception to this case is if no 9.0.2 middle tier was ever installed against the 9.0.2 metadata repository. In this case, since the 10g (9.0.4) middle tier is the first middle tier to be installed against the 9.0.2 metadata repository, you can access OracleAS Portal without running the Upgrade Assistant.

3.2.3 OracleAS Forms Services Gives Error FRM-92102

This error occurs in configurations that meet ALL these conditions:

- A 10g (9.0.4) Business Intelligence and Forms middle tier, including the OracleAS Forms Services component, and a 9.0.2 infrastructure are running on the same computer.
- You use the Internet Explorer browser to access a form.
- The form needs to redirect to Oracle Delegated Administration Services to create a resource dynamically (because you entered a resource that does not yet exist).

If you meet all these conditions, you would see the FRM-92102 error when you access a form. The Forms Services application is unable to create a session after Oracle Delegated Administration Services created the resource.

If you access the same form again from a different browser, the resource now exists (the Oracle Delegated Administration Services component does not have to create it dynamically again), and you can now access the form successfully.

To avoid this error, you can install the instances on different computers, use Netscape instead of Internet Explorer to access the form, or ensure that the resources already exist.

3.2.4 10g (9.0.4) Instances Cannot Be Accessed from 9.0.2 or 9.0.3 Farm Page

Although the farm pages in Oracle Enterprise Manager for 9.0.2 or 9.0.3 instances contain links to the 10g (9.0.4) instances, the links are not valid. You cannot use Oracle Enterprise Manager from 9.0.2 or 9.0.3 to manage 10g (9.0.4) instances.

To manage the 10g (9.0.4) instances, use the Oracle Enterprise Manager Application Server Control for 10g (9.0.4).

3.2.5 dcmctl getState Command from a 10g (9.0.4) Instance Cannot Be Used With 9.0.2 or 9.0.3 Instances

If you run the `dcmctl getState` command from a 10g (9.0.4) instance to get information on a 9.0.2 or 9.0.3 instance, you would get an ADMN-604104 error:

```
prompt> dcmctl getState -i name_of_902_or_903_instance
ADMN-604104 Unable to connect to the OPMN process to obtain process status table
```

To get information on 9.0.2 or 9.0.3 instances using the `dcmctl` command, use the 9.0.2 or 9.0.3 `dcmctl` command.

3.2.6 UDDI: Ping the Servlet Endpoint Returns "500 Internal Server Error"

Configuration: 10g (9.0.4) middle tier, 9.0.2 infrastructure (see [Section 3.5, "10g \(9.0.4\) Middle Tiers and 9.0.2 Infrastructure"](#))

If you click the servlet link (inquiry, publishing, or subscription) on the UDDI page (URL: `http://host:port/uddi`), you will get a "500 Internal Server Error" because UDDI from the 10g (9.0.4) middle tier requires a 10g (9.0.4) OracleAS Metadata Repository.

3.2.7 Oracle Delegated Administration Services: "Resource Access Information" Section Shows Incorrect User Resources

Configuration: 10g (9.0.4) middle tier, 9.0.2 infrastructure (see [Section 3.5, "10g \(9.0.4\) Middle Tiers and 9.0.2 Infrastructure"](#))

You might see incorrect user resources listed in the "Resource Access Information" section in the "Edit User" page of Oracle Delegated Administration Services (URL: `http://host:port/oiddas`). If you view the page for different users, the page might still show the resources for the first user you viewed.

To ensure the page is displaying the correct list of resources for a user, make sure that the user is the *first* user you view after logging into Oracle Delegated

Administration Services. If you are unsure, log out of Oracle Delegated Administration Services and log in again. Then immediately view the user whose properties you want to edit (without viewing other users).

3.2.8 OracleAS Wireless: Name Link Missing in Address Book

Configuration: 9.0.2 Metadata Repository, 10g (9.0.4) Identity Management, 9.0.2 middle tier (see [Section 3.6, "9.0.2/9.0.3/10g \(9.0.4\) Middle Tiers, 10g \(9.0.4\) Identity Management"](#))

On the OracleAS Wireless page (URL: `http://host:port/ptg/rm`), if you add a name to the address book, the name link is not displayed. As a result, search results in no rows being found.

3.2.9 Oracle Enterprise Manager: No Rollup Metrics for 9.0.2 Middle Tiers

Configuration: 9.0.2 Metadata Repository, 9.0.2 Identity Management, middle tiers from 9.0.2, 9.0.3, and 10g (9.0.4) (see [Section 3.5, "10g \(9.0.4\) Middle Tiers and 9.0.2 Infrastructure"](#))

Oracle Enterprise Manager Application Server Control 10g (9.0.4) does not monitor 9.0.2.x or 9.0.3.x instances. You have to use Oracle Enterprise Manager 9.0.2 or 9.0.3 to manage these instances.

You can use Oracle Enterprise Manager 9.0.2.x (where x is 1 or later) or 9.0.3 to monitor 9.0.2.x (where x is 1 or later) or 9.0.3 instances. However you might not be able to view complete rollup metrics for 9.0.2.0 middle tiers from these Oracle Enterprise Managers. To fix this, upgrade the 9.0.2.0 middle tiers to the latest 9.0.2.x or 9.0.3.x versions. Version 9.0.3.x is applicable only to J2EE and Web Cache middle tier types.

3.2.10 Web Clipping: Error Messages in Installer Log Files

When installing 10g (9.0.4) middle tiers against a 9.0.2 infrastructure, you will see error messages in the installer log files. These messages are due to compatibility problems.

- Web clipping error messages due to WCRSYS schema not in the 9.0.2 metadata repository

Web clipping is a new feature in OracleAS Wireless 10g (9.0.4), and it requires the WCRSYS schema, which exists in OracleAS Metadata Repository 10g (9.0.4). This schema does not exist in earlier versions of the metadata repository.

In the log file `ORACLE_HOME/j2ee/OC4J_Wireless/application-deployments/webclipping/OC4J_Wireless_default_island_1/application.log`, you will see error messages such as:

```
webclipping-web: jsp: init
webclipping-web: WARNING Use RAA to access Web Clipping Repository
webclipping-web: FATAL Data Source to Wireless Web Clipping Repository
cannot be initialized
webclipping-web: WARNING An exception has occurred with the following
message, set the log level to DEBUG to see the stack trace:
Unable to retrieve the Schema password for base Schema WCRSYS from Oracle
Internet Directory Server for the repository null. Please verify that the
correct Oracle Internet Directory Server parameters are specified in
/private/oracle/ias904bif/config/ias.properties. Make sure that the Oracle
Internet Directory Server specified in OIDhost, OIDsslport is up and
running.
Base Exception : oracle.ias.repository.schema.SchemaException: Unable to
retrieve Attributes for orclResourceName=WCRSYS,
orclReferenceName=asdb.myhost.us.oracle.com,cn=IAS Infrastructure Databases,
cn=IAS,cn=Products, cn=OracleContext from Oracle Internet Directory Server
ldap://myhost.us.oracle.com:4031/.
Base Exception : javax.naming.NameNotFoundException: [LDAP: error code 32 -
No Such Object]; remaining name 'orclResourceName=WCRSYS,
orclReferenceName=asdb.myhost.us.oracle.com,cn=IAS Infrastructure Databases,
cn=IAS, cn=Products, cn=OracleContext'
```

- **Web clipping error messages due to missing tables in the PORTAL schema**

The Web Clipping Portlet is a new feature in OracleAS Portal 10g (9.0.4). It requires some tables in the PORTAL schema that are not in the 9.0.2 metadata repository.

In the log file `ORACLE_HOME/j2ee/OC4J_Portal/application-deployments/portalTools/OC4J_Portal_default_island_1/application.log`, you will see error messages such as:

```
webClipping: jsp: init
webClipping: ServletLogger - Logging level: 3
webClipping: WARNING: Reconnecting Web Clipping Repository
...
webClipping: WARNING: Use RAA to access Web Clipping Repository
webClipping: ERROR: Exception occured in getting Obfuscation Key
webClipping: ERROR: SQL Error Code = "6550"
webClipping: WARNING: ORA-06550: line 4, column 46:
```



```
PL/SQL: ORA-00942: table or view does not exist
ORA-06550: line 4, column 5:
PL/SQL: SQL Statement ignored

java.sql.SQLException: ORA-06550: line 4, column 46:
PL/SQL: ORA-00942: table or view does not exist
ORA-06550: line 4, column 5:
PL/SQL: SQL Statement ignored
```

3.3 10g (9.0.4) Metadata Repository Against a 9.0.2 Infrastructure

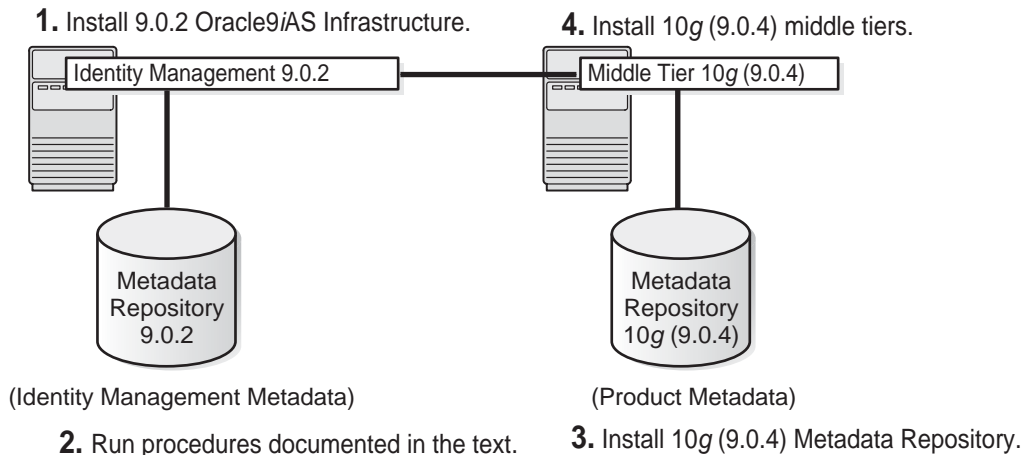
This configuration is used by the configuration described in [Section 3.4, "10g \(9.0.4\) Middle Tiers, 10g \(9.0.4\) Metadata Repository, and 9.0.2 Identity Management"](#).

3.4 10g (9.0.4) Middle Tiers, 10g (9.0.4) Metadata Repository, and 9.0.2 Identity Management

[Figure 3-1](#) shows a 10g (9.0.4) middle tier using a 10g (9.0.4) metadata repository. In this setup, you have two metadata repositories: the 9.0.2 repository from the 9.0.2 infrastructure, and the 10g (9.0.4) repository, which you have to install before you can install the middle tier.

Figure 3–1 10g (9.0.4) Middle Tier Using 10g (9.0.4) Metadata Repository for its Product Metadata

(The numbers indicate order of installation.)



3.4.1 Known Issues

For this setup, be aware of these issues:

- [Section 3.2.3, "OracleAS Forms Services Gives Error FRM-92102"](#)
- [Section 3.2.4, "10g \(9.0.4\) Instances Cannot Be Accessed from 9.0.2 or 9.0.3 Farm Page"](#)
- [Section 3.2.5, "dcmctl getState Command from a 10g \(9.0.4\) Instance Cannot Be Used With 9.0.2 or 9.0.3 Instances"](#)

3.4.2 Installation Steps

To create this setup, you need to perform these steps:

1. Install the 9.0.2 Oracle9iAS Infrastructure if you are not already running it.
2. Perform these procedures:
 - [Section 3.4.3, "Update an Entry in the 9.0.2 Oracle Internet Directory"](#)
 - [Section 3.4.4, "Shut Down All 9.0.2 Middle Tiers That Are Running Oracle9iAS Wireless \(If Any\)"](#)
 - [Section 3.4.5, "Back up the 9.0.2 Wireless Schema"](#)

3. Install the 10g (9.0.4) metadata repository.
See [Section 6.19, "Installing OracleAS Metadata Repository in a New Database"](#).
4. Install the 10g (9.0.4) middle tier.
See [Section 7.9, "Installing J2EE and Web Cache with OracleAS Database-Based Cluster and Identity Management Access"](#) or [Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms"](#), depending on which middle tier type you want.

3.4.3 Update an Entry in the 9.0.2 Oracle Internet Directory

Before installing a 10g (9.0.4) middle tier or a 10g (9.0.4) metadata repository against a 9.0.2 infrastructure, you need to update an entry in the 9.0.2 Oracle Internet Directory. You can do this in one of two ways.

- Use the `imconfig.sh` script, located on the OracleAS RepCA and Utilities CD-ROM. See [Section 3.4.3.1, "Using the imconfig.sh Script"](#) for details.
- Update the entry manually, as explained in [Section 3.4.3.2, "Updating an Entry in the 9.0.2 Oracle Internet Directory Manually"](#).

Both of these methods are equivalent but by running the `imconfig.sh` script, you save time and reduce the possibility of errors.

3.4.3.1 Using the imconfig.sh Script

Follow these steps to update an entry in the 9.0.2 Oracle Internet Directory using the `imconfig.sh` script. This script is located in the OracleAS RepCA and Utilities CD-ROM, in the `utilities/imconfig` directory.

1. Ensure that the following requirements are met:
 - The `ORACLE_HOME` environment variable points to the 9.0.2 infrastructure home directory used by Oracle9iAS Single Sign-On.
 - The Oracle Internet Directory server is running.
 - The 9.0.2 infrastructure database and listener used by Oracle9iAS Single Sign-On are running.
2. Run the `imconfig.sh` script on the computer where the 9.0.2 Oracle9iAS Single Sign-On is installed. Use the following command:

```
prompt> imconfig.sh -902 -h ldaphost -p ldapPort -D ldapDN -w ldapPwd -oh  
oracleHome
```

Values you need to provide:

ldaphost - name of the computer running the 9.0.2 Oracle Internet Directory.

Example: `dbmachine.mydomain.com`.

ldapPort - port number on which the 9.0.2 Oracle Internet Directory is listening.

Example: `389`.

ldapDN - DN of the Oracle Internet Directory user. Example:

`"cn=orcladmin"`.

ldapPwd - password for the Oracle Internet Directory user.

oracleHome - Oracle home directory for the 9.0.2 infrastructure database used by Oracle9iAS Single Sign-On.

Optional parameter you can specify:

`-ssl` - specify this parameter if *ldapPort* is an SSL port.

3.4.3.2 Updating an Entry in the 9.0.2 Oracle Internet Directory Manually

You can also update an entry in the 9.0.2 Oracle Internet Directory manually, by following these steps:

1. Ensure that the following requirements are met:
 - The `ORACLE_HOME` environment variable points to the 9.0.2 infrastructure home directory.
 - The Oracle Internet Directory server is running.
 - The database and listener are running.
2. Determine the global name of the 9.0.2 infrastructure database used by Oracle9iAS Single Sign-On.

This value is stored in the `CollocatedDBCommonName` field in the `ORACLE_HOME/config/ias.properties` file, where `ORACLE_HOME` is the Oracle home directory for the 9.0.2 infrastructure. If you distributed the infrastructure components over multiple computers, use the `ORACLE_HOME` where you configured Oracle9iAS Single Sign-On.

For example, the line in the `ias.properties` file might look like this:

```
CollocatedDBCommonName=asdb.mydomain.com
```

3. Determine the distinguished name (DN) for the database retrieved in the previous step (step 2). To do this, run this command (all on one line):

```
prompt> $ORACLE_HOME/bin/ldapsearch -h oidhostname -p oidport
-D cn=orcladmin -w passwd
-b "cn=oraclecontext" -s sub orcldbglobalname=globaldbname dn
```

This command returns the DN for the database. The DN looks something like: `cn=ASDB,cn=OracleContext`. You need this DN value in the next step (step 4).

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.

globaldbname - global database name, retrieved in step 2. Example:

`asdb.mydomain.com`.

4. Using a text editor, such as `vi` or `emacs`, create a file called `addSeealso.ldif` with the following lines (note: if you split long lines over several lines, make sure the continuation lines begin with a space or a tab character):

```
dn: orclApplicationCommonName=
   ORASSO_SSOSERVER,cn=SSO,cn=Products,cn=OracleContext
changetype: modify
replace: seealso
seealso: DN of database
```

On the last line, replace *DN of database* with the DN of the infrastructure database (for example, `cn=ASDB,cn=OracleContext`). You determined this value from the previous step.

5. Run the following command to update the entry in Oracle Internet Directory (all on one line):

```
prompt> $ORACLE_HOME/bin/ldapmodify -h oidhostname -p oidport -D
cn=orcladmin -w passwd
-f addSeealso.ldif
```

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.

6. Run the following command to verify that the entry was added (all on one line):

```
prompt> $ORACLE_HOME/bin/ldapsearch -h oidhostname -p oidport -D
cn=orcladmin -w passwd
-b "orclApplicationCommonName=ORASSO_SSOSERVER,cn=SSO,
cn=Products,cn=OracleContext" "objectclass=*" seealso
```

The command returns these lines:

```
orclApplicationCommonName=ORASSO_SSOSERVER,cn=SSO,cn=Products,
cn=OracleContext
seealso=DN_of_database
```

3.4.4 Shut Down All 9.0.2 Middle Tiers That Are Running Oracle9iAS Wireless (If Any)

Before installing the first 10g (9.0.4) middle tier that contains OracleAS Wireless, you need to shut down all 9.0.2 middle tiers that are running Oracle9iAS Wireless, if any.

After installing the first 10g (9.0.4) middle tier, you can start up the 9.0.2 middle tiers.

You can install subsequent 10g (9.0.4) middle tiers without shutting down any 9.0.2 or 10g (9.0.4) middle tiers.

3.4.5 Back up the 9.0.2 Wireless Schema

If you plan to use the Wireless component from both 9.0.2 and 10g (9.0.4) releases against a 9.0.2 metadata repository, you need to perform these steps:

1. (optional) Back up the WIRELESS schema in the 9.0.2 metadata repository.

This step is recommended because when you install the OracleAS Wireless 10g (9.0.4) middle tier (in the next step), the Wireless Configuration Assistant upgrades the WIRELESS schema in the 9.0.2 metadata repository to 10g (9.0.4).

Reasons for backing up the schema include:

- If you decide later that you do not need to use OracleAS Wireless 10g (9.0.4) and need Oracle9iAS Wireless 9.0.2 only, you can restore the schema.

- If the schema upgrade fails for any reason (for example, network or hardware errors), you can restore the schema.
2. Install a 10g (9.0.4) middle tier (Portal and Wireless, or Business Intelligence and Forms) against the 9.0.2 infrastructure. This step upgrades the WIRELESS schema to 10g (9.0.4).
 3. Upgrade the existing Oracle9iAS Wireless 9.0.2 middle tiers to version 9.0.2.8.0 or later. Earlier versions of Oracle9iAS Wireless are not compatible with the 10g (9.0.4) WIRELESS schema.

The steps in detail:

1. Back up the WIRELESS schema in the 9.0.2 metadata repository.

You can do this using the Export database utility.

```
prompt> exp system/password@service_name file=iasw902.dmp owner=WIRELESS
```

Values you need to provide:

password - password of the SYSTEM account.

service_name - local net service name that points to the 9.0.2 metadata repository, for example, asdb.

This creates a database export file called `iasw902.dmp` with the contents of the WIRELESS schema.

2. Install a 10g (9.0.4) middle tier (Portal and Wireless, or Business Intelligence and Forms) against the 9.0.2 infrastructure. See [Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms"](#) for details.

The first time you install OracleAS Wireless 10g (9.0.4) against a 9.0.2 metadata repository, the Wireless Configuration Assistant upgrades the WIRELESS schema to 10g (9.0.4). If you install additional OracleAS Wireless 10g (9.0.4) components against the same metadata repository, the configuration assistant detects that the schema is already upgraded and does not upgrade it again.

3. Upgrade the existing Oracle9iAS Wireless 9.0.2 middle tiers to version 9.0.2.8.0 or later. Currently, Oracle*MetaLink* contains patches that enable you to upgrade to version 9.0.2.8.0 or 9.0.2.10.0.

To upgrade to version 9.0.2.8.0, apply one of these patches:

- The Oracle9iAS Wireless 9.0.2.8.0 patch (2831134)
- The Oracle9iAS 9.0.2.2.0 bundled patch set (2926973)

- The Oracle9iAS 9.0.2.3.0 patch set (3038037)

To upgrade to version 9.0.2.10.0, apply the Oracle9iAS Wireless 9.0.2.10.0 patch (3174514).

You can download patches from Oracle *MetaLink*: <http://metalink.oracle.com>.

If You Decide Not to Use OracleAS Wireless 10g (9.0.4)

If, after installing the OracleAS Wireless 10g (9.0.4), you decide that you do not want to use it and want to use Oracle9iAS Wireless 9.0.2 only, you can restore the 9.0.2 WIRELESS schema:

1. Remove all objects from the WIRELESS schema, which is now at version 10g (9.0.4), in the 9.0.2 metadata repository.

To do this, run the `wirelessrm.sql` script. The Oracle home refers to the Oracle home for the 10g (9.0.4) middle tier.

```
prompt> cd $ORACLE_HOME/wireless/repository/sql
prompt> sqlplus system/password@service_name @wirelessrm.sql
```

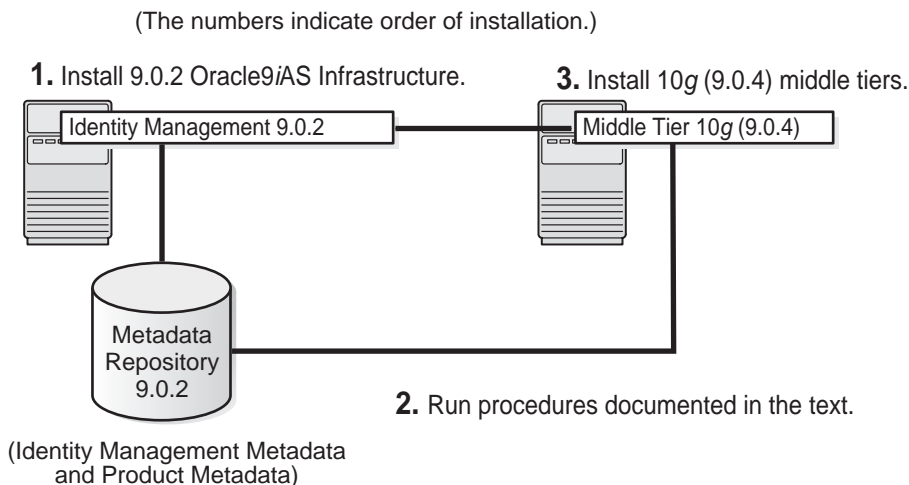
2. Restore the 9.0.2 WIRELESS schema by importing the database export file created in step 1 of the previous procedure.

```
prompt> imp system/password@service_name file=iasw902.dmp
          fromuser=wireless touser=wireless
```

3.5 10g (9.0.4) Middle Tiers and 9.0.2 Infrastructure

[Figure 3-2](#) shows a 10g (9.0.4) middle tier using a 9.0.2 infrastructure (Metadata Repository and Identity Management).

Figure 3–2 10g (9.0.4) Middle Tier Using 9.0.2 Metadata Repository for its Product Metadata



3.5.1 Known Issues

For this setup, be aware of these issues:

- [Section 3.2.2, "Unable to Log In to OracleAS Portal"](#)
- [Section 3.2.3, "OracleAS Forms Services Gives Error FRM-92102"](#)
- [Section 3.2.4, "10g \(9.0.4\) Instances Cannot Be Accessed from 9.0.2 or 9.0.3 Farm Page"](#)
- [Section 3.2.5, "dcmctl getState Command from a 10g \(9.0.4\) Instance Cannot Be Used With 9.0.2 or 9.0.3 Instances"](#)

3.5.2 Installation Steps

To create this setup, you need to perform these steps:

1. Install the 9.0.2 Oracle9iAS Infrastructure if you are not already running it.
2. Perform these procedures:
 - [Section 3.4.3, "Update an Entry in the 9.0.2 Oracle Internet Directory"](#)
 - [Section 3.4.4, "Shut Down All 9.0.2 Middle Tiers That Are Running Oracle9iAS Wireless \(If Any\)"](#)

- [Section 3.4.5, "Back up the 9.0.2 Wireless Schema"](#)
- 3. Install the 10g (9.0.4) middle tier.

See [Section 7.9, "Installing J2EE and Web Cache with OracleAS Database-Based Cluster and Identity Management Access"](#) or [Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms"](#), depending on which middle tier type you want.

3.6 9.0.2/9.0.3/10g (9.0.4) Middle Tiers, 10g (9.0.4) Identity Management

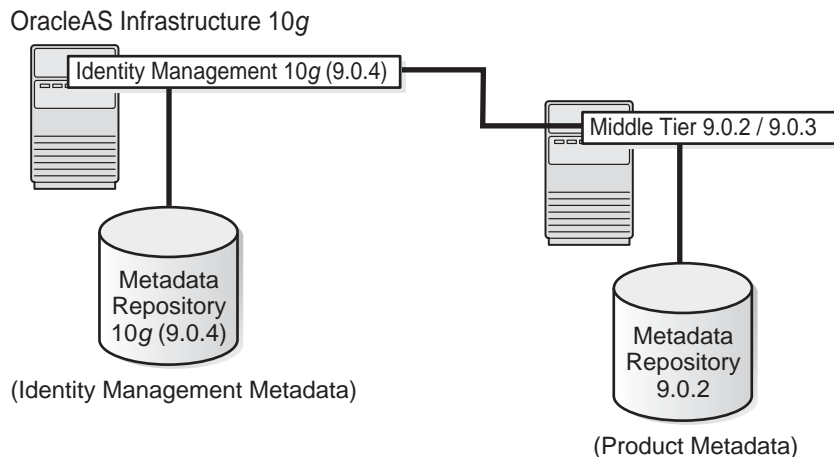
This section describes a configuration that consists of the following instances:

- 9.0.2/9.0.3 middle tiers, which require a 9.0.2 metadata repository
- 10g (9.0.4) Identity Management, which requires a 10g (9.0.4) metadata repository

Note that this configuration requires two metadata repositories: the 9.0.2 and 9.0.3 middle tiers use a 9.0.2 metadata repository, while the Identity Management components use a 10g (9.0.4) metadata repository.

[Figure 3–3](#) shows this configuration:

Figure 3–3 Middle Tiers From 9.0.2/9.0.3 and Identity Management from 10g (9.0.4). Each Has Its Own Metadata Repository.



How to Arrive at This Configuration

To arrive at this configuration:

- First, arrive at a starting configuration that consists of an infrastructure 10g (9.0.4) and a 9.0.2 metadata repository. You can arrive at this starting configuration in one of two ways:
 - By upgrading a 9.0.2 infrastructure to 10g (9.0.4). See [Section 3.6.2.1, "Arriving at the Starting Configuration by Upgrading"](#).
 - By installing instances of the appropriate version. See [Section 3.6.2.2, "Arriving at the Starting Configuration by Installing New Instances"](#).
- Then, install 9.0.2/9.0.3 middle tiers against the 9.0.2 metadata repository.

SSL Note

In this configuration, you cannot set up the 10g (9.0.4) Identity Management components (such as Oracle Internet Directory and OracleAS Single Sign-On) to run only in SSL mode. You have to run the Identity Management components in both SSL and non-SSL modes. This reason is that middle tiers from Release 2 (9.0.2 and 9.0.3) cannot work in SSL-only mode.

3.6.1 Known Issues

In this configuration, be aware of these issues:

- [Section 3.2.1, "Oracle Enterprise Manager for 9.0.2/9.0.3 and 10g \(9.0.4\) Uses the Same Port \(Port 1810\)"](#)
- [Section 3.2.4, "10g \(9.0.4\) Instances Cannot Be Accessed from 9.0.2 or 9.0.3 Farm Page"](#)
- [Section 3.2.5, "dcmctl getState Command from a 10g \(9.0.4\) Instance Cannot Be Used With 9.0.2 or 9.0.3 Instances"](#)

3.6.2 Steps to Arrive at the Starting Configuration

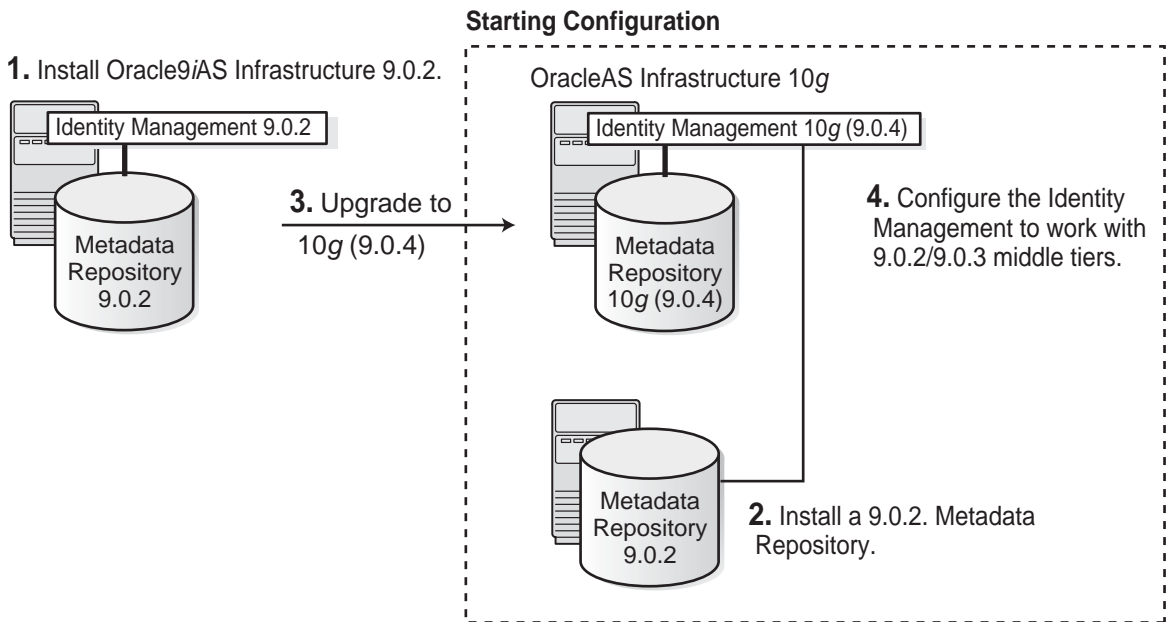
You can arrive at the starting configuration by either upgrading a 9.0.2 installation or by installing all new instances.

- [Section 3.6.2.1, "Arriving at the Starting Configuration by Upgrading"](#)
- [Section 3.6.2.2, "Arriving at the Starting Configuration by Installing New Instances"](#)

3.6.2.1 Arriving at the Starting Configuration by Upgrading

Figure 3–4 shows arriving at the starting configuration by upgrading a 9.0.2 infrastructure.

Figure 3–4 Arriving at the Starting Configuration by Upgrading



To arrive at the starting configuration by upgrading (see Figure 3–4):

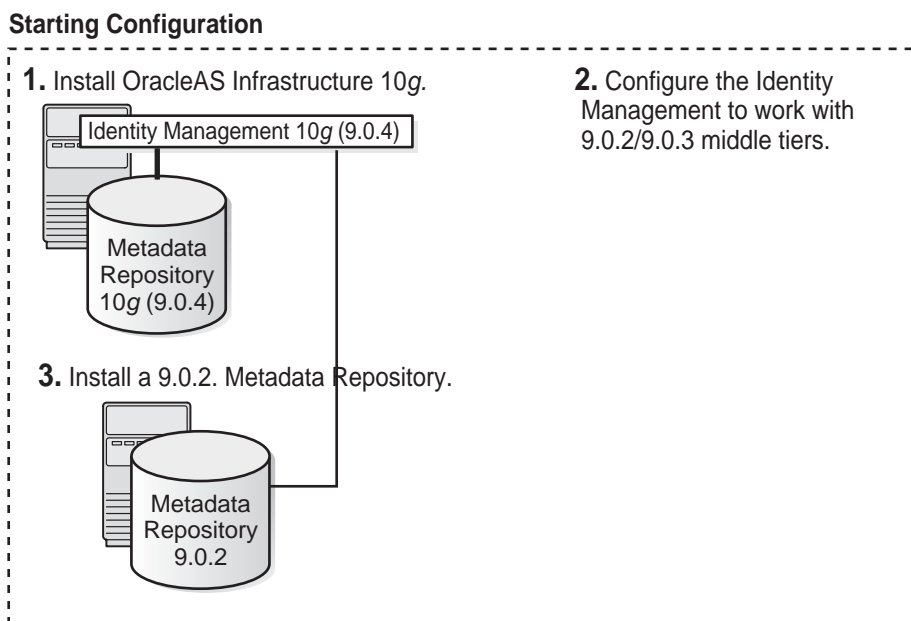
1. Install a 9.0.2 infrastructure.
2. Install a 9.0.2 metadata repository.
3. Upgrade the 9.0.2 infrastructure installed in step 1 to 10g (9.0.4). This gives you a 10g (9.0.4) Identity Management and a 10g (9.0.4) metadata repository.
4. Configure the upgraded 10g (9.0.4) Identity Management to work with 9.0.2/9.0.3 middle tiers. See one of these sections:
 - [Section 3.6.4, "Configuring the 10g \(9.0.4\) Identity Management Using the imconfig.sh Script"](#)
 - [Section 3.6.5, "Configuring the 10g \(9.0.4\) Identity Management Manually"](#)

5. After you have arrived at the starting configuration, you can install 9.0.2/9.0.3 middle tiers. See [Section 3.6.3, "Steps for Installing 9.0.2/9.0.3 Middle Tiers"](#).

3.6.2.2 Arriving at the Starting Configuration by Installing New Instances

[Figure 3–5](#) shows arriving at the starting configuration by installing new instances of the appropriate versions.

Figure 3–5 Arriving at the Starting Configuration by Installing New Instances



To arrive at the starting configuration by installing new instances:

1. Install OracleAS Infrastructure 10g (including Identity Management and OracleAS Metadata Repository).
See [Section 6.17, "Installing OracleAS Infrastructure 10g"](#) for steps.
2. Configure the 10g (9.0.4) Identity Management to work with 9.0.2 or 9.0.3 middle tiers. See one of these sections:
 - [Section 3.6.4, "Configuring the 10g \(9.0.4\) Identity Management Using the imconfig.sh Script"](#)

- [Section 3.6.5, "Configuring the 10g \(9.0.4\) Identity Management Manually"](#)
- 3. Install the metadata repository portion of the 9.0.2 Oracle9iAS Infrastructure, and point it to the 10g (9.0.4) Identity Management for the OracleAS Single Sign-On and Oracle Internet Directory components. See the *Oracle9i Application Server Installation Guide* for Release 2 (9.0.2).
- 4. After you have arrived at the starting configuration, you can install the 9.0.2/9.0.3 middle tiers. See [Section 3.6.3, "Steps for Installing 9.0.2/9.0.3 Middle Tiers"](#).

3.6.3 Steps for Installing 9.0.2/9.0.3 Middle Tiers

When you have the starting configuration, you can perform these steps to install 9.0.2/9.0.3 middle tiers:

1. Apply the following patches to the 9.0.2 Metadata Repository (installed in step 2 if you followed the upgrade path, installed in step 3 if you installed new instances).
 - Patch 3238095
 - Patchset 2517300 (for patching the database to 9.0.1.4, if your database is not already at that version)
 - Patch 2282201
 - Patch 2563444

You can download patches from Oracle *MetaLink* (<http://metalink.oracle.com>). See the readme file for the patch for installation instructions.

2. Install the 9.0.2/9.0.3 middle tiers against the 9.0.2 metadata repository. For details, see the *Oracle9i Application Server Installation Guide* for Release 2 (9.0.2) or Release 2 (9.0.3).
3. (optional) Apply the following patches if you want Oracle9iAS Portal 9.0.2 to leverage multiple search bases for users and groups in OracleAS Infrastructure 10g.

For details on search bases, see the sections "Select the User Search Base" and "Select the Group Search Base" in the chapter "Considerations for Integrating with Third-Party Directories" in the *Oracle Internet Directory Administrator's Guide*.

- Apply patch set 3038037 to the 9.0.2 middle tiers installed in the previous step. This patch set upgrades the middle tiers to 9.0.2.3.

- Apply patch 2802414 to the 9.0.2 Metadata Repository.
- Apply patches for upgrading the 9.0.2 Metadata Repository database to either 9.0.1.5 or 9.2.0.4, depending on which database series you are using. The `dbms_ldap` APIs, which are required to support multiple search bases for users and groups, require the upgraded database versions. See [Section 10.2.1, "Database Version"](#) for the patch numbers.

3.6.4 Configuring the 10g (9.0.4) Identity Management Using the `imconfig.sh` Script

Follow these steps to update the 10g (9.0.4) Identity Management components, using the `imconfig.sh` script. This script is located on the "OracleAS RepCA and Utilities" CD-ROM, in the `utilities/imconfig` directory.

1. Ensure that the following requirements are met:
 - The `ORACLE_HOME` environment variable points to the 10g (9.0.4) infrastructure home directory used by OracleAS Single Sign-On.
 - The 10g (9.0.4) Oracle Internet Directory server is running.
 - The 10g (9.0.4) infrastructure database and listener are running.
2. Run the `imconfig.sh` script on the machine where the 10g (9.0.4) OracleAS Single Sign-On is installed. Use the following command:

```
prompt> imconfig.sh -10g -h ldaphost -p ldapPort -D ldapDN -w ldapPwd -oh
oracleHome
```

Values you need to provide are:

ldaphost - name of the computer running the 10g (9.0.4) Oracle Internet Directory. Example: `dbmachine.mydomain.com`.

ldapPort - port number on which the 10g (9.0.4) Oracle Internet Directory is listening. Example: `389`.

ldapDN - DN of the Oracle Internet Directory user. Example: `"cn=orcladmin"`.

ldapPwd - password for the Oracle Internet Directory user.

oracleHome - Oracle home directory for the 10g (9.0.4) infrastructure database used by OracleAS Single Sign-On.

Optional parameter you can specify:

`-ssl` - specify this parameter if `ldapPort` is an SSL port.

3.6.5 Configuring the 10g (9.0.4) Identity Management Manually

The following preliminary steps are required to configure the 10g (9.0.4) Identity Management, before you can install 9.0.2 or 9.0.3 middle tiers:

- [Section 3.6.5.1, "Modify the iASAdmins Group in Oracle Internet Directory"](#)
- [Section 3.6.5.2, "Update Access Policy for Metadata Repository Registration"](#)
- [Section 3.6.5.3, "Update the ORASSO Schema in the Metadata Repository"](#)

You can accomplish all of these steps much more easily by running the `imconfig.sh` script. See [Section 3.6.4, "Configuring the 10g \(9.0.4\) Identity Management Using the imconfig.sh Script"](#).

3.6.5.1 Modify the iASAdmins Group in Oracle Internet Directory

To modify the iASAdmins group in the 10g (9.0.4) Oracle Internet Directory so that 9.0.2 middle tiers can use it, perform the following procedure:

1. Create a text file to contain these lines, and name the file `changeiASAdmins.ldif`. Note: if you split long lines over several lines, make sure the continuation lines begin with a space or a tab character.

```
dn: cn=UserProxyPrivilege, cn=Groups, cn=oraclecontext
changetype: modify
replace: orclentrylevelaci
orclentrylevelaci: access to entry by
    group="cn=iASAdmins, cn=Groups, cn=OracleContext" (browse, nodelete) by
    group="cn=Trusted Applications Admins, cn=Groups, cn=oraclecontext"
    (browse, nodelete) by dnattr=(owner) (browse, nodelete) by * (none)
orclentrylevelaci: access to attr=(*) by group="cn=iASAdmins,
    cn=Groups, cn=OracleContext" (read, search, write, compare) by
    group="cn=Trusted Applications Admins, cn=Groups, cn=oraclecontext" (read,
    write, compare, search) by dnattr=(owner) (read, search, write, compare) by
    * (none)
```

2. Run the `ldapmodify` command on the LDIF file.

```
prompt> $ORACLE_HOME/bin/ldapmodify -h oidhostname -p oidport -D
cn=orcladmin -w passwd
-f changeiASAdmins.ldif
```

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 orcladmin. Example: welcome1.

3.6.5.2 Update Access Policy for Metadata Repository Registration

To update the access policy in the 10g (9.0.4) Oracle Internet Directory so that 9.0.2 middle tiers can use it, perform the following procedure:

1. Determine the global database name of the 10g (9.0.4) OracleAS Metadata Repository used by OracleAS Single Sign-On. You will use this value in the next step.

This value is stored in the `InfrastructureDBCommonName` field in the `ORACLE_HOME/config/ias.properties` file, where `ORACLE_HOME` is the Oracle home directory for the 10g (9.0.4) OracleAS Metadata Repository used by OracleAS Single Sign-On.

For example, the line in the `ias.properties` file might look like this:

```
InfrastructureDBCommonName=asdb.mydomain.com
```

2. Create a text file to contain these lines, and name the file `changeAccess.ldif`.

On the first line, replace *globalDatabaseName* with the global name of your database determined in step 1. Note: if you split long lines over several lines, make sure the continuation lines begin with a space or a tab character.

```
dn: orclReferenceName=globalDatabaseName,cn=IAS Infrastructure
  Databases,cn=IAS,cn=Products,cn=oraclecontext
changetype: modify
replace: orclentrylevelaci
orclentrylevelaci: access to entry by dn=".*,cn=IAS Instances, cn=IAS,
  cn=Products,cn=oraclecontext" (browse, noadd, nodelete) by * (none)
orclentrylevelaci: access to attr=(*) by dn=".*,cn=IAS Instances,
  cn=IAS,cn=Products,cn=oraclecontext" (search, read, nowrite) by * (none)
```

3. Run the LDIF file using `ldapmodify` command:

```
prompt> $ORACLE_HOME/bin/ldapmodify -h oidhostname -p oidport -D
cn=orcladmin -w passwd
-f changeAccess.ldif
```

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 `orcladmin`. Example: `welcome1`.

3.6.5.3 Update the ORASSO Schema in the Metadata Repository

You need to update some values in the ORASSO schema in the 10g (9.0.4) OracleAS Metadata Repository used by OracleAS Single Sign-On.

1. Determine the password for the ORASSO schema.

```
prompt> $ORACLE_HOME/bin/ldapsearch -h oidhostname -p oidport -D
cn=orcladmin -w passwd
-b "orclReferenceName=globalDatabaseName,cn=IAS Infrastructure Databases,
cn=IAS,cn=Products,cn=oraclecontext" "orclresourcename=ORASSO"
orclpasswordattribute
```

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 `orcladmin`. Example: `welcome1`.

globalDatabaseName - global database name for the metadata repository used by the 10g (9.0.4) OracleAS Single Sign-On. See step 1 in the previous procedure for instructions on how to determine this value. Example: `asdb.mydomain.com`.

2. Run the following command in SQL*Plus.

```
prompt> sqlplus orasso/passwd
SQL> begin wvssso_oid_integration.setdbconnect('ssodb_hostname',
'ssodb_port', 'ssodb_sid') ; end;
SQL> /
SQL> exit;
```

Values you need to provide:

passwd - password for the ORASSO schema, determined in step 1.

ssodb_hostname - name of the computer running the metadata repository used by the 10g (9.0.4) OracleAS Single Sign-On. Note that you need to enclose this value in single quotes. Example: 'dbmachine.mydomain.com'.

ssodb_port - port number on which the metadata repository is listening. Note that you need to enclose this value in single quotes. Example: '1521'.

ssodb_sid - SID of the metadata repository. Note that you need to enclose this value in single quotes. Example: 'asdb'.

Requirements

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

Contents of this chapter:

- [Section 4.1, "Check Hardware Requirements"](#)
- [Section 4.2, "Check the Software Requirements"](#)
- [Section 4.3, "Check Kernel Parameters"](#)
- [Section 4.4, "Ports"](#)
- [Section 4.5, "Operating System Groups"](#)
- [Section 4.6, "Operating System User"](#)
- [Section 4.7, "Environment Variables"](#)
- [Section 4.8, "The /etc/hosts File"](#)
- [Section 4.9, "Network Topics"](#)
- [Section 4.10, "Prerequisite Checks Performed by the Installer"](#)

Note: You can view updated certification information at Oracle*MetaLink*: <http://metalink.oracle.com>

4.1 Check Hardware Requirements

Depending on your operating system, see one of the following sections for information on checking the hardware requirements:

- [Table 4-1, "Hardware Requirements for HP-UX Systems"](#)

■ [Table 4–2, "Hardware Requirements for Linux Systems"](#)

The tables list the system requirements for running Oracle Application Server. The installer checks many of these requirements at the start of the installation process and will warn you if any of them is not met. Hence, to save time, you can manually check only the remaining requirements. Refer to the appropriate table 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 following command, where the `runInstaller` executable is on the Oracle Application Server CD-ROM (Disk 1) or DVD (in the `application_server` directory).

CD-ROM:

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

DVD:

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

The results are displayed on the screen as well as written to a log file. For more information on the types of checks performed, see [Section 4.10, "Prerequisite Checks Performed by the Installer"](#).

Table 4–1 Hardware Requirements for HP-UX Systems

Item	Minimum Requirement	Checked by Installer
Processor type	64-bit HP-UX PA-RISC processor If the processor is 64-bit the following command returns the value 64: # /bin/getconf KERNEL_BITS	No
Processor speed	240 MHz or faster	Yes
Network	The computer must be connected to a network. You cannot install Oracle Application Server on a "standalone" computer that is not connected to a network. Installing Oracle Application Server on standalone computers is supported for Linux and Microsoft Windows.	No
IP	The computer's IP address must be static. Oracle Application Server does not support HP-UX systems using DHCP. DHCP is supported on Linux and Microsoft Windows.	No

Table 4–1 Hardware Requirements for HP-UX Systems (Cont.)

Item	Minimum Requirement	Checked by Installer
Memory	<p>The memory requirements provided for the various installation types represents enough physical memory to install and run Oracle Application Server. However, for most production sites, you should configure at least 1 GB of physical memory. For sites with substantial traffic, increasing the amount of memory further may improve your performance. For Java applications, you should either increase the maximum heap allocated to the OC4J processes, or configure additional OC4J processes to utilize this memory. See the <i>Oracle Application Server 10g Performance Guide</i> for details.</p> <p>In determining 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.</p> <p>OracleAS Infrastructure 10g:</p> <ul style="list-style-type: none"> ■ OracleAS Metadata Repository and Identity Management: 1 GB ■ Identity Management only: 512 MB ■ OracleAS Metadata Repository only: 750 MB <p>Oracle Application Server middle tier:</p> <ul style="list-style-type: none"> ■ J2EE and Web Cache: 512 MB ■ Portal and Wireless: 1 GB ■ Business Intelligence and Forms: 1 GB <p>OracleAS Developer Kits 10g: 256 MB, but 512 MB recommended</p> <p>To determine the amount of memory, enter the following command:</p> <pre># /usr/sbin/dmesg grep "Physical:"</pre>	Yes

Table 4–1 Hardware Requirements for HP-UX Systems (Cont.)

Item	Minimum Requirement	Checked by Installer
Disk space	<p>OracleAS Infrastructure 10g: 3.60 GB</p> <p>Oracle Application Server middle tier:</p> <ul style="list-style-type: none"> ■ J2EE and Web Cache: 1.10 GB ■ Portal and Wireless: 1.60 GB ■ Business Intelligence and Forms: 2.30 GB <p>OracleAS Developer Kits 10g: 1.10 GB</p> <p>The installer may display inaccurate disk space requirement figures. Refer to the figures listed above for disk space requirements.</p> <p>To determine the amount of free disk space, use the <code>bdf</code> command:</p> <pre>prompt> bdf dir</pre> <p>Replace <code>dir</code> with the Oracle home directory or with the parent directory if the Oracle home directory does not exist yet. For example, if you plan to install Oracle Application Server in <code>/opt/oracle/infra</code>, you can replace <code>dir</code> with <code>/opt/oracle</code> or <code>/opt/oracle/infra</code>.</p>	No
Space in <code>/tmp</code> directory	<p>250 MB</p> <p>To determine the amount of free disk space in the <code>/tmp</code> directory, enter the following command:</p> <pre>prompt> bdf /tmp</pre> <p>If the <code>/tmp</code> directory does not have enough free space, you can specify a different directory by setting the <code>TMP</code> environment variable. See Section 4.7.5, "TMP and TMPDIR" for details.</p>	Yes
Swap space	<p>1.5 GB of available swap space</p> <p>To determine the amount of available swap space, enter the following command:</p> <pre># /usr/sbin/swapinfo -a</pre> <p>If necessary, see your operating system documentation for information on how to configure additional swap space.</p>	Yes

Table 4–1 Hardware Requirements for HP-UX Systems (Cont.)

Item	Minimum Requirement	Checked by Installer
Monitor	256 color display To determine your monitor's display capabilities, run the following command: <pre>prompt> /usr/X11R6/bin/xdpyinfo</pre> Look for the "depths" line. You need a depth of at least 8 (bits per pixel).	Yes

Table 4–2 Hardware Requirements for Linux Systems

Item	Minimum Requirement	Checked by Installer
Processor type	Pentium (32-bit)	No
Processor speed	450 MHz or faster	Yes
Network	You can install Oracle Application Server on a "standalone" computer that is not connected to a network. If you later change the network configuration, see the <i>Oracle Application Server 10g Administrator's Guide</i> for information on reconfiguring Oracle Application Server.	No
IP	The computer's IP address can be static or allocated using DHCP. If you later change the IP configuration, see the <i>Oracle Application Server 10g Administrator's Guide</i> for information on reconfiguring Oracle Application Server.	No

Table 4–2 Hardware Requirements for Linux Systems (Cont.)

Item	Minimum Requirement	Checked by Installer
Memory	<p>The memory requirements provided for the various installation types represents enough physical memory to install and run Oracle Application Server. However, for most production sites, you should configure at least 1 GB of physical memory. For sites with substantial traffic, increasing the amount of memory further may improve your performance. For Java applications, you should either increase the maximum heap allocated to the OC4J processes, or configure additional OC4J processes to utilize this memory. See the <i>Oracle Application Server 10g Performance Guide</i> for details.</p> <p>In determining the optimal amount of memory for your installation, the best practice is to load test your site. Resource requirements can vary substantially for different applications and different usage patterns. In addition, some operating system utilities for monitoring memory can overstate memory usage (partially due to the representation of 7shared memory). The preferred method for determining memory requirements is to monitor the improvement in performance resulting from the addition of physical memory in your load test. Refer to your platform vendor documentation for information on how to configure memory and processor resources for testing purposes.</p> <p>OracleAS Infrastructure 10g:</p> <ul style="list-style-type: none"> ■ OracleAS Metadata Repository and Identity Management: 1 GB ■ Identity Management only: 512 MB ■ OracleAS Metadata Repository only: 750 MB <p>Oracle Application Server middle tier:</p> <ul style="list-style-type: none"> ■ J2EE and Web Cache: 512 MB ■ Portal and Wireless: 1 GB ■ Business Intelligence and Forms: 1 GB <p>OracleAS Developer Kits 10g: 256 MB, but 512 MB recommended</p> <p>To determine the amount of memory, enter the following command:</p> <pre># grep MemTotal /proc/meminfo</pre>	Yes

Table 4–2 Hardware Requirements for Linux Systems (Cont.)

Item	Minimum Requirement	Checked by Installer
Disk space	<p>OracleAS Infrastructure 10g: 2.50 GB</p> <p>Oracle Application Server middle tier:</p> <ul style="list-style-type: none"> ■ J2EE and Web Cache: 520 MB ■ Portal and Wireless: 1.10 GB ■ Business Intelligence and Forms: 1.65 GB <p>OracleAS Developer Kits 10g: 600 MB</p> <p>The installer may display inaccurate disk space requirement figures. Refer to the figures listed above for disk space requirements.</p> <p>To determine the amount of free disk space, use the <code>df</code> command:</p> <pre>prompt> df -k dir</pre> <p>Replace <i>dir</i> with the Oracle home directory or with the parent directory if the Oracle home directory does not exist yet. For example, if you plan to install Oracle Application Server in <code>/opt/oracle/infra</code>, you can replace <i>dir</i> with <code>/opt/oracle</code> or <code>/opt/oracle/infra</code>.</p>	No
Space in <code>/tmp</code> directory	<p>250 MB</p> <p>To determine the amount of free disk space in the <code>/tmp</code> directory, use the <code>df</code> command:</p> <pre>prompt> df -k /tmp</pre> <p>If the <code>/tmp</code> directory does not have enough free space, you can specify a different directory by setting the <code>TMP</code> environment variable. See Section 4.7.5, "TMP and TMPDIR" for details.</p>	Yes

Table 4–2 Hardware Requirements for Linux Systems (Cont.)

Item	Minimum Requirement	Checked by Installer
Swap space	<p>1.5 GB of available swap space</p> <p>To determine the amount of available swap space, enter the following command:</p> <pre># grep SwapTotal /proc/meminfo</pre> <p>If necessary, see your operating system documentation for information on how to configure additional swap space.</p>	Yes
Monitor	<p>256 color display</p> <p>To determine your monitor's display capabilities, run the following command:</p> <pre>prompt> /usr/X11R6/bin/xdpyinfo</pre> <p>Look for the "depths" line. You need a depth of at least 8 (bits per pixel).</p>	Yes

4.1.1 Memory Requirements for Running Multiple Instances on the Same Computer

If you plan to run OracleAS Infrastructure 10g plus 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 Multiple Instances on the Same Computer

Description	Memory Required
OracleAS Infrastructure 10g plus J2EE and Web Cache	1 GB
OracleAS Infrastructure 10g plus Portal and Wireless	1.5 GB
OracleAS Infrastructure 10g plus Business Intelligence and Forms	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 10g Administrator's Guide* for details.
- After installation, if you installed multiple instances on the same computer, you can consolidate the Oracle Enterprise Manager component. For example, if you installed an OracleAS Infrastructure 10g and a middle tier on the same computer, you can configure one Oracle Enterprise Manager component to manage both OracleAS Infrastructure 10g and middle tier (instead of having two Oracle Enterprise Manager components, one for the infrastructure and one for the middle tier). See the *Oracle Application Server 10g Administrator's Guide* for details.

4.2 Check the Software Requirements

Depending on your operating system, see one of the following sections for information on checking the software requirements:

- [Section 4.2.1, "Checking the Software Requirements for HP-UX"](#)
- [Section 4.2.2, "Checking the Software Requirements for Linux"](#)

The installer also checks that your computer contains the required patches. If it determines that some required patches are missing, it displays an error.

In addition to the software requirements for the computer, you must have a compatible browser.

The following browsers are supported:

- Microsoft Internet Explorer 5.5, 6.0 and higher
- Netscape 4.78, 4.79, 7 and higher
- Mozilla 1.3.1 and higher

However, Oracle Enterprise Manager is optimized for the following browsers:

- Microsoft Internet Explorer 5.5, 6.0 and higher
- Netscape 7 and higher
- Mozilla 1.3.1 and higher

For the most current list of supported browsers, check the Oracle *MetaLink* site (<http://metalink.oracle.com>).

4.2.1 Checking the Software Requirements for HP-UX

Depending on the version of HP-UX, check that the software listed in [Table 4-4](#) or [Table 4-5](#) is installed on the system. The procedure that follows the tables describes how to ensure the correct software is installed on the system.

Note: Oracle Application Server 10g (9.0.4) is certified with the following Operating System specific software. For the most current list of supported Operating System specific software, for example JDK version, Operating System version, check Oracle *MetaLink* (<http://metalink.oracle.com>).

Table 4-4 Software Requirements for HP-UX 11.0 Systems

Item	Requirement
Operating System	HP-UX 11.0 (64-bit)
JDK	JDK 1.4.1.05 or higher
Patches required for JDK	Install all patches required for JDK 1.4.1.05. This list is constantly under review and is published on the JDK download page on the HP web site.
Quality Pack	Sept 2002 Quality Pack (QPK1100 B.11.00.58.5) or higher
Patches (or higher versions)	<ul style="list-style-type: none"> ▪ PHKL_27813 s700_800 11.00 POSIX AIO;getdirenties;MVFS;rcp;mmap/IDS patch ▪ PHSS_26559 s700_800 11.00 ld(1) and linker tools cumulative patch
Package	Motif 2.1 Development Environment X11MotifDevKit.MOTIF21-PRG:B.11.00.01 Note: This package is not required if you create the symbolic links described in step 6 of the next section.

Note: Oracle Application Server 10g (9.0.4) is certified with the following Operating System specific software. For the most current list of supported Operating System specific software, for example JDK version, Operating System version, check *Oracle MetaLink* (<http://metalink.oracle.com>).

Table 4–5 Software Requirements for HP-UX 11i Systems

Item	Requirement
Operating System	HP-UX 11i (11.11) PA-RISC or higher
JDK	JDK 1.4.1.05 or higher
Patches required for JDK	Install all patches required for JDK 1.4.1.05. This list is constantly under review and is published on the JDK download page on the HP web site.
Quality Pack	Dec 2001 Consolidate Patches (Dec01GQPK11i_Aux_Patch B.03.02.06) or higher
Patches (or higher versions)	<ul style="list-style-type: none"> ■ PHKL_25212 vm preemption point, mlock/async_io patch ■ PHKL_25506 asyncio driver patch ■ PHKL_27091 s700_800 11.11 Core PM, vPar, Psets Cumulative, slpq1 perf patch ■ PHKL_28267 s700_800 11.11 thread perf, user limit, cumulative VM ■ PHNE_28089 s700_800 11.11 cumulative ARPA Transport patch ■ PHSS_24638 s700_800 11.11 HP aC++ -AA runtime libraries (aCC A.03.33) ■ PHSS_26263 s700_800 11.11 ld(1) and linker tools cumulative patch ■ PHSS_26792 s700_800 11.X ANSI C compiler B.11.11.04 cumulative patch ■ PHSS_26793 s700_800 11.X +O4/PBO Compiler B.11.11.04 cumulative patch
Package	<p>Motif 2.1 Development Environment (X11MotifDevKit.MOTIF21-PRG) B.11.11.01</p> <p>Note: This package is not required if you create the symbolic links described in step 6 of the next section.</p>

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

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

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

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

2. To determine which JDK is installed, enter the following command:

```
# JDK_location/bin/java -fullversion
```

If the version displayed is less than 1.4.1.05, download JDK 1.4.1.05 or higher from the following Web site and install it:

<http://www.hp.com/products1/unix/java/index.html>

3. To determine whether the Quality Pack is installed, enter the following command:

```
# /usr/sbin/swlist | grep QPK
```

If the quality pack is not installed, download it from the following web site and install it:

http://www.software.hp.com/SUPPORT_PLUS/gpk.html

4. To determine whether a bundle or product is installed, enter the following command:

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

If a required product is not installed, you must install it. See your operating system or software documentation for information on installing products.

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

```
# /usr/sbin/swlist -l patch | grep PHKL_27813
```

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

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

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

<http://itresourcecenter.hp.com>

6. If the Motif package listed in [Table 4-5](#) and [Table 4-4](#) is not installed on the computer, create the following symbolic links:

- a. Log in as `root`.
- b. Change to the `/usr/lib` directory:

```
# cd /usr/lib
```

- c. Create the required links:

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

4.2.2 Checking the Software Requirements for Linux

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

- [Software Requirements for Red Hat 2.1 Systems](#)
- [Software Requirements for Red Hat 3.0 Systems](#)
- [Software Requirements for UnitedLinux 1.0 Systems](#)

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

You can install Oracle Application Server 10g (9.0.4) on a Linux system that is not on a network and you can install Oracle Application Server 10g (9.0.4) on a Linux system that is configured to use DHCP. If you want to install Oracle Application Server on a computer that is not on a network you must configure the computer to use either a static IP address or a loopback IP address. Configure the computer to resolve the hostname of the computer to either a static IP address or a loopback IP address.

4.2.2.1 Software Requirements for Red Hat 2.1 Systems

Table 4–6 lists the software requirements for Red Hat 2.1 systems and the procedure that follows the table describes how to ensure your system meets these requirements and any additional requirements for installing Oracle Application Server.

Note: Oracle Application Server 10g (9.0.4) is certified with the following Operating System specific software. For the most current list of supported Operating System specific software, for example JDK version, Operating System version, check Oracle *MetaLink* (<http://metalink.oracle.com>).

Table 4–6 Software Requirements for Red Hat 2.1 Systems

Item	Requirement
Operating System	Red Hat Enterprise Linux AS/ES 2.1 For more information on Red Hat, see: http://www.redhat.com
Red Hat Patches	Errata 25 kernel or a higher errata patch approved by Red Hat For example, one of the following, depending on the type of Red Hat installation: <ul style="list-style-type: none"> ■ kernel-2.4.9-e.25 ■ kernel-smp-2.4.9-e.25 ■ kernel-enterprise-2.4.9-e.25 The minimum supported version of the glibc package is glibc-2.2.4-32.
Software packages (check that these versions or higher versions are installed)	gcc-2.96-108.1 pdksh-5.2.14-13 openmotif-2.1.30 sysstat-4.0.1 compat-glibc-6.2-2.1.3.2 libstdc++-2.96-108.1

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

1. Log in as the `root` user.

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

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

Note: Red Hat Enterprise Linux AS/ES 2.1, 3.0 and UnitedLinux 1.0 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle *MetaLink* (<http://metalink.oracle.com>).

3. To determine which version of the Red Hat Linux kernel is installed, enter the following command

```
# uname -r
kernel-smp-2.4.9-e.25
```

In this example, the version shown is 2.4.9 with errata 25. If necessary, see your operating system documentation for information on upgrading the kernel.

For more information on Red Hat patches, see:

<http://www.redhat.com>

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

```
# rpm -q package_name
```

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

```
# rpm -i package_name
```

4.2.2.2 Software Requirements for Red Hat 3.0 Systems

Table 4–7 lists the software requirements for Red Hat 3.0 systems and the procedure that follows the table describes how to ensure your system meets these requirements and any additional requirements for installing Oracle Application Server.

Note: Oracle Application Server 10g (9.0.4) is certified with the following Operating System specific software. For the most current list of supported Operating System specific software, for example JDK version, Operating System version, check *Oracle MetaLink* (<http://metalink.oracle.com>).

Table 4–7 Software Requirements for Red Hat 3.0 Systems

Item	Requirement
Operating System	<p>Red Hat Enterprise Linux AS/ES 3.0</p> <p>For more information on Red Hat, see: http://www.redhat.com</p> <p>The minimum supported kernel and glibc versions are:</p> <ul style="list-style-type: none"> ▪ 2.4.21-4-EL ▪ glibc-2.3.2-95.3
Software packages (check that these versions or higher versions are installed)	<p>gcc-3.2.3-20</p> <p>setarch-1.3-1</p> <p>pdksh-5.2.14</p> <p>openmotif21-2.1.30-8</p> <p>gnome-libs-1.4.1.2.90-34.1</p> <p>compat-glibc-7.x-2.2.4.32.5</p> <p>compat-gcc-7.3-2.96.122</p> <p>compat-libstdc++-7.3-2.96.122</p> <p>compat-libstdc++-devel-7.3-2.96.122</p> <p>compat-gcc-c++-7.3-2.96.122</p> <p>sysstat-4.0.7</p> <p>Note: For Redhat 3.0, the equivalent version of openmotif 2.1.30-8 is openmotif21-2.1.30-8. The openmotif21-2.1.30-8 package can be installed from disk number 3 of the Redhat 3.0 distribution by entering:</p> <pre>\$ rpm -ivh openmotif21-2.1.30-8</pre>

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

1. Log in as the root user.

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

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

Note: Red Hat Enterprise Linux AS/ES 2.1, 3.0 and UnitedLinux 1.0 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle *MetaLink* (<http://metalink.oracle.com>).

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

```
# rpm -q package_name
```

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

```
# rpm -i package_name
```

4. Check whether the following symbolic links exist:

```
# cd /usr/bin
# ls -l gcc g++
gcc -> gcc296
g++ -> g++296
```

If these links do not exist, create them as follows:

- a. Create a backup of the existing files:

```
# mv /usr/bin/gcc /usr/bin/gcc.backup
# mv /usr/bin/g++ /usr/bin/g++.backup
```

- b. Create the symbolic links:

```
# ln -s /usr/bin/gcc296 /usr/bin/gcc
# ln -s /usr/bin/g++296 /usr/bin/g++
```

You can restore the original files if required, however you must recreate the links as described in this procedure for Oracle Application Server to relink properly.

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

```
prompt> setarch i386
```

6. Apply patch no. 3006854. You can download this patch from Oracle *MetaLink* (<http://metalink.oracle.com>). This patch creates the `/etc/libcwait.so` file and appends the following line to the `/etc/ld.so.preload` file:

```
/etc/libcwait.so
```

4.2.2.3 Software Requirements for UnitedLinux 1.0 Systems

[Table 4–8](#) lists the software requirements for UnitedLinux 1.0 systems and the procedure that follows the table describes how to ensure your system meets these requirements and any additional requirements for installing Oracle Application Server.

Note: Oracle Application Server 10g (9.0.4) is certified with the following Operating System specific software. For the most current list of supported Operating System specific software, for example JDK version, Operating System version, check Oracle *MetaLink* (<http://metalink.oracle.com>).

Table 4–8 Software Requirements for UnitedLinux Systems

Item	Requirement
Operating System	<p>UnitedLinux 1.0</p> <p>For more information on United Linux, see: http://www.unitedlinux.com</p> <p>SP2a and SP3 are certified for Oracle Application Server 10g (9.0.4). For UnitedLinux 1.0 SP2a, the minimum supported kernel and glibc versions are:</p> <ul style="list-style-type: none"> ▪ 2.4.19 ▪ glibc-2.2.5-179 <p>For UnitedLinux 1.0 SP3, the minimum supported kernel and glibc versions are:</p> <ul style="list-style-type: none"> ▪ 2.4.21 ▪ glibc-2.2.5-213
Software packages (check that these versions or higher versions are installed)	<p>gcc_old-2.95.3</p> <p>pdksh-5.2.14</p> <p>openmotif-2.1.30MLI4</p> <p>sysstat-4.0.3</p> <p>libstdc++-3.2.2-38</p>

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

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

```
# cat /etc/issue
Welcome to UnitedLinux 1.0 (i586) - Kernel \r (\l)
```

Note: Red Hat Enterprise Linux AS/ES 2.1, 3.0 and UnitedLinux 1.0 are certified and supported. For the most current list of supported Linux Operating Systems, check Oracle *MetaLink* (<http://metalink.oracle.com>).

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

```
# rpm -qf /boot/vmlinuz
```

If the kernel version contains the string 2.4.19, SP2a is installed. If the kernel version contains the string 2.4.21, SP3 is installed.

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

```
# rpm -q package_name
```

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

```
# rpm -i package_name
```

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

```
# ln -sf /usr/bin/perl /usr/local/bin/perl
```

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

```
# ln -sf /bin/fuser /sbin/fuser
```

7. Create the correct compiler environment on UniteLinux 1.0:

- a. Install the `gcc_old` package. This provides the old compiler GCC 2.95.3 in the `/opt/gcc295` directory.

- b. Check whether the following symbolic links exist:

```
# cd /usr/bin
# ls -l gcc cc
gcc -> /opt/gcc295/bin/gcc
cc -> /opt/gcc295/bin/gcc
```

If these links do not exist, create a backup of the existing files:

```
# mv /usr/bin/gcc /usr/bin/gcc.backup
# mv /usr/bin/cc /usr/bin/cc.backup
```

Create the symbolic links:

```
# ln -s /opt/gcc295/bin/gcc /usr/bin/gcc
# ln -s /opt/gcc295/bin/gcc /usr/bin/cc
```


You can restore the original files if required, however you must recreate the links as described in this procedure for Oracle Application Server to relink properly.

- c. Create the following symbolic link if it does not already exist:

```
prompt> ln -s /opt/gcc295/lib/gcc-lib/i486-suse-linux/2.95.3/libgcc.a \
/lib/libgcc.a
```

Depending on the UnitedLinux distribution, the first path in the previous command may contain a string other than `suse`.

8. If the `oracrun` package was installed on a UnitedLinux system, complete the following steps as the `oracle` user to reset the environment:
 - a. Enter the following commands:

```
prompt> cd /etc/profile.d
prompt> mv oracle.csh oracle.csh.bak
prompt> mv oracle.sh oracle.sh.bak
prompt> mv alljava.sh alljava.sh.bak
prompt> mv alljava.csh alljava.csh.bak
```
 - b. Use any text editor to comment out the following line from the `$HOME/.profile` file:

```
../.oracle
```
 - c. Log out of the `oracle` user account.
 - d. Log into the `oracle` user account for the changes to take effect.
9. If any Java packages are installed on the system, unset the Java environment variables, for example `JAVA_HOME`.

Note: Oracle recommends that you do not install any of the Java packages supplied with the UnitedLinux distribution.

10. Check the `/etc/services` file to make sure that the following port ranges are available on the system:
 - ports 3060-3129 required for Oracle Internet Directory
 - ports 3130-3199 required for Oracle Internet Directory (SSL)

- ports 1812-1829 required for Oracle Enterprise Manager (console)
- ports 1830-1849 required for Oracle Enterprise Manager (agent)
- ports 1850-1869 required for Oracle Enterprise Manager (RMI)

If necessary, remove entries from the `/etc/services` file and reboot the system. To remove the entries, you can use the perl script included with the patch 3167528. This patch is available from:

<http://metalink.oracle.com>

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

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

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

```
hostname.domainname broadcast
```

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

```
hosts: files nis dns
```

4.3 Check Kernel Parameters

Depending on your operating system, see one of the following sections for information on checking the software requirements:

- [Section 4.3.1, "Configuring Kernel Parameters on HP-UX"](#)
- [Section 4.3.2, "Configuring the Kernel Parameters on Linux"](#)

Notes:

- The values for kernel parameters are required only for computers that will be running the OracleAS Metadata Repository. The installer checks the kernel parameter values only if you are installing the OracleAS Metadata Repository.
 - If the installer finds values that are different from the listed values, it displays a warning. You can continue the installation, but you may experience errors during installation or operational errors during runtime.
-
-

4.3.1 Configuring Kernel Parameters on HP-UX

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

Parameter	Recommended Formula or Value
ksi_alloc_max	$(nproc*8)$
max_thread_proc	3000
maxdsiz	2063835136
maxdsiz_64bit	2147483648
maxfiles	2048
maxfiles_lim	2048
maxssiz	134217728
maxssiz_64bit	1073741824
maxswapchunks	16384
maxuprc	$((nproc*9)/10)$
maxusers	512
msgmap	$(2+msgmni)$
msgmni	4096
msgseg	32767
msgtql	4096
ncallout	6000
ncsize	$((8*nproc+2048)+vx_ncsize)$
nfile	3000
nflocks	4096
ninode	$(8*nproc+2048)$
nkthread	6000
nproc	2048
semmap	$(semmni+2)$

Parameter	Recommended Formula or Value
semmni	4096
semmns	(semmni*2)
semmnu	(nproc-4)
semvmx	32767
shmmax	The size of physical memory or 0X40000000 (1073741824), whichever is greater. Note: To avoid performance degradation, the value should be greater than or equal to the size of the SGA.
shmmni	512
shmseg	32
tcp_conn_request_max	2048
vps_ceiling	64

Note: If the current value for any parameter is higher than the value listed in this table, do not change the value of that parameter.

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

1. Optionally, set the DISPLAY environment variable to specify the display of the local system:
 - Bourne, Bash, or Korn shell:


```
$ DISPLAY=localhost:0.0 ; export DISPLAY
```
 - C shell:


```
$ setenv DISPLAY localhost:0.0
```
2. Start System Administration Manager (SAM):


```
# /usr/sbin/sam
```
3. Choose the Kernel Configuration area, then choose the Configurable Parameters area.

4. Check the value or formula specified for each of these parameters and, if necessary, modify that value or formula.

If necessary, see the SAM online help for more information on completing this step.

5. Exit from SAM.
6. If you modified the value specified for any parameter, reboot the system:

```
# /sbin/shutdown -r now
```

7. If necessary, when the system restarts, log in and switch user to `root`.

4.3.2 Configuring the Kernel Parameters on Linux

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

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

Parameter	Value	File
semmsl	256	/proc/sys/kernel/sem
semmns ¹	32000	
semopm	100	
semmni	142	
shmall	2097152	/proc/sys/kernel/shmall
shmmax	2147483648	/proc/sys/kernel/shmmax
shmmni	142	/proc/sys/kernel/shmmni
msgmax	8192	/proc/sys/kernel/msgmax
msgmnb	65535	/proc/sys/kernel/msgmnb
msgmni	2878	/proc/sys/kernel/msgmni
file-max	131072	/proc/sys/fs/file-max

Parameter	Value	File
ip_local_port_range	20000 65000	/proc/sys/net/ipv4/ip_local_port_range

¹ The semmns parameter should be set to the sum of the PROCESSES initialization parameter for each Oracle database, adding the largest one twice, and then adding an additional 10 for each database.

Note: If the current value for any parameter is higher than the value listed in this table, do not change the value of that parameter.

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

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

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

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

2. If the value of any kernel parameter is different to the recommended value, complete the following steps:
 - a. Using any text editor, create or edit the /etc/sysctl.conf file and add or edit lines similar to the following:

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

```
kernel.shmall = 2097152
kernel.shmmax = 2147483648
kernel.shmni = 142
# semaphores: semmsl, semmns, semopm, semmni
kernel.sem = 256 32000 100 142
fs.file-max = 131072
net.ipv4.ip_local_port_range = 20000 65000
kernel.msgmni = 2878
kernel.msgmax = 8192
kernel.msgmnb = 65535
```

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

- b.** Enter the following command to change the current values of the kernel parameters.

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

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

- c.** On UnitedLinux only, enter the following command to cause the system to read the `/etc/sysctl.conf` file when it reboots:

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

Set Shell Limits for the oracle User

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

Bourne or Bash Shell Limit	Korn Shell Limit	C or tcsh Shell Limit	Hard Limit
nofile	nofile	descriptors	16384

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

To increase the shell limits:

1. Add the following lines to `/etc/security/limits.conf` file where `->` represents the tab character:

```
* -> -> soft -> nproc -> -> 2047
* -> -> hard -> nproc -> -> 16384
* -> -> soft -> nofile -> -> 2048
* -> -> hard -> nofile -> -> 16384
```

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

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

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

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

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

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

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


4.4 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 4.4.1, "Using Default Port Numbers"](#)
- [Section 4.4.2, "Using Custom Port Numbers \(the "Static Ports" Feature\)"](#)
- [Section 4.4.3, "If Port 1521 Is in Use"](#)

4.4.1 Using Default Port Numbers

If you want to use the default port numbers for such components, you do not have to do anything. See [Appendix E, "Default Port Numbers"](#) for a list of default port numbers that the installer will assign to components.

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 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:

```
# 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 E, "Default Port Numbers"](#) for a list of default port numbers.

4.4.2 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 4.4.2.1, "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. When you start up the installer, specify the appropriate parameter and the *full path* to the `staticports.ini` file on the command line.

[Table 4-9](#) shows the parameters for specifying the static ports file on the command line. The text in bold highlights the differences in the names.

Note: The static ports parameters on the command line are **different for each installation type**. Be sure you use the parameter that matches the installation type you are doing. If the parameter you specify does not match the installation type, the installer assigns default ports for all components.

Table 4–9 Parameters for Specifying Static Port File on the Command Line

Installation Type	Parameter for Specifying Static Ports File
OracleAS Infrastructure 10g	<code>oracle.iappserver.infrastructure:s_staticPorts=/fullpath/to/local/staticports.ini</code>
Middle tier	<code>oracle.iappserver.iapptop:s_staticPorts=/fullpath/to/local/staticports.ini</code>
OracleAS Developer Kits 10g	<code>oracle.iappserver.devcorner:s_staticPorts=/fullpath/to/local/staticports.ini</code>

For example, if you are installing OracleAS Infrastructure 10g, use the following syntax (enter the command on one line):

```
prompt> mount_point/904disk1/runInstaller
        oracle.iappserver.infrastructure:s_staticPorts=/fullpath/to/local/
        staticports.ini
```

Note that you *always* have to specify the full path to the `staticports.ini` file. The reason is that the installer changes the current directory to a directory different from the one where you started the installer from.

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.

4.4.2.1 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
Oracle HTTP Server Jserv port = port_num
Java Object Cache port = port_num
DCM Java Object Cache 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

# Business Intelligence and Forms
Discoverer OSAgent port = port_num
Reports Services SQL*Net 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

```

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

1. Copy the `staticports.ini` file from the disc to your hard disk.

Table 4–10 Location of the `staticports.ini` File on CD-ROM and DVD

Media	Location of <code>staticports.ini</code> File
CD-ROM	Disk 1: <code>mount_point/904disk1/stage/Response/staticports.ini</code>
DVD	<code>mount_point/application_server/stage/Response/staticports.ini</code>

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 10g Administrator's Guide* for details.

The following example sets the Application Server Control port and the some ports for OracleAS Web Cache. 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 65536.
 - 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 4-30 for details.
 - If you plan to set port numbers for Oracle HTTP Server and OracleAS Web Cache, be sure you read [Section 4.4.2.3, "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.

Tip: 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.

4.4.2.2 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 misspell the parameter on the command line, the installer does not display a warning. It continues and assigns default ports to all components.
- If you specify a relative path to the `staticports.ini` file (for example, `./staticports.ini`) on the command line, 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.
- If the parameter you specify on the command line does not match the installation type that you are performing (for example, if you specify the parameter for middle tier but you are installing the infrastructure), the installer

does not give a warning. It continues and assigns default ports to all components.

4.4.2.3 Ports for Oracle HTTP Server and OracleAS Web Cache

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

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

If You Are Configuring OracleAS Web Cache and Oracle HTTP Server

1. Set the port for OracleAS Web Cache.

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

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

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

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

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

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

the `Port` directive would be set to 7979.

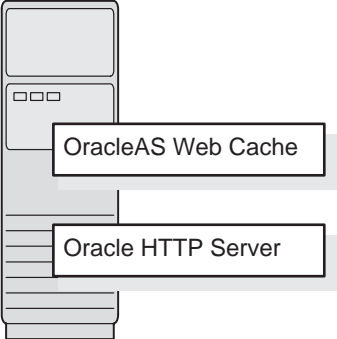
2. Set the port for Oracle HTTP Server.

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

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

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

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

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


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

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

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

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

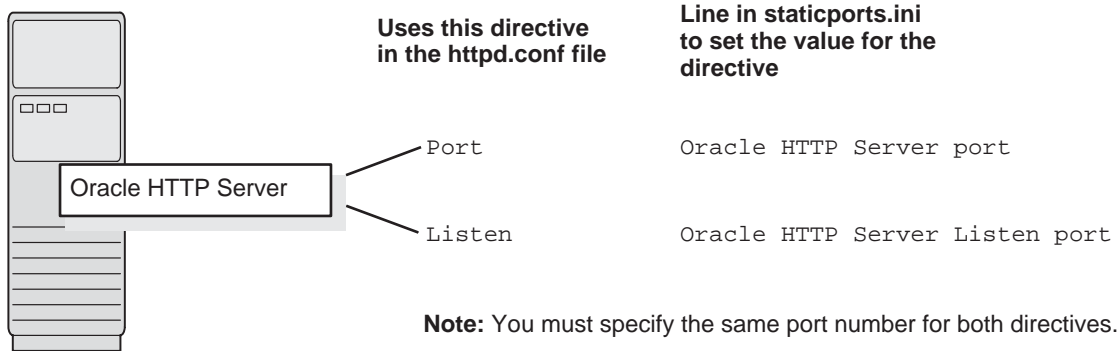
```
Oracle HTTP Server port = 8080
Oracle HTTP Server Listen port = 8080
```

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

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

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

Figure 4–2 Configuring Only Oracle HTTP Server



4.4.2.4 Examples

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

- [Section 4.4.2.4.1, "Configure Oracle HTTP Server to Use Ports 80 and 443 With OracleAS Web Cache as the Front-End"](#)
- [Section 4.4.2.4.2, "Configure Oracle HTTP Server to Use Ports 80 and 443 Without OracleAS Web Cache"](#)

4.4.2.4.1 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*.

4.4.2.4.2 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 4-38 for details.

4.4.3 If Port 1521 Is in Use

The installer configures port 1521 for the OracleAS Metadata Repository listener (version 9.0.1.5). 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 Oracle9i database listener or some other application, you might have to take some action before running the installer. See the following sections for details.

- [Section 4.4.3.1, "If Port 1521 Is In Use by an Existing Oracle9i Database"](#)
- [Section 4.4.3.2, "If Port 1521 Is In Use by Some Other Application"](#)

4.4.3.1 If Port 1521 Is In Use by an Existing Oracle9i Database

If you are installing a new database for the OracleAS Metadata Repository on a computer that is already running an Oracle9i 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 4-11](#) shows scenarios and outcomes.

You can change the OracleAS Metadata Repository listener to use a different port after installation. See the *Oracle Application Server 10g Administrator's Guide* for details.

Table 4–11 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 9.0.1	<p>The OracleAS Metadata Repository listener supports both the existing database and the OracleAS Metadata Repository.</p> <p>See Section 4.4.3.1.1, "Scenario 1: Existing Listener Uses Port 1521 and Listener Version Is Earlier Than 9.0.1".</p>	<p>You will end up with two listeners.</p> <p>See Section 4.4.3.1.3, "Scenario 3: Existing Listener Uses a Port Other Than 1521".</p>
9.0.1 or later	<p>The existing listener supports both the existing database and the OracleAS Metadata Repository.</p> <p>See Section 4.4.3.1.2, "Scenario 2: Existing Listener Uses Port 1521 and Listener Version Is 9.0.1 or Later".</p>	<p>You will end up with two listeners.</p> <p>See Section 4.4.3.1.3, "Scenario 3: Existing Listener Uses a Port Other Than 1521".</p>

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:

```
$ lsnrctl VERSION
LSNRCTL for UNIX: Version 9.0.1.5.0 - Production on 29-APR-2003 19:26:18

Copyright (c) 1991, 2001, Oracle. All rights reserved.

Connecting to
 (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=test.mydomain.com)(PORT=1521)))
TNSLSNR for UNIX: Version 9.0.1.5.0 - Production
  TNS for UNIX: Version 9.0.1.5.0 - Production
  Unix Domain Socket IPC NT Protocol Adaptor for UNIX: Version 9.0.1.5.0 -
  Production
  Oracle Bequeath NT Protocol Adaptor for UNIX: Version 9.0.1.5.0 -
  Production
The command completed successfully
```

4.4.3.1.1 Scenario 1: Existing Listener Uses Port 1521 and Listener Version Is Earlier Than 9.0.1 Listeners earlier than version 9.0.1 are incompatible with the OracleAS Metadata Repository. What you can do is to install the OracleAS Metadata Repository, which installs a version 9.0.1.5 listener, and use this new listener for both databases.

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 10g"](#) (for example, [Section 6.17, "Installing OracleAS Infrastructure 10g"](#) or [Section 6.18, "Installing OracleAS Infrastructure 10g 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 version 9.0.1.5 listener's configuration file for network addresses.

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

- c. **Do not start the existing listener** (version earlier than 9.0.1). 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.

4.4.3.1.2 Scenario 2: Existing Listener Uses Port 1521 and Listener Version Is 9.0.1 or Later
The existing listener will support both the existing database and the OracleAS Metadata Repository. The installer will perform this configuration automatically. You do not have to do anything.

The existing listener must be stopped during installation.

4.4.3.1.3 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.

4.4.3.2 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 10g Administrator's Guide* for instructions on how to do this.

4.5 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 4.5.1, "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 4.5.2, "Create Groups for Database Administrators"](#).

To create a local operating system group:

1. Switch to the root user.

```
prompt> su
```

2. Enter the following command to create the oinstall group:

```
prompt> /usr/sbin/groupadd oinstall
```

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

Group IDs are important if you are setting up an OracleAS Active Failover Cluster environment because you need to set up identical groups on each node. See [Section 9.3.1.5, "Create Identical Users and Groups on All Nodes in the Cluster"](#) for details.

4.5.1 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 for HP systems and the `/etc/oraInst.loc` file on Linux systems. 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.

4.5.2 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 4–12 Privileges for the OSOPER and OSDBA 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 4–12](#)). You can enter the same operating system group for both fields.

4.6 Operating System User

Create an operating system user to install and upgrade Oracle products. The operating system 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 for HP-UX systems and the `/etc/oraInst.loc` file on Linux systems. 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 4–13 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 <code>oracle</code> user.
Group identifier	The primary group of the <code>oracle</code> user must have write permission for the <code>oraInventory</code> directory. See Section 4.5.1, "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 <code>oinstall</code> .
Home directory	The home directory for the <code>oracle</code> 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 maintaining Oracle products. Never use it for purposes unrelated to the installer. Do not use root as the `oracle` user.

To create a local operating system user:

1. Switch to the root user.

```
prompt> su
```

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

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

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

Use the `-G` option to specify the secondary groups, which can include the OSDBA group, and the OSOPER group if necessary, for example, `dba` or `dba , oper`

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

```
# passwd oracle
```

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

```
prompt> groups oracle
```

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

User IDs are important if you are setting up an OracleAS Active Failover Cluster environment because you need to set up identical users on each node. See [Section 9.3.1.5, "Create Identical Users and Groups on All Nodes in the Cluster"](#) for details.

4.7 Environment Variables

The operating system user who will be installing Oracle Application Server needs to set (or unset) the following environment variables. [Table 4–14](#) summarizes whether you set or unset an environment variable.

Table 4–14 Environment Variable Summary

Environment variable	Set or Unset
ORACLE_HOME and ORACLE_SID	Does not matter (the installer unsets these two environment variables).
PATH , CLASSPATH , and Shared Library Path Environment Variables	Must not contain references to directories in any Oracle home directories
DISPLAY	Set it to the monitor where you want to the installer window to appear.
TMP and TMPDIR	Optional. If unset, defaults to <code>/tmp</code> .
TNS_ADMIN	Unset
ORA_NLS	Unset
LD_BIND_NOW (Linux Only)	Unset

4.7.1 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 `-` option (`su - user`).

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

4.7.2 ORACLE_HOME and ORACLE_SID

It does not matter if these environment variables are set or unset when you start up the installer because the installer unsets these environment variables.

4.7.3 PATH, CLASSPATH, and Shared Library Path Environment Variables

Edit your `PATH`, `CLASSPATH`, and shared library path environment variables so that they do not reference any Oracle home directories.

[Table 4–15](#) lists the shared library path environment variables for different platforms

Table 4–15 Shared Library Path Environment Variables

Platform	Environment variable
Linux	LD_LIBRARY_PATH
HP-UX	SHLIB_PATH and LD_LIBRARY_PATH

4.7.4 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://otn.oracle.com>) for information about obtaining and installing XVFB or other virtual frame buffer solutions. Search OTN for "frame buffer".

4.7.5 TMP and TMPDIR

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

If you want the installer to use a temporary directory other than `/tmp`, set the `TMP` and `TMPDIR` environment variables to the full path of an alternate directory. The `oracle` user must have right permission for this directory and the directory must meet the requirements listed in [Section 4.1, "Check Hardware Requirements"](#).

Example (C shell):

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

Example (Bourne or Korn shell):

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

4.7.6 TNS_ADMIN

This section describes two requirements:

- The `TNS_ADMIN` environment variable must not be set.
- 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.

4.7.7 ORA_NLS

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

Example:

```
$ unset ORA_NLS
```

4.7.8 LD_BIND_NOW (Linux Only)

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

Example:

```
$ unset LD_BIND_NOW
```

4.8 The /etc/hosts File

Although the `/etc/hosts` file affects these items:

- [Section 4.8.1, "Location of the Default Identity Management Realm"](#)
- [Section 4.8.2, "Hostname for OracleAS Single Sign-On"](#)

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

4.8.1 Location of the Default Identity Management Realm

The installer reads the `/etc/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 `/etc/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 previous 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 `/etc/hosts` 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 `/etc/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 `/etc/hosts` file, you can always enter the desired value for the default Identity Management realm in the Custom Namespace field on the "Specify Namespace in Internet Directory" screen.

4.8.2 Hostname for OracleAS Single Sign-On

If you are installing OracleAS Single Sign-On, and your `/etc/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 `/etc/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 `/etc/hosts`. For example:

```
prompt> mount_point/904disk1/runInstaller OUI_HOSTNAME=myserver.mydomain.com
```

4.9 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 an appropriate disc 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 4.9.1, "Installing on Computers With Multiple Network Cards"](#)
- [Section 4.9.2, "Installing on NFS-Mounted Storage"](#)
- [Section 4.9.3, "Running Multiple Instances from One Installation"](#)
- [Section 4.9.4, "Copying the Discs to Hard Drive, and Installing from the Hard Drive"](#)
- [Section 4.9.5, "Installing on a Computer Without the Appropriate Disc Drive"](#)
- [Section 4.9.6, "Installing on Remote Computers"](#)

- [Section 4.9.7, "Installing on a DHCP Host"](#)

4.9.1 Installing on Computers With Multiple Network Cards

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. You may need to re-order the lines in this file so the desired hostname appears first. You can change the file back to its original state after installation.

4.9.2 Installing on NFS-Mounted Storage

Currently, Oracle Application Server is certified to run on the following NFS-mounted storage system:

- Network Appliance filers

The NFS-mounted system should be exported to at least the remote install user and remote root user.

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

4.9.2.1 OracleAS Infrastructure 10g on UnitedLinux

If you use NFS (for example, NAS or NetApp) and you want to install OracleAS Infrastructure 10g on UnitedLinux, you must configure the system using one of the following methods:

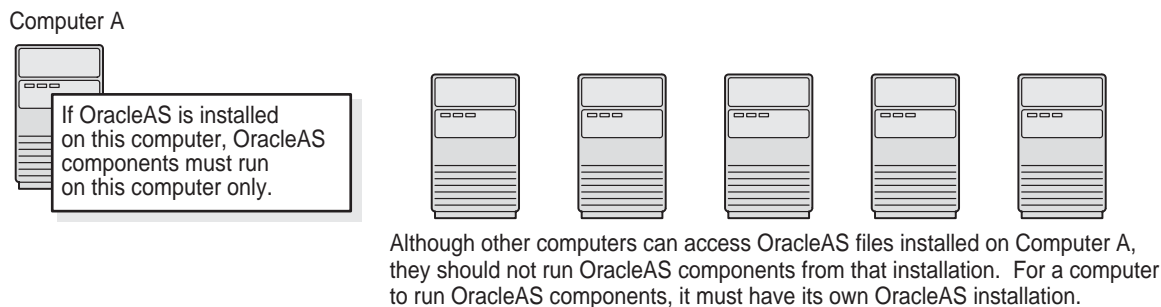
- Mount the NFS partition with the `nolock` option.
- Start the locking daemon on the NFS server and clients using the following commands:

```
# chkconfig nfslock on; chkconfig nfs on
# rcnfslock start; rcnfs start
```

4.9.3 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 4–3 Run Oracle Application Server Only on the Computer Where It Is Installed



4.9.4 Copying the Discs to Hard Drive, and Installing from the Hard Drive

Instead of installing from the Oracle Application Server discs, you can copy the contents of the discs 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 the correct drives.

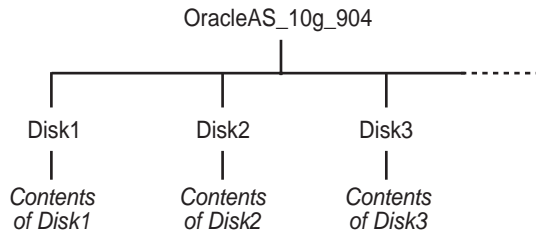
Ensure that the computers on which you want to install Oracle Application Server can access the hard drive where you copied the discs. You run the installer from the computers that will run Oracle Application Server.

When you install from the hard drive, the installer does not prompt you to swap discs. It can find all the files if they are in the proper locations (see [Figure 4–4](#)).

Space requirement: Ensure that the hard drive contains enough space to hold the contents of the discs. Each CD-ROM contains approximately 650 MB. This means that if you are copying four CD-ROMs, you need approximately 2.6 GB of disk space. This space is in addition to the space required for installing Oracle Application Server (listed in [Section 4.1](#)).

To copy the contents of the discs, follow these steps:

1. Create a directory structure on your hard drive as shown in [Figure 4–4](#). You need to create a parent directory (called `OracleAS_10g_904` 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 `DiskN`, where *N* is the disc number.

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

2. Copy the contents of each disc into the corresponding directory.

```

prompt> cp -pr /cdrom_mount_point/* /path/to/hard/drive/Disk1/
prompt> cp -pr /cdrom_mount_point/* /path/to/hard/drive/Disk2/
... Repeat for each disc.

```

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
```

4.9.5 Installing on a Computer Without the Appropriate Disc Drive

If the computer where you want to install Oracle Application Server does not have the appropriate disc drive, you can copy the discs to the hard drive of a computer with the proper disc drive as described in [Section 4.9.4](#) and then perform a remote installation from that computer using the instructions described in [Section 4.9.6](#).

4.9.6 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 4.6, "Operating System User"](#). Ensure that the user has set the environment variables correctly, as described in [Section 4.7, "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 5.15, "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.

4.9.7 Installing on a DHCP Host

If you are installing Oracle Application Server in a DHCP network you must use a loopback configuration. To access the Oracle Application Server, you need to use a local browser. Perform the following steps to install Oracle Application Server in a DHCP network:

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

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

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

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

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

```
127.0.0.1 hostname.domainname hostname
127.0.0.1 localhost.localdomain localhost
```
 - b. Check that the hostname resolves to the loopback IP address by entering the following command:

```
$ /bin/ping hostname.domainname
```
3. Complete the Oracle Application Server installation as described in this guide using the hostname used in step 2.

4.10 Prerequisite Checks Performed by the Installer

Table 4–16 lists the checks performed by the installer:

Table 4–16 Prerequisite Checks Performed by the Installer

Item	Description
CPU Speed	The installer checks that the CPU meets the minimum speed requirement.
Monitor	The installer checks that the monitor is configured to display at least 256 colors.
Display permission	The installer checks that the user has permissions to display on the monitor specified by the DISPLAY environment variable.
Operating system version	See Section 4.2, "Check the Software Requirements" for supported versions.
Operating system patches	See Section 4.2, "Check the Software Requirements" for a list of required patches.
Operating system kernel parameters	See Section 4.3, "Check Kernel Parameters" for a list of required kernel parameters.
Memory	See Section 4.1, "Check Hardware Requirements" for recommended values.
Swap space	See Section 4.1, "Check Hardware Requirements" for recommended values.
TMP space	See Section 4.1, "Check Hardware Requirements" for recommended values.
Oracle home directory name	The installer checks that the Oracle home directory name does not contain any spaces.
Path to the 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 4–16 Prerequisite Checks Performed by the Installer

Item	Description
Oracle home directory	<p>You should always install Oracle Application Server in a new directory, unless you are expanding a middle tier. See Section 7.14, "Expanding a Middle Tier". Here are some examples of installations that are not allowed:</p> <ul style="list-style-type: none"> ■ Any type of Oracle Application Server into an 8.0, 8i, 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 Oracle9i 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 Oracle9iAS 1.0.2.2 Oracle home ■ Oracle Application Server middle tier into an infrastructure 9.0.2 or 10g (9.0.4) Oracle home ■ Oracle Application Server middle tier into an Oracle9iAS 9.0.2 or 9.0.3 middle tier Oracle home ■ OracleAS Developer Kits 10g into an infrastructure 9.0.2 or 10g (9.0.4) Oracle home ■ OracleAS Developer Kits 10g into an Oracle9iAS middle tier 9.0.2 or 9.0.3 Oracle home ■ OracleAS Developer Kits 10g into an Oracle Developer Suite 9.0.2 or 10g (9.0.4) Oracle home ■ OracleAS Infrastructure 10g into any Oracle9iAS 9.0.2 Oracle home ■ OracleAS Infrastructure 10g into an Oracle Application Server middle tier 10g (9.0.4) or OracleAS Developer Kits 10g Oracle home ■ OracleAS Infrastructure 10g into an Oracle Developer Suite 9.0.2 or 10g (9.0.4) Oracle home

Table 4–16 Prerequisite Checks Performed by the Installer

Item	Description
Port 1521	<p>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 Retry in the warning dialog.</p> <p>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 4.4.3, "If Port 1521 Is in Use" for details.</p> <p>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 <i>Oracle Application Server 10g Administrator's Guide</i> for details.</p>
Static port conflicts	The installer checks the ports listed in the <code>staticports.ini</code> file, if specified. See Section 4.4, "Ports" .
DISPLAY environment variable	The installer checks that the DISPLAY environment variable is set.
TNS_ADMIN environment variable	<p>The TNS_ADMIN environment variable must not be set.</p> <p>There must not be a <code>tnsnames.ora</code> file in the <code>/etc</code> or <code>/var/opt/oracle</code> directories.</p>
DBCA_RAW_CONFIG environment variable	If you are installing the OracleAS Infrastructure 10g in a Real Application Clusters or OracleAS Active Failover Cluster environment, you need to set this environment variable to point to a file that describes the locations of your raw partitions. See Chapter 9 for information about installing Oracle Application Server in a high availability environment.
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	<p>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:</p> <ul style="list-style-type: none">■ <code>ORACLE_HOME/sysman/emd</code>■ <code>ORACLE_HOME/sysman/config</code>■ <code>ORACLE_HOME/sysman/webapps/emd/WEB-INF/config</code>

Table 4–16 Prerequisite Checks Performed by the Installer

Item	Description
Oracle Enterprise Manager files exist	<p>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:</p> <ul style="list-style-type: none"> ■ ORACLE_HOME/sysman/config/iasadmin.properties ■ ORACLE_HOME/sysman/webapps/emd/WEB-INF/config/consoleConfig.xml
Kernel check on Linux systems	<p>The installer runs this check only if you are installing on Linux. The installer makes sure that the kernel version contains the string 2.4.9-e.25 or higher for Red Hat 21, the string 2.4.21-4.EL for Red Hat 3.0 and the string 2.4.19 for UnitedLinux 1.0.</p>
glibc version check on Linux	<p>The installer runs this check only if you are installing on Linux. The installer makes sure that the glibc version is glibc-2.2.4-32 or higher on Red Hat AS/ES 2.1, glibc-2.2.5 or higher on UnitedLinux 1.0, and glibc-2.3.2-95.3 or higher on Red Hat 3.0.</p>
Packages check on Linux	<p>The installer runs this check only if you are installing on Linux. The installer makes sure that the mandatory packages are installed. For example, it checks the gcc, sysstat and openmotif packages as specified in Table 4–6 for Red Hat AS/ES 2.1, Table 4–7 for Red Hat 3.0 and Table 4–8 for UnitedLinux 1.0.</p>

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, "Installing Components vs. Configuring Components"](#)
- [Section 5.10, "Where Does the Installer Write Files?"](#)
- [Section 5.11, "Why Do I Need to be Able to Log In as Root at Certain Times During Installation?"](#)
- [Section 5.12, "Running root.sh During Installation"](#)
- [Section 5.13, "Connecting to Oracle Internet Directory Through SSL Connections"](#)
- [Section 5.14, "Setting the Mount Point for the Discs"](#)
- [Section 5.15, "Starting the Oracle Universal Installer"](#)
- [Section 5.16, "Additional Installation Steps on UnitedLinux"](#)

5.1 Basic Concepts

Oracle Application Server is made up of:

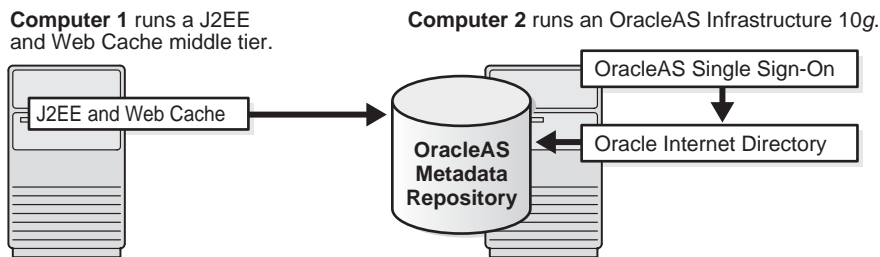
- Oracle Application Server middle tier
- OracleAS Infrastructure 10g

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 10g 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 10g first, because the middle tiers depend on OracleAS Infrastructure 10g 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?

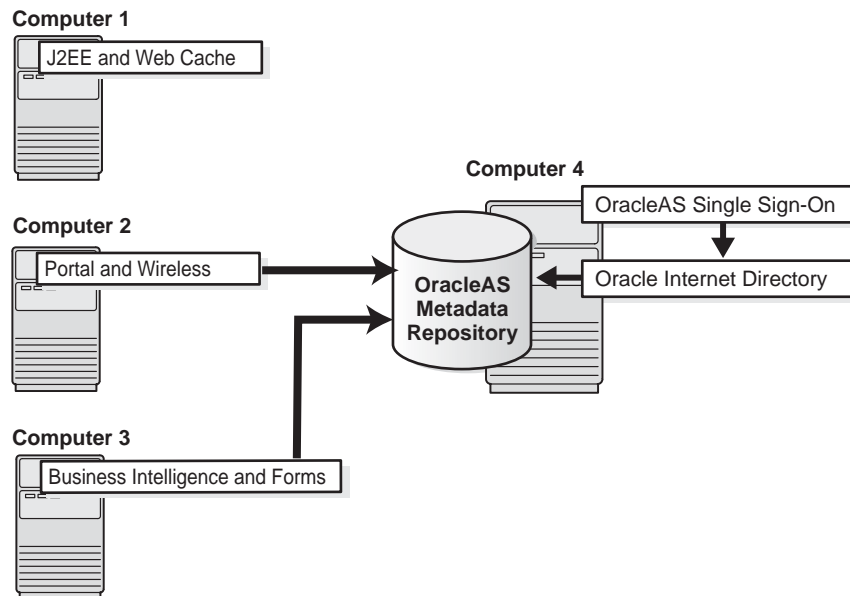
You can install the middle tiers and the infrastructure on the same computer or on separate computers. You can get better performance if you install the infrastructure on its own computer, and the middle tiers on other computers.

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 a Business Intelligence and Forms middle tier that uses infrastructure services from the infrastructure instance running on Computer 4.
- Computer 4 runs OracleAS Infrastructure 10g.

See [Chapter 11, "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 10g in `/opt/oracle/OraHome_infra_904` and you can name it "Infra904".

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 11.2, "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 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.

Generally, you cannot install Oracle Application Server in an existing Oracle home. See "[Oracle home directory](#)" on page 4-57 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 10g (9.0.4). 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).
- 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.

5.5 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 4.6, "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 to install additional languages, click the **Product Languages** button in the "Select a Product to Install" screen.

Note that you cannot install additional languages after installation. You must install additional languages 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 "infra904" or "J2EE_904". 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 `$` or `_` (underscore) characters.

There is no maximum length restriction for instance names.

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 10g 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 10g Administrator's Guide* for details about this administration tool.

In addition, some `dcmtl` commands require an instance name as a parameter. `dcmtl` is a command-line tool for administering Oracle Application Server instances. See the *Distributed Configuration Management Reference Guide* for details about `dcmtl`.

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.

Change from Oracle9/AS Release 2 (9.0.2): In 10g (9.0.4), each Oracle Application Server instance has its own password. Even if you install multiple Oracle Application Server instances on the same computer using the same operating system user, you have to enter a new password for each instance on the same computer.

In Release 2 (9.0.2), multiple instances installed on the same computer using the same operating system user shared the same password.

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 (`$`), and the number sign (`#`).
- Passwords must begin with an alphabetic character. It cannot begin with a number, the underscore (`_`), the dollar sign (`$`), or the number sign (`#`).
- Passwords cannot be Oracle reserved words. Appendix C in the *Oracle9i SQL Reference* guide lists the reserved words. You can find this guide on Oracle Technology Network (<http://otn.oracle.com>). Or you can just avoid using words that sound like they might be reserved words.

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 Business Intelligence and Forms 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 10g Administrator's Guide* for details.

5.9 Installing Components vs. 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 10g Administrator's Guide* for details.

5.10 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.
<code>/var/opt/oracle</code> directory on HP-UX	This directory contains information on locations of Oracle homes on the computer.
<code>/etc</code> directory on Linux	If you installed Oracle9iAS Release 2 (9.0.2) on your computer, this directory also contains files that provide information for Oracle Enterprise Manager.
<code>/tmp</code> directory	The installer writes files needed only during installation to a "temporary" directory. By default, the "temporary" directory is <code>/tmp</code> . To specify a different directory, set the <code>TMP</code> environment variable. See Section 4.7.5, "TMP and TMPDIR" for details.

5.11 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` or `/etc` directory.

5.12 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 ...
```

5.13 Connecting to Oracle Internet Directory Through SSL Connections

When you install OracleAS Infrastructure 10g 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.

5.14 Setting the Mount Point for the Discs

The Oracle Application Server CD-ROM is in RockRidge format. The DVD is in DVD-ROM format. To manually mount or unmount the disc, you must have root privileges. Be sure to unmount the disc before removing it from the drive.

To mount the first disc, log in as the root user and follow the steps in one of the following sections, depending on your platform:

- ["Mounting the First Disc on HP-UX"](#) on page 5-10
- ["Mounting the First disc on Linux"](#) on page 5-11

Mounting the First Disc on HP-UX

To mount the first disc, follow these steps:

1. Insert the first disc into the disc drive.
2. Create the `/SD_CDRM` directory if it does not already exist:

```
# /usr/bin/mkdir /SD_CDRM
```
3. To mount the disc, enter a command similar to the following:

```
# /usr/sbin/mount -F cdfs -o rr /dev/dsk/cxdydz /SD_CDRM
```

In the preceding example, `/SD_CDROM` is the disc mount point directory and `/dev/dsk/cxdyztz` is the device name for the disc device, for example `/dev/dsk/c0d2t0`.

Mounting the First disc on Linux

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

1. Insert the first disc into the disc drive.
2. To verify that the disc mounted automatically, enter the following command:

- Red Hat:

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

- UnitedLinux:

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

3. If the command in step 2 fails to display the contents of the disc, enter the following command:

- Red Hat:

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

- UnitedLinux:

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

5.15 Starting the Oracle Universal Installer

1. If the computer does not mount discs automatically, you need to set the mount point manually. See [Section 5.14, "Setting the Mount Point for the Discs"](#) for details.
2. Log in as the `oracle` user.
3. Insert Oracle Application Server Disk 1 into the disc drive.
4. Run the Oracle Universal Installer from the disc 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. If you are, then only the root user will have permissions to manage Oracle Application Server.
 - 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 changes your current directory to your home directory.
 - The Oracle Universal Installer cannot display Korean or Chinese fonts on Linux systems because JDK 1.4.2_02 does not support these fonts.
-
-

CD-ROM users:

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

DVD users:

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

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

5.16 Additional Installation Steps on UnitedLinux

If an error is displayed during the relinking phase on UnitedLinux, do not close the Installer window. Complete the following steps to resolve the error:

1. Open a new terminal window.
2. Edit the `$ORACLE_HOME/lib/sysliblist` file and add the following entry to the end of the line:

```
-lgcc -L/opt/gcc295/lib/gcc-lib/i486-suse-linux/2.95.3
```

Depending on the UnitedLinux distribution, the required path may contain a string other than `suse`.

3. Make sure that the `ORACLE_HOME` environment variable is set correctly.
4. Make sure that the `LD_LIBRARY_PATH` environment variable includes the `$ORACLE_HOME/lib` directory.
5. Run the following command:

```
prompt> $ORACLE_HOME/bin/genclntsh
```
6. Click **Retry** in the Installer window. The installation will continue without displaying further errors.

Installing OracleAS Infrastructure 10g

Table 6–1 Contents of This Chapter

Topics	Procedures
<ul style="list-style-type: none"> ▪ 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, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?" ▪ Section 6.16, "How to Determine Port Numbers Used by Components" 	<ul style="list-style-type: none"> ▪ Section 6.17, "Installing OracleAS Infrastructure 10g" ▪ Section 6.18, "Installing OracleAS Infrastructure 10g Against an Existing Oracle Internet Directory" ▪ Section 6.19, "Installing OracleAS Metadata Repository in a New Database" ▪ Section 6.20, "Installing Identity Management Components Only (Including Oracle Internet Directory)" ▪ Section 6.21, "Installing Identity Management Components Only (Excluding Oracle Internet Directory)" ▪ Section 6.22, "Installing Oracle Internet Directory Only" ▪ Section 6.23, "Installing OracleAS Certificate Authority and OracleAS Metadata Repository Only" ▪ Section 6.24, "Install Fragment: The First Few Screens of the Installation" ▪ Section 6.25, "Install Fragment: The Last Few Screens of the Installation" ▪ Section 6.26, "Install Fragment: Oracle9i Database Screens" ▪ Section 6.27, "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 10g Components

Infrastructure Components	Description
Identity Management components	<p>These components provide directory, security, and user management functionality. Some of these components (such as OracleAS Single Sign-On) have schemas in the OracleAS Metadata Repository.</p> <ul style="list-style-type: none">■ Oracle Internet Directory■ OracleAS Single Sign-On■ Oracle Delegated Administration Services■ Oracle Directory Integration and Provisioning■ OracleAS Certificate Authority
OracleAS Metadata Repository	<p>OracleAS Metadata Repository is a collection of schemas used by other Oracle Application Server components. The schemas can be grouped into these categories:</p> <ul style="list-style-type: none">■ Product metadata■ Identity Management metadata■ Management metadata <p>See Section 6.11, "Contents of the OracleAS Metadata Repository" for details.</p>

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 10g:

- 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 10g, you also get the Oracle HTTP Server, Oracle Application Server Containers for J2EE, and Oracle Enterprise Manager components. These components are always installed, 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 10g 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 the OracleAS Metadata Repository and the Identity Management components all on the same computer, select the "Identity Management and OracleAS Metadata Repository" option. The installer installs the components in the proper order. See [Section 6.17, "Installing OracleAS Infrastructure 10g"](#) for the step-by-step procedure.

If you plan to install the infrastructure components on separate computers, you must 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 Repository Creation Assistant ("OracleAS RepCA") 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 6.19, "Installing OracleAS Metadata Repository in a New Database"](#)
- [Section 10.7, "Installing OracleAS Metadata Repository in an Existing Database"](#)

2. Install the Identity Management components.

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

See [Section 6.20, "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 10g 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 10g uses an Oracle9i 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.

[Chapter 11, "Recommended Topologies"](#) 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 Delegated Administration Services in separate installations against the same Oracle Internet Directory, make sure you configure OracleAS Single Sign-On before the Delegated Administration Services installation. This is because 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 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 change their passwords, search for other users in the directory, and create 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 12.8, "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 [Chapter 10, "Installing the OracleAS Metadata Repository in an Existing Database"](#) 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 the "Oracle Internet Directory" option in the Select Configuration Options screen.

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

The existing Oracle Internet Directory must be at least version 9.0.2. 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
oidldapd: Release 9.2.0.1.0 - Production on Fri Feb 28 09:26:53 2003
(c) Copyright 2001 Oracle. All rights reserved.
```

The `oidldapd` command can be found in the `ORACLE_HOME/bin` directory, where `ORACLE_HOME` is the root directory of Oracle Application Server containing 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 OracleAS Database-Based Cluster 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 6-3](#) 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 6–3 Database Registration Scenarios

Scenario	Registration	Schema Passwords
<p>Install and configure the OracleAS Metadata Repository and Oracle Internet Directory in the same installation session</p> <p>For steps, see Section 6.17, "Installing OracleAS Infrastructure 10g".</p>	Automatic	Randomized
<p>Install the OracleAS Metadata Repository against an existing Oracle Internet Directory</p> <p>See Section 6.18, "Installing OracleAS Infrastructure 10g Against an Existing Oracle Internet Directory".</p>	Automatic	Randomized
<p>Install an Oracle Internet Directory against an existing OracleAS Metadata Repository</p> <p>See Section 6.22, "Installing Oracle Internet Directory Only".</p>	Automatic	Randomized (the metadata repository schemas are given new randomized passwords)
<p>Install the OracleAS Metadata Repository only (without installing Identity Management components) and you choose to register it with Oracle Internet Directory</p> <p>This scenario applies to installing it in a new database or in an existing database.</p> <p>Section 6.19, "Installing OracleAS Metadata Repository in a New Database"</p> <p>Section 10.7, "Installing OracleAS Metadata Repository in an Existing Database"</p>	Yes	Randomized
<p>Install the OracleAS Metadata Repository only (without installing Identity Management components) and you choose not to register it with Oracle Internet Directory</p> <p>This scenario applies to installing it in a new database or in an existing database.</p>	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.

[Section 10.2.8, "Schemas and Tablespaces"](#) lists all the schemas.

6.12 Can I Use Multiple Metadata Repositories?

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

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

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

You can do this using the installer or the Oracle Application Server Repository Creation Assistant ("OracleAS RepCA"). Use the installer to create a new database containing the OracleAS Metadata Repository, or use the OracleAS RepCA to install the OracleAS Metadata Repository in an existing database. See [Section 10.7, "Installing OracleAS Metadata Repository in an Existing Database"](#) for details.

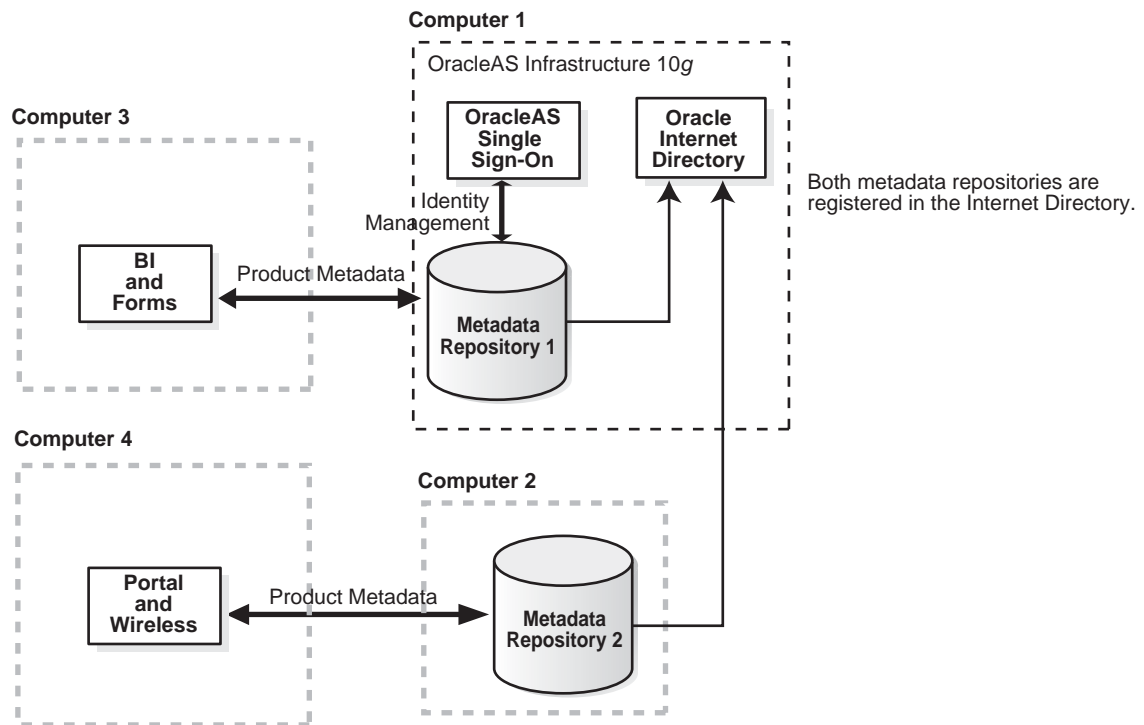
- b. When you install the Portal and Wireless or the Business Intelligence and Forms middle tier, select the second metadata repository from the list of registered repositories. This is the metadata repository that the middle tier will use for its product metadata.

- To use a second metadata repository for a J2EE and Web Cache middle tier, you have different options, depending on which J2EE and Web Cache features you need:
 - If you need both the Identity Management Access feature and the OracleAS Database-Based Cluster feature, you need to register the second metadata repository with the Oracle Internet Directory.
 - If you need only the OracleAS Database-Based Cluster 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 Business Intelligence and Forms 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 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?

OracleAS Infrastructure 10g can run in the following high availability environments:

- OracleAS Active Failover Cluster (which uses Real Application Clusters)
- OracleAS Cold Failover Cluster
- OracleAS Disaster Recovery

See [Chapter 9, "Installing in High Availability Environments"](#) for details.

Hardware clustering is supported for infrastructure only. It is not supported for Oracle Application Server middle tiers.

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 (`$`), and the number sign (`#`).
- Passwords must begin with an alphabetic character. It cannot begin with a number, the underscore (`_`), the dollar sign (`$`), or the number sign (`#`).
- Passwords cannot be Oracle reserved words. Appendix C in the *Oracle9i SQL Reference* guide lists the reserved words. You can find this guide on Oracle Technology Network (<http://otn.oracle.com>). 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 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 4.8, "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.

6.16 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 10g 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.

6.17 Installing OracleAS Infrastructure 10g

Perform this procedure to install an OracleAS Metadata Repository and Identity Management components. This procedure provides a complete OracleAS Infrastructure 10g in a single Oracle home.

If you want to use an existing Oracle Internet Directory, see [Section 6.18, "Installing OracleAS Infrastructure 10g Against an Existing Oracle Internet Directory"](#).

If you want to use an existing database for the OracleAS Metadata Repository, see [Chapter 10, "Installing the OracleAS Metadata Repository in an Existing Database"](#).

Table 6–4 Steps for Installing OracleAS Infrastructure 10g

Screen	Action
1. --	<p>Start up the installer and complete the first few screens. See Section 6.24, "Install Fragment: The First Few Screens of the Installation" for details.</p> <p>Notes:</p> <ul style="list-style-type: none"> ▪ In the Select Installation Type screen, select Identity Management and OracleAS Metadata Repository.
2. Select Configuration Options	<p>Select Oracle Internet Directory.</p> <p>Select OracleAS Single Sign-On.</p> <p>Select Delegated Administration Services.</p> <p>Select Oracle Directory Integration and Provisioning.</p> <p>Select OracleAS Certificate Authority if you want to configure your own certificate authority which can issue certificates for users and servers.</p> <p>Do not select High Availability Addressing.</p> <p>Click Next.</p>
3. Specify Namespace in Internet Directory	<p>Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm.</p> <p>Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in Custom Namespace. See Section 6.15, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?".</p> <p>Click Next.</p>
4. OracleAS Certificate Authority screens	<p>If you select OracleAS Certificate Authority in the Select Configuration Options screen, the installer displays screens where you need to enter OracleAS Certificate Authority information. See Section 6.27, "Install Fragment: OracleAS Certificate Authority Screens".</p>
5. Oracle9i Database screens	<p>Enter information for the OracleAS Metadata Repository database. See Section 6.26, "Install Fragment: Oracle9i Database Screens".</p>

Table 6–4 Steps for Installing OracleAS Infrastructure 10g

Screen	Action
6. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this infrastructure instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: <code>infra_904</code></p> <p>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.</p> <p>Example: <code>welcome99</code></p> <p>Click Next.</p>
7. --	<p>Finish the installation. See Section 6.25, "Install Fragment: The Last Few Screens of the Installation" for details.</p>

6.18 Installing OracleAS Infrastructure 10g 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

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 6.21, "Installing Identity Management Components Only \(Excluding Oracle Internet Directory\)"](#).

Table 6–5 Steps for Installing OracleAS Infrastructure 10g Against an Existing Oracle Internet Directory

Screen	Action
1. --	<p>Start up the installer and complete the first few screens. See Section 6.24, "Install Fragment: The First Few Screens of the Installation" for details.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select Identity Management and OracleAS Metadata Repository.
2. Select Configuration Options	<p>Do not select Oracle Internet Directory because you want to use an existing one.</p> <p>Do not select OracleAS Single Sign-On.</p> <p>Select Delegated Administration Services and/or Oracle 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?"</p> <p>Select OracleAS Certificate Authority if you want to configure your own certificate authority which can issue certificates for users and servers.</p> <p>Do not select High Availability Addressing.</p> <p>Click Next.</p>
3. Register with Oracle Internet Directory	<p>Hostname: Enter the name of the computer where Oracle Internet Directory is running.</p> <p>Port: Enter the port at which Oracle Internet Directory is listening. See Section 6.16, "How to Determine Port Numbers Used by Components" if you do not know the port number.</p> <p>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.</p> <p>Click Next.</p>
4. Specify Login for Oracle Internet Directory	<p>Username: Enter the username to log in to Oracle Internet Directory.</p> <p>Password: Enter the password for the username.</p> <p>Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms.</p> <p>Click Next.</p>

Table 6–5 Steps for Installing OracleAS Infrastructure 10g Against an Existing Oracle Internet Directory

Screen	Action
5. OracleAS Certificate Authority screens	If you select OracleAS Certificate Authority in the Select Configuration Options screen, the installer displays screens where you need to enter OracleAS Certificate Authority information. See Section 6.27, "Install Fragment: OracleAS Certificate Authority Screens" .
6. Oracle9i Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.26, "Install Fragment: Oracle9i Database Screens" .
7. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this infrastructure instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: <code>infra_904</code></p> <p>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.</p> <p>Example: <code>welcome99</code></p> <p>Click Next.</p>
8. --	Finish the installation. See Section 6.25, "Install Fragment: The Last Few Screens of the Installation" for details.

6.19 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 6–6 Steps for Installing OracleAS Metadata Repository in a New Database

Screen	Action
1. --	<p>Start up the installer and complete the first few screens. See Section 6.24, "Install Fragment: The First Few Screens of the Installation" for details.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select Metadata Repository.
2. Select Configuration Options	Do not select High Availability Addressing . Click Next .
3. Register OracleAS Metadata Repository	<p>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 6.16, "How to Determine Port Numbers Used by Components" if you do not know the port number.</p> <p>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.</p> <p>If you do not have an Oracle Internet Directory, or do not know its connect information, select No.</p> <p>Click Next.</p>
4. Specify Login for Oracle Internet Directory	<p>This screen appears only if you selected Yes in the previous screen.</p> <p>Username: Enter the username for logging into the Oracle Internet Directory.</p> <p>Password: Enter the password.</p> <p>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.</p> <p>Click Next.</p>
5. Oracle9i Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.26, "Install Fragment: Oracle9i Database Screens" .

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

Screen	Action
6. --	Finish the installation. See Section 6.25, "Install Fragment: The Last Few Screens of the Installation" for details.
7. --	<p>Unlock the <code>dcm</code> 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.</p> <ol style="list-style-type: none"> 1. Set the <code>ORACLE_HOME</code> environment variable to point to the full path of the directory where you installed the OracleAS Metadata Repository. 2. Set the <code>ORACLE_SID</code> environment variable to the SID of the OracleAS Metadata Repository. 3. Unlock the <code>dcm</code> schema and set its password using SQL*Plus. <p>The following <code>alter user</code> command sets the password to "welcome1", but you can set it to any value.</p> <pre>prompt> \$ORACLE_HOME/bin/sqlplus "sys/password as sysdba" SQL> alter user dcm identified by welcome1 account unlock;</pre>

6.20 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 10, "Installing the OracleAS Metadata Repository in an Existing Database"](#)) or in a new database ([Section 6.19, "Installing OracleAS Metadata Repository in a New Database"](#)).

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

Table 6–7 Steps for Installing Identity Management Components Only (Including Oracle Internet Directory)

Screen	Action
1. --	<p>Start up the installer and complete the first few screens. See Section 6.24, "Install Fragment: The First Few Screens of the Installation" for details.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select Identity Management.
2. Select Configuration Options	<p>Select Oracle Internet Directory.</p> <p>Select OracleAS Single Sign-On.</p> <p>Select Delegated Administration Services and/or Oracle 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?"</p> <p>Select OracleAS Certificate Authority if you want to configure your own certificate authority which can issue certificates for users and servers.</p> <p>Do not select High Availability Addressing.</p> <p>Click Next.</p>
3. Specify Namespace in Internet Directory	<p>Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm.</p> <p>Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in Custom Namespace. See Section 6.15, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?".</p> <p>Click Next.</p>
4. Specify Metadata Repository Login and Connect Information	<p>Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges.</p> <p>Password: Enter the user's password.</p> <p>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: <i>host:port</i>.</p> <p>Service Name: Enter the service name of the database. Note that the service name must include the database domain name.</p> <p>Example: <code>asdb.mydomain.com</code></p> <p>Click Next.</p>
5. Enter information to configure OracleAS Certificate Authority	<p>Provide the information as prompted by the OracleAS Certificate Authority screens. See Section 6.27, "Install Fragment: OracleAS Certificate Authority Screens" for details.</p>

Table 6–7 Steps for Installing Identity Management Components Only (Including Oracle Internet Directory)

Screen	Action
6. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this infrastructure instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: idmgmt_904</p> <p>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.</p> <p>Example: welcome99</p> <p>Click Next.</p>
7. --	<p>Finish the installation. See Section 6.25, "Install Fragment: The Last Few Screens of the Installation" for details.</p>

6.21 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

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

Screen	Action
1. --	<p>Start up the installer and complete the first few screens. See Section 6.24, "Install Fragment: The First Few Screens of the Installation" for details.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select Identity Management.
2. Select Configuration Options	<p>Do not select Oracle Internet Directory.</p> <p>Select OracleAS Single Sign-On.</p> <p>Select Delegated Administration Services and/or Oracle 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?"</p> <p>Select OracleAS Certificate Authority if you want to configure your own certificate authority which can issue certificates for users and servers.</p> <p>Do not select High Availability Addressing.</p> <p>Click Next.</p>
3. Register with Oracle Internet Directory	<p>Hostname: Enter the name of the computer where Oracle Internet Directory is running.</p> <p>Port: Enter the port on which Oracle Internet Directory is listening. See Section 6.16, "How to Determine Port Numbers Used by Components" if you do not know the port number.</p> <p>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.</p> <p>Click Next.</p>
4. Specify Login for Oracle Internet Directory	<p>Username: Enter the username to log in to Oracle Internet Directory.</p> <p>Password: Enter the password for the username.</p> <p>Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms.</p> <p>Click Next.</p>
5. Enter information to configure OracleAS Certificate Authority	<p>Provide the information as prompted by the OracleAS Certificate Authority screens. See Section 6.27, "Install Fragment: OracleAS Certificate Authority Screens" for details.</p>

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

Screen	Action
6. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this infrastructure instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: idmgmt_904</p> <p>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.</p> <p>Example: welcome99</p> <p>Click Next.</p>
7. --	<p>Finish the installation. See Section 6.25, "Install Fragment: The Last Few Screens of the Installation" for details.</p>

6.22 Installing Oracle Internet Directory Only

Perform this procedure to install an Oracle Internet Directory.

Prerequisite: OracleAS Metadata Repository

Table 6–9 Steps for Installing Oracle Internet Directory

Screen	Action
1. --	<p>Start up the installer and complete the first few screens. See Section 6.24, "Install Fragment: The First Few Screens of the Installation" for details.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select Identity Management.
2. Select Configuration Options	<p>Select Oracle Internet Directory.</p> <p>Do not select OracleAS Single Sign-On.</p> <p>Do not select Delegated Administration Services.</p> <p>Do not select Oracle Directory Integration and Provisioning.</p> <p>Do not select OracleAS Certificate Authority.</p> <p>Do not select High Availability Addressing.</p> <p>Click Next.</p>
3. Specify Namespace in Internet Directory	<p>Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm.</p> <p>Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in Custom Namespace. See Section 6.15, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?".</p> <p>Click Next.</p>
4. Specify Metadata Repository Login and Connect Information	<p>Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges.</p> <p>Password: Enter the user's password.</p> <p>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: <i>host:port</i>.</p> <p>Service Name: Enter the service name of the database. Note that the service name must include the database domain name.</p> <p>Example: <code>asdb.mydomain.com</code></p> <p>Click Next.</p>

Table 6–9 Steps for Installing Oracle Internet Directory

Screen	Action
5. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this infrastructure instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: <code>infra_904</code></p> <p>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.</p> <p>Example: <code>welcome99</code></p> <p>Click Next.</p>
6. --	<p>Finish the installation. See Section 6.25, "Install Fragment: The Last Few Screens of the Installation" for details.</p>

6.23 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 11.7, "OracleAS Certificate Authority Topology"](#).

Prerequisites: Oracle Internet Directory

Table 6–10 Steps for Installing OracleAS Certificate Authority and OracleAS Metadata Repository

Screen	Action
1. --	<p>Start up the installer and complete the first few screens. See Section 6.24, "Install Fragment: The First Few Screens of the Installation" for details.</p> <p>Notes:</p> <ul style="list-style-type: none"> ▪ In the Select Installation Type screen, select Identity Management and OracleAS Metadata Repository.
2. Select Configuration Options	<p>Do not select Oracle Internet Directory because you want to use an existing one.</p> <p>Do not select OracleAS Single Sign-On.</p> <p>Do not select Delegated Administration Services.</p> <p>Do not select Oracle Directory Integration and Provisioning.</p> <p>Select OracleAS Certificate Authority.</p> <p>Do not select High Availability Addressing.</p> <p>Click Next.</p>
3. Register with Oracle Internet Directory	<p>Hostname: Enter the name of the computer where Oracle Internet Directory is running.</p> <p>Port: Enter the port on which Oracle Internet Directory is listening. See Section 6.16, "How to Determine Port Numbers Used by Components" if you do not know the port number.</p> <p>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.</p> <p>Click Next.</p>
4. Specify Login for Oracle Internet Directory	<p>Username: Enter the username to log in to Oracle Internet Directory.</p> <p>Password: Enter the password for the username.</p> <p>Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms.</p> <p>Click Next.</p>
5. OracleAS Certificate Authority screens	<p>Enter information to configure OracleAS Certificate Authority. See Section 6.27, "Install Fragment: OracleAS Certificate Authority Screens".</p>
6. Oracle9i Database screens	<p>Enter information for the OracleAS Metadata Repository database. See Section 6.26, "Install Fragment: Oracle9i Database Screens".</p>

Table 6–10 Steps for Installing OracleAS Certificate Authority and OracleAS Metadata Repository

Screen	Action
7. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this infrastructure instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: <code>infra_oca_904</code></p> <p>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.</p> <p>Example: <code>welcome99</code></p> <p>Click Next.</p>
8. --	<p>Finish the installation. See Section 6.25, "Install Fragment: The Last Few Screens of the Installation" for details.</p>

6.24 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 6–11 First Few Screens of the Installation

Screen	Action
1. --	<p>Start the installer. See Section 5.15, "Starting the Oracle Universal Installer" for details.</p>
2. Welcome	<p>Click Next.</p>
3. Specify Inventory Directory	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Enter the full path for 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.</p> <p>Example: <code>/opt/oracle/oraInventory</code></p> <p>Click OK.</p>

Table 6–11 First Few Screens of the Installation

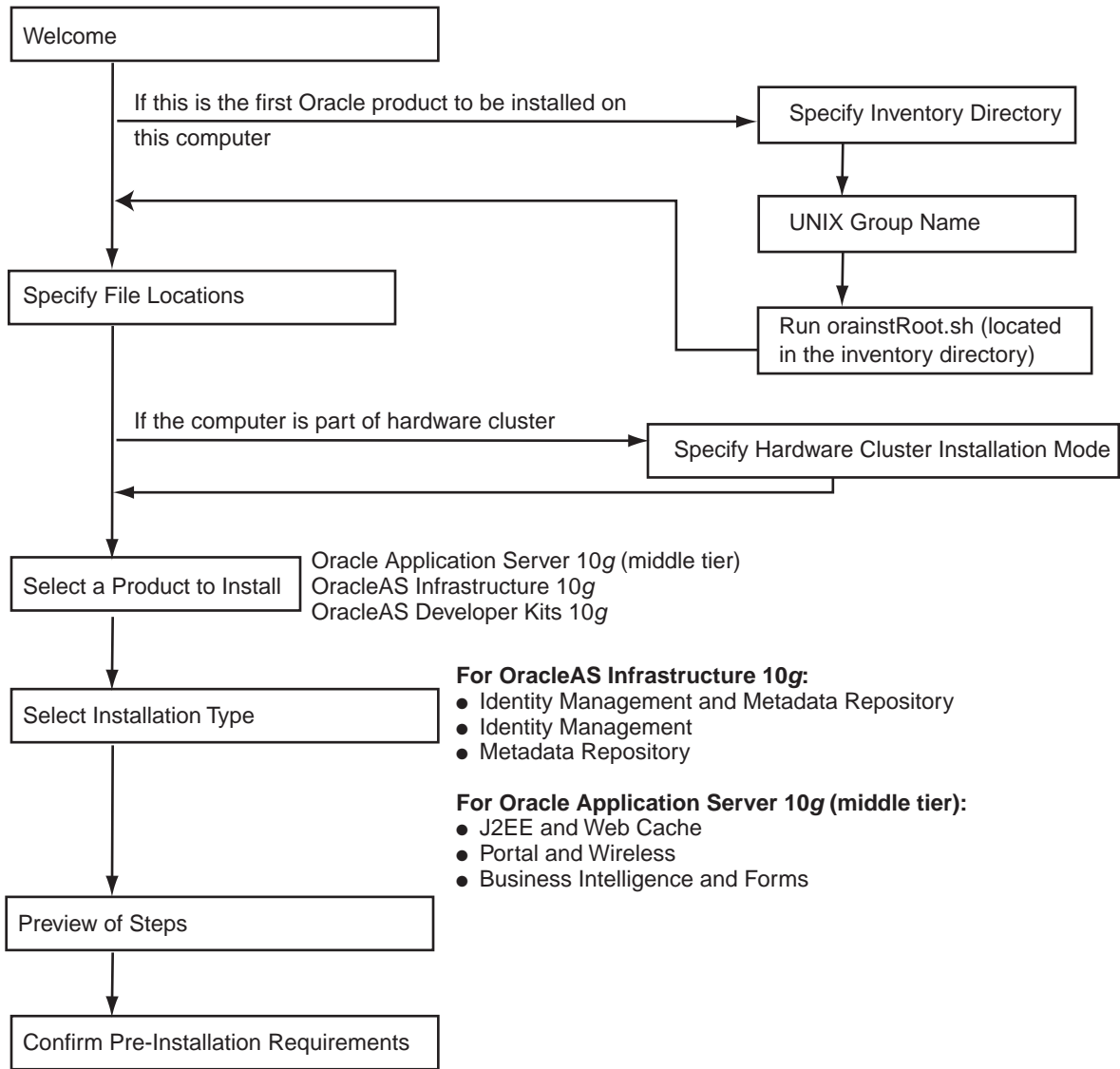
Screen	Action
4. UNIX Group Name	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Enter the name of the operating system group to have write permission for the inventory directory.</p> <p>Example: oinstall</p> <p>Click Next.</p>
5. Run <code>oraInstRoot.sh</code>	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Run the <code>oraInstRoot.sh</code> script in a different shell as the root user. The script is located in the <code>oraInventory</code> directory.</p> <p>Click OK.</p>
6. Specify File Locations	<p>Name: Enter a name to identify this Oracle home. The name cannot contain spaces, and has a maximum length of 16 characters.</p> <p>Example: OH_INFRA_904</p> <p>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 <code>oracle</code> user; do not create it as the root user.</p> <p>Example: <code>/opt/oracle/infra_904</code></p> <p>Click Next.</p>
7. Specify Hardware Cluster Installation Mode	<p>This screen appears only if the computer is part of a hardware cluster.</p> <p>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.</p> <p>Click Next.</p>
8. Select a Product to Install	<p>Select OracleAS Infrastructure 10g.</p> <p>If you need to install additional languages, click Product Languages. See Section 5.6, "Installing Additional Languages" for details.</p> <p>Click Next.</p>

Table 6–11 *First Few Screens of the Installation*

Screen	Action
9. Select Installation Type	<p>The options displayed on this screen depend on what you selected in the Select a Product to Install screen.</p> <p>The installation types for OracleAS Infrastructure 10g are:</p> <ul style="list-style-type: none"> ■ Identity Management and OracleAS Metadata Repository ■ Identity Management ■ OracleAS Metadata Repository <p>Click Next.</p>
10. Upgrade Existing Oracle9iAS Infrastructure	<p>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 10g.</p> <p>This screen presents you with the option to upgrade the existing Release 2 (9.0.2) infrastructure, or to install a 10g (9.0.4) infrastructure. If you want to upgrade, see the <i>Oracle Application Server 10g Upgrading to 10g (9.0.4)</i> guide.</p>
11. Preview of Steps for Infrastructure Installation	<p>This screen lists the screens that the installer will display. Click Next.</p>
12. Confirm Pre-Installation Requirements	<p>Verify that your computer meets all the requirements. Click Next.</p>

Figure 6–2 summarizes the screen sequence.

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



6.25 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 6–12 *Last Few Screens in the Installation*

Screen	Action
1. Choose JDK Home Directory (HP-UX only)	<p>Enter JDK Home: Enter the full path to the HP Java 2 SDK 1.4.1.05 (or higher) for PA-RISC installation.</p> <p>Click Next.</p>
2. Summary	Verify your selections and click Install .
3. Install Progress	This screen shows the progress of the installation.
4. Run <code>root.sh</code>	<p>Note: Do not run the <code>root.sh</code> script until prompted.</p> <ol style="list-style-type: none"> When prompted, run the <code>root.sh</code> script in a different shell as the root user. The script is located in this instance's Oracle home directory. Perform these additional steps if you used <code>staticports.ini</code> to specify ports less than 1024 for Oracle HTTP Server. <p>These steps are required so that the installer can start up Oracle HTTP Server. Perform these steps after running <code>root.sh</code>, but before clicking OK.</p> <pre>prompt> su Become the root user Password: # cd ORACLE_HOME/Apache/Apache/bin # chown root .apachectl Note the . at the start of the filename # chmod 6750 .apachectl</pre> <p>3. Click OK.</p>
5. Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
6. End of Installation	Click Exit to quit the installer.

6.26 Install Fragment: Oracle9i Database Screens

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

Table 6–13 Oracle9i Database Screens

Screen	Action
1. Specify Privileged Operating System Groups	<p>This screen appears if you are running the installer as a user who is not in the OSDBA or the OSOPER operating system groups.</p> <p>Database Administrator (OSDBA) Group: Example: dbadmin</p> <p>Database Operator (OSOPER) Group: Example: dbadmin</p> <p>Click Next.</p>
2. Specify Database Identification	<p>Global Database Name: Enter a name for the OracleAS Metadata Repository database. Append the domain name of your computer to the database name.</p> <p>Example: asdb.mydomain.com</p> <p>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.</p> <p>Example: asdb</p> <p>Click Next.</p>
3. Specify Passwords for the SYS and SYSTEM Users	<p>Set the passwords for these privileged database accounts. See Section 6.14, "Restrictions on the Passwords for the SYS and SYSTEM Users" for rules on settings passwords for these accounts.</p> <p>Click Next.</p>
4. Specify Database File Location	<p>Enter or select a directory for database files: Enter a directory where you want the installer to create data files for the OracleAS Metadata Repository database. You should place the data files and the files in the Oracle home directory on separate disks.</p> <p>For example, if you have a directory called /data_partition located on a separate disk, you can create a subdirectory called oracleAS_dbfiles in that directory, and place the data files in that subdirectory (/data_partition/oracleAS_dbfiles).</p> <p>Click Next.</p>
5. Specify Database Character Set	<p>Select Use the default character set. Click Next.</p>

6.27 Install Fragment: OracleAS Certificate Authority Screens

If you select **OracleAS Certificate Authority** in the Select Configuration Options screen when you are installing an OracleAS Infrastructure 10g, the installer displays the screens listed in [Table 6-14](#).

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 6-14 OracleAS Certificate Authority Screens

Screen	Action
1. Select OracleAS Metadata Repository	<p>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.</p> <p>Select the OracleAS Metadata Repository that you want OracleAS Certificate Authority to use.</p> <p>Click Next.</p>

Table 6–14 OracleAS Certificate Authority Screens

Screen	Action
2. Specify OCA Distinguished Name	<p>OracleAS Certificate Authority uses the DN specified on this screen to populate the Issuer field of certificates that it issues.</p> <p>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 <code>o</code> (organization) attribute is required. Note that the <code>'</code> (single quote) character is not a valid character in any of the attributes.</p> <ul style="list-style-type: none"> ▪ Common name (cn): Enter the name that you want on the certificate. This name must be different from your hostname. Example: <code>John Doe</code>. ▪ Organizational unit (ou): Enter the name of your division or department. Example: <code>Sales</code>. ▪ Organization (o): Enter the name of your company or organization. Example: <code>Oracle</code>. ▪ Country (c): Select your country from the drop-down list. <p>Custom DN: If your DN uses attributes not listed in the Typical DN section, specify your DN in this section.</p> <p>Click Next.</p>
3. Select OCA Key Length	<p>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.</p> <p>Click Next.</p>
4. Specify OCA Administrator's Password	<p>Administrator's Password and Confirm Password: Specify and confirm the password for the OracleAS Certificate Authority administrator. The password has the following restrictions:</p> <ul style="list-style-type: none"> ▪ 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. <p>You need this password to manage OracleAS Certificate Authority. This password is also used by the OracleAS Certificate Authority Configuration Assistant.</p> <p>You can change the password after installation using the <code>ocactl</code> command. See the OracleAS Certificate Authority Online Help for details.</p> <p>Click Next.</p>

Installing Middle Tiers

Table 7–1 Contents of This Chapter

Topics	Procedures
<ul style="list-style-type: none"> ▪ 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" 	<ul style="list-style-type: none"> ▪ Section 7.8, "Installing a J2EE and Web Cache Without an Infrastructure" ▪ Section 7.9, "Installing J2EE and Web Cache with OracleAS Database-Based Cluster and Identity Management Access" ▪ Section 7.10, "Installing J2EE and Web Cache with OracleAS Database-Based Cluster and No Identity Management Access" ▪ Section 7.11, "Installing J2EE and Web Cache with OracleAS File-Based Cluster and No Identity Management Access" ▪ Section 7.12, "Installing J2EE and Web Cache with OracleAS File-Based Cluster and Identity Management Access" ▪ Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms" ▪ Section 7.14, "Expanding a Middle Tier" ▪ Section 7.15, "Can I Upgrade and Expand a Middle Tier at the Same Time?" ▪ Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" ▪ Section 7.17, "Install Fragment: The Last Few Screens of the Installation"

7.1 Middle Tier Types

When you install an Oracle Application Server middle tier, you select which type of middle tier you want. Oracle Application Server has three types of middle tiers (in order from minimal core components to the complete set of components):

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

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

Middle Tiers and Infrastructure

The Portal and Wireless and the Business Intelligence and Forms types require an OracleAS Infrastructure 10g, 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 are using the OracleAS Database-Based Cluster and/or the Identity Management Access option. If you are not using these options in the J2EE and Web Cache middle tier, then you do not need an OracleAS Infrastructure 10g. 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.
- The Business Intelligence and Forms type contains all middle tier components.

Table 7-2 Components in the Middle Tier

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

7.3 Which Components Do I Need?

You deploy your applications on middle tier instances. The middle tier must provide components used by your applications.

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

If you do not know what you want, but you have the disk space, you can install the Business Intelligence and Forms type. This ensures that you have all the components. If you do not have the disk space, you can install a smaller middle tier type, and later expand it to a larger type if necessary. For example, you can expand a J2EE and Web Cache to a Business Intelligence and Forms. 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 (JSP), servlets, and Enterprise JavaBeans (EJB) applications)	Oracle Application Server Containers for J2EE (OC4J)
Web services	OC4J
UDDI	OracleAS Portal UDDI requires the Portal and Wireless (or the Business Intelligence and Forms) middle tier type because UDDI depends on OC4J for application deployment, OracleAS Metadata Repository for storing various UDDI data structures, and Oracle Internet Directory for user and group management. The J2EE and Web Cache installation type does not require a OracleAS Metadata Repository or Oracle Internet Directory.
Oracle Ultra Search	OracleAS Portal
OracleAS Syndication Services	OracleAS Portal
Portals	OracleAS Portal
Reports and Discoverer providers (which you can use with OracleAS Portal)	OracleAS Reports Services, OracleAS Discoverer
PL/SQL applications	Oracle HTTP Server
Delivery to mobile devices such as cell phones and PDAs	OracleAS Wireless
Data mining	OracleAS Personalization
Business Intelligence applications	OracleAS Reports Services, OracleAS Discoverer
Reports	OracleAS Reports Services
Forms	OracleAS Forms Services

7.4 Configuration Options for the J2EE and Web Cache Middle Tier

If you select to install the J2EE and Web Cache middle tier, the Select Configuration Options screen displays these options:

- OracleAS Web Cache
- OracleAS Database-Based Cluster
- OracleAS File-Based Cluster
- Identity Management Access

[Table 7-4](#) describes these options, and which OracleAS Infrastructure 10g components they require. You need to install the required infrastructure components before you can install the J2EE and Web Cache middle tier with these options. If you do not select any of these options, you do not need the OracleAS Infrastructure 10g.

Table 7–4 Options in J2EE and Web Cache That Require an Infrastructure

Option	Description	Requires
OracleAS File-Based Cluster	<p>Managed OracleAS Clusters enable you to group multiple J2EE and Web Cache instances. Any instance in a cluster can handle requests directed to any cluster member. All the instances in a cluster have the same configuration.</p> <p>There are two types of managed OracleAS Cluster: file-based and database-based.</p> <p>In OracleAS file-based clusters, Oracle Application Server stores the configuration data in the file system. Select OracleAS File-Based Cluster if you want this type of cluster.</p> <p>For details about OracleAS Clusters, see the <i>Oracle Application Server 10g High Availability Guide</i>.</p>	No previously installed components are required.
OracleAS Database-Based Cluster	<p>For this type of managed OracleAS Cluster, Oracle Application Server stores the configuration data in the metadata repository database. Select OracleAS Database-Based Cluster if you want this type of cluster.</p>	<p>OracleAS Metadata Repository</p> <p>The metadata repository does not need to be registered with Oracle Internet Directory. Oracle Internet Directory is not required for this option.</p> <p>This option does not require any Identity Management components.</p>
Identity Management Access	<p>This option enables your applications to use Identity Management services such as OracleAS Single Sign-On and Oracle Internet Directory.</p>	<p>Oracle Internet Directory, OracleAS Single Sign-On, and OracleAS Metadata Repository</p> <p>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".</p>
OracleAS Web Cache	<p>This option configures OracleAS Web Cache.</p>	No previously installed components are required.

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 Cluster option, but without the Identity Management Access option, the installer prompts you to enter the password for the DCM schema in the OracleAS Metadata Repository.

You can try logging into the OracleAS Metadata Repository database as the "dcm" user, using "dcm" as the password. You can do this using SQL*Plus:

```
prompt> $ORACLE_HOME/bin/sqlplus
Enter user-name: dcm
Enter password: dcm
```

If this does not work, then the installer generated a random password for the DCM schema. Whether or not the installer randomizes the DCM password depends on whether or not it registers the OracleAS Metadata Repository with Oracle Internet Directory. See [Section 6.10, "Registration of OracleAS Metadata Repository in Oracle Internet Directory and Password Randomization"](#).

How To Change the Random Password

You can change the random password to a known value. You must use the Application Server Control to do this because it needs to update the password in other places. See the *Oracle Application Server 10g Administrator's Guide* for details.

How To 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 Cluster 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.

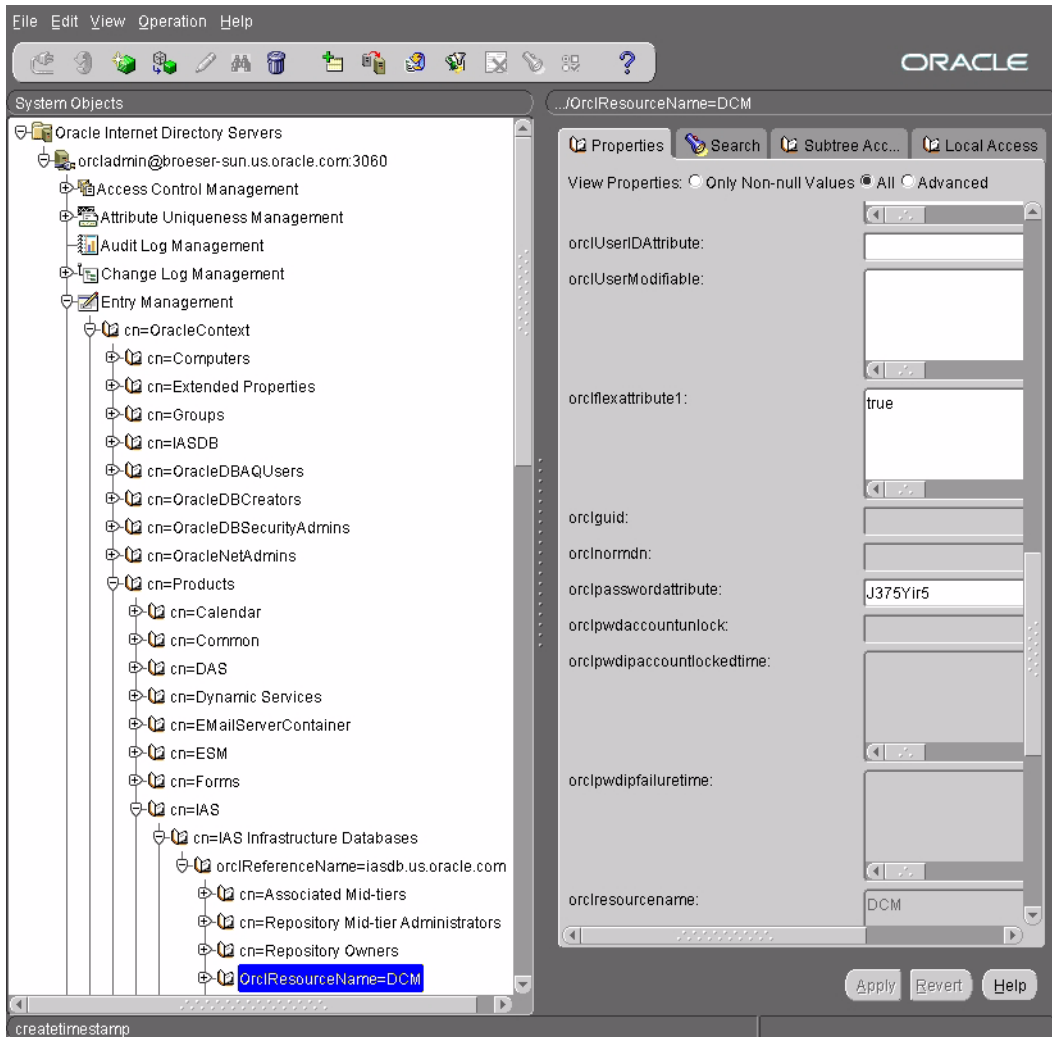
To determine the random password in Oracle Internet Directory:

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 10g (9.0.4), make sure you followed the steps on upgrading Oracle Internet Directory 9.2.0.x to 10g (9.0.4) as documented in the *Oracle Application Server 10g Upgrading to 10g (9.0.4)* 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. --	<p>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.</p> <p>Note:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select J2EE and Web Cache. <p>Click Next.</p>
2. Select Configuration Options	<p>Select OracleAS Web Cache.</p> <p>Do <i>not</i> select Identity Management Access because this option requires Oracle Internet Directory and OracleAS Single Sign-On.</p> <p>Do <i>not</i> select OracleAS Database-Based Cluster because this option requires OracleAS Metadata Repository.</p> <p>Do <i>not</i> select OracleAS File-Based Cluster.</p> <p>Click Next.</p>
3. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: J2EE_904</p> <p>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.</p> <p>Example: welcome99</p> <p>Click Next.</p>
4. --	<p>Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".</p>

7.9 Installing J2EE and Web Cache with OracleAS Database-Based Cluster and Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier with OracleAS Cluster managed using database repository and Identity Management Access.

Prerequisite: OracleAS Infrastructure 10g

Table 7–6 Steps for Installing J2EE and Web Cache with OracleAS Database-Based Cluster and Identity Management Access

Screen	Action
1. --	<p>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.</p> <p>Note:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select J2EE and Web Cache.
2. Select Configuration Options	<p>Select OracleAS Web Cache.</p> <p>Select Identity Management Access.</p> <p>Select OracleAS Database-Based Cluster.</p> <p>Deselect OracleAS File-Based Cluster.</p> <p>Click Next.</p>
3. Register with Oracle Internet Directory	<p>Hostname: Enter the name of the computer where Oracle Internet Directory is running.</p> <p>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".</p> <p>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.</p> <p>Click Next.</p>
4. Specify Login for Oracle Internet Directory	<p>Username: Enter the username to log in to Oracle Internet Directory.</p> <p>Password: Enter the password for the username.</p> <p>Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms.</p> <p>Click Next.</p>
5. Select Metadata Repository for OracleAS Cluster	<p>Select the OracleAS Metadata Repository from the dropdown list.</p> <p>Click Next.</p>

Table 7–6 Steps for Installing J2EE and Web Cache with OracleAS Database-Based Cluster and Identity Management Access

Screen	Action
6. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: j2ee_904</p> <p>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.</p> <p>Example: welcome99</p> <p>Click Next.</p>
7. --	<p>Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".</p>

7.10 Installing J2EE and Web Cache with OracleAS Database-Based Cluster and No Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier with OracleAS Cluster managed using database repository, but without Identity Management access.

Prerequisite: OracleAS Metadata Repository

Table 7–7 Steps for Installing J2EE and Web Cache with OracleAS Database-Based Cluster and No Identity Management Access

Screen	Action
1. --	<p>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.</p> <p>Note:</p> <ul style="list-style-type: none"> In the Select Installation Type screen, select J2EE and Web Cache.
2. Select Configuration Options	<p>Select OracleAS Web Cache.</p> <p>Select OracleAS Database-Based Cluster.</p> <p>Deselect OracleAS File-Based Cluster.</p> <p>Do not select Identity Management Access.</p> <p>Click Next.</p>
3. Specify Metadata Repository for OracleAS Cluster	<p>Password: Enter the password for the DCM schema. The initial password for the schema is dcm.</p> <p>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: <i>host.domain:port</i>.</p> <p>Service Name: Enter the service name of the database. Note that the service name must include the database domain name.</p> <p>Example: <code>asdb.mydomain.com</code></p> <p>Click Next.</p>
4. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: <code>j2ee_904</code></p> <p>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.</p> <p>Example: <code>welcome99</code></p> <p>Click Next.</p>
5. --	<p>Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".</p>

7.11 Installing J2EE and Web Cache with OracleAS File-Based Cluster and No Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier with OracleAS Cluster managed using file-based repository and no Identity Management access.

Table 7–8 Steps for Installing J2EE and Web Cache with OracleAS File-Based Cluster and No Identity Management Access

Screen	Action
1. --	<p>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.</p> <p>Note:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select J2EE and Web Cache. <p>Click Next.</p>
2. Select Configuration Options	<ul style="list-style-type: none"> ■ Select OracleAS Web Cache. ■ Select OracleAS File-Based Cluster. ■ Do <i>not</i> select OracleAS Database-Based Cluster because this option requires OracleAS Metadata Repository. ■ Do <i>not</i> select Identity Management Access because this option requires Oracle Internet Directory and OracleAS Single Sign-On. <p>Click Next.</p>
4. Warning	<p>This warning dialog reminds you that you have to perform additional steps after installation to set up file-based clustering. The text in this dialog is also stored in the <code>ORACLE_HOME/install/setupinfo.txt</code>. Click OK.</p>
5. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: J2EE_904</p> <p>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.</p> <p>Example: welcome99</p> <p>Click Next.</p>
6. --	<p>Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".</p>

7.12 Installing J2EE and Web Cache with OracleAS File-Based Cluster and Identity Management Access

Perform this procedure to install a J2EE and Web Cache middle tier with OracleAS Cluster managed using file-based repository and Identity Management access.

Prerequisite: Oracle Internet Directory

Table 7–9 Steps for Installing J2EE and Web Cache with OracleAS File-Based Cluster and Identity Management Access

Screen	Action
1. --	<p>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.</p> <p>Note:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select J2EE and Web Cache. <p>Click Next.</p>
2. Select Configuration Options	<ul style="list-style-type: none"> ■ Select OracleAS Web Cache. ■ Select OracleAS File-Based Cluster. ■ Do <i>not</i> select OracleAS Database-Based Cluster. ■ Select Identity Management Access. <p>Click Next.</p>
4. Warning	<p>This warning dialog reminds you that you have to perform additional steps after installation to set up file-based clustering. The text in this dialog is also stored in the <code>ORACLE_HOME/install/setupinfo.txt</code>. Click OK.</p>
5. Register with Oracle Internet Directory	<p>Hostname: Enter the name of the computer where Oracle Internet Directory is running.</p> <p>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".</p> <p>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.</p> <p>Click Next.</p>

Table 7–9 Steps for Installing J2EE and Web Cache with OracleAS File-Based Cluster and Identity Management Access

Screen	Action
6. Specify Login for Oracle Internet Directory	<p>Username: Enter the username to log in to Oracle Internet Directory.</p> <p>Password: Enter the password for the username.</p> <p>Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms.</p> <p>Click Next.</p>
7. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: J2EE_904</p> <p>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.</p> <p>Example: welcome99</p> <p>Click Next.</p>
8. --	<p>Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".</p>

7.13 Installing Portal and Wireless or Business Intelligence and Forms

Perform this procedure to install a Portal and Wireless or a Business Intelligence and Forms middle tier.

Prerequisite: OracleAS Infrastructure 10g

Table 7–10 Steps for Installing Portal and Wireless or Business Intelligence and Forms

Screen	Action
1. --	<p>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.</p> <p>Note:</p> <ul style="list-style-type: none"> ■ In the Select Installation Type screen, select Portal and Wireless or Business Intelligence and Forms.
2. Select Configuration Options	<p>Select the components that you will be using, and click Next. You do not have to select all the components.</p> <p>For Portal and Wireless, the options are:</p> <ul style="list-style-type: none"> ■ OracleAS Portal ■ OracleAS Wireless <p>For Business Intelligence and Forms, the options are:</p> <ul style="list-style-type: none"> ■ OracleAS Portal ■ OracleAS Wireless ■ OracleAS Discoverer ■ OracleAS Personalization ■ OracleAS Reports Services ■ OracleAS Forms Services
3. Register with Oracle Internet Directory	<p>Hostname: Enter the name of the computer where Oracle Internet Directory is running.</p> <p>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".</p> <p>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.</p> <p>Click Next.</p>
4. Specify Login for Oracle Internet Directory	<p>Username: Enter the username to use to log in to Oracle Internet Directory.</p> <p>Password: Enter the user's password.</p> <p>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.</p> <p>Click Next.</p>

Table 7–10 Steps for Installing Portal and Wireless or Business Intelligence and Forms

Screen	Action
5. 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 .
6. Provide Outgoing Mail Server Information	This screen appears only if you selected OracleAS Reports Services in the Select Configuration Options screen. Enter the name of the outgoing mail (SMTP) server for use by OracleAS Reports Services. You can leave it blank and configure it later. Click Next .
7. Specify OracleAS Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. Example 1: PW_904 Example 2: BI_Forms_904 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 (or the Business Intelligence and Forms type) in the same Oracle home as the J2EE and Web Cache instance. The installer installs and configures the additional components in the larger middle tier without changing the configuration of existing components.

You can expand middle tiers in the following ways:

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

- Portal and Wireless to Business Intelligence and Forms

Expanding a middle tier is the same as installing a new one, with these differences:

- In the Specify File Locations screen, you enter the Oracle home directory of the middle tier you want to expand.
- You need the password of the `ias_admin` user of the middle tier you want to expand.

Instead of the Specify OracleAS 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.

Remember that the Portal and Wireless and the Business Intelligence and Forms types require 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 <i>Oracle Application Server 10g Administrator's Guide</i> .
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: <ul style="list-style-type: none"> ■ In the Specify File Locations screen, enter the Oracle home directory of the middle tier you want to expand. ■ In the Select Installation Type screen, select Portal and Wireless or Business Intelligence and Forms.

Table 7–11 Steps for Expanding a Middle Tier

Screen	Action
3. Select Configuration Options	<p>Select the components that you will be using. Click Next.</p> <p>For Portal and Wireless, the options are:</p> <ul style="list-style-type: none"> ■ OracleAS Portal ■ OracleAS Wireless <p>For Business Intelligence and Forms, the options are:</p> <ul style="list-style-type: none"> ■ OracleAS Portal ■ OracleAS Wireless ■ OracleAS Discoverer ■ OracleAS Personalization ■ OracleAS Reports Services ■ OracleAS Forms Services
4. Register with Oracle Internet Directory	<p>Hostname: Enter the name of the computer where Oracle Internet Directory is running.</p> <p>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".</p> <p>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.</p> <p>Click Next.</p>
5. Specify Login for Oracle Internet Directory	<p>Username: Enter the username to use to log in to Oracle Internet Directory.</p> <p>Password: Enter the user's password.</p> <p>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.</p> <p>Click Next.</p>
6. Select OracleAS Metadata Repository	<p>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.</p>

Table 7–11 Steps for Expanding a Middle Tier

Screen	Action
7. Provide Outgoing Mail Server Information	This screen appears only if you selected OracleAS Reports Services in the Select Configuration Options screen. Enter the name of the outgoing mail (SMTP) server for use by OracleAS Reports Services. You can leave it blank and configure it later. Click Next .
8. Specify 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" .

7.15 Can I Upgrade and Expand a Middle Tier at the Same Time?

If you have a middle tier from the 9.0.2 release and you want to upgrade it to a 10g (9.0.4) middle tier of the same type (for example, J2EE and Web Cache 9.0.2 middle tier to J2EE and Web Cache 10g (9.0.4) middle tier), follow the instructions in *Oracle Application Server 10g Upgrading to 10g (9.0.4)*.

If you want to upgrade a middle tier and expand it at the same time (for example, going from J2EE and Web Cache 9.0.2 to Portal and Wireless 10g (9.0.4)), you have to perform two procedures:

1. Upgrade the middle tier to the same type middle tier in 10g (9.0.4). This procedure is documented in *Oracle Application Server 10g Upgrading to 10g (9.0.4)*.
2. Expand the middle tier in the 10g (9.0.4) 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

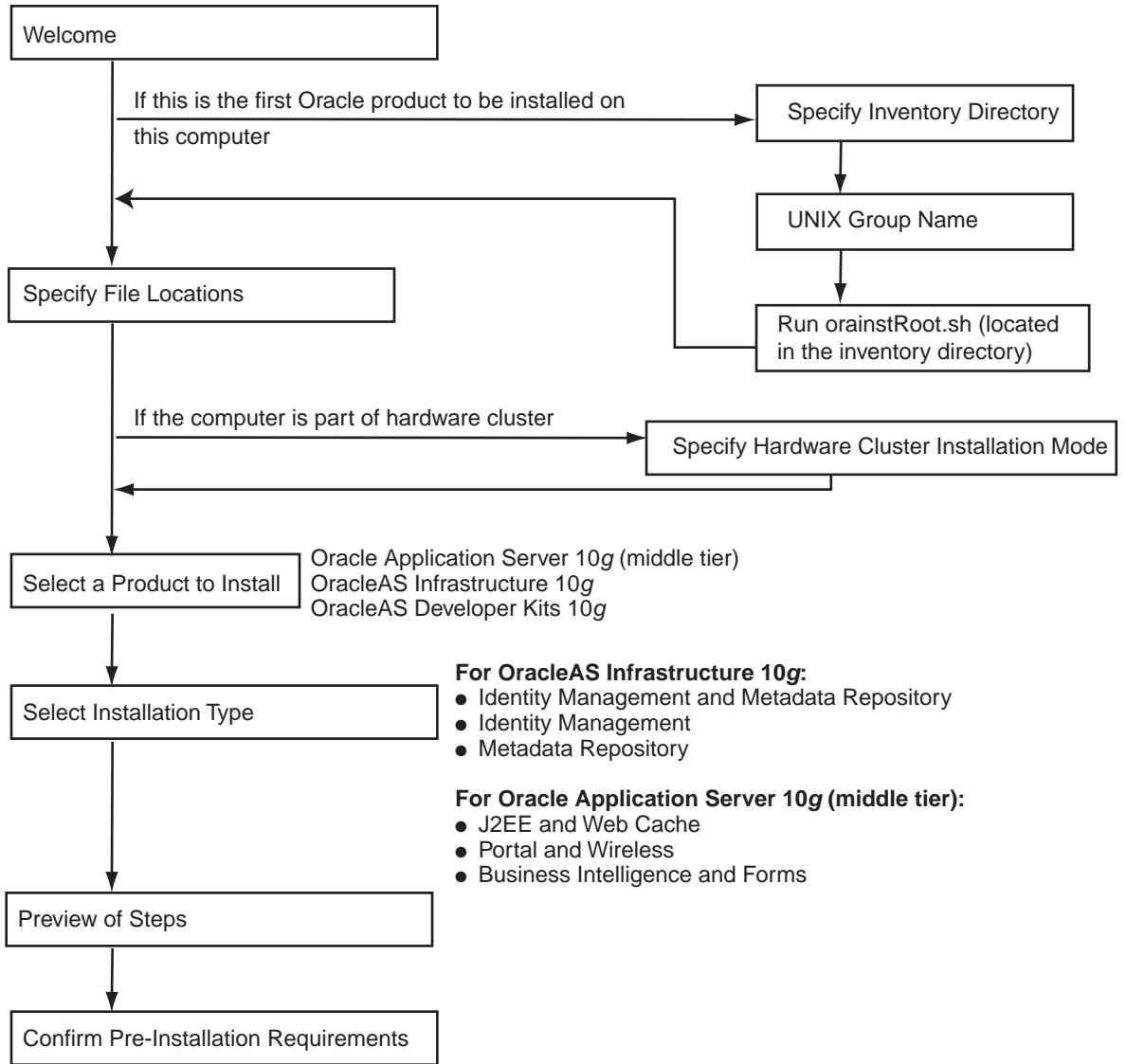
Screen	Action
1. --	Start the installer. See Section 5.15, "Starting the Oracle Universal Installer" .
2. Welcome	Click Next .
3. Specify Inventory Directory	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Enter the full path for the inventory 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.</p> <p>Example: <code>/opt/oracle/oraInventory</code></p> <p>Click OK.</p>
4. UNIX Group Name	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Enter the name of the operating system group to have write permission for the inventory directory.</p> <p>Example: <code>oinstall</code></p> <p>Click Next.</p>
5. Run <code>oraInstRoot.sh</code>	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Run the <code>oraInstRoot.sh</code> script in a different shell as the root user. The script is located in the <code>oraInventory</code> directory.</p> <p>Click OK.</p>
6. Specify File Locations	<p>Name: Enter a name to identify this Oracle home. The name cannot contain spaces, and has a maximum length of 16 characters.</p> <p>Example: <code>OH_J2EE_904</code></p> <p>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 <code>oracle</code> user; do not create it as the root user.</p> <p>Example: <code>/opt/oracle/OraJ2EE_904</code></p> <p>Click Next.</p>
7. Specify Hardware Cluster Installation Mode	<p>This screen appears only if the computer is part of a hardware cluster.</p> <p>When you are installing a middle tier, select Local Installation because hardware cluster is not supported for middle tiers.</p> <p>Click Next.</p>

Table 7–12 *First Few Screens of the Middle Tier Installation*

Screen	Action
8. 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 .
9. 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: <ul style="list-style-type: none">■ J2EE and Web Cache■ Portal and Wireless■ Business Intelligence and Forms Click Next .
10. Preview of Steps for Middle Tier Installation	This screen lists the screens that the installer will display. Click Next .
11. Confirm Pre-Installation Requirements	Verify that you meet all the requirements listed on the screen. Click Next .

[Figure 7–2](#) summarizes the screen sequence.

Figure 7-2 Sequence for the First Few Screens in the Installation



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. Choose JDK Home Directory (HP-UX only)	<p>Enter JDK Home: Enter the full path to the HP Java 2 SDK 1.4.1.05 (or higher) for PA-RISC installation.</p> <p>Click Next.</p>
2. Summary	Verify your selections and click Install .
3. Install Progress	This screen shows the progress of the installation.
4. Run <code>root.sh</code>	<p>Note: Do not run the script until prompted.</p> <ol style="list-style-type: none"> When prompted, run the <code>root.sh</code> script in a different shell as the root user. The script is located in this instance's Oracle home directory. Perform these additional steps if you used <code>staticports.ini</code> to specify ports less than 1024 for Oracle HTTP Server and OracleAS Web Cache. These steps are required so that the installer can start up Oracle HTTP Server and OracleAS Web Cache. Perform these steps after running <code>root.sh</code>, but before clicking OK. <pre>prompt> su Become the root user Password: # cd ORACLE_HOME/Apache/Apache/bin # chown root .apachectl Note the . at the start of the filename # chmod 6750 .apachectl # cd ORACLE_HOME/webcache/bin # chown root webcached # chmod 6750 webcached</pre> <ol style="list-style-type: none"> Click OK.
5. Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
6. End of Installation	Click Exit to quit the installer.

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 Install 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: <ul style="list-style-type: none"> ■ 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.
User Management Application Admins DN: cn=IAS & User Mgmt Admins, cn=groups, cn=OracleContext	To install OracleAS Portal or OracleAS Wireless, you must belong to several groups, one of which is the 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	The user who installs the metadata repository becomes a member of this group. Repository Owners have the following privileges: <ul style="list-style-type: none"> ■ 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.

Table 8–2 Groups Associated with Each Metadata Repository Registered with Oracle Internet Directory

Group	Description
Mid-Tier Administrators	<p>Mid-Tier Administrators have the following privileges:</p> <ul style="list-style-type: none"> ■ 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	<p>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.</p> <p>Members of this group have the following privilege:</p> <ul style="list-style-type: none"> ■ 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	<p>Component Owners have the following privileges:</p> <ul style="list-style-type: none"> ■ Add/remove owners for this component. ■ De-register this component. ■ Associate additional middle tiers with this component.
Associated Middle Tiers	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 Install Components

[Table 8–4](#) shows the groups that a user needs to belong to in order to install Oracle Application Server components.

The user who installs 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	
Oracle Delegated Administration Services	<ul style="list-style-type: none"> ■ Trusted Application Admins ■ iAS Admins ■ Mid-Tier Admins group for the metadata repository used by OracleAS Single Sign-On <p>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 8-7.</p> <ul style="list-style-type: none"> ■ Component Owners for the Oracle Delegated Administration Services component <p>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.</p> <p>See Section 8.8.1, "Using Oracle Directory Manager to Add Users to Groups" for steps on how to add users to groups.</p>
OracleAS Single Sign-On	You must install OracleAS Single Sign-On as the superuser (cn=orcladmin).
Oracle Directory Integration and Provisioning	<ul style="list-style-type: none"> ■ 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. <p>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 8-7.</p>
OracleAS Certificate Authority, configured against an existing OracleAS Metadata Repository	<ul style="list-style-type: none"> ■ Trusted Application Admins ■ iAS Admins ■ Repository Owners group for the existing metadata repository

Table 8–4 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)	<ul style="list-style-type: none"> ■ Trusted Application Admins ■ iAS Admins
J2EE and Web Cache Middle Tier Features	
Identity Management Access only	<ul style="list-style-type: none"> ■ iAS Admins
Identity Management Access and OracleAS Cluster (Database-Based or File-Based)	<ul style="list-style-type: none"> ■ iAS Admins ■ Mid-Tier Admins or Repository Owners group for the metadata repository
Portal and Wireless, and Business Intelligence and Forms Middle Tier Components	
OracleAS Portal	<ul style="list-style-type: none"> ■ Trusted Application Admins ■ IAS and 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 <p>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.</p>

Table 8–4 Oracle Internet Directory Groups Required to Configure Components

To Configure This Component	User Must Be a Member of ALL Listed Groups:
OracleAS Wireless	<ul style="list-style-type: none"> ■ IAS and 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 <p>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 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 Wireless, you have to add this user to the Component Owners group for the Wireless application entity.</p>
OracleAS Reports Services	<ul style="list-style-type: none"> ■ iAS Admins
OracleAS Forms Services	<ul style="list-style-type: none"> ■ Mid-Tier Admins or Repository Owners group for the metadata repository
OracleAS Personalization	
OracleAS Discoverer	

To Determine the Metadata Repository Used by OracleAS Single Sign-On

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

```
prompt> $ORACLE_HOME/bin/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 second command.

```
prompt> $ORACLE_HOME/bin/ldapsearch -h oidhostname -p oidport -D
cn=orcladmin -w password
-b "" -s base "objectclass=*" orclreplicaid
```

- b. Then run this command.

```
prompt> $ORACLE_HOME/bin/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.

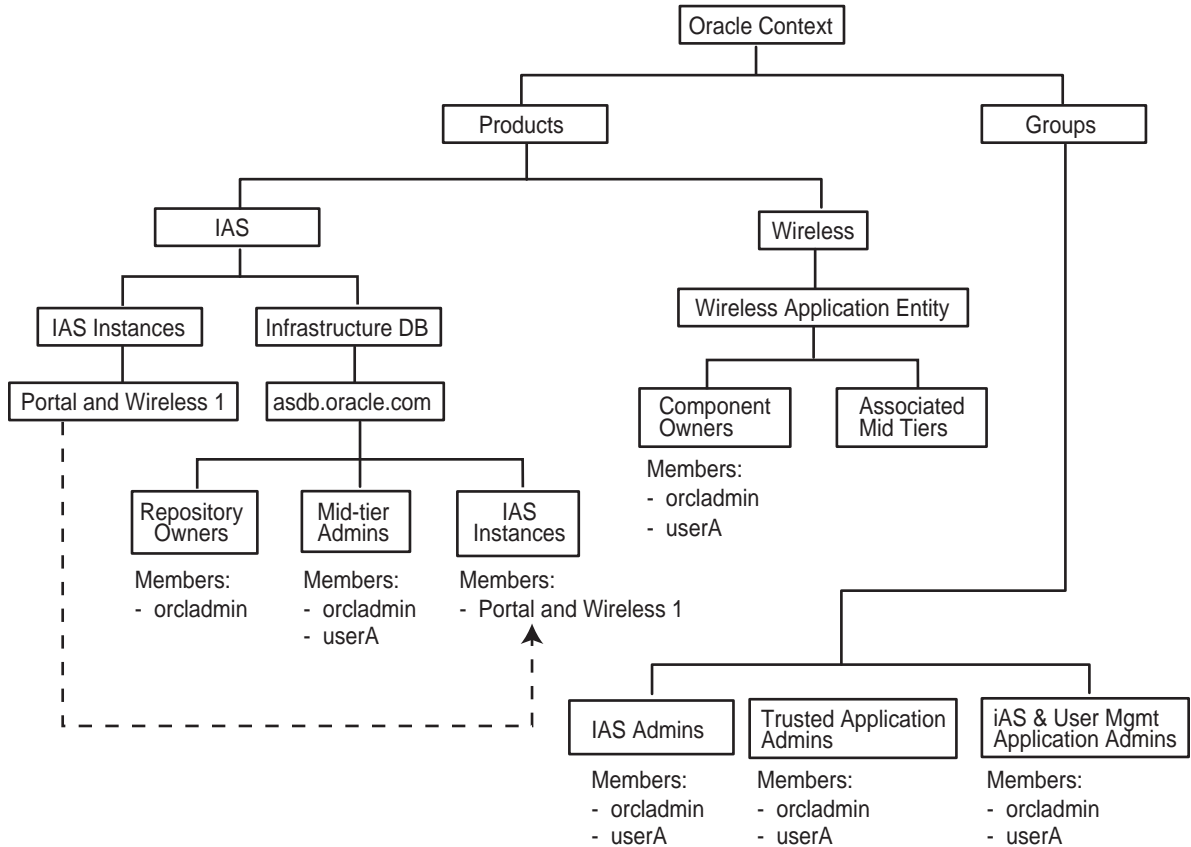
8.4.2 Groups Required to Install Middle Tier Components

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



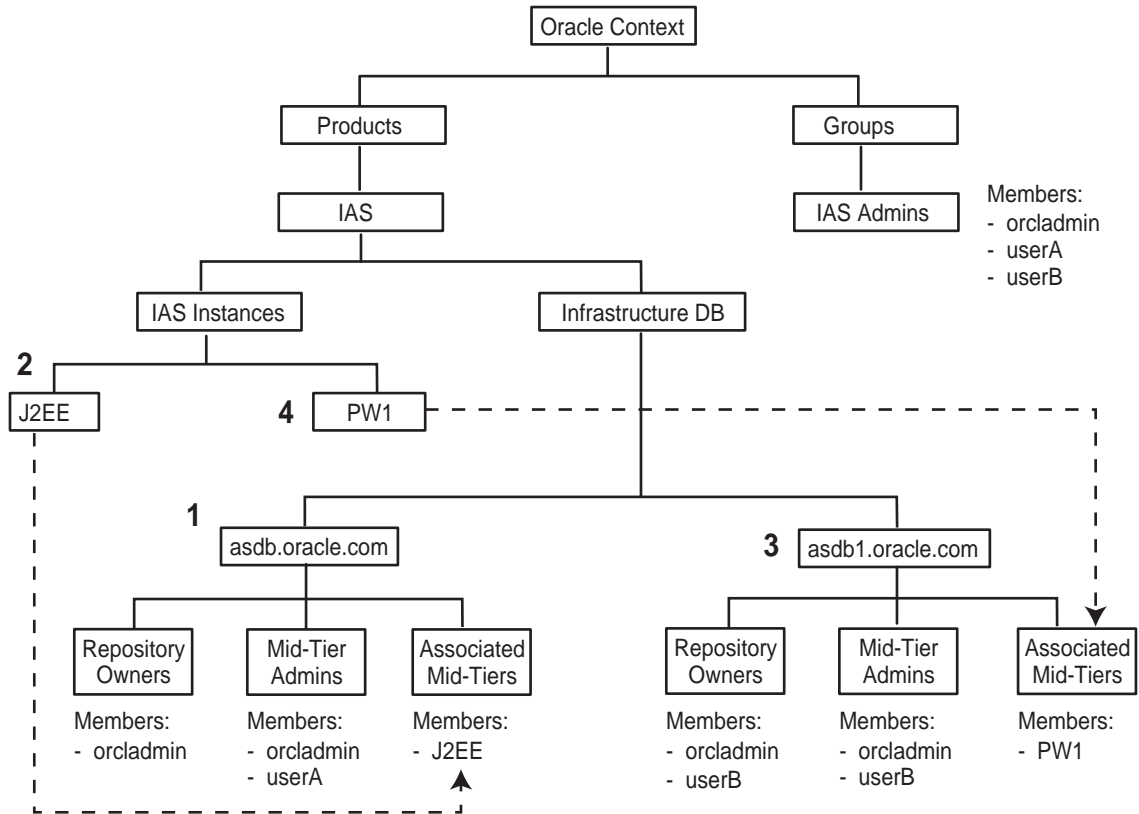
8.5 Groups Required to Install Additional Metadata Repositories

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 10g (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 10g (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 and 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

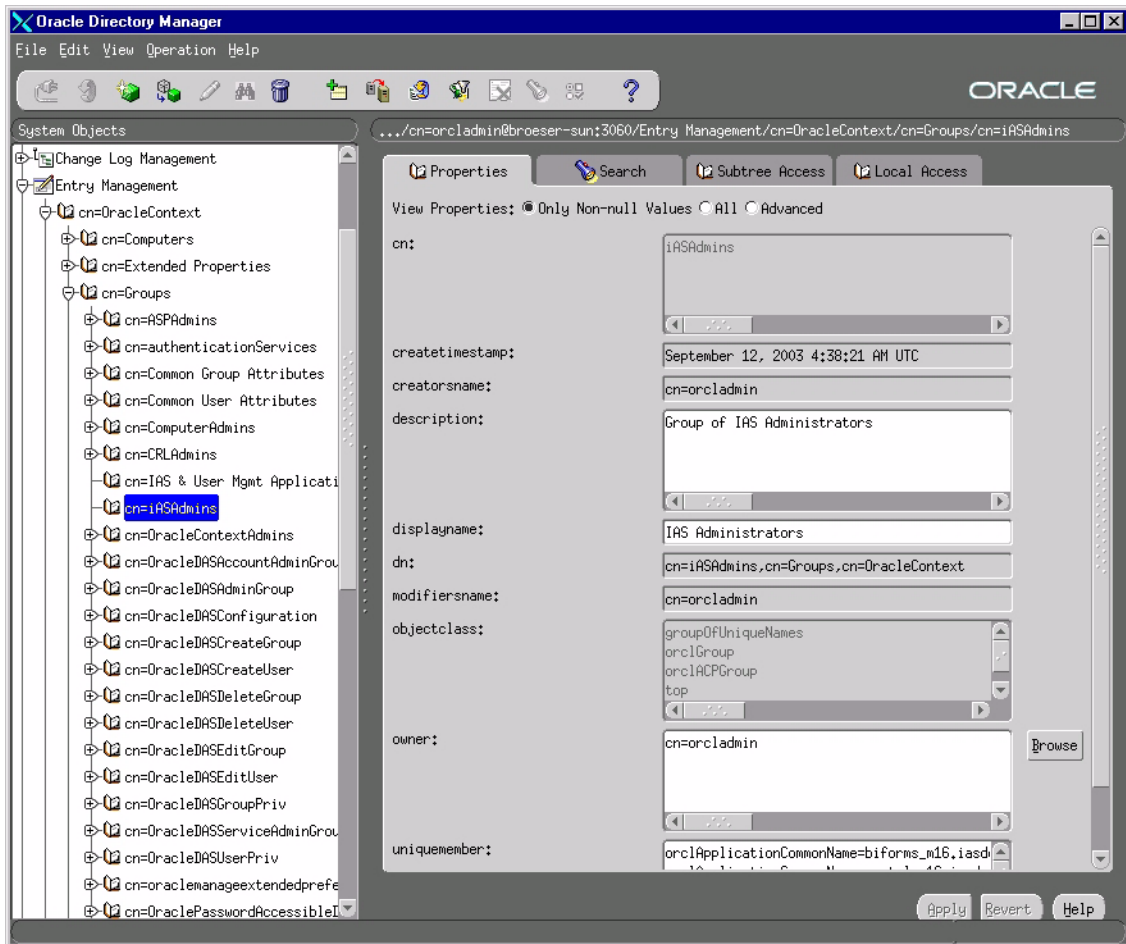
The "global" groups are listed in [Table 8-1](#).

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 "Entry Management".
4. Expand "cn=OracleContext".
5. Expand "cn=Groups".

- 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

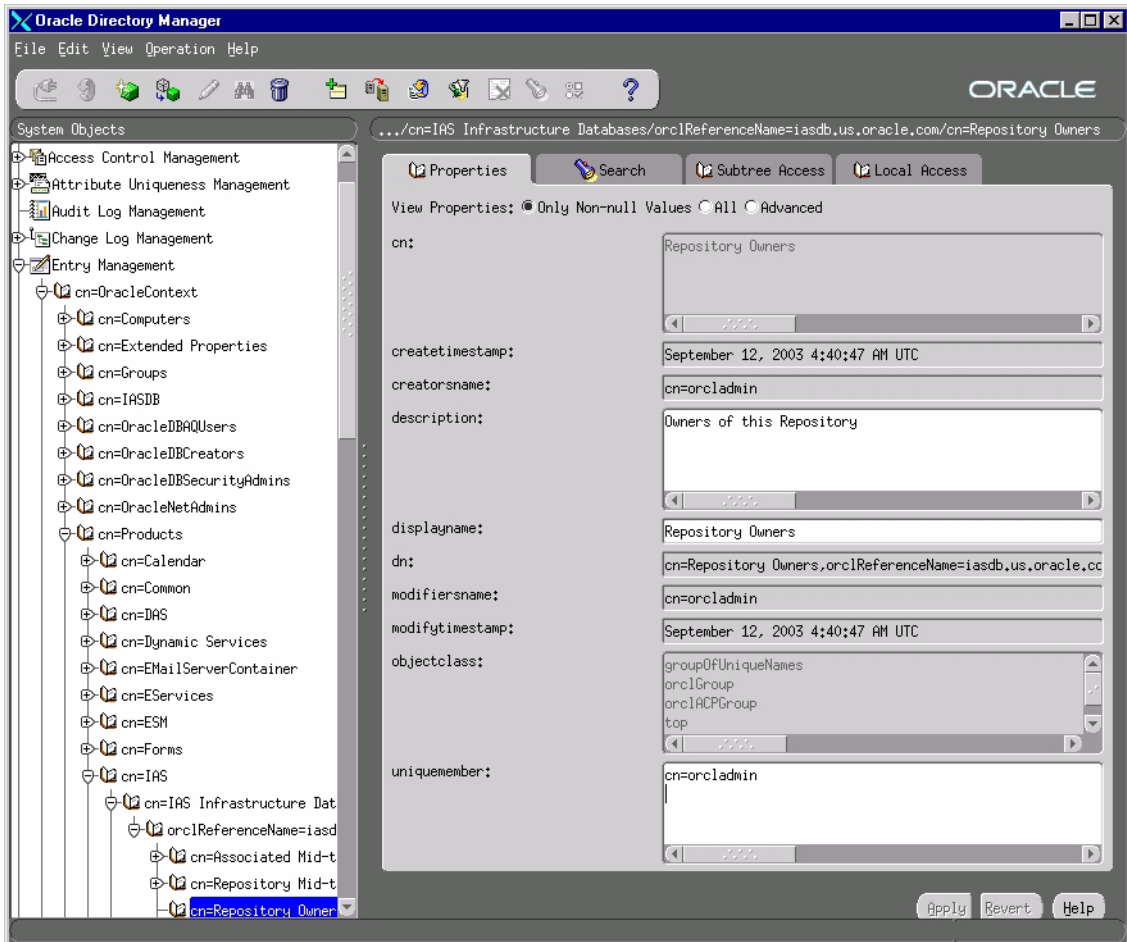


8.8.1.2 Navigating to Metadata Repository Groups

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 "Entry Management".
4. Expand "cn=OracleContext".
5. Expand "cn=Products".
6. Expand "cn=IAS".
7. Expand "cn=IAS Infrastructure Databases".
8. Expand "orclReferenceName=*dbName*", where *dbName* is the name of the metadata repository database.
9. 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

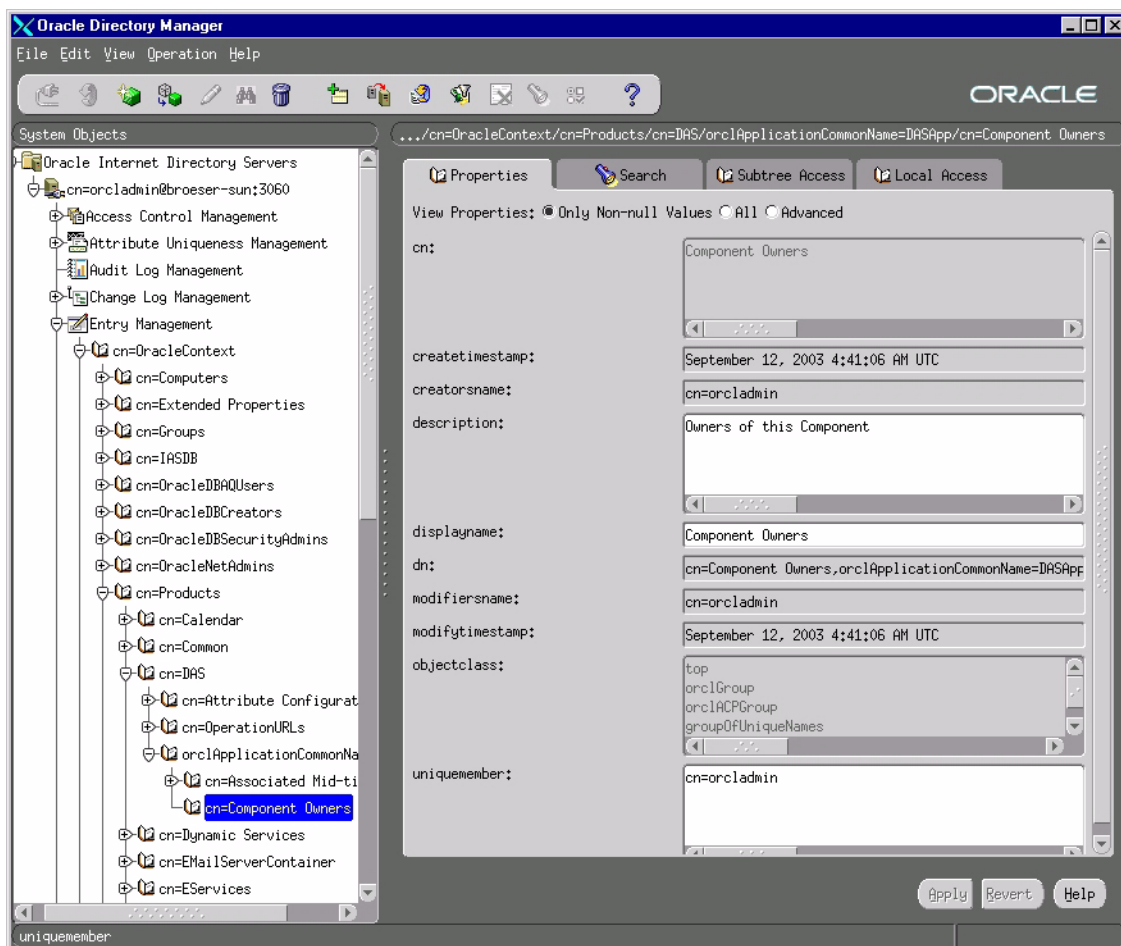
The component groups are listed in [Table 8–3](#).

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 "Entry Management".
4. Expand "cn=OracleContext".
5. Expand "cn=Products".
6. Expand the particular component (for example, "cn=DAS" or "cn=Forms") whose groups you want to add users to.
7. 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.
8. 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 (DAS) 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	To add the user to the Mid-Tier Administrators group	To add the user to the Component Owners group
<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 10g with Oracle Internet Directory, OracleAS Metadata Repository, and Oracle Delegated Administration Services, the Oracle Internet Directory contains the following objects (Figure 8-6):

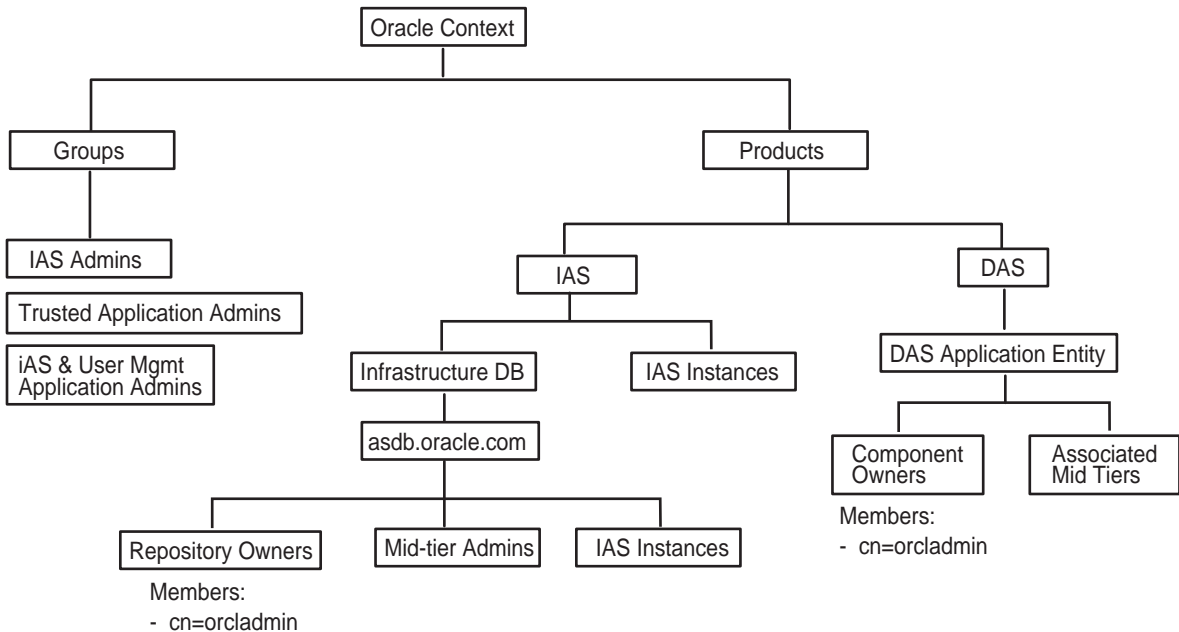
- "Global" groups as listed in Table 8-1
- The `cn=orcladmin` superuser
- The `orcladmin` user belonging to the default realm
- An entry for the metadata repository registered with the Oracle Internet Directory. This metadata repository is associated with the groups listed in

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 10g 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`.

On the Specify Login for Oracle Internet Directory Screen, What Username and Realm Do I Enter?

Installing in High Availability Environments

This chapter describes how to install OracleAS Infrastructure 10g in the following high availability environments:

- [Section 9.2, "OracleAS Cold Failover Cluster"](#)
- [Section 9.3, "OracleAS Active Failover Cluster"](#)
- [Section 9.4, "OracleAS Disaster Recovery"](#)

[Section 9.1, "Requirements for High Availability Environments"](#) describes requirements applicable for these high availability environments.

9.1 Requirements for High Availability Environments

This section describes the requirements that you have to meet before you can install Oracle Application Server in an OracleAS Active Failover Cluster or OracleAS Cold Failover Cluster environment. In addition to these common requirements, each environment has its own specific requirements. See the individual sections for details.

Note: You still need to meet the requirements listed in [Chapter 4, "Requirements"](#), plus requirements specific to the high availability environment that you plan to use.

The common requirements are:

- [Section 9.1.1, "Check Minimum Number of Nodes"](#)
- [Section 9.1.2, "Check That Clusterware Is Running"](#)
- [Section 9.1.3, "Check That Groups Are Defined Identically on All Nodes"](#)

- [Section 9.1.4, "Check the Properties of the oracle User"](#)
- [Section 9.1.5, "Check for Previous Oracle Installations on All Nodes"](#)

9.1.1 Check Minimum Number of Nodes

You need at least two nodes in a high availability environment. If a node fails for any reason, the second node takes over.

9.1.2 Check That Clusterware Is Running

Each node in a cluster must be running a certified clusterware. The following clusterware is certified:

Platform	OracleAS Cold Failover Cluster	OracleAS Active Failover Cluster
HP-UX	HP Serviceguard	HP Serviceguard Extension for RAC (formerly called Serviceguard OPS Edition)
Linux	Red Hat Cluster Manager	Oracle Cluster Management Software. See Appendix J for more information about Oracle Cluster Management Software.

For the most up-to-date list of certified clusterware, check the OracleAS clusterware certification page of *OracleMetaLink* (<http://metalink.oracle.com>).

9.1.2.1 Checking HP Serviceguard on HP-UX

Enter the following command as `root` to make sure that HP Serviceguard is running:

```
# /usr/sbin/cmviewcl
```

The output of this command should list the cluster and indicate that the cluster has the status `up`. It should also list each node of the cluster. The following example shows the status of a two node cluster:

```
CLUSTER      STATUS
ias_Cluster  up

      NODE      STATUS      STATE      GMS_STATE
```

oappsvr1	up	running	halted
oappsvr2	up	running	halted

9.1.2.2 Checking Red Hat Cluster Manager on Linux

Enter the following command to make sure that Red Hat Cluster Manager is running:

On Red Hat 2.1:

```
$ /sbin/service cluster status
```

On Red Hat 3.0:

```
$ /sbin/service clumanager status
```

The output of this command should indicate that all processes are running.

9.1.2.3 Checking Oracle Cluster Management Software on Linux

Enter the following commands to make sure that Oracle Cluster Management Software is running:

```
$ ps -ef | grep oracm
$ ps -ef | grep oranm
$ ps -ef | grep watchdogd
```

The output of these commands should indicate that at least one instance of each of the `oracm`, `oranm` and `watchdogd` processes exists.

9.1.3 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 Oracle Installer Inventory 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 4.5, "Operating System Groups"](#) for details.

9.1.4 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 Oracle Installer Inventory directory, and the `osdba` group is a database administration group. See [Section 4.5, "Operating System Groups"](#) for details.
- Has write privileges on remote directories.
- If the `TMP` or `TMPDIR` environment variables are set for the `oracle` user, check that these directories exist and that they contain sufficient free disk space for temporary files. Check this condition on each node of the cluster.

9.1.5 Check for Previous Oracle Installations on All Nodes

Details of all Oracle software installations are recorded in the Oracle Installer Inventory directory. Typically, this directory is unique to a node and named `oraInventory`. The directory path is stored in the `oraInst.loc` file and this file is stored in the `/etc` directory on Linux and in the `/var/opt/oracle` directory on HP-UX. The existence of this file on a node confirms that the node contains some Oracle software installation. Since the OracleAS Infrastructure 10g high availability environments require installations on multiple nodes with Oracle Installer Inventory directories on a file system that may not be accessible on other nodes, the installation instructions in this chapter assume that there have not been any previous installations of any Oracle software on any of the nodes that are used for this high availability environment. The `oraInst.loc` file and the Oracle Installer Inventory directory should not exist on any of these nodes prior to these high availability installations.

Note: On Linux you must install Oracle Cluster Management Software before installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster environment. That installation creates a new `oraInst.loc` file. Do not rename the `oraInst.loc` file as described in this section if you are installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster environment on Linux.

If a `oraInst.loc` file and a Oracle Installer Inventory directory exist, rename the file and directory.

For example enter the following commands as root on Linux:

```
# cat /etc/oraInst.loc
inventory_loc=/localfs/app/oracle/oraInventory
inst_group=dba
```

```
# mv /etc/oraInst.loc /etc/oraInst.loc.orig
# mv /localfs/app/oracle/oraInventory /localfs/app/oracle/oraInventory.orig
```

Since the `oraInst.loc` file and the Oracle Installer Inventory directories are relevant only during the installation of Oracle software, and not at runtime, renaming them and restoring them later does not affect the behavior of any installed Oracle software on any node. Make sure that the appropriate `oraInst.loc` file and Oracle Installer Inventory directories are in place before starting the Oracle Universal Installer.

9.2 OracleAS Cold Failover Cluster

An OracleAS Cold Failover Cluster environment (Figure 9–1) consists of:

- two nodes running clusterware (such as HP Serviceguard or Red Hat Cluster Manager)
- storage device that can be accessed by both nodes. You install OracleAS Infrastructure 10g on the shared storage device.

During normal operation, node 1, which is the primary node, is the active node. It mounts the shared storage to access the OracleAS Infrastructure 10g files, runs OracleAS Infrastructure 10g processes, and handles all requests.

If node 1 goes down for any reason, the clusterware fails over the OracleAS Infrastructure 10g processes on node 1 to node 2. Node 2 becomes the active node, mounts the shared storage, runs the processes, and handles all requests.

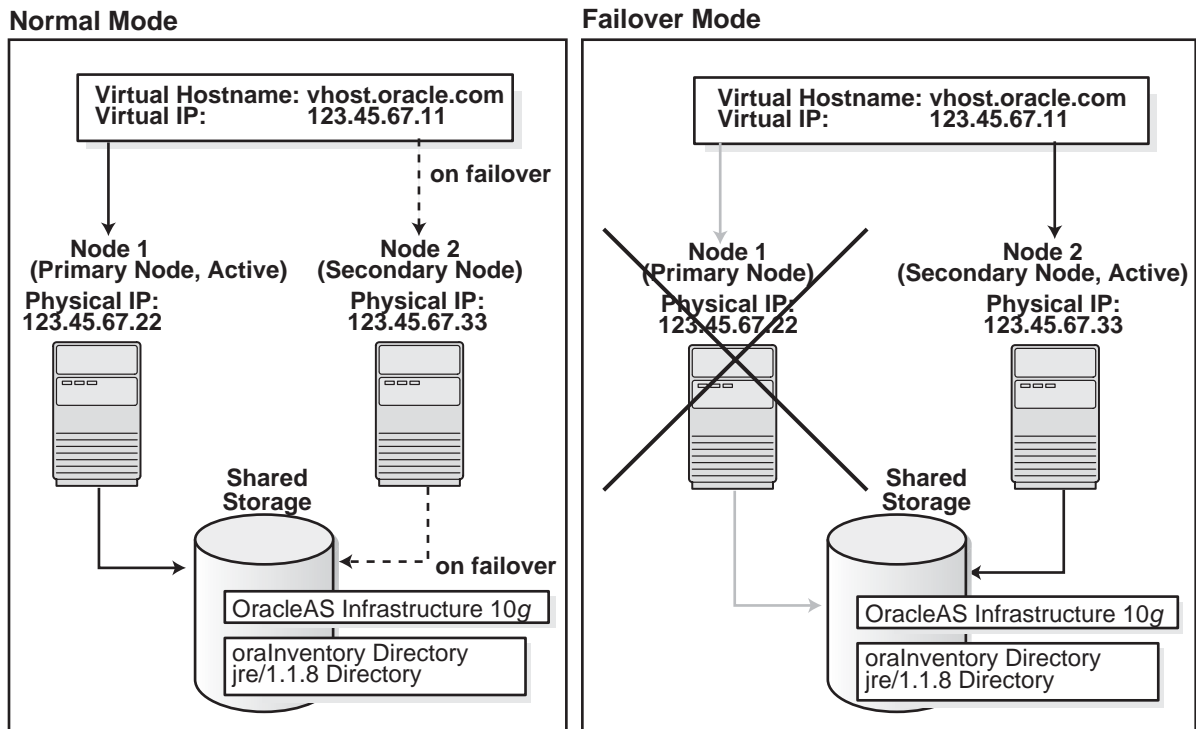
To access the active node in an OracleAS Cold Failover Cluster, clients, including middle tier components and applications, use the virtual hostname associated with the OracleAS Cold Failover Cluster. The virtual hostname is associated with the active node (node 1 during normal operation, node 2 if node 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	<code>http://vhost.mydomain.com:7777</code>
Oracle HTTP Server, secure mode	<code>https://vhost.mydomain.com:4443</code>

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

Figure 9–1 OracleAS Cold Failover Cluster Environment



The rest of this section describes these procedures:

- [Section 9.2.1, "Setting up an OracleAS Cold Failover Cluster Environment"](#)
- [Section 9.2.2, "Installing OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster"](#)
- [Section 9.2.3, "Performing Post-Installation Steps for OracleAS Cold Failover Cluster"](#)
- [Section 9.2.4, "Installing Middle Tiers Against an OracleAS Cold Failover Cluster Infrastructure"](#)

9.2.1 Setting up an OracleAS Cold Failover Cluster Environment

Before you can install OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster, perform these procedures:

- [Section 9.2.1.1, "Map the Virtual Hostname and Virtual IP Address"](#)
- [Section 9.2.1.2, "Set Up a File System That Can Be Mounted from Both Nodes"](#)

Also, ensure that you meet the requirements described in [Section 9.1, "Requirements for High Availability Environments"](#).

9.2.1.1 Map the Virtual Hostname and Virtual IP Address

Each node in an OracleAS Cold Failover Cluster environment is associated with its own physical hostname and IP address. In addition, the active node in the cluster is associated with a virtual hostname and IP address. This allows clients to access the OracleAS Cold Failover Cluster using a hostname and IP address that can float between any node of the cluster.

Virtual hostnames and virtual IP addresses are any valid hostname and IP address in the context of the subnet containing the hardware cluster.

Note: You 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 fail over, 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 node with virtual hostname `vhost.mydomain.com` with virtual IP address `138.1.12.191`.

Note: Before attempting to complete this procedure, ask the system or network administrator to review all the steps required. The procedure will reconfigure the network settings on the cluster nodes and may vary with differing network implementations.

1. Register the virtual hostname and IP address with DNS for the network.

For example, register the `vhost.mydomain.com/138.1.12.191` pair with DNS.

2. Add the following line to the `/etc/hosts` file on the active node:

```
ip_address hostname.domain hostname
```

For example:

```
138.1.12.191 vhost.mydomain.com vhost
```

3. Determine the primary public network interface.

The primary public network interface for Ethernet encapsulation is typically `lan0` on HP-UX and `eth0` on Linux. Use the following commands to determine the primary public network interface:

- On HP-UX, enter the following command and search for a network interface that has an `Address` value of the physical hostname of the node:

```
/usr/bin/netstat -i
```

- On Linux, enter the following command and search for a network interface that has an `inet addr` value of the physical IP address of the node:

```
/sbin/ifconfig
```

4. Find an available index number for the primary public network interface.

Using the same commands as described in step 3, determine an available index number for an additional IP address to the primary public network interface.

For example, on HP-UX, if the following is the output of the `/usr/bin/netstat -i` command on a HP-UX system and `lan0` was determined to be the primary public interface in step 3, then `lan0:2` is available for an additional IP address.

Name	Mtu	Network	Address	Ipkts	Opkts
lan0:1	1500	datacenter1	www1.mydomain.com	1050265	734793
lan1*	1500	none	none	0	0
lan0	1500	datacenter1	www2.mydomain.com	39783928	41833023
lo0	4136	loopback	localhost	1226188	1226196

Do not use 0 as the index number because `interface:0` is typically the same as just `interface` on most systems. For example, `lan0:0` is the same as `lan0` on HP-UX.

5. Add the virtual IP address to the primary public network interface by running the appropriate command below as the root user:

Note: You must use the same NETMASK and BROADCAST values for this interface as those used for the primary public network interface (lan0 and eth0 in the examples). Modify the `ifconfig` commands in this step to include the appropriate `netmask` and `broadcast` options.

- On HP-UX enter the following command using the available index number from step 4:

```
/usr/sbin/ifconfig primary_public_interface:available_index ip_address
```

For example, enter the following command if `lan0:2` is available:

```
/usr/sbin/ifconfig lan0:2 138.1.12.191
```

- On Linux enter the following command using the available index number from step 4:

```
/sbin/ifconfig primary_public_interface:available_index ip_address
```

For example, enter the following command if `eth0:1` is available:

```
/sbin/ifconfig eth0:1 138.1.12.191
```

6. Check that the virtual IP address is configured correctly.

Using the same commands as listed in step 3, confirm the new entry for the `primary_public_interface:available_index` entry created in step 5. Additionally, try to connect to the node using the virtual hostname and virtual IP address from another node. For example, entering both of the following commands from a different node should provide a login window to the node you configured in this procedure:

```
telnet hostname.domain  
telnet ip_address
```

For example, enter:

```
telnet vhost.mydomain.com  
telnet 138.1.12.191
```

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If the active node fails, then the secondary node takes over. You must remove the virtual IP mapping from the failed node and map it to the secondary node.

Note: If the failed node is offline or rebooted, the first step is not required because the failed node will not be configured with the virtual hostname or IP address.

1. On the failed node, remove the virtual IP address.

- On HP-UX enter the following command:

```
/usr/sbin/ifconfig configured_interface down
```

For example, enter the following command if `lan0:2` is configured with the virtual IP address:

```
/usr/sbin/ifconfig lan0:2 down
```

- On Linux enter the following command:

```
/sbin/ifconfig configured_interface down
```

For example, enter the following command if `eth0:1` is configured with the virtual IP address:

```
/sbin/ifconfig eth0:1 down
```

Note: Use the commands in step 3 of the previous procedure to confirm that the virtual IP address has been removed.

2. On the secondary node, add the virtual IP address.

On the secondary node, follow steps 2 to 6 of the previous procedure to add and confirm the virtual IP address on the secondary node.

9.2.1.2 Set Up a File System That Can Be Mounted from Both Nodes

Although the hardware cluster has shared storage, you need to create a file system on this shared storage such that both nodes of the OracleAS Cold Failover Cluster can mount this file system. On this file system, you place the following directories:

- OracleAS Infrastructure 10g
- The oraInventory directory and the jre/1.1.8 directory. The installer automatically installs the jre directory at the same level as the oraInventory directory.

For example, if you specify `/mnt/app/oracle/oraInventory` as the oraInventory directory, the installer installs the jre directory as `/mnt/app/oracle/jre`. The installer installs the 1.1.8 directory within the jre directory.

For disk space requirements for OracleAS Infrastructure 10g, see [Section 4.1, "Check Hardware 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 in case of a crash.

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 reboot 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.

9.2.2 Installing OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster

For the OracleAS Cold Failover Cluster solution, you must install both the OracleAS Metadata Repository and the Identity Management components on the same computer at the same time by selecting the **Identity Management and OracleAS Metadata Repository** option in the Select Installation Type screen. This option creates a new database for the OracleAS Metadata Repository and a new Oracle Internet Directory.

Note: For the OracleAS Cold Failover Cluster solution, you must install a new database (for the OracleAS Metadata Repository) and Oracle Internet Directory. You cannot use an existing database or Oracle Internet Directory for OracleAS Cold Failover Cluster solutions.

Follow this procedure to install OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster environment:

Table 9–1 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster

Screen	Action
1. --	Start up the installer. See Section 5.15, "Starting the Oracle Universal Installer" for details.
2. Welcome	Click Next .
3. Specify Inventory Directory	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>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.</p> <p>Note: You must enter a directory in the file system that can be mounted from either node in the OracleAS Cold Failover Cluster environment.</p> <p>Example: <code>/mnt/app/oracle/oraInventory</code></p> <p>Click OK.</p>

Table 9–1 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster

Screen	Action
4. UNIX Group Name	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Enter the name of the operating system group to have permission to update Oracle software installations on this system.</p> <p>Example: oinstall</p> <p>Click Next.</p>
5. Run <code>oraInstRoot.sh</code>	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Run the <code>oraInstRoot.sh</code> script in a different shell as the root user. The script is located in the Oracle Installer Inventory directory specified in the Specify Inventory Directory screen.</p> <p>Click Continue.</p>
6. Specify File Locations	<p>Destination Name: Enter a name to identify this Oracle home.</p> <p>Example: oracleas</p> <p>Destination Path: Enter the full path to the destination directory. This is the Oracle home.</p> <p>Notes:</p> <ul style="list-style-type: none"> ■ You must enter a directory in the file system that can be mounted from either node in the OracleAS Cold Failover Cluster environment. ■ 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. <p>Example: <code>/mnt/app/oracle/OraInfra_904</code></p> <p>Click Next.</p>
7. Specify Hardware Cluster Installation Mode	<p>Select Single Node or Cold Failover Cluster Installation. Click Next.</p> <p>If you do not see this screen, the installer was not able to determine that the current node is running a clusterware (see Section 9.1.2, "Check That Clusterware Is Running"). However, you can continue the installation. You just need to select High Availability Addressing in the Select Configuration Options screen in step 12. Also, ensure that your clusterware is running.</p> <p>Note: On Linux, Single Node or Cold Failover Cluster Installation is the only option available on this screen if a certified clusterware for an OracleAS Cold Failover Cluster environment is detected.</p>

Table 9–1 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster

Screen	Action
8. Select a Product to Install	Select OracleAS Infrastructure 10g 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 .
9. Select Installation Type	Select Identity Management and OracleAS Metadata Repository . Click Next .
10. Preview of Steps for Infrastructure Installation	This screen lists the screens that the installer will display. Click Next .
11. Confirm Pre-Installation Requirements	Verify that you meet all the listed requirements. Click Next .
12. Select Configuration Options	Select all the components except for OracleAS Certificate Authority. Check that High Availability Addressing is selected. If the installer displayed the Specify Hardware Cluster Installation Mode screen earlier, this option is greyed out and selected by default. If the installer did not display the Specify Hardware Cluster Installation Mode screen, the High Availability Addressing option will not be greyed out. You must select this option. 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 is valid and meets your deployment needs. If not, enter the desired value in Custom Namespace . See Section 6.15, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?" . Click Next .
14. Specify High Availability Addressing	Note: This is a critical screen when installing the Infrastructure in an OracleAS Cold Failover Cluster. If you do not see this screen, return to the Select Configuration Options screen and ensure that you selected High Availability Addressing . Enter the virtual hostname for the OracleAS Cold Failover Cluster environment. Example: <code>vhost.mydomain.com</code> Click Next .

Table 9–1 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster

Screen	Action
15. Specify Privileged Operating System Groups	<p>This screen appears if you are running the installer as a user who is not in the OSDBA or the OSOPER operating system groups.</p> <p>Database Administrator (OSDBA) Group: Example: dbadmin</p> <p>Database Operator (OSOPER) Group: Example: dbadmin</p> <p>Click Next.</p>
16. Database Identification	<p>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</p> <p>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 cannot be longer than eight characters. Example: asdb</p> <p>Click Next.</p>
17. Set SYS and SYSTEM Passwords	Set the passwords for these database users. Click Next .
18. Database File Location	<p>Enter or select a directory for database files: Enter a directory where you want the installer to create data files for the OracleAS Metadata Repository database.</p> <p>Note: You must enter a directory in the file system that can be mounted from either node in the OracleAS Cold Failover Cluster environment.</p> <p>Click Next.</p>
19. Database Character Set	Select Use the default character set . Click Next .

Table 9–1 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster

Screen	Action
20. Specify Instance Name and <code>ias_admin</code> Password	<p>Instance Name: Enter a name for this infrastructure instance. Instance names can contain the \$, and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: <code>infra_904</code></p> <p>ias_admin Password and Confirm Password: Enter and confirm the password for the <code>ias_admin</code> user. This is the administrative user for this infrastructure instance.</p> <p>See Section 5.8, "The <code>ias_admin</code> User and Restrictions on its Password" for password requirements.</p> <p>Example: <code>welcome99</code></p> <p>Click Next.</p>
21. Choose JDK Home Directory (HP-UX only)	<p>Enter JDK Home: Enter the full path to the HP Java 2 SDK 1.4.1.05 (or higher) for PA-RISC installation.</p> <p>Click Next.</p>
22. Summary	<p>Verify your selections. Pay attention to any items listed in red. This indicates an issue that will cause the installation to fail. In particular, check all items within Space Requirements to confirm that sufficient disk is available for the installation.</p> <p>Click Install.</p>
23. Install Progress	<p>This screen shows the progress of the installation.</p>
24. Run <code>root.sh</code>	<p>Note: Do not run the <code>root.sh</code> script until prompted.</p> <p>When prompted, run the <code>root.sh</code> script in a different shell as the root user. The script is located in this instance's Oracle home directory.</p> <p>Click OK after you have run the script on all nodes.</p>
25. Configuration Assistants	<p>This screen shows the progress of the configuration assistants. Configuration assistants configure components.</p>
26. End of Installation	<p>Click Finish to quit the installer.</p>

9.2.3 Performing Post-Installation Steps for OracleAS Cold Failover Cluster

Perform the following step after installing OracleAS Cold Failover Cluster:

- [Section 9.2.3.1, "Edit the oraInst.loc and oratab Files on the Second Node"](#)
- [Section 9.2.3.2, "Create a Clusterware Agent for Automatic Failover"](#)

9.2.3.1 Edit the oraInst.loc and oratab Files on the Second Node

After the OracleAS Infrastructure 10g installation is complete, edit the `oraInst.loc` and `oratab` files on the second node. The following table shows the location of the `oraInst.loc` and `oratab` files for HP-UX and Linux:

File	Location on HP-UX	Location on Linux
<code>oraInst.loc</code>	<code>/var/opt/oracle</code>	<code>/etc</code>
<code>oratab</code>	<code>/etc</code>	<code>/etc</code>

Edit the `oratab` file on the second node as follows:

1. Create or edit a `/etc/oratab` file.
2. Copy the `oratab` entries from the installation node for the Metadata Repository, created during the OracleAS Cold Failover Cluster installation.

For example, copy the following entries from the `oratab` file on the installation node to the `oratab` file on the second node where

`/mnt/app/oracle/OraInfra_904` is the Oracle Home directory:

```
*:/mnt/app/oracle/OraInfra_904:N
asdb:/mnt/app/oracle/OraInfra_904:N
```

Create the `oraInst.loc` file on the second node by copying the `oraInst.loc` file from the installation node to the second node. The `oraInst.loc` file is not used during runtime by Oracle Application Server. It is used only by the installer.

9.2.3.2 Create a Clusterware Agent for Automatic Failover

An OracleAS Cold Failover Cluster environment provides the framework for a manual failover of the OracleAS 10g 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 heartbeat 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 10g Infrastructure processes are failed over to the secondary node.

For example, an HP Serviceguard Package and a Red Hat Cluster Manager Service could be created to achieve this automatic failover. The procedure to create these agents are not within the scope of this guide but example agents are available from the OracleAS clusterware certification page of Oracle *MetaLink* (<http://metalink.oracle.com>).

9.2.4 Installing Middle Tiers Against an OracleAS Cold Failover Cluster Infrastructure

For middle tiers to work with an OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster, you can install the middle tiers on computers outside the cluster, or on nodes within the cluster.

If you choose to install middle tiers on OracleAS Cold Failover Cluster nodes, either on the local storage or shared storage, note that the middle tiers will not be able to take advantage of any cluster benefits. If the active node fails, the middle tiers will not fail over to the other node. Middle tiers have their own high availability solutions: see the *Oracle Application Server 10g High Availability Guide* for details.

Note: Oracle recommends that you **do not** install middle tiers on the same shared disk where you installed the OracleAS Infrastructure 10g. The reason is that when this shared disk fails over to the secondary node, the middle tier becomes inaccessible.

The best solution is to install and run middle tiers on nodes outside the OracleAS Cold Failover Cluster.

But if you want to run a middle tier on either the primary or secondary node, install it on a local disk or on a disk other than the one where you installed the OracleAS Infrastructure 10g.

9.2.4.1 If You Plan to Install Middle Tiers on OracleAS Cold Failover Cluster Nodes

If you plan to install a middle tier on an OracleAS Cold Failover Cluster node (primary or secondary), perform these tasks before installing the middle tier:

- [Section 9.2.4.1.1, "Create a staticports.ini File for the Middle Tier"](#)
- [Section 9.2.4.1.2, "Create an Alternative oraInst.loc File"](#)

9.2.4.1.1 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 4.4.2, "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.

9.2.4.1.2 Create an Alternative oraInst.loc File Set up the environment so that the middle tier will have its own Oracle Installer Inventory directory, instead of using the same inventory directory used by the Infrastructure. To do this, you need to rename the `oraInst.loc` file to something else so that the installer will prompt you to enter a new inventory directory for the middle tier installation. By default the `oraInst.loc` file is stored in the `/etc` directory on Linux and the `/var/opt/oracle` directory on HP-UX. The following example on Linux renames this file to `oraInst.loc.infra`.

```
prompt> su
Password: root_password
# cd /etc
# mv oraInst.loc oraInst.loc.infra
```

Note: On HP-UX, use `cd` to change to the `/var/opt/oracle` directory before performing the `mv` command.

When the installer prompts for the inventory directory during the middle tier installation, specify a directory on the local storage or on a disk other than the one where you installed the OracleAS Infrastructure 10g.

When the middle tier installation is complete, rename the newly created `oraInst.loc` file (for example rename it to `oraInst.loc.mt`) and restore the `oraInst.loc.infra` file back to `oraInst.loc`. Make sure that the correct version of the `oraInst.loc` file is in place prior to any future Oracle installations on this node. The `oraInst.loc` file is not used during the Oracle Application Server runtime. The only time you need the file is when you run the installer, for example, to de-install an instance or to expand an instance.

9.3 OracleAS Active Failover Cluster

Note: In the initial release of Oracle Application Server 10g (9.0.4), OracleAS Active Failover Cluster is a Limited Release feature. Please check *Oracle MetaLink* (<http://metalink.oracle.com>) for the most current certification status of this feature or consult your sales representative before deploying this feature in a production environment.

You increase the availability of OracleAS Infrastructure 10g by installing and running it in an OracleAS Active Failover Cluster environment (Figure 9–2). In an OracleAS Active Failover Cluster, the OracleAS Metadata Repository runs on a Real Application Clusters database, and the Identity Management components run on the same nodes in the cluster.

To create this environment, you install the OracleAS Infrastructure 10g components—OracleAS Metadata Repository and Identity Management components—in a clustered environment.

To use OracleAS Active Failover Cluster, you need the following items:

- Hardware cluster with two or more nodes
- Storage device for each node
- Storage device shared by all nodes
- Load balancer, to direct HTTP, HTTPS, and LDAP requests from Oracle Application Server middle tiers to the nodes in the cluster

To Learn More About Real Application Clusters

For complete information about Real Application Clusters, see the following books in the database documentation library.

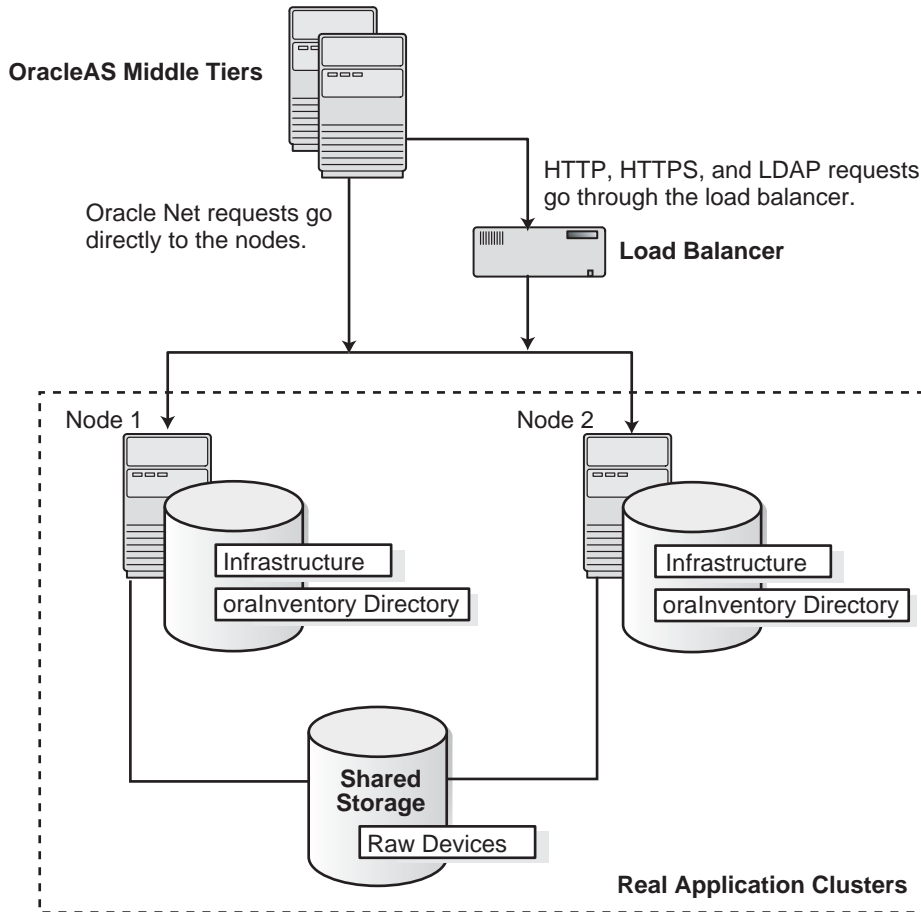
- *Oracle9i Real Application Clusters Concepts*
- *Oracle9i Real Application Clusters Installation and Configuration*
- *Oracle9i Real Application Clusters Administration*
- *Oracle9i Real Application Clusters Deployment and Performance*

You can view these books on the Oracle Technology Network web site (<http://otn.oracle.com>).

For the Latest News

There are some known issues related to OracleAS Active Failover Cluster. These issues are documented in the *Oracle Application Server 10g Release Notes*.

Figure 9–2 OracleAS Active Failover Cluster Environment



Components You Need to Install

You need to install OracleAS Infrastructure 10g components on the clustered nodes. This means that you cannot use an existing database, or an existing Oracle Internet Directory. You need to have the installer create a new database and Oracle Internet Directory for you.

On the Select Installation Type screen, you need to select **Identity Management and OracleAS Metadata Repository**.

Adding Nodes After Installation

After you install OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster, you cannot install it on additional nodes after the initial installation. You must select all the nodes in the cluster where you want to install OracleAS Infrastructure 10g during the initial installation.

Where the Installer Writes Files

You run the installer on any node in the OracleAS Active Failover Cluster where you want to install OracleAS Infrastructure 10g. The installer detects that the node is part of a cluster, and it displays a screen listing all the nodes in the cluster. On this screen, you select the nodes where you want to install OracleAS Infrastructure 10g. The node where you are running the installer is always selected.

The installer writes files on the local storage devices of the selected nodes and also on the shared storage device, as shown in [Table 9-2](#):

Table 9-2 *Where the Installer Writes Files in an OracleAS Active Failover Cluster*

File or Directory	Location
ORACLE_HOME directory	The installer writes the Oracle home directory on the local storage devices of the selected nodes. The installer uses the same path name, specified in the Specify File Locations screen, for all nodes.
oraInventory directory	The installer writes the Oracle Installer Inventory directory on the local storage devices of the selected nodes. The installer uses the same path name, specified in the Specify Inventory Directory screen, for all nodes.
Files for OracleAS Metadata Repository	The installer writes the database software files for the OracleAS Metadata Repository on all the selected nodes, but for the data files, the installer invokes the Database Configuration Assistant to write the data files on raw partitions located on the shared storage device.

The rest of this section describes these procedures:

- [Section 9.3.1, "Setting Up the OracleAS Active Failover Cluster Environment"](#)
- [Section 9.3.2, "Installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster"](#)

- [Section 9.3.3, "Post-Installation Procedure"](#)
- [Section 9.3.4, "Installing Middle Tiers Against an OracleAS Active Failover Cluster Infrastructure"](#)

9.3.1 Setting Up the OracleAS Active Failover Cluster Environment

Before you install the OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster environment, perform the following procedures:

- [Section 9.3.1.1, "Set Up staticports.ini File"](#)
- [Section 9.3.1.2, "Set Up a Virtual Server Name for the Load Balancer"](#)
- [Section 9.3.1.3, "Verify the Load Balancer's Virtual Server Name Does Not Contain the Names of the Nodes in the Cluster"](#)
- [Section 9.3.1.4, "Configure the Load Balancer to Point to One Node Only"](#)
- [Section 9.3.1.5, "Create Identical Users and Groups on All Nodes in the Cluster"](#)
- [Section 9.3.1.6, "Set Up User Equivalence"](#)
- [Section 9.3.1.7, "Configure Raw Partitions for Server Management \(SRVM\)"](#)
- [Section 9.3.1.8, "\(optional\) Set the SRVM_SHARED_CONFIG Environment Variable"](#)
- [Section 9.3.1.9, "Configure Raw Partitions for the OracleAS Metadata Repository"](#)
- [Section 9.3.1.10, "Create a Text File Listing the Raw Partitions"](#)
- [Section 9.3.1.11, "Set the DBCA_RAW_CONFIG Environment Variable"](#)
- [Section 9.3.1.12, "Set the Shell Limit for Number of Open File Descriptors \(Linux, only\)"](#)
- Also, ensure that you meet the requirements described in [Section 9.1, "Requirements for High Availability Environments"](#).

9.3.1.1 Set Up staticports.ini File

Each OracleAS Infrastructure 10g component must use the same port number across all nodes in the cluster. To do this, create a `staticports.ini` file, which enables you to specify port numbers for each component. See [Section 4.4.2, "Using Custom Port Numbers \(the "Static Ports" Feature\)"](#) for details.

Note: The installer checks the availability of the ports specified in the `staticports.ini` file on the local node only. It does not check that the ports are free on the remote nodes. You must check yourself that these ports are free on all the nodes.

9.3.1.2 Set Up a Virtual Server Name for the Load Balancer

You enter the load balancer's virtual server name, and not the load balancer's physical hostname, when the installer prompts for the load balancer name. See your load balancer documentation for steps on how to set up a virtual server name.

See the next point, [Section 9.3.1.3, "Verify the Load Balancer's Virtual Server Name Does Not Contain the Names of the Nodes in the Cluster"](#), for guidelines on the virtual server name.

After the virtual server name is set up, check that the name is accessible:

```
prompt> ping load_balancer_virtual_name
```

9.3.1.3 Verify the Load Balancer's Virtual Server Name Does Not Contain the Names of the Nodes in the Cluster

When the installer copies files to different nodes in the cluster, it replaces the current hostname in the files with hostname of the target node. Ensure that the load balancer's virtual server name does not contain the names of the nodes in the cluster, or the installer might change the virtual server name of the load balancer as well.

Example: if you are installing on nodes named `rac-1` and `rac-2`, be sure that the load balancer virtual server name does not contain "rac-1" or "rac-2". When the installer is installing files to `rac-2`, it searches for the string "rac-1" in the files and replaces it with "rac-2". If the load balancer's virtual server name happens to be `LB-rac-1x`, the installer sees the string "rac-1" in the name and replaces it with "rac-2", thus mangling the virtual server name to `LB-rac-2x`.

9.3.1.4 Configure the Load Balancer to Point to One Node Only

You need to configure the load balancer so that it directs all traffic only to the node where you will be running the installer. After installation, you change the configuration back so that the load balancer directs traffic to all nodes in the cluster.

9.3.1.5 Create Identical Users and Groups on All Nodes in the Cluster

Note: This procedure is required only if you are using local users and groups. It is not required if you are using users and groups defined in a directory service, such as NIS, because the users and groups are already identical.

Create an operating system user with the same user ID on all nodes in the cluster. This is required for user equivalence to work (see [Section 9.3.1.6, "Set Up User Equivalence"](#)). When you run the installer on one node as this user, the installer needs to access the other nodes in the cluster as this user.

If you have already created the `oracle` user as described in [Section 4.6, "Operating System User"](#), determine its user ID so that when you create the `oracle` user on other nodes, you can specify the same user ID.

To determine the user ID:

```
prompt> id oracle
uid=3223(oracle) gid=8400(dba) groups=8400(dba),5000(oinstall)
```

The number after "uid" specifies the user ID, and the numbers after "groups" specify the group IDs. In this example, the `oracle` user must have ID 3223 on all nodes, and the `dba` and `oinstall` groups must have IDs 8400 and 5000 on all nodes.

See [Section 4.6, "Operating System User"](#) and [Section 4.5, "Operating System Groups"](#) for steps on how to create users and groups.

9.3.1.6 Set Up User Equivalence

The installer needs user equivalence to be set up for all the nodes in the cluster. You can set up Secure Shell (`ssh` and `scp`) or Remote Shell (`/usr/bin/rsh` on Linux, `/usr/bin/remsh` on HP-UX, and `/usr/bin/rcp` on both Linux and HP-UX) for user equivalence. Make sure that this procedure is compatible with your security policy.

To determine which user equivalence type to use, the installer checks if Secure Shell is set up. If so, it uses it. Otherwise, it uses Remote Shell.

- [Section 9.3.1.6.1, "To Set Up User Equivalence for Remote Shell"](#)
- [Section 9.3.1.6.2, "To Check if Secure Shell Is Configured"](#)

9.3.1.6.1 To Set Up User Equivalence for Remote Shell Perform the following steps:

1. On the node where you plan to run the installer, in the following files:

- `.rhosts` file in the home directory of the `oracle` user
- `.rhosts` file in the home directory of the root user (that is, `/.rhosts`)

enter a line for each node name in the cluster. Be sure to include the name of the local node itself.

For example, if the cluster has three nodes named `node1`, `node2`, and `node3`, you would populate the `.rhosts` files with the following lines:

```
node1
node2
node3
```

Tip: Instead of writing these lines in the `.rhosts` files for the `oracle` user and for the root user, you can enter the same lines in the `/etc/hosts.equiv` file.

2. Check that the user equivalence is working:

- a. Log in as the `oracle` user on the node where you plan to run the installer.
- b. As the `oracle` user, perform a remote login to each node in the cluster:

```
prompt> rlogin node2
```

If the command prompts you to enter a password, then the `oracle` user does not have identical attributes on all nodes. You need to correct this to enable the installer to copy files to the remote nodes.

Tip: If user equivalence is not working, try modifying the `.rhosts` or the `/etc/hosts.equiv` files in the following ways to get it to work:

- Specify the fully qualified hostname in the files:

```
node1.mydomain.com
node2.mydomain.com
node3.mydomain.com
```

- Specify the username after the hostname. Separate the hostname from the username with a space character:

```
node1.mydomain.com oracle
node2.mydomain.com oracle
node3.mydomain.com oracle
```

For the root user's `.rhosts` file, replace "oracle" with "root".

- You can include all these variations in the files:

```
node1 oracle
node1.mydomain.com oracle
node2 oracle
node2.mydomain.com oracle
node3 oracle
node3.mydomain.com oracle
```

For the root user's `.rhosts` file, replace "oracle" with "root".

9.3.1.6.2 To Check if Secure Shell Is Configured If you are using Secure Shell for host equivalency between the nodes of a cluster, make sure that the `ssh` and `scp` commands do not prompt for any user response, such as prompting for the password or a Yes/No response, during execution. Also, ensure that no error or warning messages are sent to `stderr` during execution. After setting up Secure Shell, you can run these commands to check:

- To check `ssh`, run these commands on each node in the cluster where `ssh_path` is `/usr/bin` on Linux and `/usr/local/bin` on HP-UX:

```
prompt> ssh_path/ssh local_hostname ls /tmp
prompt> ssh_path/ssh remote_hostname ls /tmp
```

In the example, the `ssh` command runs the "`ls /tmp`" command on the local node and remote node. Replace `local_hostname` and `remote_hostname` with the hostnames of the local and remote nodes, respectively.

- To check `scp`, run these commands on each node in the cluster where `scp_path` is `/usr/bin` on Linux and `/usr/local/bin` on HP-UX:

```
prompt> touch /tmp/tempfile
prompt> scp_path/scp /tmp/tempfile local_hostname:/tmp/tempfile2
prompt> scp_path/scp /tmp/tempfile remote_hostname:/tmp/tempfile2
```

In the example, the `touch` command creates a file in the `/tmp` directory, and the `scp` commands copy the file to another file on both the local and remote nodes. Replace `local_hostname` and `remote_hostname` with the hostnames of the local and remote nodes, respectively.

If the commands prompt for a user response or if the commands cause an error or warning message to be sent to `stderr` during installation, it means that the Secure Shell is not set up properly, and the installer resorts to using the equivalent `rsh` and `rcp` commands. You then need to perform the steps in [Section 9.3.1.6.1, "To Set Up User Equivalence for Remote Shell"](#) for the installer to succeed.

9.3.1.7 Configure Raw Partitions for Server Management (SRVM)

This step is required if this is the first installation of an Oracle database on the cluster. SRVM is a component of Real Application Clusters.

The raw partition for SRVM must have these properties:

- It must be accessible from all nodes in the cluster.
- Its size must be at least 100 MB.

The command to create raw partitions is specific to the volume manager you are using. For example, if you using VERITAS Volume Manager, the command is `vxassist`.

9.3.1.8 (optional) Set the SRVM_SHARED_CONFIG Environment Variable

If OracleAS Infrastructure 10g is the first Oracle product to be installed on the cluster, set the `SRVM_SHARED_CONFIG` environment variable to the name of the raw partition that you created for the SRVM shared configuration device.

Example (C shell)

```
% setenv SRVM_SHARED_CONFIG /dev/vx/rdisk/ias_dg/srvcfg
```

Example (Bourne or Korn shell):

```
$ SRVM_SHARED_CONFIG=/dev/vx/rdisk/ias_dg/srvcfg; export SRVM_SHARED_CONFIG
```

If you do not set this environment variable, the installer displays the Shared Configuration File Name screen, where you enter the path for the SRVM configuration device.

9.3.1.9 Configure Raw Partitions for the OracleAS Metadata Repository

In addition to the raw partition for SRVM (see [Section 9.3.1.7, "Configure Raw Partitions for Server Management \(SRVM\)"](#)), you need to configure raw partitions on the shared storage device for the OracleAS Metadata Repository database.

[Table 9–3](#) lists the required tablespaces and system objects, their minimum sizes, and the recommended name for the raw partition:

Table 9–3 Raw Partitions for the OracleAS Metadata Repository

Raw Partition for	Minimum Size	Recommended Name
SYSTEM tablespace	1024 MB	<i>dbname_raw_system_1024m</i>
Server parameter file	64 MB	<i>dbname_raw_spfile_64m</i>
USERS tablespace	256 MB	<i>dbname_raw_users_256m</i>
TEMP tablespace	128 MB	<i>dbname_raw_temp_128m</i>
UNDOTBS1 tablespace	256 MB	<i>dbname_raw_undotbs1_256m</i>
UNDOTBS2 tablespace	256 MB	<i>dbname_raw_undotbs2_256m</i>
DRSYS tablespace	64 MB	<i>dbname_raw_drsys_64m</i>
Three control files	64 MB for each file	<i>dbname_raw_controlfile1_64m</i> <i>dbname_raw_controlfile2_64m</i> <i>dbname_raw_controlfile3_64m</i>
Three redo log files for each instance	64 MB for each file	<i>dbname_raw_thread_lognumber_64m</i> <i>thread</i> specifies the thread ID of the instance. <i>number</i> specifies the log number (1, 2, or 3) of the instance.
PORTAL tablespace	128 MB	<i>dbname_raw_portal_128m</i>
PORTAL_DOC tablespace	64 MB	<i>dbname_raw_portaldoc_64m</i>
PORTAL_IDX tablespace	64 MB	<i>dbname_raw_portalidx_64m</i>
PORTAL_LOG tablespace	64 MB	<i>dbname_raw_portallog_64m</i>
DCM tablespace	256 MB	<i>dbname_raw_dcm_256m</i>

Table 9–3 (Cont.) Raw Partitions for the OracleAS Metadata Repository

Raw Partition for	Minimum Size	Recommended Name
OCATS tablespace	64 MB	<i>dbname_raw_ocats_64m</i>
DISCO_PTM5_CACHE tablespace	64 MB	<i>dbname_raw_discoptm5cache_64m</i>
DISCO_PTM5_META tablespace	64 MB	<i>dbname_raw_discoptm5meta_64m</i>
DSGATEWAY_TAB tablespace	64 MB	<i>dbname_raw_dsgatewaytab_64m</i>
WCRSYS_TS tablespace	64 MB	<i>dbname_raw_wcrsys_64m</i>
UDDISYS_TS tablespace	64 MB	<i>dbname_raw_uddisys_64m</i>
OLTS_ATTRSTORE tablespace	128 MB	<i>dbname_raw_oltsattrstore_128m</i>
OLTS_BTTRSTORE tablespace	64 MB	<i>dbname_raw_oltsbttrstore_64m</i>
OLTS_CT_STORE tablespace	256 MB	<i>dbname_raw_oltsctstore_256m</i>
OLTS_DEFAULT tablespace	128 MB	<i>dbname_raw_oltsdefault_128m</i>
OLTS_SVRMGSTORE tablespace	64 MB	<i>dbname_raw_oltssvrmgstore_64m</i>
IP_DT tablespace	128 MB	<i>dbname_raw_ipdt_128m</i>
IP_RT tablespace	128 MB	<i>dbname_raw_iprt_128m</i>
IP_LOB tablespace	128 MB	<i>dbname_raw_iplob_128m</i>
IP_IDX tablespace	128 MB	<i>dbname_raw_ipidx_128m</i>
IAS_META tablespace	256 MB	<i>dbname_raw_iasmeta1_256m</i>

9.3.1.10 Create a Text File Listing the Raw Partitions

Create a text file listing the database object and raw partition name in name-value pair format. Place the text file on the node where you plan to run the installer.

The following example shows the contents of the text file for a two-instance OracleAS Metadata Repository. If you have more than two instances, add more lines for "undotbs" and the redo log files.

```
system1=/dev/vx/rdisk/ias_dg/infra_system_1024m
spfile1=/dev/vx/rdisk/ias_dg/infra_raw_spfile_64m
users1=/dev/vx/rdisk/ias_dg/infra_raw_users_256m
temp1=/dev/vx/rdisk/ias_dg/infra_raw_temp_128m
undotbs1=/dev/vx/rdisk/ias_dg/infra_raw_undotbs1_256m
```

```
undotbs2=/dev/vx/rdisk/ias_dg/infra_raw_undotbs2_256m
.... Create additional lines for "undotbsN" if you have more than 2 instances.
drsys1=/dev/vx/rdisk/ias_dg/infra_raw_drsys_64m
control1=/dev/vx/rdisk/ias_dg/infra_raw_controlfile1_64m
control2=/dev/vx/rdisk/ias_dg/infra_raw_controlfile2_64m
control3=/dev/vx/rdisk/ias_dg/infra_raw_controlfile3_64m
redo1_1=/dev/vx/rdisk/ias_dg/infra_raw_1_log1_64m
redo1_2=/dev/vx/rdisk/ias_dg/infra_raw_1_log2_64m
redo1_3=/dev/vx/rdisk/ias_dg/infra_raw_1_log3_64m
redo2_1=/dev/vx/rdisk/ias_dg/infra_raw_2_log1_64m
redo2_2=/dev/vx/rdisk/ias_dg/infra_raw_2_log2_64m
redo2_3=/dev/vx/rdisk/ias_dg/infra_raw_2_log3_64m
.... Create additional lines for "redoN" log files if you have more
.... than 2 instances.
portall=/dev/vx/rdisk/ias_dg/infra_raw_portal_128m
portal_doc1=/dev/vx/rdisk/ias_dg/infra_raw_portaldoc_64m
portal_idx1=/dev/vx/rdisk/ias_dg/infra_raw_portalidx_64m
portal_log1=/dev/vx/rdisk/ias_dg/infra_raw_portallog_64m
dcm1=/dev/vx/rdisk/ias_dg/infra_raw_dcm_256m
ocats1=/dev/vx/rdisk/ias_dg/infra_raw_ocats_64m
disco_ptm5_cache1=/dev/vx/rdisk/ias_dg/infra_raw_discoptm5cache_64m
disco_ptm5_metal=/dev/vx/rdisk/ias_dg/infra_raw_discoptm5meta_64m
dsgateway_tab1=/dev/vx/rdisk/ias_dg/infra_raw_dsgatewaytab_64m
wcrsys_tsl1=/dev/vx/rdisk/ias_dg/infra_raw_wcrsysys_64m
uddisys_tsl1=/dev/vx/rdisk/ias_dg/infra_raw_uddisysys_64m
olts_attrstore1=/dev/vx/rdisk/ias_dg/infra_raw_oltsattrstore_128m
olts_battrstore1=/dev/vx/rdisk/ias_dg/infra_raw_oltsbattrstore_64m
olts_ct_store1=/dev/vx/rdisk/ias_dg/infra_raw_oltsctstore_256m
olts_default1=/dev/vx/rdisk/ias_dg/infra_raw_oltsdefault_128m
olts_svrngstore1=/dev/vx/rdisk/ias_dg/infra_oltssvrngstore_64m
ip_dt1=/dev/vx/rdisk/ias_dg/infra_raw_ipdt_128m
ip_rt1=/dev/vx/rdisk/ias_dg/infra_raw_iprt_128m
ip_lobl=/dev/vx/rdisk/ias_dg/infra_raw_iplob_128m
ip_idx1=/dev/vx/rdisk/ias_dg/infra_raw_ipidx_128m
ias_metal=/dev/vx/rdisk/ias_dg/infra_raw_iasmetal_256m
```

9.3.1.11 Set the DBCA_RAW_CONFIG Environment Variable

Set the DBCA_RAW_CONFIG environment variable to point to the text file. For example, if you created the file as /opt/oracle/rawdevices.txt, you can set the variable using one of these commands:

Example (C shell):

```
% setenv DBCA_RAW_CONFIG /opt/oracle/rawdevices.txt
```

Example (Bourne or Korn shell):

```
$ DBCA_RAW_CONFIG=/opt/oracle/rawdevices.txt; export DBCA_RAW_CONFIG
```

9.3.1.12 Set the Shell Limit for Number of Open File Descriptors (Linux, only)

Setting the parameter for the number of open file descriptors for an Oracle Application Server installation on Linux is described in [Section 4.3.2, "Configuring the Kernel Parameters on Linux"](#). However, installing the OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster environment requires a higher value. Oracle recommends this value to be set to 32K or higher within the shell of the user that will perform the installation. For example, enter the following commands:

```
$ ulimit -n
1024
$ ulimit -n 32768
$ ulimit -n
32768
```

The default and maximum value of this parameter for all user shells on the system is set in the `/etc/security/limits.conf` file. This file will need to be modified by the `root` user if the maximum value allowable is less than 32K. The installation user will need to log out and log in again for the change to take effect.

After completing the OracleAS Infrastructure 10g installation, this parameter can be changed back to its original value.

9.3.2 Installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster

In an OracleAS Active Failover Cluster, you install the OracleAS Metadata Repository and the Identity Management components in one installation session by selecting the "Identity Management and OracleAS Metadata Repository" option in the Select Installation Type screen. This option creates a new database for the OracleAS Metadata Repository and a new Oracle Internet Directory.

Note: In an OracleAS Active Failover Cluster, you must install a new OracleAS Metadata Repository and Oracle Internet Directory. You cannot use an existing database or Oracle Internet Directory.

Follow this procedure to install OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster:

Table 9–4 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster

Screen	Action
1. --	Start up the installer. See Section 5.15, "Starting the Oracle Universal Installer" for details.
2. Welcome	Click Next .
3. Specify Inventory Directory	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>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.</p> <p>Example: <code>/mnt/app/oracle/oraInventory</code></p> <p>Click OK.</p>
4. UNIX Group Name	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Enter the name of the operating system group to have permission to update Oracle software installations on this system.</p> <p>Example: <code>oinstall</code></p> <p>Click Next.</p>
5. Run <code>oraInstRoot.sh</code>	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Run the <code>oraInstRoot.sh</code> script in a different shell as the root user. The script is located in the installer inventory directory specified in the Specify Inventory Directory screen.</p> <p>Run the script on the node where you are running the installer. The installer will prompt you to run the script on other nodes later, in step 8.</p> <p>Click Continue after you have run the script.</p>

Table 9–4 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster

Screen	Action
6. Specify File Locations	<p>Destination Name: Enter a name to identify this Oracle home.</p> <p>Example: <code>oracleas</code></p> <p>Destination Path: Enter the full path to the destination directory. This is the Oracle home. The installer will use this path as the Oracle home for all nodes.</p> <p>Example: <code>/mnt/app/oracle/OraInfra_904</code></p> <p>Note: If you are using Oracle Cluster Management Software on Linux:</p> <ul style="list-style-type: none"> you must specify the name and the Oracle home of the Oracle Cluster Management Software installation. <p>If you are not using Oracle Cluster Management Software:</p> <ul style="list-style-type: none"> 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, which is a critical screen. <p>Click Next.</p>
7. Specify Hardware Cluster Installation Mode	<p>Note: This is a critical screen when installing the infrastructure in an OracleAS Active Failover Cluster environment. If you do not see this screen, exit the installer and check that your clusterware is installed and running (see Section 9.1.2, "Check That Clusterware Is Running").</p> <p>Select Active Failover Cluster Installation, and select the nodes where you want to install OracleAS Infrastructure 10g. You need to install OracleAS Infrastructure 10g on at least two nodes.</p> <p>Note: On Linux, this screen is titled Selected Nodes and will list the cluster nodes without any option to additionally select for an Active Failover Cluster Installation nor add/subtract nodes of the cluster. This is expected behavior due to the detection of the Oracle Cluster Management Software. Reaching this screen confirms that an Active Failover Cluster Installation has been chosen for all nodes of the Oracle Cluster Management Software cluster.</p> <p>Click Next.</p>
8. Run <code>orainstRoot.sh</code>	<p>Run the <code>orainstRoot.sh</code> script as the root user on the selected nodes. The script is located in the Oracle Installer Inventory directory, which is specified in the Specify Inventory Directory screen, on the selected nodes.</p> <p>Click Continue after you have run the script on all the selected nodes.</p>
9. Select a Product to Install	<p>Select OracleAS Infrastructure 10g to install an infrastructure.</p> <p>If you need to install additional languages, click Product Languages. See Section 5.6, "Installing Additional Languages" for details.</p> <p>Click Next.</p>

Table 9–4 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster

Screen	Action
10. Select Installation Type	Select Identity Management and OracleAS Metadata Repository . Click Next .
11. Preview of Steps for Infrastructure Installation	This screen lists the screens that the installer will display. Click Next .
12. Confirm Pre-Installation Requirements	Verify that you meet all the listed requirements. Click Next .
13. Select Configuration Options	Select all the components except for OracleAS Certificate Authority. Check that High Availability Addressing is selected. It should be greyed out and selected. Click Next .
14. 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 is valid and meets your deployment needs. If not, enter the desired value in Custom Namespace . See Section 6.15, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?" . Click Next .
15. Specify High Availability Addressing	Note: This is a critical screen when installing the infrastructure in an OracleAS Active Failover Cluster. If you do not see this screen, return to the Select Configuration Options screen and ensure that you selected High Availability Addressing . Enter the fully qualified virtual server name of the load balancer. (Do not enter the physical hostname for the load balancer.) Click Next .
16. Shared Configuration File Name	This screen appears if you did not set the SRVM_SHARED_CONFIG environment variable. See Section 9.3.1.8, "(optional) Set the SRVM_SHARED_CONFIG Environment Variable" . Shared Configuration File Name: Enter the path of the raw partition that you created for the SRVM shared configuration device: Example: <code>/dev/vx/rdisk/rac/srvm256m</code> Click Next .

Table 9–4 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster

Screen	Action
17. Database Identification	<p>Global Database Name: Enter a name for the OracleAS Metadata Repository database. Append the domain name of your computer to the database name.</p> <p>Example: <code>asdb.mydomain.com</code></p> <p>SID Prefix: 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 cannot be longer than eight characters.</p> <p>Example: <code>asdb</code></p> <p>Click Next.</p>
18. Set SYS and SYSTEM Passwords	Set the passwords for these database users. Click Next .
19. Database Character Set	Select Use the default character set . Click Next .
20. Specify Instance Name and <code>ias_admin</code> Password	<p>Instance Name: Enter a name for this infrastructure instance. Instance names can contain the \$, and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: <code>infra_904</code></p> <p>ias_admin Password and Confirm Password: Enter and confirm the password for the <code>ias_admin</code> user. This is the administrative user for this infrastructure instance.</p> <p>See Section 5.8, "The ias_admin User and Restrictions on its Password" for password requirements.</p> <p>Example: <code>welcome99</code></p> <p>Click Next.</p>
21. Choose JDK Home Directory (HP-UX only)	<p>Enter JDK Home: Enter the full path to the HP Java 2 SDK 1.4.1.05 (or higher) for PA-RISC installation.</p> <p>Click Next.</p>
22. Summary	<p>Verify your selections. Pay attention to any items listed in red. This indicates an issue that will cause the installation to fail. In particular, expand all items within Space Requirements to confirm that sufficient disk is available for the installation.</p> <p>Click Install.</p>
23. Install Progress	This screen shows the progress of the installation.

Table 9–4 Steps for Installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster

Screen	Action
24. Run <code>root.sh</code>	<p>Note: Do not run the <code>root.sh</code> script until prompted.</p> <p>When prompted, run the <code>root.sh</code> script in a different shell as the root user. The script is located in this instance's Oracle home directory.</p> <p>Note: You have to run this script on each node where you are installing OracleAS Infrastructure 10g.</p> <p>Click OK after you have run the script on all nodes.</p>
25. Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
26. End of Installation	Click Finish to quit the installer.

9.3.3 Post-Installation Procedure

Before you started the installer, you configured the load balancer so that it directed traffic to the node running the installer only. You can now reconfigure the load balancer so that it directs traffic to all nodes in the cluster.

9.3.4 Installing Middle Tiers Against an OracleAS Active Failover Cluster Infrastructure

Required pre-installation step: Configure the load balancer so that it points to only one node in the OracleAS Active Failover Cluster. The node can be any node in the cluster. After you have installed the middle tiers, you can change the load balancer back so that it points to all nodes in the cluster.

Installation: To install Oracle Application Server middle tiers against an OracleAS Infrastructure 10g running in an OracleAS Active Failover Cluster, follow the procedures as documented in [Chapter 7, "Installing Middle Tiers"](#), but with this difference:

- In the Register with Oracle Internet Directory screen, enter the load balancer's virtual server name (not the physical hostname of the load balancer) in the **Hostname** field. This is the same name that you specified in the Specify High Availability Addressing screen in the OracleAS Infrastructure 10g installation.

9.4 OracleAS Disaster Recovery

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 10g and middle tiers. As a small variation to this environment, you can set up the OracleAS Infrastructure 10g on the production site in a OracleAS Cold Failover Cluster environment. See [Section 9.4.1.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site"](#) for details.

[Figure 9–3](#) shows an example OracleAS Disaster Recovery environment. Each site has two nodes running middle tiers and a node running OracleAS Infrastructure 10g.

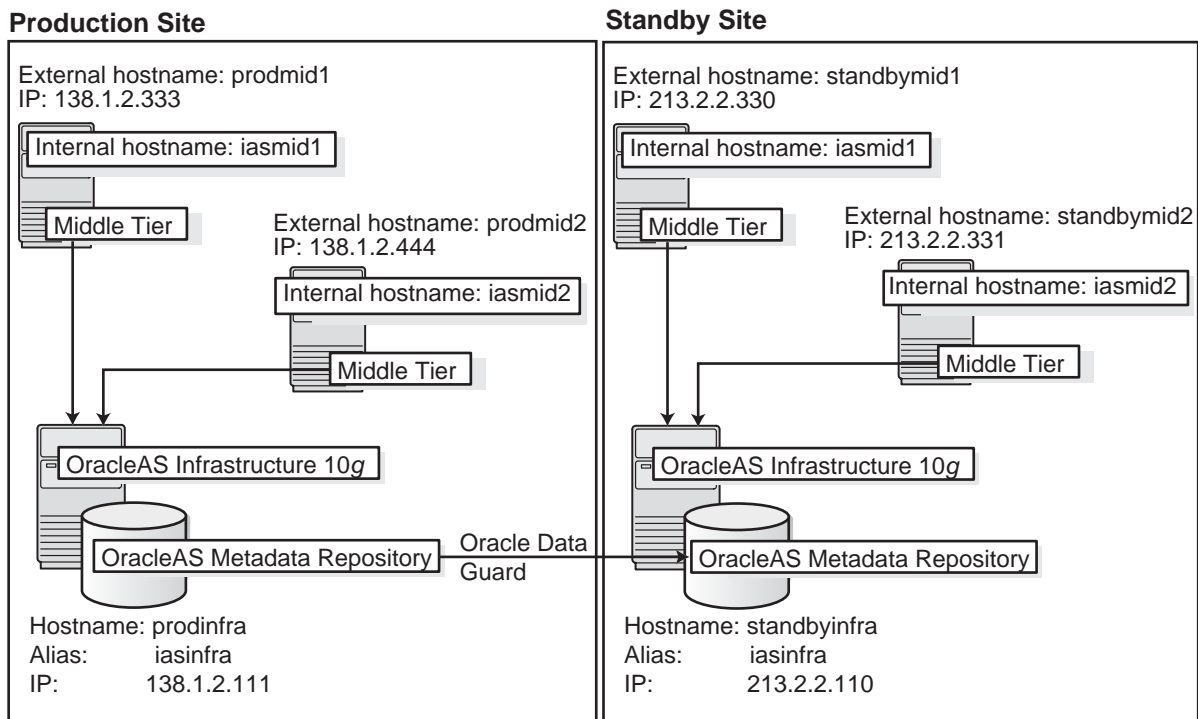
Data Synchronization

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.

There are two types of data, and 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 10g High Availability Guide* for details on how to use Oracle Data Guard and the backup and recovery scripts.

Figure 9–3 OracleAS Disaster Recovery Environment

This section contains the following subsections:

- [Section 9.4.1, "Setting Up the OracleAS Disaster Recovery Environment"](#)
- [Section 9.4.2, "Installing Oracle Application Server in an OracleAS Disaster Recovery Environment"](#)
- [Section 9.4.3, "What to Read Next"](#)

9.4.1 Setting Up the OracleAS Disaster Recovery Environment

Before you can install Oracle Application Server on the nodes in an OracleAS Disaster Recovery environment, you have to perform these steps:

- [Section 9.4.1.1, "Ensure Nodes Are Identical at the Operating System Level"](#)
- [Section 9.4.1.2, "Set Up staticports.ini File"](#)

- [Section 9.4.1.3, "Set Up Identical Hostnames on Both Production and Standby Sites"](#)
- [Section 9.4.1.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site"](#)

9.4.1.1 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.

9.4.1.2 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 4.4.2, "Using Custom Port Numbers \(the "Static Ports" Feature\)"](#) for details.

9.4.1.3 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.

9.4.1.3.1 For the Infrastructure Node 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 `/etc/hosts` sets the alias to `iasinfra`:

```
138.1.2.111 prodinfra iasinfra
```

On the standby site, the following line sets the node's alias to `iasinfra`.

```
213.2.2.110 standbyinfra iasinfra
```

When you install OracleAS Infrastructure 10g on the production and standby sites, you specify this alias (`iasinfra`) in the Specify High Availability Addressing

screen. The configuration data will then contain this alias for the infrastructure nodes.

9.4.1.3.2 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 High Availability Addressing 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.

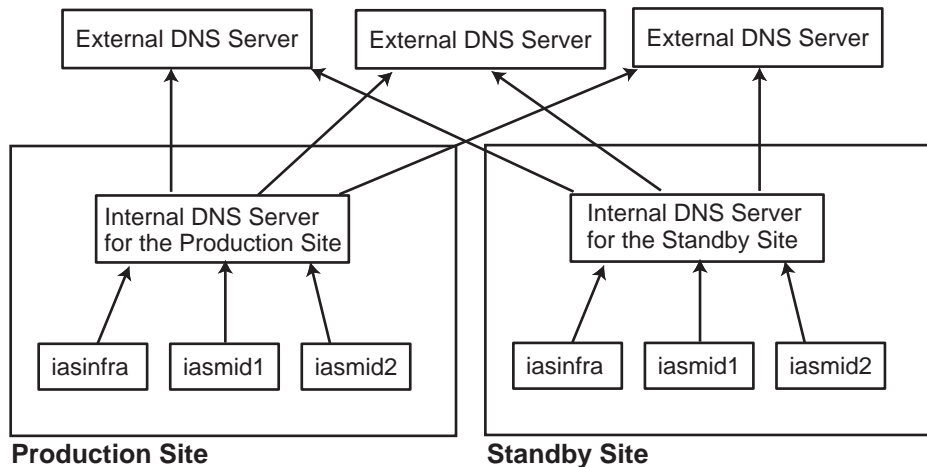
1. Change the local hostname to the hostname of the respective node on the production site. The string returned by the `hostname` command should return this new local hostname.

Note: The procedure to change the hostname of a system differs between different operating systems. Contact the system administrator of your system to perform this step. Note also that changing the hostname of a system will affect installed software that has a dependency on the previous hostname. Consider the impact of this before changing the hostname.

2. Enable the other nodes in the OracleAS Disaster Recovery environment to be able to resolve the node using the new local hostname. You can do this in one of two ways:
 - **Method 1:** Set up separate internal DNS servers for the production and standby sites. This configuration allows nodes on each site (production or standby) to resolve hostnames within the site. 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 9-4](#).

To use this method, go to step 3.

Figure 9–4 Method 1: Using DNS Servers



- 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 `/etc/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 reboot the nodes.

To use this method, go to step 4.

3. If you are using the separate internal DNS server method (method 1), set up your DNS files as follows:
 - 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 local hostname set up in step 1.

The following example uses "iasha" as the domain name for the new zone.

```
iasmid1.iasha    IN  A  138.1.2.333
iasmid2.iasha    IN  A  138.1.2.444
iasinfra.iasha   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.

```
iasmid1.iasha    IN  A  213.2.2.330
iasmid1.iasha    IN  A  213.2.2.331
iasinfra.iasha   IN  A  213.2.2.110
```

- c. Configure the DNS resolver to point to the internal DNS servers instead of the external DNS server.

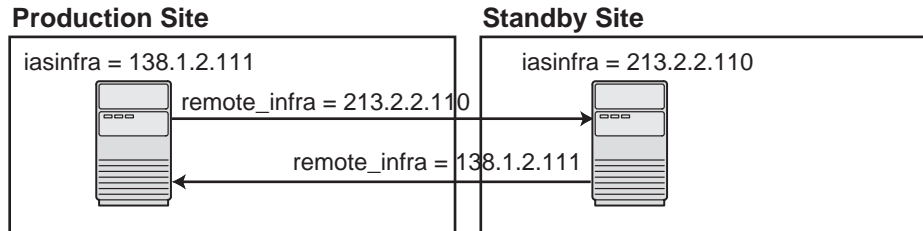
In the `/etc/resolv.conf` file for each node on the production site, replace the existing name server IP address with the IP address of the internal DNS server for the production site.

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 example below, 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 9–5 Entry for Oracle Data Guard in the Internal DNS Servers



On the production site, the DNS entries look like this:

```
iasmid1.iasha      IN  A  138.1.2.333
iasmid2.iasha      IN  A  138.1.2.444
iasinfra.iasha     IN  A  138.1.2.111
remote_infra.iasha IN  A  213.2.2.110
```

On the standby site, the DNS entries look like this:

```
iasmid1.iasha      IN  A  213.2.2.330
iasmid2.iasha      IN  A  213.2.2.331
iasinfra.iasha     IN  A  213.2.2.110
remote_infra.iasha IN  A  138.1.2.111
```

4. If you are using the `/etc/hosts` method for name resolution (method 2), perform these steps:
 - 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 `/etc/hosts` file, be sure that the line that identifies the current node comes *immediately* after the localhost definition line (the line with the 127.0.0.1 address).

```
127.0.0.1    localhost
138.1.2.333  iasmid1.mydomain.com  iasmid1
138.1.2.444  iasmid2.mydomain.com  iasmid2
138.1.2.111  iasinfra.mydomain.com iasinfra
```

- b. On each node on the standby site, include these lines in the `/etc/hosts` file. The IP addresses resolve to nodes on the standby site.

Note: In the `/etc/hosts` file, be sure that the line that identifies the current node comes immediately after the loopback definition line (the line with the 127.0.0.1 address).

```
127.0.0.1    localhost
213.2.2.330  iasmid1.mydomain.com  iasmid1
213.2.2.331  iasmid2.mydomain.com  iasmid2
213.2.2.110  iasinfra.mydomain.com  iasinfra
```

- 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: Reboot the nodes after editing these files.

After making the changes and rebooting the nodes, check that the hostnames are working 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 "iasmid1" if you run it on `prodmid1` and `standbymid1`.

```
prompt> hostname
iasmid1
```

- 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`, you can run the following commands:

```
prompt> ping prodinfra           ping the production infrastructure node
PING prodinfra: 56 data bytes
64 bytes from prodinfra.mydomain.com (138.1.2.111): icmp_seq=0. time=0. ms
^C
```

```
prompt> ping iasinfra           ping the production infrastructure node
PING iasinfra: 56 data bytes
```



```
64 bytes from iasinfra.mydomain.com (138.1.2.111): icmp_seq=0. time=0. ms
^C

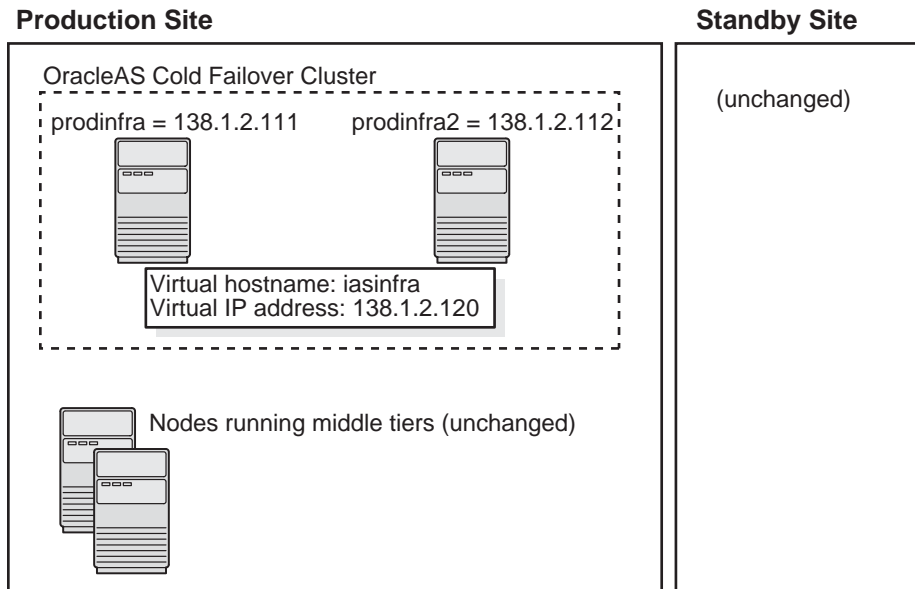
prompt> ping iasmid2           ping the second production midtier node
PING iasmid2: 56 data bytes
64 bytes from iasmid2.mydomain.com (138.1.2.444): icmp_seq=0. time=0. ms
^C

prompt> ping prodmid2         ping the second production midtier node
PING prodmid2: 56 data bytes
64 bytes from prodmid2.mydomain.com (138.1.2.444): icmp_seq=0. time=0. ms
^C

prompt> ping standbymid1     ping the first standby midtier node
PING standbymid1: 56 data bytes
64 bytes from standbymid1.mydomain.com (213.2.2.330): icmp_seq=0. time=0. ms
^C
```

9.4.1.4 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 10g 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 10g on a shared disk. See [Section 9.2, "OracleAS Cold Failover Cluster"](#) for details.

Figure 9–6 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 `iasinfra.iasha` on the production site. The following example assumes 138.1.2.120 is the virtual IP address.

```
iasmid1.iasha      IN  A  138.1.2.333
iasmid2.iasha      IN  A  138.1.2.444
iasinfra.iasha     IN  A  138.1.2.120      this is a virtual IP address
remote_infra.iasha IN  A  213.2.2.110
```

On the standby site, you still use the physical IP address for `iasinfra.iasha`, but the `remote_infra.iasha` uses the virtual IP address.

```
iasmid1.iasha      IN  A  213.2.2.330
iasmid2.iasha      IN  A  213.2.2.331
iasinfra.iasha     IN  A  213.2.2.110      physical IP address
remote_infra.iasha IN  A  138.1.2.120      virtual IP address
```

9.4.2 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 9.4.1.2, "Set Up `staticports.ini` File"](#). In addition, be sure to specify the correct option name for each installation type (see [Table 4-9](#)).

1. Install OracleAS Infrastructure 10g on the production site.
2. Install OracleAS Infrastructure 10g on the standby site.
3. Install the middle tiers on the production site.
4. Install the middle tiers on the standby site.

9.4.2.1 Installing the OracleAS Infrastructure 10g

As with OracleAS Cold Failover Cluster and OracleAS Active Failover Cluster, you must install the Identity Management and the OracleAS Metadata Repository components of OracleAS Infrastructure 10g 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 9.2.2, "Installing OracleAS Infrastructure 10g in an OracleAS Cold Failover Cluster"](#) for the screen sequence. Note the following points:

- It is OK if the Specify Hardware Cluster Installation Mode screen does not appear. See [Table 9-1](#), step 7.
- Be sure you select **High Availability Addressing** in the Select Configuration Options screen. See [Table 9-1](#), step 12.
- In the Specify High Availability Addressing screen, enter an alias as the virtual address (for example, `iasinfra.mydomain.com`). See [Table 9-1](#), step 14.

9.4.2.2 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 with OracleAS Database-Based Cluster and Identity Management Access"](#).

For installing Portal and Wireless or Business Intelligence and Forms, see [Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms"](#).

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 10g (for example, iasinfra.mydomain.com).

9.4.3 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 10g High Availability Guide*.

Installing the OracleAS Metadata Repository in an Existing Database

Instead of having the installer create a new database for the OracleAS Metadata Repository, you can install the OracleAS Metadata Repository in an existing database.

Contents:

- [Section 10.1, "Overview"](#)
- [Section 10.2, "Database Requirements"](#)
- [Section 10.3, "Swap Space Requirement"](#)
- [Section 10.4, "Oracle Internet Directory Version"](#)
- [Section 10.5, "Oracle Ultra Search Directory Updated"](#)
- [Section 10.6, "Starting OracleAS RepCA"](#)
- [Section 10.7, "Installing OracleAS Metadata Repository in an Existing Database"](#)
- [Section 10.8, "Installing OracleAS Metadata Repository in a Real Application Clusters Database"](#)
- [Section 10.9, "Registering the OracleAS Metadata Repository with Oracle Internet Directory"](#)
- [Section 10.10, "Using the cleanMR Script to Drop Schemas and Tablespaces"](#)
- [Section 10.11, "Cleaning Up a Failed Registration or Deregistering a Metadata Repository"](#)
- [Section 10.12, "Troubleshooting"](#)

10.1 Overview

To install the OracleAS Metadata Repository in an existing database, you run a tool called the Oracle Application Server Repository Creation Assistant ("OracleAS RepCA"). This tool loads the OracleAS Metadata Repository data into an existing database.

CD-ROM: You can find OracleAS RepCA on the "OracleAS RepCA and Utilities" CD-ROM. It is not on Disk 1.

DVD: You can find OracleAS RepCA in the `repca_utilities` directory on the DVD.

10.2 Database Requirements

Verify that the database where you want to install the OracleAS Metadata Repository meets the requirements in the following areas:

- [Section 10.2.1, "Database Version"](#)
- [Section 10.2.2, "Standard Edition Databases: Additional Requirement"](#)
- [Section 10.2.3, "Initialization Parameters"](#)
- [Section 10.2.4, "Database Options"](#)
- [Section 10.2.5, "PL/SQL Packages"](#)
- [Section 10.2.6, "DBMS_LDAP Package"](#)
- [Section 10.2.7, "Password File Authentication"](#)
- [Section 10.2.8, "Schemas and Tablespaces"](#)
- [Section 10.2.9, "Registration with Oracle Internet Directory"](#)

Note: If you want to use a database containing an Oracle E-Business Suite instance for your metadata repository, there will be some limitations in the functionality of your associated Oracle Application Server instance. You will also need to perform additional steps after running OracleAS RepCA before you can use the metadata repository. Refer to Oracle *MetaLink* Note 251627.1 (<http://metalink.oracle.com>) for more information.

10.2.1 Database Version

You can install the OracleAS Metadata Repository in the following database versions:

Table 10–1 Supported Database Versions

Database Series	Supported Versions	See This Section for Details
Oracle9i Release 1 (9.0.1.x)	9.0.1.5 or later	Section 10.2.1.1, "Oracle9i Release 1 (9.0.1.x) Databases"
Oracle9i Release 2 (9.2.x)	9.2.0.4 or later	Section 10.2.1.2, "Oracle9i Release 2 (9.2.x) Databases"

To check the release of your database, query the `PRODUCT_COMPONENT_VERSION` view:

```
prompt> sqlplus "sys/password as sysdba"
SQL> select version from product_component_version
       where product like 'Oracle%i%';
```

`password` specifies the password for the SYS user.

10.2.1.1 Oracle9i Release 1 (9.0.1.x) Databases

If you have a 9.0.1.x database, ensure that its version is 9.0.1.5 or later.

You can upgrade to Release 1 (9.0.1.5) from earlier 9.0.1.x releases by applying the 9.0.1.5 patch set. You can download this patch set from *Oracle MetaLink* (<http://metalink.oracle.com>).

To check the current patch level, you can query `sys.patch$`.

```
prompt> sqlplus "sys/password as sysdba"
SQL> select version from sys.patch$;
```

The command should return 9.0.1.5.

Applying the 9.0.1.5 Patch Set: If you will be using the database only for running the OracleAS Metadata Repository, you only need to run the following post-installation items:

- Run `catpatch.sql` with the database in single user mode.
- Run the upgrade scripts for Oracle Text.

- Run the scripts for upgrading the Java option in the database (`jvmsrc.sql`, `initxml.sql`, `xmlja.sql`).
- Run `utlrp.sql` to recompile PL/SQL packages.

Note: Be sure you run the `catpatch.sql` script when applying the 9.0.1.5 patch set, as described in the README file for the patch set. Otherwise, you will encounter errors when OracleAS RepCA loads the metadata repository in your database.

All other post-installation steps in the 9.0.1.5 patch set are optional for the OracleAS Metadata Repository. You need to run them only if you use those options outside of Oracle Application Server or, in the case of the Real Application Clusters part of the patch set, if the database is a Real Application Clusters database.

10.2.1.2 Oracle9i Release 2 (9.2.x) Databases

If you have a 9.2.x database, ensure that its version is 9.2.0.4 or later.

You can upgrade to Release 2 (9.2.0.4) from earlier 9.2.0.x releases by applying the 9.2.0.4 patch set. See patch set 3095277. You can download the patch set from Oracle *MetaLink* (<http://metalink.oracle.com>).

Applying the 9.2.0.4 patch set: Only the following post-installation steps are required for running the OracleAS Metadata Repository:

- Make sure that the initialization (`init.ora`) parameters are set as specified, that SYSTEM tablespace has sufficient free space, and that `CLUSTER_DATABASE` environment variable is set if necessary.
- Run `catpatch.sql` with the database in single user mode (step 3c in the README file for the patch set).
- Run `utlrp.sql` (step 3h in the README file for the patch set).
- Run the Oracle Internet Directory patch only if you were running Oracle Internet Directory version 9.2.0.x. If Oracle Internet Directory has never been used with this database, you do not have to perform this step.

All other post-installation steps in the 9.2.0.4 patch set are optional for the OracleAS Metadata Repository. You need to run them only if you use those options outside of Oracle Application Server.

To check that you have run the `catpatch.sql` script, you can run the following command in SQL*Plus:


```
prompt> sqlplus "sys/password as sysdba"
SQL> select comp_name, version, status from dba_registry
       where comp_id = 'CATPROC';
```

You should get the following results:

COMP_NAME	VERSION	STATUS
Oracle9i Packages and Types	9.2.0.4.0	Valid

10.2.2 Standard Edition Databases: Additional Requirement

If you are using the Standard Edition database, Release 1 (9.0.1.x) or Release 2 (9.2.0.x), you will not be able to use Oracle Internet Directory's multimaster replication feature (because this feature relies on ASR, which is available only on the Enterprise Edition database).

As an alternative, you can use the fan-out replication feature. See the *Oracle Internet Directory Administrator's Guide* for details.

10.2.3 Initialization Parameters

During installation, the database must have its initialization parameters set to the values specified in [Table 10-2](#).

After installation, you can change the values of most of these parameters to optimize performance, if necessary.

Note: The value of the `db_block_size` parameter must be 8192 or greater. This parameter is set when the database was created and cannot be changed. If your database has a lower value for this parameter, this means that you cannot use this database for the metadata repository.

Table 10-2 Initialization Parameters: Required Values

Parameter	Required Value	Parameter Class	Notes
<code>db_block_size</code>	8192 or greater	Not changeable. See "Notes"	You cannot change the value of this parameter once the database has been created.
<code>aq_tm_processes</code>	1 or greater	Dynamic	You can change the value of this parameter after installation.

Table 10–2 Initialization Parameters: Required Values

Parameter	Required Value	Parameter Class	Notes
open_cursors	300 or greater	Dynamic in 9.0.2.x Static in 9.0.1.x	You can change the value of this parameter after installation.
job_queue_processes	1 or greater	Dynamic	You can change the value of this parameter after installation.
db_cache_size	150,994,944 (144 MB) or greater	Dynamic	You can change the value of this parameter after installation.
large_pool_size	0	Dynamic in 9.0.2.x Static in 9.0.1.x	When set to 0, the database uses the value from the <code>shared_pool_size</code> parameter instead (see next row). You can change the value of this parameter after installation.
shared_pool_size	104,857,600 (100 MB) or greater	Dynamic	You can change the value of this parameter after installation.
java_pool_size	67,108,864 (64 MB) or greater	Static	You can change the value of this parameter after installation.
pga_aggregate_target	100,663,296 (96 MB) or greater	Dynamic	You can change the value of this parameter after installation.
query_rewrite_enabled	TRUE	Dynamic	Do not change this parameter after installation, because OracleAS Wireless requires this value.
query_rewrite_integrity	trusted or enforced	Dynamic	Do not change this parameter after installation, because OracleAS Wireless requires this value.
sessions	400 or greater	Static	You can change the value of this parameter after installation.
nls_length_semantics	BYTE	Dynamic	This parameter is not checked by OracleAS RepCA. You have to check manually that this parameter is set to the supported value. The <code>CHAR</code> value for this parameter is not supported.

Table 10–2 Initialization Parameters: Required Values

Parameter	Required Value	Parameter Class	Notes
max_commit_propagation_delay	99 or lower	Static	<p>This parameter applies only for Real Application Clusters databases.</p> <p>This parameter is not checked by OracleAS RepCA. If you are using a Real Application Clusters database, you have to check manually that this parameter is set to a supported value.</p>

Checking Parameter Values

To check the values of the initialization parameters using SQL*Plus, you can use the `show parameters` command:

```
prompt> sqlplus "sys/password as sysdba"
SQL> show parameters parameter_name
```

`password` specifies the password for the SYS user.

Alternatively, you can check the values by querying the `V$PARAMETER` view:

```
prompt> sqlplus "sys/password as sysdba"
SQL> select name,value from v$parameter;
```

Changing Parameter Values

The method that you use to change a parameter's value depends on whether the parameter is static or dynamic, and on whether your database uses a parameter file or a server parameter file.

See the *Oracle9i Database Administrator's Guide* for details on parameter files, server parameter files, and how to change parameter values.

If your database uses a parameter file, you can change the parameter values using two different methods:

- You can edit the parameter file and restart the database. This method works for both static and dynamic parameters.
- To change the values of dynamic parameters, you can use the `alter system` command, but the new values persist only until the database is shut down. For example:

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

```
SQL> alter system set aq_tm_processes=9;
```

If your database uses a server parameter file, use the `alter system` command to change the parameter values. For static parameters, set the `scope` to `spfile`. You have to restart the database for the new value to take effect. For dynamic parameters, you can set the `scope` to `spfile`, `memory`, or `both`. For the values to persist, set the `scope` to `spfile` or `both`. For example:

```
prompt> sqlplus "sys/password as sysdba"  
SQL> alter system set aq_tm_processes=9 scope=both;
```

10.2.4 Database Options

The database must have the following database options enabled:

Table 10–3 Required Database Options

Required Option	How to Check if the Option is Installed in the Database
OLAP Window Functions	To check if the database has these options, query the <code>V\$OPTION</code> view:
Parallel load	<pre>prompt> sqlplus "sys/password as sysdba" SQL> select * from v\$option;</pre> <p><i>password</i> specifies the password for the SYS user.</p>
Java	<pre>prompt> sqlplus "sys/password as sysdba" SQL> select count(*) from dba_objects where object_type like 'JAVA%' and owner = 'SYS' and status = 'VALID';</pre> <p>The count returned should be greater than 0.</p>
Intermedia	<pre>prompt> sqlplus "sys/password as sysdba" SQL> select count(name) from sys.props\$ where name = 'EXPORT_VIEWS_VERSION';</pre> <p>The count returned should be greater than 0.</p>

10.2.5 PL/SQL Packages

The database must have the following PL/SQL packages installed:

Table 10–4 Required Packages

Required Package	How to Check if the Package Is Installed in the Database
DBMS_DDL	<p>Query the ALL_OBJECTS view. The following example checks for the DBMS_DDL package:</p> <pre>prompt> sqlplus "sys/password as sysdba" SQL> select count(object_name) from all_objects where object_name like 'DBMS_DDL%' and status = 'VALID';</pre> <p>Run the query for each package; replace DBMS_DDL with the name of the package. The count returned should be greater than 0.</p>
DBMS_LOCK	
DBMS_OUTPUT	
DBMS_REPUTIL	
DBMS_SQL	
DBMS_STATS	
DBMS_UTILITY	
UTL_FILE	
UTL_RAW	
DBMS_TEXT	

10.2.6 DBMS_LDAP Package

Check that your database contains the DBMS_LDAP package, and that the package is valid. You need to reinstall the package if it is not valid.

1. Check that the version of the DBMS_LDAP package is 2. The following SQL command must return 0.

```
prompt> sqlplus "sys/password as sysdba"
SQL> select dbms_ldap_util.check_interface_version('2') from dual;
```

```
DBMS_LDAP_UTIL.CHECK_INTERFACE_VERSION('2')
```

```
-----
0
```

If the command returns a different value, or if it returns an error such as:

```
The DBMS_LDAP package supplied with this database doesn't support the
version 2 interface used by 904 components.
```

you need to reload the package. Go to ["Reloading the DBMS_LDAP Package"](#) at the end of this section.

2. Check that the `DBMS_LDAP` package is valid. The following SQL command must return 9.
 - a. Create a file containing the following lines. You can name the file anything you like (for example, `test_ldap.sql`).

```
select count(*) from dba_objects where
( object_name = 'DBMS_LDAP' and
  object_type = 'PACKAGE' and
  status = 'VALID' and owner = 'SYS'
) OR
( object_name = 'DBMS_LDAP' and
  object_type = 'PACKAGE BODY' and
  status = 'VALID' and owner = 'SYS'
) OR
( object_name = 'DBMS_LDAP_UTL' and
  object_type = 'PACKAGE' and
  status = 'VALID' and owner = 'SYS'
) OR
( object_name = 'DBMS_LDAP_UTL' and
  object_type = 'PACKAGE BODY' and
  status = 'VALID' and owner = 'SYS'
) OR
( object_name = 'DBMS_LDAP' and
  object_type = 'SYNONYM' and
  status = 'VALID' and owner = 'PUBLIC'
) OR
( object_name = 'DBMS_LDAP_UTL' and
  object_type = 'SYNONYM' and
  status = 'VALID' and owner = 'PUBLIC'
) OR
( object_name = 'DBMS_LDAP_API_FFI' and
  object_type = 'PACKAGE' and
  status = 'VALID' and owner = 'SYS'
) OR
( object_name = 'DBMS_LDAP_API_FFI' and
  object_type = 'PACKAGE BODY' and
  status = 'VALID' and owner = 'SYS'
) OR
( object_name = 'DBMS_LDAP_API_LIB' and
  object_type = 'LIBRARY' and
  status = 'VALID' and owner = 'SYS'
);
```

- b. Run the file in SQL*Plus. For example, if you named the file `test_ldap.sql`, the command would look like the following:

```
prompt> sqlplus "sys/password as sysdba"
SQL> @test_ldap.sql
```

```
      COUNT(*)
-----
          9
```

If the command returns a value other than 9, you need to reload the package.

Reloading the DBMS_LDAP Package

1. Check that the following files exist in the `ORACLE_HOME/rdbms/admin` directory:
 - `catldap.sql`
 - `dbmsldap.sql`
 - `prvtldap.plb`
 - `prvtldh.plb`
2. Using SQL*Plus, run the `catldap.sql` command as the SYS user.

```
prompt> cd $ORACLE_HOME/rdbms/admin
prompt> sqlplus "sys/password as sysdba"
SQL> @catldap.sql
```

10.2.7 Password File Authentication

The database must be set up to use password file authentication. For more information on password file authentication, see the *Oracle9i Database Administrator's Guide*.

Password file authentication is required only for running the OracleAS RepCA. It is not required once the metadata repository has been installed.

You can check if the database is set up to use password file authentication, in one of two ways.

- Look up the value of the `remote_login_passwordfile` initialization parameter by running the following command in SQL*Plus:

```
prompt> sqlplus "sys/password as sysdba"
SQL> show parameters remote_login_passwordfile
NAME                                TYPE                                VALUE
-----                                -                                -
remote_login_passwordfile           string                             EXCLUSIVE
```

The value of the `remote_login_passwordfile` initialization parameter must be either `EXCLUSIVE` or `SHARED`. If the parameter has a different value or if it is not defined, the database is not set up for password file authentication.

- Try connecting to the database as `sysdba` through a SQL*Net connection.

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

`sqlnet_dbname` denotes the entry for the database in the `tnsnames.ora` file. If the database is not set up for password authentication, you will not be able to connect.

To set up a database for password file authentication:

1. Create a password file using the `orapwd` command (all on one line).

```
prompt> $ORACLE_HOME/bin/orapwd file=fullpath_to_pwfile password=password
entries=maxUsers
```

Values you need to provide:

`fullpath_to_pwfile` - Enter the full path to the file where the password information will be written. The filename must be `orapwsid`. Typically, the password file is stored in the `ORACLE_HOME/dbs` directory.

`password` - Set the password for the SYS user.

`maxUsers` - Specify the maximum number of users that the file can contain.

The following example sets the password file for a database whose name is "prodmeta":

```
prompt> $ORACLE_HOME/bin/orapwd
file=/opt/oracle/db92/OraHome1/dbs/orapwprodmeta
password=topsecret entries=9
```

2. Set the `remote_login_passwordfile` initialization parameter to `EXCLUSIVE`. You can set it to `SHARED` if you want to use the same password file for multiple databases. If you have a Real Application Clusters database, you must set the parameter to `EXCLUSIVE`.
3. Restart the database.

10.2.8 Schemas and Tablespaces

The OracleAS RepCA installs the schemas and tablespaces listed in [Table 10–8](#) in your existing database. Ensure that the database does not contain schemas and tablespaces of the same name.

10.2.8.1 Schema Name Already In Use

If the OracleAS RepCA finds even one schema of the same name in the existing database, it asks for confirmation before it drops and re-creates the schema with new data.

If you want to save the data in the schema, do not proceed. You can then back up the data you want to save, restore it under a different schema, and rerun the OracleAS RepCA. This time, you can tell it to drop and re-create the schema.

To get a list of existing schema names in the database, query the `ALL_USERS` view:

```
prompt> sqlplus "sys/password as sysdba"
SQL> select username from all_users;
```

password specifies the password for the SYS user.

See [Section 10.10, "Using the cleanMR Script to Drop Schemas and Tablespaces"](#) if you want to run a script to remove schemas and tablespaces used by OracleAS Metadata Repository.

10.2.8.2 Tablespace Name Already In Use

If the OracleAS RepCA finds even one tablespace of the same name in the existing database, it cannot continue. It displays an error dialog. In this case:

1. Dismiss the error dialog and exit the OracleAS RepCA.
2. Back up the data in the tablespace (if desired).
3. Drop the tablespace.
4. Rerun the OracleAS RepCA.

To get a list of existing tablespace names in the database, query the `V$tablespace` view:

```
prompt> sqlplus "sys/password as sysdba"
SQL> select name from v$tablespace;
```

password specifies the password for the SYS user.

Note: If you run the OracleAS RepCA and cancel it before it completes, it might have created the tablespaces listed in [Table 10–8](#) in your database. You have to drop these tablespaces before you can rerun OracleAS RepCA.

See [Section 10.10, "Using the cleanMR Script to Drop Schemas and Tablespaces"](#) if you want to run a script to remove schemas and tablespaces used by OracleAS Metadata Repository.

To drop a tablespace, you can run either the `cleanMR` script or SQL statements manually. See [Section 10.10, "Using the cleanMR Script to Drop Schemas and Tablespaces"](#) for information about the script.

To run SQL statements manually, perform the following steps. The order of the tasks is important. If you delete the data files first, then you cannot drop the tablespace. If the tablespace exists, you cannot rerun OracleAS RepCA.

1. Use SQL*Plus and log in to the database as the SYS user.

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

2. Drop the schemas in the tablespace.

```
SQL> drop user schema_name cascade;
```

3. Drop the tablespace.

```
SQL> drop tablespace tablespace_name including contents cascade constraints;  
SQL> exit;
```

You can skip the next step if you enter `including contents` and `datafiles` in the preceding SQL statement.

4. Delete the data files (the `.dbf` files) associated with the tablespace.

10.2.8.3 Tablespace Sizes

If you are using files (as opposed to raw partitions) for tablespaces, select the size for each tablespace that the OracleAS RepCA will create.

OracleAS RepCA offers three choices for sizes (see [Table 10–5](#)). These choices represent light usage, moderate usage, and heavy usage of the component. If you have applications that use a component heavily, you should select the biggest size for the component's tablespaces. You should select the minimum size for components that you do not plan on using with this repository.

The tablespace sizes are initial sizes. Extensive use of the component may increase the size of the tablespaces because they are set to `AUTOEXTEND`.

Table 10–5 Initial Sizes for Tablespaces

Component	Tablespace	Initial Sizes (in MB)		
		Small	Medium	Large
OracleAS Portal	PORAL	75	100	150
OracleAS Portal	PORAL_DOC	25	40	50
OracleAS Portal	PORAL_IDX	30	50	60
OracleAS Portal	PORAL_LOG	30	50	60
OracleAS Single Sign-On	IAS_META	200	300	500
OracleAS Wireless				
Oracle Ultra Search				
Oracle Workflow				
INTERNET_APPSERVER_ REGISTRY (schema)				
OracleAS Discoverer	DISCO_PTM5_META	5	10	15
OracleAS Discoverer	DISCO_PTM5_CACHE	5	10	15
OracleAS Distributed Configuration Management (DCM)	DCM	50	100	200
OracleAS Syndication Services	DSGATEWAY_TAB	25	35	45
OracleAS Web Clipping Support	WCRSYS_TS	35	45	55
OracleAS ProcessConnect	IP_RT	50	75	90
OracleAS ProcessConnect	IP_DT	60	75	90
OracleAS ProcessConnect	IP_IDX	20	40	60
OracleAS ProcessConnect	IP_LOB	20	40	60
OracleAS Certificate Authority	OCATS	15	35	55
OracleAS UDDI	UDDISYS_TS	35	50	65
Oracle Internet Directory	OLTS_ATTRSTORE	10	15	20

Table 10–5 (Cont.) Initial Sizes for Tablespaces

Component	Tablespace	Initial Sizes (in MB)		
		Small	Medium	Large
Oracle Internet Directory	OLTS_BATTRSTORE	10	15	20
Oracle Internet Directory	OLTS_CT_STORE	10	15	20
Oracle Internet Directory	OLTS_DEFAULT	10	15	20
Oracle Internet Directory	OLTS_SVRMGSTORE	10	15	20

If your existing database uses raw partitions, you do not need to select the sizes for the tablespaces. However, you need to verify that the sizes of the raw partitions are adequate for the components (see [Table 10–6](#) and [Table 10–7](#)). If you are planning on using a component extensively and your database uses raw partitions, make sure the raw partition for the tablespace has even more space available.

Table 10–6 Minimum Size for System Tablespaces

Tablespace	Minimum Size
SYSTEM tablespace	1024 MB
TEMP tablespace	128 MB
UNDOTBS1 tablespace	256 MB
UNDOTBS2 tablespace	256 MB
DRSYS tablespace	64 MB

Table 10–7 Raw Partitions for the OracleAS Metadata Repository

Raw Partition for	Minimum Size	Recommended Name
PORTAL tablespace	128 MB	<i>dbname_raw_portal_128m</i>
PORTAL_DOC tablespace	64 MB	<i>dbname_raw_portaldoc_64m</i>
PORTAL_IDX tablespace	64 MB	<i>dbname_raw_portalidx_64m</i>
PORTAL_LOG tablespace	64 MB	<i>dbname_raw_portallog_64m</i>
DCM tablespace	256 MB	<i>dbname_raw_dcm_256m</i>
OCATS tablespace	64 MB	<i>dbname_raw_ocats_64m</i>
DISCO_PTM5_CACHE tablespace	64 MB	<i>dbname_raw_discoptm5cache_64m</i>

Table 10–7 Raw Partitions for the OracleAS Metadata Repository

Raw Partition for	Minimum Size	Recommended Name
DISCO_PTM5_META tablespace	64 MB	<i>dbname_raw_discoptm5meta_64m</i>
DSGATEWAY_TAB tablespace	64 MB	<i>dbname_raw_dsgatewaytab_64m</i>
WCRSYS_TS tablespace	64 MB	<i>dbname_raw_wcrsysys_64m</i>
UDDISYS_TS tablespace	64 MB	<i>dbname_raw_uddisysys_64m</i>
OLTS_ATTRSTORE tablespace	128 MB	<i>dbname_raw_oltsattrstore_128m</i>
OLTS_BTTRSTORE tablespace	64 MB	<i>dbname_raw_oltsbttrstore_64m</i>
OLTS_CT_STORE tablespace	256 MB	<i>dbname_raw_oltsctstore_256m</i>
OLTS_DEFAULT tablespace	128 MB	<i>dbname_raw_oltsdefault_128m</i>
OLTS_SVRMGSTORE tablespace	64 MB	<i>dbname_raw_oltssvrmgstore_64m</i>
IP_DT tablespace	128 MB	<i>dbname_raw_ipdt_128m</i>
IP_RT tablespace	128 MB	<i>dbname_raw_iprt_128m</i>
IP_LOB tablespace	128 MB	<i>dbname_raw_iplob_128m</i>
IP_IDX tablespace	128 MB	<i>dbname_raw_ipidx_128m</i>
IAS_META tablespace	256 MB	<i>dbname_raw_iasmetal_256m</i>

For information on using raw partitions, see the database documentation.

10.2.8.4 List of Schemas and Tablespaces

[Table 10–8](#) lists the schemas and tablespaces in the OracleAS Metadata Repository.

Table 10–8 Schemas and Tablespaces

Component	Schema	Tablespace	Default Database File
OracleAS Portal	PORTAL	PORTAL	portal.dbf
OracleAS Portal	PORTAL	PORTAL_DOC	ptldoc.dbf
OracleAS Portal	PORTAL	PORTAL_IDX	ptlidx.dbf
OracleAS Portal	PORTAL	PORTAL_LOG	ptllog.dbf
OracleAS Portal	PORTAL_APP	PORTAL	portal.dbf
OracleAS Portal	PORTAL_DEMO	PORTAL	portal.dbf

Table 10–8 (Cont.) Schemas and Tablespaces

Component	Schema	Tablespace	Default Database File
OracleAS Portal	PORTAL_PUBLIC	PORTAL	portal.dbf
OracleAS Single Sign-On	ORASSO	IAS_META	ias_meta01.dbf
OracleAS Single Sign-On	ORASSO_PA	IAS_META	ias_meta01.dbf
OracleAS Single Sign-On	ORASSO_DS	IAS_META	ias_meta01.dbf
OracleAS Single Sign-On	ORASSO_PS	IAS_META	ias_meta01.dbf
OracleAS Single Sign-On	ORASSO_PUBLIC	IAS_META	ias_meta01.dbf
OracleAS Wireless	WIRELESS	IAS_META	ias_meta01.dbf
Oracle Workflow	OWF_MGR	IAS_META	ias_meta01.dbf
OracleAS Discoverer	DISCOVERER5	DISCO_PTM5_META	discoplmt1.dbf
OracleAS Discoverer	DISCOVERER5	DISCO_PTM5_CACHE	discoplct1.dbf
OracleAS Distributed Configuration Management (DCM)	DCM	DCM	dcm.dbf
OracleAS Syndication Services	DSGATEWAY	DSGATEWAY_TAB	oss_sys01.dbf
OracleAS Web Clipping Support	WCRSYS	WCRSYS_TS	wcrsys01.dbf
OracleAS ProcessConnect	IP	IP_DT	ip_dt.dbf
OracleAS ProcessConnect	IP	IP_RT	ip_rt.dbf
OracleAS ProcessConnect	IP	IP_LOB	ip_lob.dbf
OracleAS ProcessConnect	IP	IP_IDX	ip_idx.dbf
OracleAS Certificate Authority	OCA	OCATS	oca.dbf
OracleAS Certificate Authority	ORAOCA_PUBLIC	OCATS	oca.dbf
OracleAS UDDI	UDDISYS	UDDISYS_TS	uddisys01.dbf
Oracle Internet Directory	ODS	OLTS_ATTRSTORE	attrs1_oid.dbf
Oracle Internet Directory	ODS	OLTS_BATTRSTORE	battr1_oid.dbf
Oracle Internet Directory	ODS	OLTS_CT_STORE	gcats1_oid.dbf
Oracle Internet Directory	ODS	OLTS_DEFAULT	gdefault1_oid.dbf
Oracle Internet Directory	ODS	OLTS_SVRMGSTORE	svrmg1_oid.dbf

Table 10–8 (Cont.) Schemas and Tablespaces

Component	Schema	Tablespace	Default Database File
Oracle Ultra Search	WKSYS	IAS_META	ias_meta01.dbf
Oracle Ultra Search	WKPROXY	IAS_META	ias_meta01.dbf
Oracle Ultra Search	WK_TEST	IAS_META	ias_meta01.dbf
Metadata Repository Version	INTERNET_APPSERVER_ REGISTRY	IAS_META	ias_meta01.dbf

10.2.9 Registration with Oracle Internet Directory

Ensure that the existing database is not already registered with Oracle Internet Directory. You cannot register a database that is already registered with Oracle Internet Directory.

To check if a database is already registered with Oracle Internet Directory, you have to look in Oracle Internet Directory:

1. Connect to Oracle Internet Directory using Oracle Directory Manager.

- a. Start up Oracle Directory Manager.

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

- b. In the Connect screen, enter the connect information. Log in as the Oracle Internet Directory superuser (cn=orcladmin).

2. Check to see if your database is registered with Oracle Internet Directory. Expand these entries:

Expand "Entry Management".

Expand "cn=OracleContext".

If your database is registered with Oracle Internet Directory, you would see an entry called "cn=*your_database_name*".

To remove the registration, see step 2 in [Section 10.11, "Cleaning Up a Failed Registration or Deregistering a Metadata Repository"](#).

3. Check to see if your database has a metadata repository that is registered with Oracle Internet Directory. Expand these entries:

Expand "Entry Management".

Expand "cn=OracleContext".

Expand "cn=Products".

Expand "cn=IAS".

Expand "cn=IAS Infrastructure Databases".

If your database has a metadata repository that is registered with Oracle Internet Directory, you would see an entry called "orclReferenceName=*your_database_name*".

To remove the registration, see step 3 in [Section 10.11, "Cleaning Up a Failed Registration or Deregistering a Metadata Repository"](#).

10.3 Swap Space Requirement

You must have at least 512 MB of available swap space to run OracleAS RepCA. See [Chapter 4](#) for information on how to check it.

10.4 Oracle Internet Directory Version

If you plan to register the metadata repository with Oracle Internet Directory, the Oracle Internet Directory must be version 9.0.2.x, 10g (9.0.4), or 9.2.0.x.

To check the Oracle Internet Directory version, run the following command:

```
prompt> oidldapd -version
oidldapd: Release 9.2.0.1.0 - Production on Fri Feb 28 09:26:53 2003
(c) Copyright 2001 Oracle. All rights reserved.
```

The `oidldapd` command can be found in the `ORACLE_HOME/bin` directory, where `ORACLE_HOME` is the root directory of Oracle Application Server containing Oracle Internet Directory.

10.5 Oracle Ultra Search Directory Updated

OracleAS RepCA replaces the `ultrasearch` directory in the database's Oracle home directory with a new version. It renames the old version of the directory to `ultrasearch_timestamp`.

10.6 Starting OracleAS RepCA

The OracleAS RepCA is a wizard that enables you to install the OracleAS Metadata Repository in an existing database.

Note: OracleAS RepCA is on the "OracleAS RepCA and Utilities" CD-ROM. It is **not** on Oracle Application Server Disk 1.

On the DVD, it is located in the `repca_utilities` directory.

1. You run the OracleAS RepCA on the computer where the database is installed. The tool needs to access the binaries in the database's Oracle home.
Ensure the listener for the existing database and the database itself are up and running before you start the OracleAS RepCA.
2. If your computer does not mount CD-ROMs or DVDs automatically, you need to set the mount point manually. See [Section 5.14, "Setting the Mount Point for the Discs"](#) for details.
3. Insert the "OracleAS RepCA and Utilities" CD-ROM into the CD-ROM drive, or insert the DVD into the DVD drive.
4. Start up OracleAS RepCA from the CD-ROM or DVD:

```
CD-ROM: prompt> mount_point/repca/runRepca [parameters]
DVD:    prompt> mount_point/repca_utilities/runRepca [parameters]
```

The `runRepca` command accepts the following parameters.

Table 10–9 Parameters for the runRepca Command

Parameter	Required or Optional	Description
<code>-OH <i>oracle_home</i></code>	Required	Specifies the full path to the Oracle home directory of the database where you want to install the metadata repository. If you do not specify this parameter, OracleAS RepCA prompts you to enter it.
<code>-LOGDIR <i>logdir</i></code>	Optional	Specifies the full path to the directory where OracleAS RepCA can write log files. If not specified, OracleAS RepCA writes the log files to the <code>ORACLE_HOME/assistants/repca/log</code> directory. Be sure you have write permission for the log directory.
<code>-REGISTER</code>	Optional	Specifies that OracleAS RepCA should only register the metadata repository with Oracle Internet Directory. It will not install schemas into the database.

Table 10–9 Parameters for the runRepca Command

Parameter	Required or Optional	Description
-RAC	Optional	Specifies that the database is a Real Application Clusters database.
-HELP	Optional	Displays help for the parameters.

Example:

```
runRepca -OH /opt/oracle/oradb -LOGDIR /opt/oracle/repca/logs
```

10.7 Installing OracleAS Metadata Repository in an Existing Database

To install the OracleAS Metadata Repository in an existing non-Real Application Clusters database, perform the steps in this section. To install the OracleAS Metadata Repository in a Real Application Clusters database, see [Section 10.8, "Installing OracleAS Metadata Repository in a Real Application Clusters Database"](#).

1. Ensure that the database meets the requirements listed in [Section 10.2, "Database Requirements"](#).
2. Start up the OracleAS RepCA on the computer where the database is installed. See [Section 10.6, "Starting OracleAS RepCA"](#). The parameters that you need in this case are `-OH` and `-LOGDIR`, if you want to specify a different log directory. For example:

```
runRepca -OH /opt/oracle/oradb -LOGDIR /opt/oracle/repca/logs
```

3. Follow the screens:

Table 10–10 Steps for Installing OracleAS Metadata Repository in an Existing Database

Screen	Action
1. Welcome	Click Next .
2. Specify Database Connect	<p>Enter connect information for the existing database.</p> <p>SYS Password: Enter the password for the SYS user.</p> <p>Hostname and Port: Enter the name of the computer and the port number for the database. Use the format: <i>hostname:port</i>. If your middle tier instances are located in a different domain, you need to append the domain name to the hostname.</p> <p>Example 1 (same domain): <code>myhost:1521</code></p> <p>Example 2 (different domain): <code>myhost.mydomain.com:1521</code></p> <p>Service Name: Enter the service name of the database. Note that the service name must include the database domain name.</p> <p>Example: <code>asdb.mydomain.com</code></p> <p>Click Next.</p>
3. Specify Tablespace Information	<p>Use Same Directory for All Tablespaces: Select this option if you want to place all the files for all the tablespaces in the same directory. Specify the directory in the field below this option. Ensure that the directory has enough free space.</p> <p>Use Individual Directories for Each Tablespace: Select this option if you want to place the files for the tablespaces in different directories.</p> <p>Tablespaces: Expand the tree to view the tablespaces for each component. Select a tablespace to view or edit its associated datafile or size.</p> <p>Size: Select the largest size for a tablespace if you have applications that use the component heavily. If not, select the smallest size.</p> <p>Filename: Enter the file name for the database file. Example: <code>portal.dbf</code></p> <p>Directory: Enter the directory where you want to put the database file for the tablespace. You can click the "..." button to browse your file system.</p> <p>Example (UNIX): <code>/opt/oracle/dbfiles/</code></p> <p>Example (Windows): <code>C:\oracle\dbfiles\</code></p> <p>Click Next.</p>

Table 10–10 Steps for Installing OracleAS Metadata Repository in an Existing Database

Screen	Action
4. Register with Oracle Internet Directory	<p>If you already have an Oracle Internet Directory and know its connect information, select Register Now and enter the name of the computer where Oracle Internet Directory is running and the port number.</p> <p>Use Only SSL Connections with this Oracle Internet Directory: Select this option if you want OracleAS RepCA to connect to Oracle Internet Directory using SSL when performing the registration.</p> <p>If you do not have an Oracle Internet Directory, or do not know its connect information, select Register Later.</p> <p>Click Next.</p>
5. Specify Login for Oracle Internet Directory	<p>This screen appears if you selected Register Now in the previous screen.</p> <p>Enter the Username and Password to log in to Oracle Internet Directory. The user must belong to the iASAdmins group. You can use the user's simple name (for example, jdoe) or the DN (for example, cn=orcladmin).</p> <p>If your Oracle Internet Directory contains more than one realm, you need to enter the realm that contains the specified user.</p> <p>Click Next.</p>
6. Loading Repository	The OracleAS RepCA creates and populates the tablespaces and schemas.
7. Finish	Click Finish to exit OracleAS RepCA.

4. Unlock the `dcm` schema and set its password. This step is required only if (1) you want to use the metadata repository **only** for database clustering of middle tier instances **and** (2) you did not register the metadata repository with Oracle Internet Directory.

- a. Set the `ORACLE_HOME` environment variable to point to the full path of the directory where the database is installed.
- b. Set the `ORACLE_SID` environment variable to the database's SID.
- c. 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;
```

10.8 Installing OracleAS Metadata Repository in a Real Application Clusters Database

This section describes an environment that uses Real Application Clusters (Figure 10-1). In this environment, the OracleAS Infrastructure 10g components are installed separately, as described in Table 10-11.

Figure 10-1 OracleAS Infrastructure 10g with the OracleAS Metadata Repository in a Real Application Clusters Database

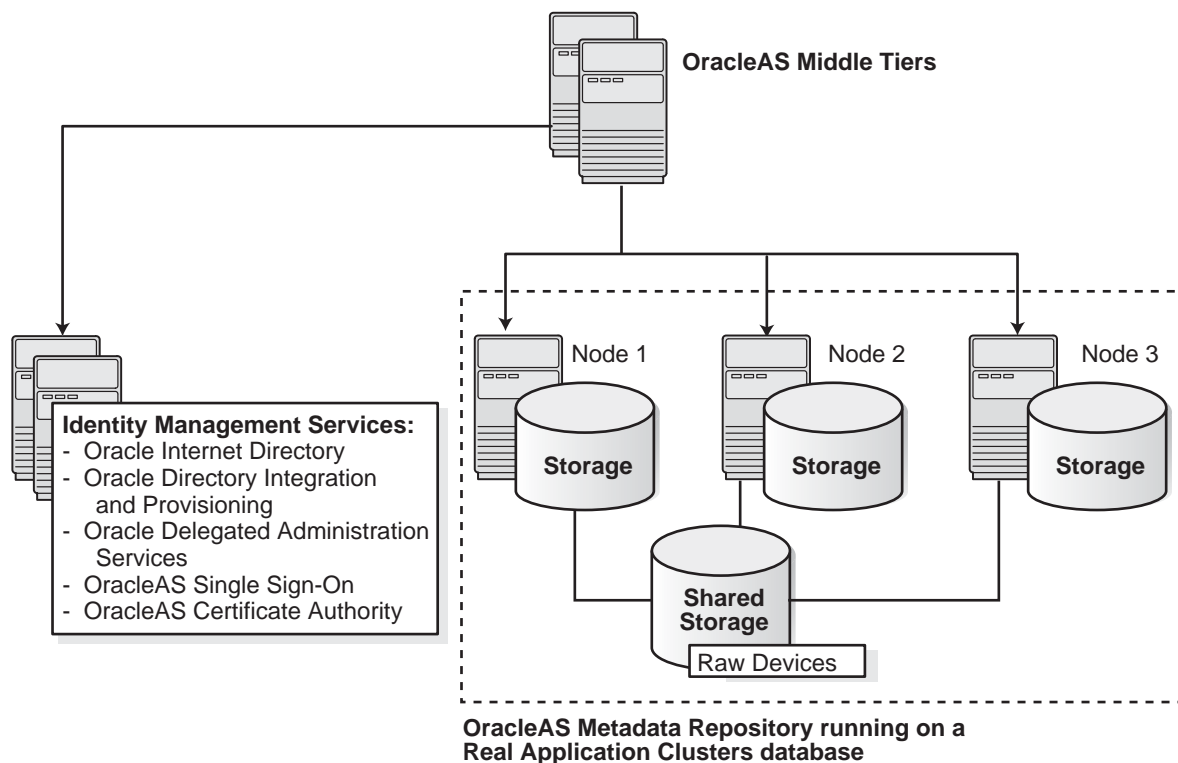


Table 10–11 OracleAS Infrastructure 10g with Real Application Clusters

Component	Where Installed
OracleAS Metadata Repository	Installed in an existing Real Application Clusters database.
Identity Management components	Installed on non-clustered computers.

10.8.1 Overview of Installation Steps

Note: You need an existing Real Application Clusters database to create this environment.

You **cannot** use the installer to create a new Real Application Clusters database containing the OracleAS Metadata Repository.

To create this environment, install Oracle Application Server as follows:

1. Install OracleAS Metadata Repository in the existing Real Application Clusters database.

You use OracleAS RepCA to do this. See [Section 10.8.2, "Installation Steps"](#) for details.

Note: Do not register the OracleAS Metadata Repository with Oracle Internet Directory, because you have not installed Oracle Internet Directory yet.

2. Install the Identity Management components on non-clustered computers.

You can install all the Identity Management components on a single computer, or you can distribute them over multiple computers. See [Section 6.20, "Installing Identity Management Components Only \(Including Oracle Internet Directory\)"](#) for details.

When the installer prompts for the database hostname in the "Specify Metadata Repository Login and Connect Information" screen, enter all the node names in the Real Application Clusters, plus the port numbers for each node. Use the format *node:port*. Separate the pairs with a comma character.

For example, if you have three nodes (named *node1*, *node2*, and *node3*) in the cluster, and the listener listens on port 1521 for all nodes, then you would enter:

node1:1521, node2:1521, node3:1521

3. Install Oracle Application Server middle tiers.

10.8.2 Installation Steps

To install the OracleAS Metadata Repository in a Real Application Clusters database:

1. Ensure that the database meets the requirements listed in [Section 10.2, "Database Requirements"](#).
2. Create raw partitions for the OracleAS Metadata Repository.

See [Table 10-7](#) for a list of tablespaces for which you have to create raw partitions, and their minimum sizes.

The command to create raw partitions is specific to the volume manager you are using. For example, if you using VERITAS Volume Manager, the command is `vxassist`.

3. Create a file to map the tablespaces to your raw partitions.

Each line in the file has the following format:

```
tablespace_name=raw_device_file_path
```

You can use the following sample file, replacing the raw partition file paths with your values. Append a "1" to the tablespace names, as shown in the sample file.

```
PORTAL1=/dev/vx/rdisk/oracle/mydb_raw_portal_128m
PORTAL_DOC1=/dev/vx/rdisk/oracle/mydb_raw_portal_doc_64m
PORTAL_IDX1=/dev/vx/rdisk/oracle/mydb_raw_portal_idx_64m
PORTAL_LOG1=/dev/vx/rdisk/oracle/mydb_raw_portal_log_64m
IAS_META1=/dev/vx/rdisk/oracle/mydb_raw_ias_meta_256m
DISCO_PTM5_META1=/dev/vx/rdisk/oracle/mydb_raw_disco_meta_64m
DISCO_PTM5_CACHE1=/dev/vx/rdisk/oracle/mydb_raw_disco_cache_64m
DCM1=/dev/vx/rdisk/oracle/mydb_raw_dcm_256m
DSGATEWAY_TAB1=/dev/vx/rdisk/oracle/mydb_raw_synd_64m
WCRSYS_TS1=/dev/vx/rdisk/oracle/mydb_raw_clip_64m
IP_DT1=/dev/vx/rdisk/oracle/mydb_raw_ip_dt_128m
IP_RT1=/dev/vx/rdisk/oracle/mydb_raw_ip_rt_128m
IP_LOB1=/dev/vx/rdisk/oracle/mydb_raw_ip_lob_128m
IP_IDX1=/dev/vx/rdisk/oracle/mydb_raw_ip_idx_128m
OCATS1=/dev/vx/rdisk/oracle/mydb_raw_oca_64m
UDDISYS_TS1=/dev/vx/rdisk/oracle/mydb_raw_uddi_64m
```

```

OLTS_ATTRSTORE1=/dev/vx/rdsk/oracle/mydb_raw_olts_attr_128m
OLTS_BATTRSTORE1=/dev/vx/rdsk/oracle/mydb_raw_olts_battr_64m
OLTS_CT_STORE1=/dev/vx/rdsk/oracle/mydb_raw_olts_ct_store_256m
OLTS_DEFAULT1=/dev/vx/rdsk/oracle/mydb_raw_olts_default_128m
OLTS_SVRMGSTORE1=/dev/vx/rdsk/oracle/mydb_raw_olts_svrmgstore_64m
    
```

See [Section 10.2.8, "Schemas and Tablespaces"](#) for a list of tablespaces and schemas in the OracleAS Metadata Repository.

When you run OracleAS RepCA, it reads this file and populates the Specify Tablespace Information screen with the data. You just need to confirm the data on that screen.

If you do not create this file, you can still run the OracleAS RepCA to install the OracleAS Metadata Repository in a Real Application Clusters database. On the screen where OracleAS RepCA would have displayed the data read from the file, it leaves the fields blank, and you need to enter the data manually.

4. Point the DBCA_RAW_CONFIG environment variable to the file.

For example, if you saved the file as `/opt/oracle/repca/tablespace_map.txt`, then you would set the environment variable as follows:

Example (C shell):

```
% setenv DBCA_RAW_CONFIG /opt/oracle/repca/tablespace_map.txt
```

Example (Bourne or Korn shell):

```
$ DBCA_RAW_CONFIG=/opt/oracle/repca/tablespace_map.txt; \
export DBCA_RAW_CONFIG
```

5. Start up the OracleAS RepCA on the computer where the database is installed. See [Section 10.6, "Starting OracleAS RepCA"](#). The parameters that you need in this case are `-OH`, `-RAC`, and `-LOGDIR`, if you want to specify a different log directory. For example:

```
runRepca -OH /opt/oracle/oradb -RAC -LOGDIR /opt/oracle/repca/logs
```

6. Follow the screens:

Table 10–12 Steps for Installing OracleAS Metadata Repository in an Existing Real Application Clusters Database

Screen	Action
1. Welcome	Click Next .

Table 10–12 Steps for Installing OracleAS Metadata Repository in an Existing Real Application Clusters Database

Screen	Action
2. Specify Database Connect	<p>Enter connect information for the existing database.</p> <p>SYS Password: Enter the password for the SYS user.</p> <p>Hostname and Port: Enter the name of the computer and the port number for the database. Use the format: <i>hostname:port</i>. If your middle tier instances are located in a different domain, you need to append the domain name to the hostname.</p> <p>Example 1 (same domain): <code>myhost:1521</code></p> <p>Example 2 (different domain): <code>myhost.mydomain.com:1521</code></p> <p>Service Name: Enter the service name of the database. Note that the service name must include the database domain name.</p> <p>Example: <code>asdb.mydomain.com</code></p> <p>Click Next.</p>
3. Specify Tablespace Information	<p>This screen displays values read from the file pointed to by the <code>DBCAS_RAW_CONFIG</code> environment variable. Correct the values, if necessary, and click Next.</p>
4. Register with Oracle Internet Directory	<p>If you already have an Oracle Internet Directory and know its connect information, select Register Now and enter the name of the computer where Oracle Internet Directory is running and the port number.</p> <p>Use Only SSL Connections with this Oracle Internet Directory: Select this option if you want OracleAS RepCA to connect to Oracle Internet Directory using SSL when performing the registration.</p> <p>If you do not have an Oracle Internet Directory, or do not know its connect information, or plan to use the OracleAS Metadata Repository only for OracleAS Cluster, select Register Later.</p> <p>Click Next.</p>
5. Specify Login for Oracle Internet Directory	<p>This screen appears if you selected Register Now in the previous screen.</p> <p>Enter the Username and Password to log in to Oracle Internet Directory. The user must belong to the <code>iASAdmins</code> group. You can use the user's simple name (for example, <code>jdoe</code>) or the DN (for example, <code>cn=orcladmin</code>).</p> <p>If your Oracle Internet Directory contains more than one realm, you need to enter the realm that contains the specified user.</p> <p>Click Next.</p>
6. Loading Repository	<p>The OracleAS RepCA creates and populates the tablespaces and schemas.</p>
7. Finish	<p>Click Finish to exit .</p>

7. Unlock the `dcm` schema and set its password. This step is required only if (1) you want to use the metadata repository **only** for database clustering of middle tier instances **and** (2) you did not register the metadata repository with Oracle Internet Directory.
 - a. Set the `ORACLE_HOME` environment variable to point to the full path of the directory where the database is installed.
 - b. Set the `ORACLE_SID` environment variable to the database's SID.
 - c. 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;
```

10.9 Registering the OracleAS Metadata Repository with Oracle Internet Directory

If you did not register the OracleAS Metadata Repository with an Oracle Internet Directory when you installed it, you can run the OracleAS RepCA again just to do the registration. When you run the OracleAS RepCA with the `-REGISTER` option, it does not install any schemas or tablespaces in the database.

You cannot use the Database Configuration Assistant (DBCA) to register the OracleAS Metadata Repository with Oracle Internet Directory if the metadata repository is in a Real Application Clusters database. You must use OracleAS RepCA to do the registration.

Notes:

- When using OracleAS RepCA to register a Metadata Repository with Oracle Internet Directory, make sure that Oracle Internet Directory does not have another Metadata Repository registered with the same system identifier (SID). Otherwise, you will get a message that the Metadata Repository is already registered.
 - OracleAS RepCA cannot check if you are registering a database that is already registered with a different Oracle Internet Directory. (It can only check if the database is already registered with the specified Oracle Internet Directory.) Although registration may be successful, you may get unexpected behavior during runtime.
-

To register the OracleAS Metadata Repository with Oracle Internet Directory:

1. Start up OracleAS RepCA on the computer where the database is installed. See [Section 10.6, "Starting OracleAS RepCA"](#).

Example 1: Registering a OracleAS Metadata Repository that is installed in a non-Real Application Clusters database:

```
runRepca -OH /opt/oracle/oradb -REGISTER
```

Example 2: Registering a OracleAS Metadata Repository that is installed in a Real Application Clusters database:

```
runRepca -OH /opt/oracle/oradb -RAC -REGISTER
```

2. Follow the screens:

Table 10–13 Steps for Registering the OracleAS Metadata Repository

Screen	Action
1. Welcome	Click Next .
2. Specify Database Connect	<p>Enter connect information for the database.</p> <p>Username and Password: Enter the username and password to log in to the database. The user must have DBA privileges.</p> <p>Hostname and Port: Enter the name of the computer and the port number for the database. Use the format: <i>hostname:port</i>. If your middle tier instances are located in a different domain, you need to append the domain name to the hostname.</p> <p>Example 1 (same domain): <code>myhost:1521</code></p> <p>Example 2 (different domain): <code>myhost.mydomain.com:1521</code></p> <p>Service Name: Enter the service name of the database. Note that the service name must include the database domain name.</p> <p>Example: <code>asdb.mydomain.com</code></p> <p>Click Next.</p>
3. Specify Oracle Internet Directory Connect	<p>Hostname: Enter the name of the computer where Oracle Internet Directory is running.</p> <p>Port: Enter the port number on which Oracle Internet Directory is listening.</p> <p>Use Only SSL Connections with this Oracle Internet Directory: Select this option if you want OracleAS RepCA to connect to Oracle Internet Directory using SSL when performing the registration.</p> <p>Click Next.</p>
4. Specify Login for Oracle Internet Directory	<p>Enter the Username and Password to log in to Oracle Internet Directory. The user must belong to the iASAdmins group. You can use the user's simple name (for example, <code>jdoe</code>) or the DN (for example, <code>cn=orcladmin</code>).</p> <p>If your Oracle Internet Directory contains more than one realm, you need to enter the realm that contains the specified user.</p> <p>Click Finish.</p>

If you exit OracleAS RepCA before the registration is completed or if the registration fails, you must perform the following manual steps before you run OracleAS RepCA again to re-register.

1. Remove repository entries from Oracle Internet Directory. See the *Oracle Internet Directory Administrator's Guide* for details.
2. Reset all schema passwords to their default values.

```
prompt> sqlplus "sys/password as sysdba"
SQL> alter user schema_name identified by schema_password;
```

3. Lock all schema passwords.

```
prompt> sqlplus "sys/password as sysdba"
SQL> alter user schema_name account lock password expire;
```

Once these steps are done, you can restart OracleAS RepCA to register the database.

10.10 Using the cleanMR Script to Drop Schemas and Tablespaces

Instead of removing OracleAS Metadata Repository schemas and tablespaces from your database by running SQL statements manually, you can remove these objects by running the `cleanMR` script. The script executes the SQL statements in the `repca_cleanup.sql` file, located in the same directory as the `cleanMR` script.

You must run the script on the computer that is running the database.

Location of the `cleanMR` script:

Table 10–14 Location of the cleanMR Script on CD-ROM and DVD

Media	Location of the cleanMR Script
CD-ROM	OracleAS RepCA and Utilities: <code>mount_point/repca/repca/clean/cleanMR</code>
DVD	<code>mount_point/repca_utilities/repca/clean/cleanMR</code>

To run the `cleanMR` script:

1. Copy the entire `clean` directory from the CD-ROM or DVD to your hard disk.

You cannot run the `cleanMR` script from the CD-ROM or DVD because the script needs to create a file in the directory containing the script. The following example copies the directory to the `/opt/oracle` directory.

CD-ROM (assumes `/cdrom` is the mount point):

```
prompt> cp -r /cdrom/repca/repca/clean /opt/oracle
```

DVD (assumes `/cdrom` is the mount point):

```
prompt> cp -r /cdrom/repca_utilities/repca/clean /opt/oracle
```

2. Run the script from the directory where you copied it to.

```
prompt> cd /opt/oracle/clean
```

```
prompt> ./cleanMR -OH db_OH -DBSID sid [-DBUSER dbuser] -DBPASSWD password
[-DBROLE dbrole]
```

Table 10–15 Parameters for the cleanMR Command

Parameter	Optional or Required	Description
-OH <i>db_OH</i>	Required	Specifies the ORACLE_HOME directory for the database.
-DBSID <i>sid</i>	Required	Specifies the SID of the database.
-DBUSER <i>dbuser</i>	Optional	Specifies the database user that the script will use to connect to the database. If not specified, the default user is "SYS".
-DBPASSWD <i>password</i>	Required	Specifies the password for DBUSER.
-DBROLE <i>dbrole</i>	Optional	Specifies the database user role. If not specified, the default role is "SYSDBA".

Example:

```
cleanMR -OH /opt/oracle/oradb -DBSID hrdb -DBPASSWD topsecret
```

Notes:

- The script does not remove the ODS schema, and it does not remove these tablespaces: OLTS_ATTRSTORE, OLTS_BATTRSTORE, OLTS_CT_STORE, OLTS_DEFAULT, OLTS_SVRMGSTORE. These objects pertain to Oracle Internet Directory.
If you want the script to remove these objects, search for the object names and uncomment the corresponding lines in the `repca_cleanup.sql` file (located in the same directory as the `cleanMR` script).
- The script does not remove data files.

10.11 Cleaning Up a Failed Registration or Deregistering a Metadata Repository

If OracleAS RepCA failed to register the metadata repository with Oracle Internet Directory, you have to clean up the entries in Oracle Internet Directory made by OracleAS RepCA before you can try to register it again.

You can also use this procedure if you need to de-register the metadata repository with Oracle Internet Directory.

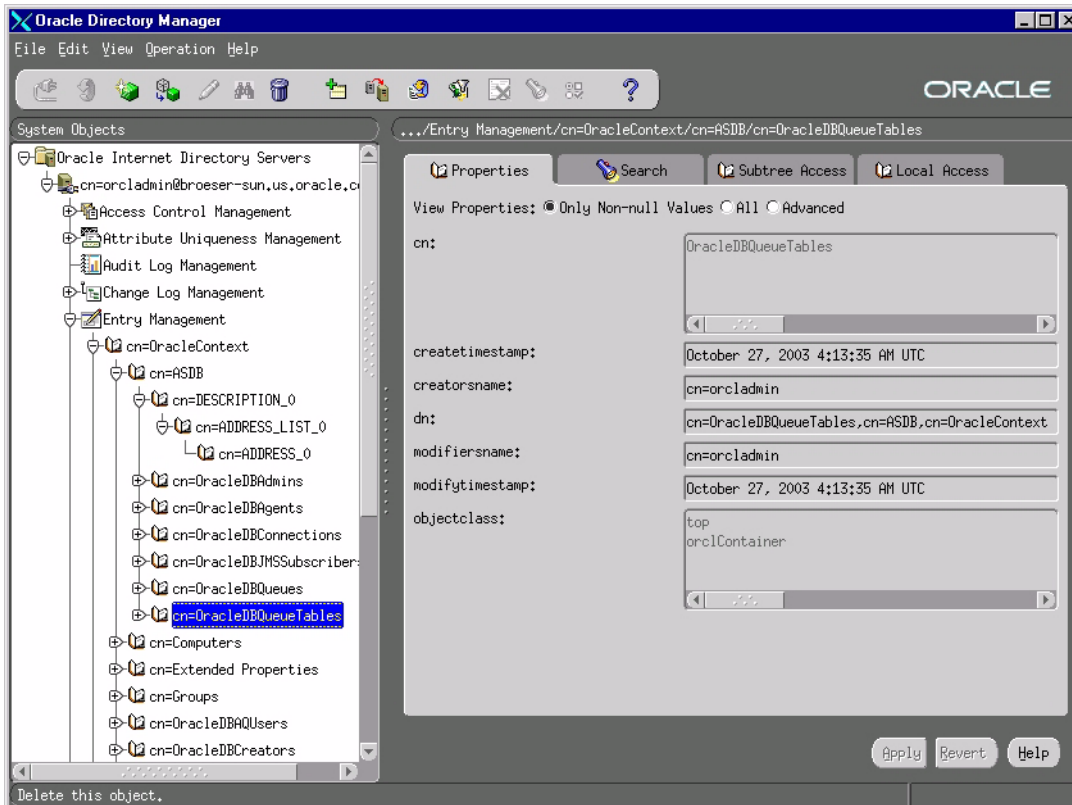
1. Connect to Oracle Internet Directory using Oracle Directory Manager.
 - a. Start up Oracle Directory Manager.

```
prompt> $ORACLE_HOME/bin/oidadmin
```
 - b. In the Connect screen, enter the connect information. Log in as the Oracle Internet Directory superuser (cn=orcladmin).
2. Clean up the database registration entries in Oracle Internet Directory:
 - a. Expand the following entries (as shown in [Figure 10-2](#)):
 - Expand "Entry Management".
 - Expand "cn=OracleContext".
 - Expand "cn=*your_database_name*".
 - b. Delete all the child entries under cn=*your_database_name*, starting with the bottom-most child entry.

Before deleting the cn=DESCRIPTION_0 entry, expand it until you reach the last child. Then delete each child starting with the innermost child.

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 some child entries, you may get some error messages. You can ignore these error messages.
 - c. Right-click cn=*your_database_name* and delete it.

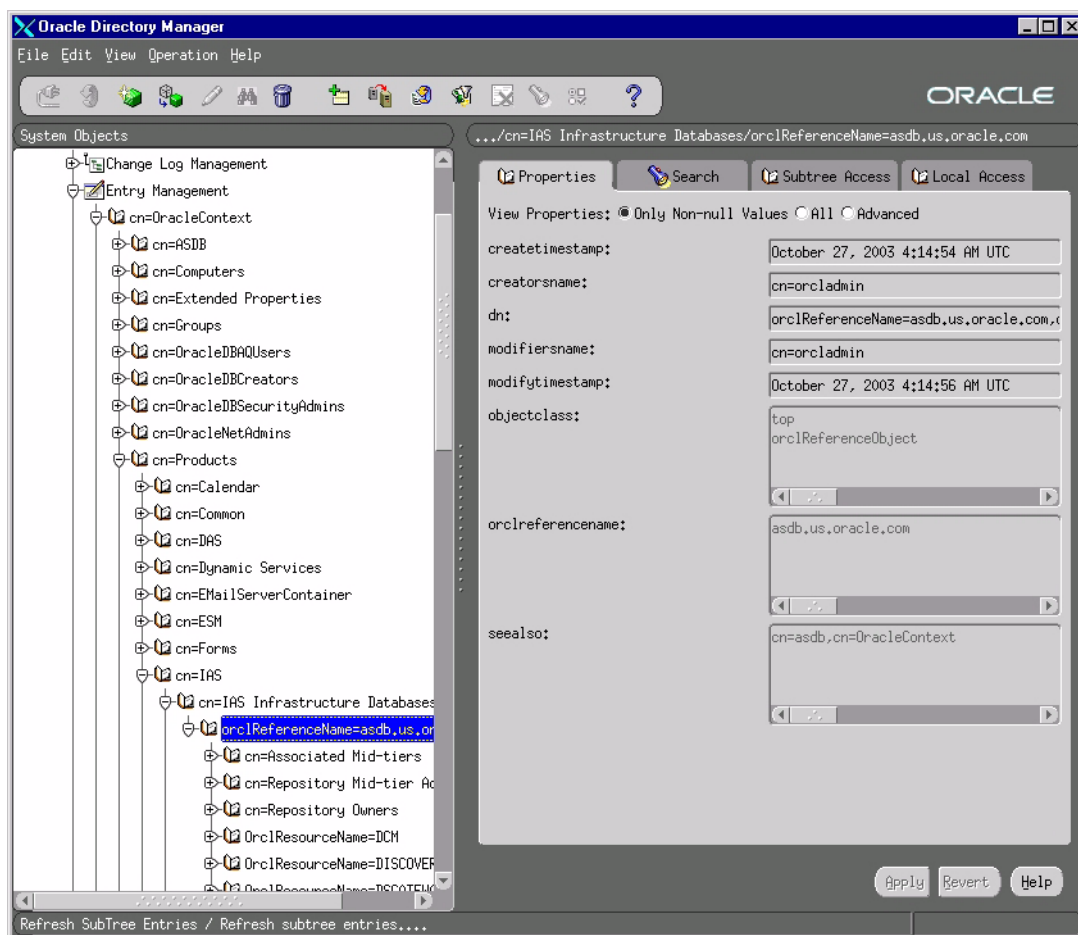
Figure 10–2 Clean up Database Registration Entries



3. Clean up the metadata repository registration entries in Oracle Internet Directory:
 - a. Expand the following entries (as shown in Figure 10–3):
 - Expand "Entry Management".
 - Expand "cn=OracleContext".
 - Expand "cn=Products".
 - Expand "cn=IAS".
 - Expand "cn=IAS Infrastructure Databases".
 - Expand "orclReferenceName=*your_database_name*".

- b. Delete each child entry under `orclReferenceName=your_database_name`.
- c. Delete the `orclReferenceName=your_database_name` entry.

Figure 10–3 Clean up Metadata Repository Registration Entries



10.12 Troubleshooting

This section describes problems that might arise when running OracleAS RepCA, and how to resolve them.

10.12.1 OracleAS RepCA Loses Connection to Database (Error Code ORA-03113)

This message appears if you did not run the `catpatch.sql` script when applying the 9.0.1.5 or 9.2.0.4 database patch set.

To fix this problem, exit OracleAS RepCA and run the `catpatch.sql` script on the database.

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 11-1](#) lists the recommended topologies:

Table 11-1 *Recommended Topologies Summary*

Topology	Environment	Requires Infrastructure?
Section 11.1, "Java Developer Topology"	Development	No
Section 11.2, "Portal and Wireless Developer Topology"	Development	Yes
Section 11.3, "Forms, Reports, and Discoverer Developer Topology"	Development	Yes
Section 11.4, "Integration Architect and Process Modeler Topology"	Development	Yes
Section 11.5, "Departmental Topology"	Deployment	Yes
Section 11.6, "Development Life Cycle Support Topology"	Development and Deployment	n/a
Section 11.7, "OracleAS Certificate Authority Topology"	Deployment	Yes

For More Topologies: For complex enterprise topologies, see the *Advanced Topologies for Enterprise Deployments* guide.

11.1 Java Developer Topology

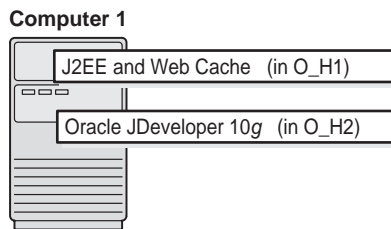
This is a single-computer development topology on which you can build, run, and test J2EE applications. It does not have an OracleAS Infrastructure 10g.

Target Users

J2EE application developers

Figure 11-1 shows a diagram of this topology.

Figure 11-1 J2EE and Web Cache with Oracle JDeveloper 10g



11.1.1 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 10g IDE, available as part of the Oracle Developer Suite 10g.

Notes

- You can configure this J2EE and Web Cache instance to use an OracleAS Infrastructure 10g 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 10g.

11.1.2 Requirements

The requirements are the same as those listed in [Chapter 4, "Requirements"](#).

11.1.3 Installation Sequence

You need to perform two installations:

- Install the J2EE and Web Cache, as described in [Section 7.8, "Installing a J2EE and Web Cache Without an Infrastructure"](#).
- Install Oracle JDeveloper 10g. See the *Oracle Developer Suite 10g 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 the J2EE and Web Cache and Oracle JDeveloper 10g in any order.

11.2 Portal and Wireless Developer Topology

This is a single-computer development topology containing an OracleAS Infrastructure 10g and a Portal and Wireless middle tier. The OracleAS Infrastructure 10g installation creates a new Oracle9i database and Oracle Internet Directory.

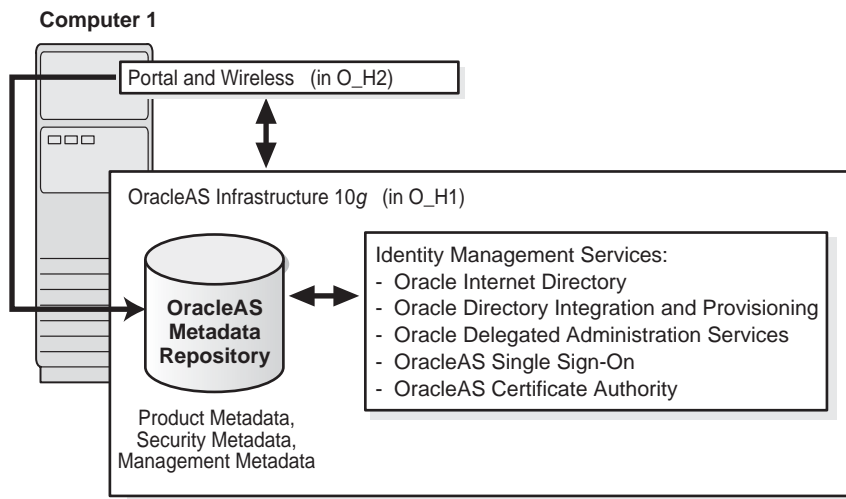
Target Users

Application developers, who can run and test their applications that access features provided by the included components

11.2.1 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 11.1, "Java Developer Topology"](#) because this topology runs an OracleAS Infrastructure 10g and a Portal and Wireless middle tier on the same computer. The infrastructure and the middle tier are installed in different Oracle homes.

Figure 11–2 Portal and Wireless Developer Topology



11.2.2 Requirements

The requirements are the same as those listed in [Chapter 4, "Requirements"](#).

11.2.3 Installation Sequence

Create this topology in the following order:

1. Install the OracleAS Infrastructure 10g.
Follow the steps in [Section 6.17, "Installing OracleAS Infrastructure 10g"](#) to install an infrastructure with a new Oracle9i database to contain the OracleAS Metadata Repository. The procedure also installs a new Oracle Internet Directory.
2. Install the Portal and Wireless middle tier.
Follow the steps in [Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms"](#).

You install them in different Oracle homes.

11.3 Forms, Reports, and Discoverer Developer Topology

This is a single-computer development topology containing:

- OracleAS Infrastructure 10g that installs a new Oracle9i database and Oracle Internet Directory.
- Business Intelligence and Forms middle tier
- Forms Builder (part of Oracle Developer Suite 10g)
- Reports Builder (part of Oracle Developer Suite 10g)
- Discoverer Administrator (part of Oracle Developer Suite 10g)

Target Users

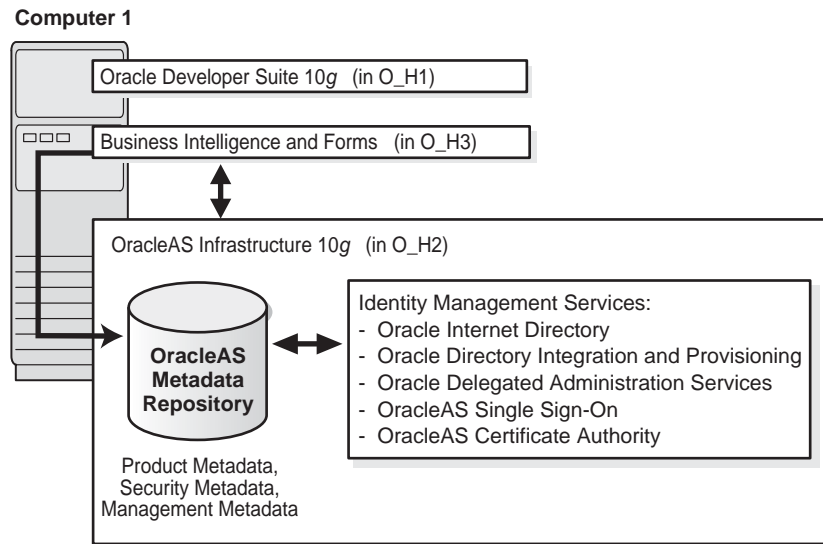
Forms, Reports, and Discoverer application developers

11.3.1 Description

This topology enables Forms and Reports developers to build and test their applications. Developers use Forms Builder and Reports Builder to develop their applications.

They can then deploy and run the applications on Oracle Application Server. The Business Intelligence and Forms middle tier provides the OracleAS Forms Services and OracleAS Reports Services components, which are needed to run the applications.

You install the OracleAS Infrastructure 10g and the Business Intelligence and Forms middle tier in separate Oracle homes. Forms Builder and Reports Builder are in a third Oracle home.

Figure 11–3 Forms, Reports, and Discoverer Application Development Topology

11.3.2 Requirements

The requirements are the same as those listed in [Chapter 4, "Requirements"](#).

11.3.3 Installation Sequence

Install the items in the following order. Install each item in its own Oracle home.

1. Install the Oracle Developer Suite 10g, including Forms Builder, Reports Builder, and Discoverer Administrator Console. See the *Oracle Developer Suite 10g Installation Guide* for details.
2. Install OracleAS Infrastructure 10g.
Follow the steps in [Section 6.17, "Installing OracleAS Infrastructure 10g"](#).
3. Install the Business Intelligence and Forms middle tier.
Follow the steps in [Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms"](#).

11.4 Integration Architect and Process Modeler Topology

This development topology enables OracleAS ProcessConnect architects and modelers to design applications that can communicate with external applications using Oracle Application Server and OracleAS ProcessConnect.

Target Audience

- OracleAS ProcessConnect integration architects, who are the designers of integration applications
- OracleAS ProcessConnect modelers, who use the OracleAS ProcessConnect user interface to define the modeling metadata used by integration applications

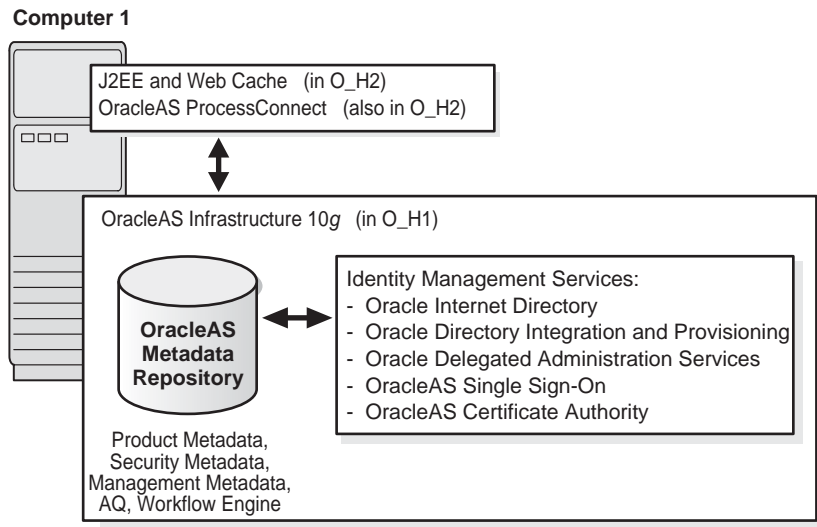
11.4.1 Description

This development topology includes:

- OracleAS Infrastructure 10g
- J2EE and Web Cache middle tier
- OracleAS ProcessConnect, which provides an application integration framework for e-business application integration. See the *Oracle Application Server ProcessConnect User's Guide* for details.

You can find OracleAS ProcessConnect on its own CD-ROM in the Oracle Application Server distribution. The OracleAS ProcessConnect CD-ROM also contains the *Oracle Application Server ProcessConnect Installation Guide*.

If you have the Oracle Application Server DVD, you can find OracleAS ProcessConnect in the `processconnect` directory.

Figure 11–4 Integration Architect and Process Modeler Topology

11.4.2 Requirements

The requirements are the same as those listed in [Chapter 4, "Requirements"](#).

For OracleAS ProcessConnect requirements, see the *Oracle Application Server ProcessConnect Installation Guide*, which is on the OracleAS ProcessConnect CD-ROM or in the `processconnect` directory on the Oracle Application Server DVD.

11.4.3 Assumptions

This topology makes the following assumptions:

- When you install the OracleAS Infrastructure 10g, you create a new Oracle Internet Directory.
- When you install the OracleAS Infrastructure 10g, you create a new database for the OracleAS Metadata Repository. This OracleAS Metadata Repository is also used by OracleAS ProcessConnect.

11.4.4 Installation Sequence

Install the items in the following order (see [Figure 11–4](#)).

1. In O_H1, install an OracleAS Infrastructure 10g with Identity Management services and OracleAS Metadata Repository. See [Section 6.17, "Installing OracleAS Infrastructure 10g"](#) for specific steps.

This creates a database to contain the OracleAS Metadata Repository. It also creates an Oracle Internet Directory.

2. In O_H2, install a J2EE and Web Cache middle tier. See [Section 7.9, "Installing J2EE and Web Cache with OracleAS Database-Based Cluster and 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 ProcessConnect in the Oracle home where you installed the J2EE and Web Cache middle tier. See the *Oracle Application Server ProcessConnect Installation Guide* (on the OracleAS ProcessConnect CD-ROM or in the `processconnect` directory on the Oracle Application Server DVD) for details on how to install OracleAS ProcessConnect.

11.5 Departmental Topology

This topology is smaller scale version of the topology described in the *Advanced Topologies for Enterprise Deployments* guide. It consists of an OracleAS Infrastructure 10g with two metadata repositories, and multiple middle tiers.

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.

11.5.1 Description

This topology ([Figure 11-5](#)) consists of an OracleAS Infrastructure 10g, 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.

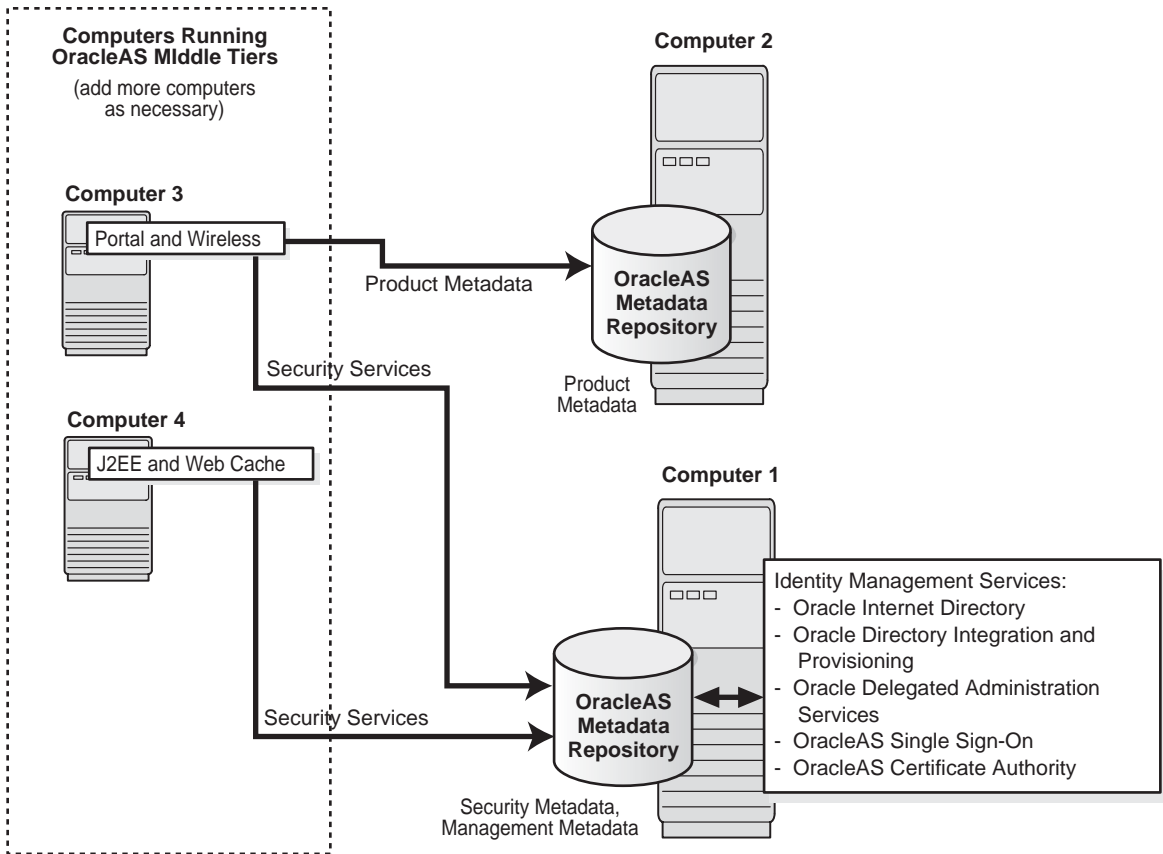
Expanding the Topology

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 the infrastructure in OracleAS Active Failover Cluster or OracleAS Cold Failover Cluster environments. See [Chapter 9, "Installing in High Availability Environments"](#) for details.

Figure 11-5 Departmental Topology



11.5.2 Requirements

The requirements are the same as those listed in [Chapter 4, "Requirements"](#).

11.5.3 Assumptions

This topology makes the following assumptions:

- When you install the OracleAS Infrastructure 10g, you create a new Oracle Internet Directory.

11.5.4 Installation Sequence

Install the items in the following order. The computers are listed in [Figure 11-5](#).

1. Computer 1: Install an OracleAS Infrastructure 10g with Identity Management services and OracleAS Metadata Repository. See [Section 6.17, "Installing OracleAS Infrastructure 10g"](#) 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 6.19, "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 or Business Intelligence and Forms"](#).

When the installer prompts for Oracle Internet Directory, enter the connect information for the Oracle Internet Directory created in step 1. This Oracle Internet Directory contains the registration for the OracleAS Metadata Repository installed in steps 1 and 2.

When the installer prompts for the OracleAS Metadata Repository, select the OracleAS Metadata Repository installed in step 2.

4. Computer 4: Install a J2EE and Web Cache middle tier. See [Section 7.9, "Installing J2EE and Web Cache with OracleAS Database-Based Cluster and 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.

11.6 Development Life Cycle Support Topology

This topology is a combination of other topologies to support moving applications from test to stage to production environments.

- Test environment: Application developers test their applications in their own environments. Examples of testing environments:
 - [Section 11.1, "Java Developer Topology"](#)
 - [Section 11.2, "Portal and Wireless Developer Topology"](#)
 - [Section 11.3, "Forms, Reports, and Discoverer Developer Topology"](#)
- Stage environment: QA personnel test all applications before deploying them to the production environment. In this environment, you can use the topology described in [Section 11.5, "Departmental Topology"](#). 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.

11.6.1 Moving Applications from Test to Stage

To move applications from a test to a stage environment, you deploy them on middle tiers in the stage environment. The applications use the 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.

11.6.2 Moving Applications from Stage to Production

You can move applications from a stage environment to a production by deploying the applications and moving any application-specific data from the stage environment to the production environment.

Another method is to configure the middle tier in the stage environment to use a different infrastructure (that is, point the middle tier to use the infrastructure in the production environment). You can use this feature to move middle tiers (and their applications) from stage to production.

You still need to move application-specific data stored in a stage database to a database in the production environment.

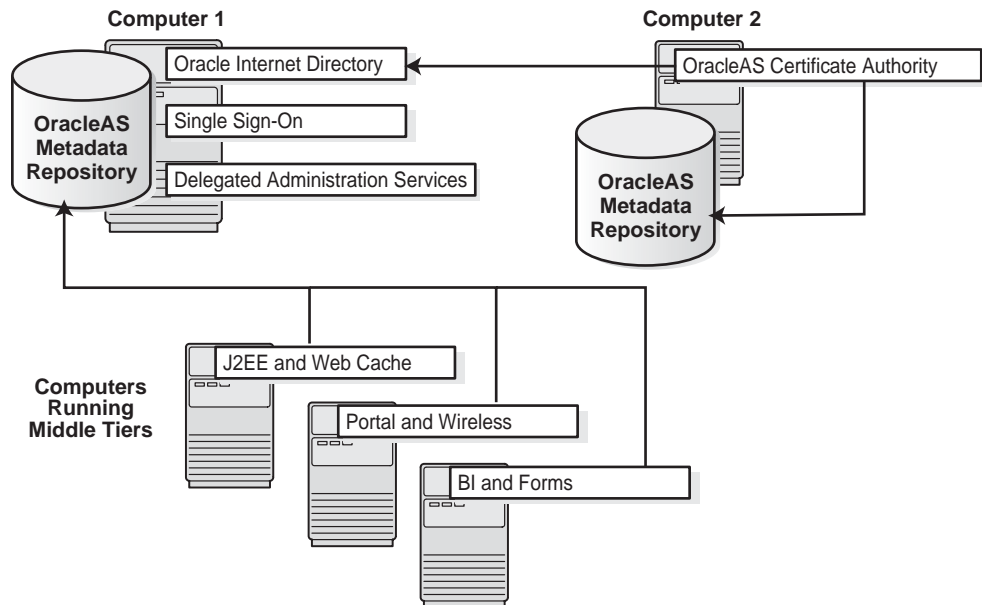
This method is convenient if you need additional computers for the production environment. In one step, you add a computer that already has a middle tier and deployed applications.

See the *Oracle Application Server 10g Administrator's Guide* for details.

11.7 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 infrastructure components (Figure 11-6). The other components use a different metadata repository.

Figure 11-6 Topology for OracleAS Certificate Authority



11.7.1 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.

11.7.2 Requirements

The requirements for the computers are listed in [Chapter 4, "Requirements"](#).

11.7.3 Installation Sequence

Install the items in the following order:

1. Computer 1: Install infrastructure components except for OracleAS Certificate Authority. See [Section 6.17, "Installing OracleAS Infrastructure 10g"](#) for steps.

Note: Do not select **OracleAS Certificate Authority** 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 6.23, "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 with OracleAS Database-Based Cluster and Identity Management Access"](#)
 - [Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms"](#)

Post-Installation Tasks

After installing Oracle Application Server, complete the procedures described in this chapter:

- [Section 12.1, "Linux Installations"](#)
- [Section 12.2, "State of Oracle Application Server Instances After Installation"](#)
- [Section 12.3, "NFS Installations"](#)
- [Section 12.4, "OracleAS File-Based Clustering"](#)
- [Section 12.5, "Backup and Recovery"](#)
- [Section 12.6, "SSL"](#)
- [Section 12.7, "NLS_LANG Environment Variable"](#)
- [Section 12.8, "Component Configuration After Installation"](#)
- [Section 12.9, "Components That Require Post-Installation Tasks"](#)
- [Section 12.10, "Changing the Network Configuration"](#)
- [Section 12.11, "What to Do Next"](#)

12.1 Linux Installations

If you installed Oracle Application Server on a Linux system, include the `/usr/bin` directory as the first entry of the `PATH` environment variable. This is a requirement for relinking executables.

12.2 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 use scripts or the Oracle Enterprise Manager Application Server Control to start and stop Oracle Application Server instances. See the *Oracle Application Server 10g Administrator's Guide* for details.

12.3 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.

12.4 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 10g 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.

12.5 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 10g Administrator's Guide* for details.

12.6 SSL

By default, most components are not configured for SSL. To enable SSL for the components, view the guide for the specific components. For example, to enable SSL for Oracle HTTP Server, see the *Oracle HTTP Server Administrator's Guide*.

12.7 NLS_LANG Environment Variable

Check the value of the NLS_LANG environment variable to ensure that it is correct for your environment. See the *Oracle Application Server 10g 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.

12.8 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 12.8.1, "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.

12.8.1 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.

Before you can do so, 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.

Also, check whether or not mod_osso is configured. 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. 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 2 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 4.

2. 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. On Linux, set the LD_LIBRARY_PATH environment variable to contain \$ORACLE_HOME/lib and \$ORACLE_HOME/network/lib. On HP-UX, set the SHLIB_PATH environment variable to contain \$ORACLE_HOME/lib32 and \$ORACLE_HOME/network/lib32.
 - c. 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 -sslif false
```

Table 12–1 describes the parameters where you have to supply values:

Table 12–1 Parameters for Configuring mod_osso

Parameter	Description
-h <i>OIDhost</i>	Specifies the name of the computer where Oracle Internet Directory is running. You can determine this value from the <i>OIDhost</i> parameter in the <i>ORACLE_HOME/config/ias.properties</i> file.
-p <i>OIDport</i>	Specifies the port number on which Oracle Internet Directory is listening. You can determine this value from the <i>OIDport</i> parameter in the <i>ORACLE_HOME/config/ias.properties</i> file.

Table 12–1 Parameters for Configuring mod_osso

Parameter	Description
-u <i>OIDadminName</i>	Specifies the login name for Oracle Internet Directory. Use the superuser: cn=orcladmin.
-w <i>OIDclearTextPassword</i>	Specifies the password for the Oracle Internet Directory user.
-o <i>ORACLE_HOME</i>	Specifies the full path to the directory where you installed OracleAS Infrastructure 10g.
-m <i>ASinstanceName</i>	Specifies the name of the OracleAS Infrastructure 10g instance where you want to configure mod_osso. You can determine this value from the <i>IASname</i> parameter in the <i>ORACLE_HOME/config/ias.properties</i> file.
-infra <i>infraGlobalDBname</i>	Specifies the name of the OracleAS Metadata Repository database. You can determine this value from the <i>InfrastructureDBCommonName</i> parameter in the <i>ORACLE_HOME/config/ias.properties</i> file.
-mh <i>host</i>	Specifies the full hostname (including the domain name) of the computer where you want to configure Oracle Delegated Administration Services.
-sslport <i>sslPort</i>	Specifies the SSL port for Oracle Internet Directory. You can determine this value from the <i>OIDsslport</i> parameter in the <i>ORACLE_HOME/config/ias.properties</i> file.

- 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
```

- 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.

12.9 Components That Require Post-Installation Tasks

If you plan to use any of the components listed in [Table 12–2](#), you need to perform some steps specific to the component after installation before you can use the component. [Table 12–2](#) lists the component guides that describe the steps.

Table 12–2 Components Requiring Post-Installation Steps

Component	Guide That Describes the Post-Installation Steps
OracleAS Portal	<i>Oracle Application Server Portal Configuration Guide</i>
OracleAS Wireless	<i>Oracle Application Server Wireless Administrator's Guide</i>
Oracle Ultra Search	<i>Oracle Ultra Search User's Guide</i>
OracleAS Syndication Services	<i>Oracle Application Server Syndication Services Developer's and Administrator's Guide</i>
OracleAS Discoverer	<i>Oracle Discoverer Administrator Administration Guide</i> Note: You can find this guide on the Documentation CD-ROM for Oracle Developer Suite 10g (or on the Oracle Developer Suite and Documentation DVD). Do not confuse this guide with the <i>Oracle Application Server Discoverer Configuration Guide</i> .
OracleAS Reports Services	<i>Oracle Application Server Reports Services Publishing Reports to the Web</i>
OracleAS Personalization	<i>Oracle Application Server Personalization Administrator's Guide</i>
OracleAS Certificate Authority	<i>Oracle Application Server Certificate Authority Administrator's Guide</i>

12.10 Changing the Network Configuration

If installed Oracle Application Server on a Linux computer using a loopback IP address you need to change the Oracle Application Server network configuration to allow other computers access to Oracle Application Server. The procedure to change the network configuration is described in the *Oracle Application Server 10g Administrator's Guide*.

Note: If you have installed OracleAS Infrastructure 10g, make sure that the hostname does not change when you change the network configuration.

12.11 What to Do Next

After installing Oracle Application Server, you should read the *Oracle Application Server 10g 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 10g 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.

Installing OracleAS Developer Kits 10g

OracleAS Developer Kits 10g 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 10g do not provide a complete IDE (integrated development environment). If you need an IDE, you can install Oracle JDeveloper 10g, available with Oracle Developer Suite 10g or with Oracle Application Server Java Edition.

Perform the following procedure to install OracleAS Developer Kits 10g.

Table A–1 Steps for Installing the OracleAS Developer Kits 10g

Screen	Action
1. --	Start up the installer. See Section 5.15, "Starting the Oracle Universal Installer" for details.
2. Welcome	Click Next .
3. Specify File Locations	<p>Name: Enter a name to identify this Oracle home. This is not the name of the directory.</p> <p>Example: OH_DEVKIT_904</p> <p>Path (under Destination): Enter the full path to the destination directory. This is the Oracle home.</p> <p>Example: /opt/oracle/OraDevKit_904</p> <p>Click Next.</p>
4. Run <code>oraInstRoot.sh</code>	Run the <code>oraInstRoot.sh</code> script in a different shell as the root user. The script is located in the <code>oraInventory</code> directory. You need to do this only if the OracleAS Developer Kits 10g is the first Oracle product to be installed on this computer. Click OK .

Table A-1 Steps for Installing the OracleAS Developer Kits 10g

Screen	Action
5. Specify Inventory Directory	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>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.</p> <p>Example: <code>/opt/oracle/oraInventory</code></p> <p>Click Next.</p>
6. Select a Product to Install	<p>Select OracleAS Developer Kits 10g.</p> <p>If you need to install additional languages, click Product Languages. See Section 5.6, "Installing Additional Languages" for details.</p> <p>Click Next.</p>
7. Specify OracleAS Instance Name and ias_admin Password	<p>Instance Name: Enter a name for this instance. Instance names can contain the \$ and _ (underscore) characters in addition to any alphanumeric characters. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique.</p> <p>Example: <code>devkits_904</code></p> <p>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.</p> <p>Example: <code>welcome99</code></p> <p>Click Next.</p>
8. Choose JDK Home Directory (HP-UX only)	<p>Enter JDK Home: Enter the full path to the HP Java 2 SDK 1.4.1.05 (or higher) for PA-RISC installation.</p> <p>Click Next.</p>
9. Summary	Verify your selections and click Install .
10. Install Progress	This screen shows the progress of the installation.
11. Run <code>root.sh</code>	Run the <code>root.sh</code> 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 Finish to quit the installer.

Troubleshooting

This appendix lists some methods for troubleshooting your Oracle Application Server installation. It includes the following topics:

- [Section B.1, "Verify Requirements"](#)
- [Section B.2, "User Interface Does Not Display Properly"](#)
- [Section B.3, "What to Do If an Installation Error Occurs"](#)
- [Section B.4, "Troubleshoot Configuration Assistants"](#)
- [Section B.5, "Descriptions of Oracle Application Server Configuration Assistants"](#)

B.1 Verify Requirements

Review the following information before performing any of the troubleshooting steps in this appendix:

- Ensure that the computer meets the requirements specified in [Chapter 4, "Requirements"](#).
- Ensure that you have completed all of the pre-installation requirements specified in [Chapter 4, "Requirements"](#).

Check Dependencies

If you are installing a middle tier, check that the OracleAS Infrastructure 10g that you want to associate the middle tier with is running during installation.

Read the Release Notes

Read the *Oracle Application Server 10g Release Notes* prior to installing Oracle Application Server. The release notes are available with the platform-specific documentation. The latest version of the release notes is available on OTN at:

<http://otn.oracle.com/documentation/ias.html>

B.2 User Interface Does Not Display Properly

If you are serving non-English content and forgot to click the Product Languages in the installation (see [Section 5.6, "Installing Additional Languages"](#)), 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 RepCA and Utilities" CD-ROM or from the Oracle Application Server DVD.

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

DVD: Copy the contents of the `repca_utilities/utilities/fonts` directory on the DVD to the `ORACLE_HOME/jdk/jre/lib/fonts` directory.

B.3 What to Do If an Installation Error Occurs

If you encounter an error during installation of Oracle Application Server:

- If you entered incorrect information on one of the installation screens, return to that screen by clicking **Back** until you see the screen.
- Exit the installer only if you want to access the component log files. The log files located `ORACLE_HOME/cfgtoollogs` directory are inaccessible if the installer is still in use.
- If you encounter an error while the installer is copying or linking files, perform the following tasks:
 1. Note the error and review the installation logs for causes:
 - * `oraInventory_location/logs/installActiontimestamp.log`
 - * `oraInventory_location/logs/oraInstalltimestamp.err`
 - * `oraInventory_location/logs/oraInstalltimestamp.out`

2. Remove the failed installation by following the steps in [Appendix C, "Deinstallation and Reinstallation"](#).
3. Correct the issue that caused the error.
4. Restart the installation.

B.4 Troubleshoot Configuration Assistants

To troubleshoot an installation error that occurs when the configuration assistants are running:

- Review the installation log files listed in [Section B.3, "What to Do If an Installation Error Occurs"](#).
- Review the configuration assistant log files located in the `ORACLE_HOME/cfgtoollogs` directory for a specific Oracle Application Server configuration assistant. [Section B.5, "Descriptions of Oracle Application Server Configuration Assistants"](#) also lists any other log file locations for a specific configuration assistant. Try to fix the issue that caused the error.
- If you see a "Fatal Error. Reinstall" message, try to find the cause of the problem by analyzing the log files. Refer to [Section B.4.3, "Fatal Errors"](#) for further instructions.

B.4.1 Configuration Assistant Failure

Oracle Application Server configuration assistant failures are noted at the bottom of the installation screen. The Oracle Application Server configuration assistant interface displays additional information, if applicable. The configuration assistant's execution status will be identified by the result. The result codes are:

Status	Result Code
Configuration Assistant Succeeded	0
Configuration Assistant Failed	1
Configuration Assistant Cancelled	-1

This result code is written to the following log file:

`oraInventory/logs/installActiontimestamp.log`

B.4.2 Failure During Component Configuration and Startup

During installation, configuration assistants run when the Configuration Assistants screen appears. If a configuration assistant fails, try the following procedure to correct the problem:

1. Review the installation log files for this Oracle Application Server instance.
2. Review the log files for each configuration assistant located in the `ORACLE_HOME/cfgtoollogs` directory. Default log file locations are described in [Section B.5, "Descriptions of Oracle Application Server Configuration Assistants"](#).
3. Refer to the section describing the configuration assistants in [Section B.5, "Descriptions of Oracle Application Server Configuration Assistants"](#).
 - a. If the failing configuration assistant has any dependencies, then run the dependencies again. You must do this even if the dependency completed successfully.
 - b. Run the failing configuration assistant again. If you are using the installer, select the configuration assistant and click **Retry**.

If the configuration assistant fails again after you click **Retry**, then you must remove the `/var/tmp/EM_CONFIG_INSTALL.1k` lock entry and try re-running the configuration assistant again.

- c. 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**.
- d. 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 `configToolCommands` located in the `ORACLE_HOME/cfgtoollogs` directory to execute the failed configuration assistant again. The `configToolCommands` script is generated after you exit the installer. During silent or non-interactive installation of Oracle Application Server the `configToolCommands` script is generated immediately after configuration assistant failure.

You must set the following environment variables before using the generated script:

- Set the `ORACLE_HOME` environment variable to the `ORACLE_HOME` path.

- Append the shared library path environment variable with the exact locations of `ORACLE_HOME/lib` and `ORACLE_HOME/network/lib`.
[Table 4-15](#) lists the shared library path environment variables for different platforms
- For the Register DCM Plug-Ins With EM Configuration Assistant only, set the `PERL5LIB` environment variable to the `ORACLE_HOME/perl/lib/5.6.1` directory.

Note: If the description of a configuration assistant includes an "Initial Tasks" section, you must perform these tasks before running the configuration assistant.

B.4.3 Fatal Errors

Some configuration assistant failures are "fatal errors". 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:

1. Deinstall the failed installation using the procedure described in [Section C.1, "Deinstallation of 10g \(9.0.4\) Instances"](#).
2. Correct the cause of the fatal error.
3. Reinstall Oracle Application Server.
4. If the fatal error reoccurs, then you must remove all Oracle installations from your computer.

B.4.4 How to Rerun OracleAS Randomize Password Configuration Assistant

The following steps describe how to rerun OracleAS Randomize Password Configuration Assistant:

1. Start Oracle Internet Directory Manager.
2. Enter the Oracle Internet Directory host, port, user name, and password.
3. Expand **Entry Management > cn=OracleContext > cn=Products > cn=IAS > cn=IAS Infrastructure Databases**.
4. Click `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 same value as the schema name. For example, if wireless is the schema name, change the orclpassword attribute value to wireless.
 - Change the orclflexattribute1 to **false**.

Click **Apply**.

Perform these steps for all of your schemas except ODS and OEM_REPOSITORY.

6. Login to the database location where the OracleAS Randomize Password Configuration Assistant failure is occurring.
7. Run the following SQL script:


```
SQL> $ORACLE_HOME/assistants/dbca/admin/unlock.sql
```
8. Rerun the OracleAS Randomize Password Configuration Assistant.

B.4.5 OC4J Instance Configuration Assistant Errors

If the OC4J Instance Configuration Assistant fails with the following error:

```
Adding dependent libraries for application 'portal'...done.
Deploying application 'oraudrepl' to OC4J instance 'OC4J_Portal'...
ERROR: Caught exception during deploy.
java.rmi.RemoteException: deploy failed!: ; nested exception is:
oracle.oc4j.admin.internal.DeployerException: User specified for
application-client uddirepl, 'uddi_replicator' not found
at com.evermind.server.rmi.RMIConnection.
EXCEPTION_ORIGINATES_FROM_THE_REMOTE_SERVER(RMIConnection.java:1520)
... lines omitted ...
```

check that your Oracle Internet Directory was upgraded successfully.

This error is seen when you are installing a middle tier against an Oracle Internet Directory that was upgraded from 9.2.0.x to 10g (9.0.4), but not all the upgrade steps were completed. Make sure you followed the steps on upgrading Oracle Internet Directory 9.2.0.x to 10g (9.0.4) as documented in the *Oracle Application Server 10g Upgrading to 10g (9.0.4)* guide. The instructions are in the "Upgrading the Identity Management Services" chapter.

B.4.6 UDDI Configuration Assistant Errors

If the UDDI Configuration Assistant fails with the following error:

```
WARN UddiCA: The DAS Public Group entry cannot be found. Users cannot be
assigned to the group uddi_unlimited_quota_group via DAS application.
javax.naming.NoPermissionException: [LDAP: error code 50 - Insufficient Access
Rights]; remaining name 'cn=default,cn=PublicGroups,cn=User Configuration,
cn=Attribute Configuration,cn=DAS,cn=Products,cn=OracleContext,dc=oracle,dc=com'
at com.sun.jndi.ldap.LdapCtx.mapErrorCode(LdapCtx.java:2953)
... lines omitted ...
```

check that your Oracle Internet Directory was upgraded successfully.

This error is seen when you are installing a middle tier against an Oracle Internet Directory that was upgraded from 9.2.0.x to 10g (9.0.4), but not all the upgrade steps were completed. Make sure you followed the steps on upgrading Oracle Internet Directory 9.2.0.x to 10g (9.0.4) as documented in the *Oracle Application Server 10g Upgrading to 10g (9.0.4)* guide. The instructions are in the "Upgrading the Identity Management Services" chapter.

B.4.7 Portal Configuration Assistant Errors

If the Portal Configuration Assistant fails with the following error:

```
Added DBA group as owner to DAS privilege group OracleDASDeleteUser.
Error in add_member_to_privilege_group
LDAP Error: 50: Insufficient access
p_group_dn: cn=oracledasuserpriv,cn=groups,cn=oraclecontext,dc=oracle,dc=com
p_member_dn: cn=dba,cn=portal.031111.0449,cn=groups,dc=oracle,dc=com
ERROR: Could not add DBA group to DAS privilege group OracleDASUserPriv.
Error in add_owner_to_privilege_group
LDAP Error: 50: Insufficient access
p_group_dn: cn=oracledasuserpriv,cn=groups,cn=oraclecontext,dc=oracle,dc=com
p_member_dn: cn=dba,cn=portal.031111.0449,cn=groups,dc=oracle,dc=com
ERROR: Could not add DBA group as owner to DAS privilege group
OracleDASUserPriv
...
Error in add_member_to_privilege_group
LDAP Error: 50: Insufficient access
p_group_dn:
cn=oracledascreategroup,cn=groups,cn=oraclecontext,dc=oracle,dc=com
p_member_dn:
cn=portal_administrators,cn=portal.031111.0449,cn=groups,dc=oracle,dc=com
ERROR: Could not add portal_administrators group to DAS privilege group
```

OracleDASCreateGroup.

check that your Oracle Internet Directory was upgraded successfully.

This error is seen when you are installing a middle tier against an Oracle Internet Directory that was upgraded from 9.2.0.x to 10g (9.0.4), but not all the upgrade steps were completed. Make sure you followed the steps on upgrading Oracle Internet Directory 9.2.0.x to 10g (9.0.4) as documented in the *Oracle Application Server 10g Upgrading to 10g (9.0.4)* guide. The instructions are in the "Upgrading the Identity Management Services" chapter.

B.5 Descriptions of Oracle Application Server Configuration Assistants

[Table B-1](#) 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.

Table B-1 Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
Application Server Control Configuration Assistant	The 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.	NA
BC4J Configuration Assistant	The BC4J Configuration Assistant integrates BC4J with the Oracle Enterprise Manager Application Server Control. This configuration assistant requires the presence of the <code>ORACLE_HOME/jlib/emConfigInstall.jar</code> file to operate.	NA
Database Migration Assistant	The Database Migration Assistant migrates the 9.0.2 infrastructure database to an 10g (9.0.4) infrastructure database. The database must be up and running prior to running this migration assistant.	<code>ORACLE_HOME/config/infratool_dcm_repository.log</code>
Database-managed OracleAS Cluster Assistant	Enables cluster configuration for selected databases.	NA

Table B–1 Oracle Application Server Configuration Assistants(Cont.)

Configuration Assistant	Description	Log File Location
Delegated Administration Service (DAS) Configuration Assistant	<p>The DAS Configuration Assistant sets up the DAS URL in Oracle Internet Directory and adds the necessary access control privileges to the DAS entity.</p> <p>The Infrastructure Instance Configuration Assistant must have run previous to using this configuration assistant.</p>	ORACLE_HOME/ldap/log/oidca.log
DCM Repository Backup Assistant	The DCM Repository Backup Assistant enables you to back up your DCM repository.	NA
Directory Integration Platform Configuration Assistant	<p>The Directory Integration Platform Configuration Assistant registers and starts the directory integration server when configured with Oracle Internet Directory.</p> <p>Oracle Internet Directory must be configured prior to using this configuration assistant.</p>	ORACLE_HOME/cfgtoollogs/ ORACLE_HOME/ldap/log/oidca.log
Discoverer Configuration Assistant	<p>The Discoverer Configuration Assistant:</p> <ul style="list-style-type: none"> ■ reads the contents of the discoconfig5.properties file ■ adds entries to the tartgets.xml file ■ adds a provider with a few parameters ■ adds an entry to opmn.xml ■ reloads OPMN ■ registers the Discoverer session 	ORACLE_HOME/oraInventory/logs/installActions<time.stamp>.log
Forms Configuration Assistant	<p>The Forms Configuration Assistant configures the OracleAS Forms Services server and integrates OracleAS Forms Services with Oracle Enterprise Manager Application Server Control.</p> <p>The OracleAS Infrastructure 10g must be up and running before running this configuration assistant. It adds an entry to targets.xml file.</p>	ORACLE_HOME/forms90/config/formsConfig.log
HTTP Server Configuration Assistant	The HTTP Server Configuration Assistant configures Oracle HTTP Server and registers it with the Oracle Enterprise Manager Application Server Control.	ORACLE_HOME/Apache/Apache/httpd.log

Table B-1 Oracle Application Server Configuration Assistants(Cont.)

Configuration Assistant	Description	Log File Location
Infrastructure Instance Configuration Assistant	<p>The Infrastructure Instance Configuration Assistant updates the <code>ORACLE_HOME/config/ias.properties</code> file, registers the instance in Oracle Internet Directory and creates the <code>ldap.ora</code> file with Oracle Internet Directory credentials in the <code>ORACLE_HOME/network/admin</code> file.</p> <p>The shared library path environment variable must be set to <code>ORACLE_HOME/lib</code> and <code>ORACLE_HOME/network/lib</code> directories before using this configuration assistant.</p> <p>Table 4-15 lists the shared library path environment variables for different platforms</p>	<p><code>ORACLE_HOME/config/infratool_instance_jazn.log</code></p>
Infrastructure mod_osso Configuration Assistant.	<p>The Infrastructure mod_osso Configuration Assistant registers mod_osso during installation. It plugs mod_osso into Oracle HTTP Server and provides integration with OracleAS Single Sign-On to authenticate users.</p> <p>This 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.</p>	<p><code>ORACLE_HOME/config/infratool_mod_osso.log</code></p>

Table B-1 Oracle Application Server Configuration Assistants(Cont.)

Configuration Assistant	Description	Log File Location
Infrastructure Schema Configuration Assistant	<p>The Infrastructure Schema Configuration Assistant registers the Infrastructure schemas in the Oracle Internet Directory.</p> <p>The shared library path environment variable must be set to ORACLE_HOME/lib and ORACLE_HOME/network/lib directories before using this configuration assistant.</p> <p>Table 4-15 lists the shared library path environment variables for different platforms</p> <p>Additionally, the Internet Directory Configuration Assistant and the Database Configuration Assistant must have run successfully before using this configuration assistant.</p>	ORACLE_HOME/config/scemaload.log
Infrastructure Upgrade Instance Configuration Assistant	<p>The Infrastructure Upgrade Instance Configuration Assistant removes ACL entries on the SSO Schema.</p> <p>The shared library path environment variable must be set to ORACLE_HOME/lib and ORACLE_HOME/network/lib directories before using this configuration assistant.</p> <p>Table 4-15 lists the shared library path environment variables for different platforms</p>	ORACLE_HOME/config/infratool_infra_upgrade.log
Internet Directory Configuration Assistant	<p>The Internet Directory Configuration Assistant initiates the Oracle Internet Directory server. It then loads the LDAP schemas used by Oracle Application Server components and sets up Identity Management for the enterprise.</p> <p>The infrastructure database creation must be complete, the listener must be up and running, and the tnsnames.ora file must be configured before using this configuration assistant.</p>	ORACLE_HOME/ldap/log/oidca.log
Java Security Configuration Assistant	<p>The Java Security Configuration Assistant changes default password and sets and reassigns new passwords for JAAS security.</p>	ORACLE_HOME/cfgtoollogs/jaznca.log

Table B-1 Oracle Application Server Configuration Assistants(Cont.)

Configuration Assistant	Description	Log File Location
OC4J Configuration Assistant	The OC4J Configuration Assistant integrates OC4J with the Oracle Enterprise Manager Application Server Control. It uses the Oracle Enterprise Manager Application Server Control-provided APIs to perform the following steps: <ul style="list-style-type: none"> ■ Add entries to the <code>targets.xml</code> file ■ Add entries to the <code>iasadmin.properties</code> file ■ This configuration assistant is dependent on the presence of the <code>deploy.ini</code> file. 	NA
OC4J Instance Configuration Assistant	The OC4J Instance Configuration Assistant configures OC4J instances for deployed Oracle Application Server applications.	NA
OPMN Configuration Assistant	The OPMN Configuration Assistant starts OPMN and OPMN-managed processes.	ORACLE_HOME/opmn/logs/opmn.log
OPMN Configuration Assistant- start Oracle HTTP Server	Starts Oracle HTTP Server through OPMN.	ORACLE_HOME/opmn/logs/HTTP_Server.log
OPMN Configuration Assistant- start DAS instance	Starts DAS instance through OPMN.	ORACLE_HOME/opmn/logs/opmn.log
Oracle Application Server Instance Configuration Assistant	Adds entry to <code>ORACLE_HOME/config/target2add.xml</code> file.	NA
Oracle Database Configuration Assistant	The Oracle Database Configuration Assistant configures the OracleAS Metadata Repository for Infrastructure use.	NA

Table B-1 Oracle Application Server Configuration Assistants(Cont.)

Configuration Assistant	Description	Log File Location
Oracle Net Configuration Assistant	The Oracle Net Configuration Assistant configures the database listener and configures the mid-tier Oracle Application Server instances to use the LDAP naming by default.	ORACLE_HOME/oraInventory/logs/installActions<time.stamp>.log
Oracle mod_osso Configuration Assistant	The Oracle mod_osso Configuration Assistant registers mod_osso during installation. It plugs mod_osso into Oracle HTTP Server and provides integration with OracleAS Single Sign-On to authenticate users. This 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
OracleAS Randomize Password Configuration Assistant	The OracleAS Randomize Password Configuration Assistant changes the default password of all schemas.	NA
OracleAS Instance Configuration Assistant	The OracleAS Instance Configuration Assistant adds Oracle Application Server instance name into the ORACLE_HOME/config/targets2add.xml file	NA
Personalization Configuration Assistant	The Personalization Configuration Assistant configures OracleAS Personalization.	NA
Portal Configuration Assistant	The Portal Configuration Assistant configures the installed instance of OracleAS Portal. The OracleAS Infrastructure 10g must be up and running before using this configuration assistant.	ORACLE_HOME/assistants/opca/install.log

Table B-1 Oracle Application Server Configuration Assistants(Cont.)

Configuration Assistant	Description	Log File Location
Register DCM Plug-Ins With EM Configuration Assistant	Registers DCM plug-ins with Enterprise Manager.	NA
Reports Configuration Assistant	<p>The Reports Configuration Assistant configures the OracleAS Reports Services server and integrates OracleAS Reports Services with Oracle Enterprise Manager Application Server Control.</p> <p>The OracleAS Infrastructure 10g must be up and running before using this configuration assistant.</p>	ORACLE_HOME/reports/config/reportsConfig.log
Single Sign-On Configuration Assistant	<p>The Single Sign-On Configuration Assistant configures OracleAS Single Sign-On.</p> <p>Oracle Internet Directory, OracleAS Metadata Repository, and the Repository API must be configured before you can use this configuration assistant.</p>	<p>ORACLE_HOME/sso/log/ssoca.log</p> <p>ORACLE_HOME/sso/log/ssoreg.log</p>
Ultrasearch Configuration Assistant	<p>The Ultrasearch Configuration Assistant performs the following:</p> <ul style="list-style-type: none"> ■ 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 Oracle Ultra Search metadata stored in the Identity Management Infrastructure. ■ Cleans up all the Oracle Ultra Search metadata stored in the Identity Management Infrastructure. 	<p>ORACLE_HOME/assistants.opca/ ultrasearchInst.log</p> <p>(Identity Management Configuration: ORACLE_HOME/cfgtoollogs/isearchca.log</p>

Table B–1 Oracle Application Server Configuration Assistants(Cont.)

Configuration Assistant	Description	Log File Location
Use Metadata Repository Configuration Assistant	<p>The Use Metadata Repository Configuration Assistant configures OracleAS Metadata Repository information for the Oracle Application Server middle-tier installation. This includes the ability to expand the J2EE and Web Cache install type with the Identity Management option enabled to a another installation type.</p> <p>The shared library path environment variable must be set to <code>ORACLE_HOME/lib</code> and <code>ORACLE_HOME/network/lib</code> directories before using this configuration assistant.</p> <p>Table 4–15 lists the shared library path environment variables for different platforms</p>	<p><code>ORACLE_HOME/config/</code> <code>infratool_midtier_upgrade.log</code></p>
Web Cache Configuration Assistant	<p>The Web Cache Configuration Assistant configures OracleAS Web Cache and registers it with Oracle Enterprise Manager Application Server Control.</p>	<p><code>ORACLE_HOME/webcache/log/log.xml</code></p>
Wireless Configuration Assistant	<p>The Wireless Configuration Assistant configures OracleAS Wireless.</p>	<p><code>ORACLE_HOME/wireless/logs/</code> <code>wireless_CA.out</code></p>
Wireless Development Kit Configuration Assistant	<p>The Wireless Development Kit Configuration Assistant configures the Wireless Development Kit.</p>	<p><code>ORACLE_HOME%/wireless/logs/wdk_ca.out</code></p>

Deinstallation and Reinstallation

This appendix guides you through the deinstallation and reinstallation process for Oracle Application Server.

Contents:

- [Section C.1, "Deinstallation of 10g \(9.0.4\) Instances"](#)
- [Section C.2, "Deinstallation of 9.0.2 or 9.0.3 Instances From a Computer That Also Contains 10g \(9.0.4\) Instances"](#)
- [Section C.3, "Reinstallation"](#)

C.1 Deinstallation of 10g (9.0.4) Instances

To deinstall Oracle Application Server instances, you have to clean up the items listed in [Table C-1](#).

The installation procedures, described later in this appendix, provide steps on how to delete these items. They also provide details on how to clean up the items that require manual steps.

Table C-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 <code>rm</code> command.
Entries for the deleted instance in the oraInventory directory	Installer
Instance name from Farm page	Installer

Table C-1 Items to Deinstall

Item to Clean Up	Tool to Use
Entries for the deleted instance in the <code>/var/opt/oracle</code> directory on HP-UX Entries in the <code>/etc/oratab</code> and <code>/etc/orainst.loc</code> files on Linux	You have to remove the entries manually. See: <ul style="list-style-type: none">■ Step 7 on page C-4 if you are deinstalling middle tiers.■ Step 7 on page C-6 if you are deinstalling OracleAS Infrastructure 10g.■ Step 6 on page C-7 if you are deinstalling OracleAS Developer Kits 10g.
Entries for the deleted instance in Oracle Internet Directory	You have to remove the entries manually. See Section C.1.7, "Removing Entries for a Deleted Instance from Oracle Internet Directory" .

The installer does not permit custom deinstallation of individual components.

This section covers the following topics:

- [Section C.1.1, "Change from Release 2 \(9.0.2\)"](#)
- [Section C.1.2, "Deinstallation Dependencies"](#)
- [Section C.1.3, "Instance Names"](#)
- [Section C.1.4, "Deinstalling Middle Tiers"](#)
- [Section C.1.5, "Deinstalling OracleAS Infrastructure 10g"](#)
- [Section C.1.6, "Deinstalling OracleAS Developer Kits 10g"](#)
- [Section C.1.7, "Removing Entries for a Deleted Instance from Oracle Internet Directory"](#)
- [Section C.1.8, "Removing Oracle Ultra Search Entries from Oracle Internet Directory"](#)
- [Section C.1.9, "Cleaning Up Oracle Application Server Processes"](#)

C.1.1 Change from Release 2 (9.0.2)

In Release 2 (9.0.2), if you have multiple Oracle9iAS instances installed on a computer, one of them was designated the primary installation. The primary installation contained the active Oracle Enterprise Manager. If you deinstall the primary installation, the installer prompts you designate one of the remaining Oracle9iAS instances to be the primary installation.

In 10g (9.0.4), there is no concept of primary installation. All instances on a computer have their own Oracle Enterprise Manager.

C.1.2 Deinstallation Dependencies

If you remove an infrastructure instance, all middle tier instances that depend on that infrastructure will no longer work. If you want to remove both infrastructure and middle tiers associated with it, deinstall all the middle tiers first, then deinstall the infrastructure.

If you want to keep the middle tier instances, you can configure them to use services from another infrastructure. See the *Oracle Application Server 10g Administrator's Guide* for details.

C.1.3 Instance Names

If you deinstall a middle tier instance that uses an infrastructure, you cannot reuse the name of the deinstalled instance when installing subsequent middle tier instances. To reuse the instance name, you must delete the entry for the deinstalled instance from Oracle Internet Directory.

C.1.4 Deinstalling Middle Tiers

1. Log in as the operating system user who installed the instance you want to deinstall.
2. De-register the middle tier from OracleAS Single Sign-On.

The command for de-registration is similar to the command for registration, except that the `-update_mode` parameter is set to `DELETE`.

Make sure the shared library path environment variable contains `$ORACLE_HOME/lib`.

[Table 4-15](#) lists the shared library path environment variables for different platforms

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*.

3. Stop all processes associated with the instance you want to deinstall.

See the *Oracle Application Server 10g Administrator's Guide* for details on how to stop the processes.

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 on HP-UX and the `/etc/oratab` file on Linux.

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. Remove entries for the deinstalled middle tier from Oracle Internet Directory. You have to perform this step if you want to reuse the instance name. See [Section C.1.7, "Removing Entries for a Deleted Instance from Oracle Internet Directory"](#).

C.1.5 Deinstalling OracleAS Infrastructure 10g

1. Log in as the operating system user who installed the instance you want to deinstall.
2. If you did not install OracleAS Certificate Authority, skip this step and go to step 3. If you installed OracleAS Certificate Authority, you have to run the following script.

```
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 script 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. Stop all processes associated with the instance you want to deinstall.

See the *Oracle Application Server 10g Administrator's Guide* for details on how to stop the processes.

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 lines for the deinstalled infrastructure instance from the `/var/opt/oracle/oratab` file on HP-UX and the `/etc/oratab` file on Linux.

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 `/privatel/infra`, and it includes a metadata repository whose SID is `asdb`, the lines would look like the following:

```
asdb:/privatel/infra:N
*/privatel/infra:N
```

8. Remove entries for the deinstalled infrastructure instance from Oracle Internet Directory. You have to perform this step if you want to reuse the instance name.

See [Section C.1.7, "Removing Entries for a Deleted Instance from Oracle Internet Directory"](#).

9. Remove entries for Oracle Ultra Search from Oracle Internet Directory. You have to perform this step if you want to reuse the database name or SID.

See [Section C.1.8, "Removing Oracle Ultra Search Entries from Oracle Internet Directory"](#).

10. If you are deinstalling the metadata repository but plan to reuse the Oracle Internet Directory, you should remove the metadata repository registration from Oracle Internet Directory. Follow the steps in [Section 10.11, "Cleaning Up a Failed Registration or Deregistering a Metadata Repository"](#).

C.1.6 Deinstalling OracleAS Developer Kits 10g

1. Log in as the operating system user who installed OracleAS Developer Kits 10g.
2. Stop all processes associated with the instance you want to deinstall.

See the *Oracle Application Server 10g 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 10g from the `/var/opt/oracle/oratab` file on HP-UX and the `/etc/oratab` file on Linux.

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
```

C.1.7 Removing Entries for a Deleted Instance from Oracle Internet Directory

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 the following entries:

Expand "Entry Management".

Expand "cn=OracleContext".

Expand "cn=Products".

Expand "cn=IAS".

Expand "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 the following entries:

Expand "Entry Management".

Expand "cn=OracleContext".

Expand "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**.

C.1.8 Removing Oracle Ultra Search Entries from Oracle Internet Directory

You need to remove Oracle Ultra Search entries from Oracle Internet Directory if you want to install another Oracle Application Server instance using the same database name or SID.

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 the following entries:
 - Expand "Entry Management".
 - Expand "cn=OracleContext".
 - Expand "cn=Products".
 - Expand "cn=Portal".
 - Expand "cn=UltraSearch".
 - Expand "cn=Database Instances".
 - Expand "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 the following entries:
 - 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".
 - Expand "cn=OracleContext".

Expand "cn=Products".

Expand "cn=Portal".

Expand "cn=UltraSearch".

Expand "cn=Database Instances".

Expand "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**.

C.1.9 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`.

C.2 Deinstallation of 9.0.2 or 9.0.3 Instances From a Computer That Also Contains 10g (9.0.4) Instances

If you have 9.0.2 or 9.0.3 and 10g (9.0.4) instances on the same computer, and you want to deinstall a 9.0.2 or 9.0.3 instance, perform these steps:

1. Apply patch 3234681 to your 9.0.2 or 9.0.3 instances. You can download the patch from *OracleMetaLink* (<http://metalink.oracle.com>).

See [Section C.2.1, "Issue: 10g \(9.0.4\) Instance Must Not Contain the Active Oracle Enterprise Manager"](#) for details on why you need this patch.

2. Stop all processes associated with the instance you want to deinstall.
3. Run the installer to deinstall the 9.0.2 or 9.0.3 instance. Make sure you run the installer for the 9.0.2 or 9.0.3 instance. For 9.0.2 and 9.0.3 instances, the installer is located in the `oui/install` directory at the same level as the Oracle home directory. For example, if the 9.0.2 or 9.0.3 Oracle home is `/opt/oracle/orahome902`, then the installer would be `/opt/oracle/oui/install/runInstaller`.

C.2.1 Issue: 10g (9.0.4) Instance Must Not Contain the Active Oracle Enterprise Manager

If you have multiple 9.0.2 and/or 9.0.3 instances on the same computer, these instances share an Oracle Enterprise Manager. This is the "active Oracle Enterprise Manager". When you deinstall the instance that contains the active Oracle Enterprise Manager using the installer, the installer needs to switch the active Oracle Enterprise Manager to one of the remaining instances. If there is only one remaining instance, then the installer automatically makes it the active Oracle Enterprise Manager. If more than one instance remain, the installer prompts you to select the instance to contain the active Oracle Enterprise Manager.

Unlike 9.0.2 or 9.0.3 instances, Oracle Application Server 10g (9.0.4) instances on the same computer do not share an Oracle Enterprise Manager. Each 10g (9.0.4) instance has its own Oracle Enterprise Manager.

Because 10g (9.0.4) instances do not share an Oracle Enterprise Manager, you must not select a 10g (9.0.4) instance to contain the active Oracle Enterprise Manager. You must select a 9.0.2 or 9.0.3 instance to contain the active Oracle Enterprise Manager.

If you select a 10g (9.0.4) instance, or if the installer automatically switches the active Oracle Enterprise Manager to a remaining instance that happens to be a 10g (9.0.4) instance, the installer overwrites files in the 10g (9.0.4) Oracle home with files from the 9.0.2 or 9.0.3 home. This causes Oracle Enterprise Manager to stop working.

The patch prevents the installer from automatically switching the active Oracle Enterprise Manager to a 10g (9.0.4) instance in the case where the only remaining instances are 10g (9.0.4) instances. It also prevents the installer from displaying 10g (9.0.4) instances in the list where you select the instance to contain the active Oracle Enterprise Manager.

C.2.2 If a 10g (9.0.4) Instance Becomes the Active Oracle Enterprise Manager

If a 10g (9.0.4) instance becomes the active Oracle Enterprise Manager, Oracle Enterprise Manager will stop working.

To fix this, perform these steps in the 10g (9.0.4) Oracle home:

1. Shut down the Oracle Enterprise Manager Application Server Control.

```
prompt> emctl stop iasconsole
```

2. Rename the following files. Do not delete the files, because you might need them in step 5. You can rename them with an "active" suffix (for example, `iasadmin.properties.active`):

- `ORACLE_HOME/sysman/config/iasadmin.properties`
- `ORACLE_HOME/sysman/emd/targets.xml`
- `ORACLE_HOME/sysman/j2ee/config/jazn-data.xml`
- `ORACLE_HOME/sysman/webapps/emd/WEB-INF/config/consoleConfig.xml`

3. Copy the backup files for the files listed in the preceding step.

The backup files are in the same directory as the listed files. The names of the backup files are suffixed with a digit (for example, `iasadmin.properties.1`). Check the timestamp, or check the content, of the backup files to determine the most recent backup file.

4. Start the Oracle Enterprise Manager Application Server Control.

```
prompt> emctl start iasconsole
```

5. If you have remaining 9.0.2/9.0.3 instances on the computer, you need to designate one of them to contain the active Oracle Enterprise Manager.

- a. Copy the files listed in step 2 (which you renamed with the active suffix) to the 9.0.2/9.0.3 instance's Oracle home. Rename them back to the original names (that is, remove the active suffix).
- b. Edit the `/var/opt/oracle/emtab` file on HP-UX and the `/etc/emtab` file on Linux to set the `DEFAULT` property to refer to the new active Oracle Enterprise Manager.

C.3 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.

If you deinstall a middle tier instance that uses an OracleAS Infrastructure 10g, you cannot reuse the name of the deinstalled instance when installing subsequent middle tier instances. To reuse the instance name, you must delete the entry for the deinstalled instance from Oracle Internet Directory.

Silent and Non-Interactive Installation

This appendix describes the silent and non-interactive installation of Oracle Application Server. The topics include:

- [Section D.1, "Silent Installation"](#)
- [Section D.2, "Non-Interactive Installation"](#)
- [Section D.3, "Requirements"](#)
- [Section D.4, "Pre-Installation"](#)
- [Section D.5, "Create the Response File"](#)
- [Section D.6, "Start the Installation"](#)
- [Section D.7, "Post-Installation"](#)

D.1 Silent Installation

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.

The installer uses the variables and parameter values contained in the response file to provide answers to all of the installer prompts. You include responses for all of the installer prompts in the response file. Silent installation displays no graphical output.

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 D.4, "Pre-Installation"](#).

Following installation of Oracle Application Server, you need to run the `root.sh` script. 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. Silent installation eliminates the need to monitor the Oracle Application Server installation because there is no graphical output and no input by the user.

D.2 Non-Interactive Installation

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. The installer uses the variables and parameter values contained in the response file to provide answers to some or all of the installer user prompts. There is graphical output and if you have not provided responses to all of the installer prompts, you may 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 D.4, "Pre-Installation"](#).

Following installation of Oracle Application Server, you need to run the `root.sh` script. 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.

Additionally, you can use non-interactive installation when performing the Oracle Application Server installation from a remote location using the command line.

D.3 Requirements

For a list of requirements, see [Chapter 4, "Requirements"](#).

D.4 Pre-Installation

If the `oraInst.loc` file does not exist on your computer, you must create it before starting the silent and non-interactive installation of Oracle Application Server.

The `oraInst.loc` file is typically stored in the `/var/opt/oracle` directory on HP-UX systems and the `/etc` directory on Linux systems. It is used by the Oracle Universal Installer during installation.

As the root user, create the `oraInst.loc` file in the `/var/opt/oracle` directory on HP-UX systems and the `/etc` directory on Linux systems. The `oracle` group is the group performing the installation.

Enter the following line of text in the `oraInst.loc` file:

```
inventory_loc=/full_path/oui_inventory
```

The `oraInst.loc` file specifies `inventory_loc` location for inventory files. If the `oraInst.loc` file is not located in your Oracle home, make sure the file has read and write permission for the `oracle` group.

Note: If you are expanding your middle tier, you must 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 10g Administrator's Guide*.

D.5 Create the Response File

Before silent or non-interactive installation you must provide information specific to your installation.

You must create a response file using any text editor or use the templates available in the `stage/Response` directory on Disk1 of your Oracle Application Server CD-ROM. Response file templates are available for the following install types:

- J2EE and Web Cache (`oracle.iappserver.iapptop.j2ee.rsp`)
- Portal and Wireless (`oracle.iappserver.iapptop.Portals.rsp`)
- Business Intelligence and Forms
(`oracle.iappserver.iapptop.Business.rsp`)
- OracleAS Infrastructure 10g: Identity Management and OracleAS Metadata Repository
(`oracle.iappserver.infrastructure.Infrastructure.rsp`)
- OracleAS Infrastructure 10g: Identity Management
(`oracle.iappserver.infrastructure.Infrastructure_ID.rsp`)

- OracleAS Infrastructure 10g: OracleAS Metadata Repository
(oracle.iappserver.infrastructure.Infrastructure_Meta.rsp)
- OracleAS Developer Kits 10g
(oracle.iappserver.devcorner.DevKit.rsp)
- Database Configuration Assistant (dbca.rsp)
- Net8 Configuration Assistant (netca.rsp)
- Static Port Configuration (staticports.ini)

Definitions of response file parameters are described in the stage/Response directory on Disk1 of the Oracle Application Server CD-ROM.

Note: The installer will fail if you attempt a silent session without appropriately configuring a response file.

Note: Oracle recommends specifying either "true" or "false" for Boolean parameters.

D.5.1 Example Response Files

The following sections shows example response files for the following Oracle Application Server installations:

- [Section D.5.1.1, "Standalone J2EE and Web Cache"](#)
- [Section D.5.1.2, "OracleAS Infrastructure 10g"](#)
- [Section D.5.1.3, "Portal and Wireless"](#)

D.5.1.1 Standalone J2EE and Web Cache

The following shows an example of a response file for a **non-interactive** installation of standalone instance of J2EE and Web Cache:

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME="dba"
FROM_LOCATION="/mount_point/Disk1/stage/products.jar"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
ORACLE_HOME="/local_location/oracle_home"
ORACLE_HOME_NAME="oracle_j2eehome_name"
TOPLEVEL_COMPONENT={"oracle.iappserver.iapptop", "9.0.4.0.0"}
```



```

SHOW_SPLASH_SCREEN=true
SHOW_WELCOME_PAGE=true
SHOW_COMPONENT_LOCATIONS_PAGE=true
SHOW_CUSTOM_TREE_PAGE=true
SHOW_SUMMARY_PAGE=true
SHOW_INSTALL_PROGRESS_PAGE=true
SHOW_REQUIRED_CONFIG_TOOL_PAGE=true
SHOW_OPTIONAL_CONFIG_TOOL_PAGE=true
SHOW_CONFIG_TOOL_PAGE=true
SHOW_RELEASE_NOTES=true
SHOW_ROOTSH_CONFIRMATION=true
SHOW_END_SESSION_PAGE=true
SHOW_EXIT_CONFIRMATION=true
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
SHOW_DEINSTALL_CONFIRMATION=true
SHOW_DEINSTALL_PROGRESS=true
SHOW_IAS_COMPONENT_CONFIG_PAGE=false
ACCEPT_LICENSE_AGREEMENT=true
RESTART_SYSTEM=false
CLUSTER_NODES=<Value Unspecified>
PreReqConfigSelections=""
DEINSTALL_LIST={"oracle.iappserver.iapptop","9.0.4.0.0"}
COMPONENT_LANGUAGES={"en"}
INSTALL_TYPE="Core"
oracle.iappserver.iapptop:szl_InstanceInformation={"iASInstancePassword"}
oracle.iappserver.instance:szl_InstanceInformation={"iASInstanceName",
"iASInstancePassword", "iASInstancePassword"}
oracle.iappserver.iapptop:SHOW_IAS_COMPONENT_CONFIG_PAGE=true
oracle.iappserver.iapptop:b_configureCalypso=true
oracle.iappserver.iapptop:b_clusterSupport=false
oracle.iappserver.iapptop:b_securityAccess=false
oracle.iappserver.iapptop:b_centralMonitor=<Value Unspecified>
nStartProcValidation=0
nValidationPreReqConfigSelections=0
oracle.iappserver.iapptop:nValidationInstanceInfo=0
oracle.apache.apache.s_group="dba"
oracle.apache.apache.s_groupid="dba"
JDKHome="<path to jdk>"

```

D.5.1.2 OracleAS Infrastructure 10g

The following shows an example of a response file for a **silent** installation of OracleAS Infrastructure 10g:

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME="dba"
FROM_LOCATION="/mount_point/Disk1/stage/products.jar"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
ORACLE_HOME="/local_location/oracle_home"
ORACLE_HOME_NAME="oracle_infracore_name"
SHOW_SPLASH_SCREEN=false
SHOW_WELCOME_PAGE=false
SHOW_INSTALL_PROGRESS_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_CUSTOM_TREE_PAGE=false
SHOW_SUMMARY_PAGE=false
SHOW_CONFIG_TOOL_PAGE=false
SHOW_REQUIRED_CONFIG_TOOL_PAGE=false
SHOW_OPTIONAL_CONFIG_TOOL_PAGE=false
SHOW_RELEASE_NOTES=false
SHOW_ROOTSH_CONFIRMATION=false
SHOW_END_SESSION_PAGE=true
SHOW_EXIT_CONFIRMATION=false
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
SHOW_DEINSTALL_CONFIRMATION=true
SHOW_DEINSTALL_PROGRESS=true
SHOW_IAS_COMPONENT_CONFIG_PAGE=false
ACCEPT_LICENSE_AGREEMENT=true
PreReqConfigSelections=""
n_ValidationPreReqConfigSelections=0
TOPLEVEL_COMPONENT={"oracle.iappserver.infrastructure", "9.0.4.0.0"}
DEINSTALL_LIST={"oracle.iappserver.infrastructure", "9.0.4.0.0"}
oracle.iappserver.infrastructure:SHOW_IAS_COMPONENT_CONFIG_PAGE=FALSE
COMPONENT_LANGUAGES={"en"}
INSTALL_TYPE="Infrastructure"
##oracle.iappserver.infrastructure:OPTIONAL_CONFIG_
TOOLS={"OC4JinstanceConfig", "OPMNconfig", "OPMNconfigDAS", "DCMRegPlugins", "EMWebC
onfig", "EMAgent", "DCMRepBackup"}
oracle.iappserver.infrastructure:b_configureMeta=true
oracle.iappserver.infrastructure:b_configureOID=true
oracle.iappserver.infrastructure:b_configureSSO=true
oracle.iappserver.infrastructure:b_configureDAS=true
oracle.iappserver.infrastructure:b_configureDIP=true
oracle.iappserver.infrastructure:b_configureOCA=true
oracle.iappserver.infrastructure:b_launchOHS=true
oracle.iappserver.iappdialog
szIdentityAdminContext="dc=us,dc=oracle,dc=com"
oracle.iappserver.infrastructure:b_configureHA=false
```

```

HahostName=domain.com
s_dnSelection="Custom DN:"
s_dnCNval=""
s_dnOUval=""
s_dnOrgval=""
s_dnCntval=""
s_dncustom="cn=OCA-hostname.us.oracle.com,o=oracle,c=us"
s_subdn="dc=us,dc=oracle,dc=com"
sl_dbaOperGroups={"dba", "dba"}
s_dbRetChoice="Use the default character set"
s_mountPoint=/mount_point/Disk1/stage/products.jar
s_dbSid=iasdb
s_infrastructureglobalDBName=iasdb.domain.com
s_sysPass="infrac12345"
s_sysPassAgain="infrac12345"
s_systemPass="infrac12345"
s_systemPassAgain="infrac12345"
sl_keylengthInfo={"2048"}
sl_ocmInfo={"welcome12", "welcome12"}
s_dncustom="cn=OCA-domain.com,o=oracle,c=us"
oracle.oid.oidca:s_silentinstallflag="1"
szOIDwithSSLStatus="N"
nStartProcValidation=0
nValidationOID=0
nValidationOID2=0
nValidationRepository=0
nValidationSpecifyRepository=0
oracle.iappserver.instance:szl_
InstanceInformation={"infra", "infrac12345", "infrac12345"}
oracle.iappserver.instance:nValidationInstanceInfo=0
JDKHome="<path to jdk>"

```

D.5.1.3 Portal and Wireless

The following shows an example of a response file for a **non-interactive** installation of Portal and Wireless:

```

RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME="dba"
FROM_LOCATION="/mount_point/Disk1/stage/products.jar"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
NEXT_SESSION_RESPONSE=<Value Unspecified>
ORACLE_HOME="/local_location/oracle_home"
ORACLE_HOME_NAME="oracle_home_name"
TOPLEVEL_COMPONENT={"oracle.iappserver.iapptop", "9.0.4.0.0"}

```

```
SHOW_SPLASH_SCREEN=true
SHOW_WELCOME_PAGE=true
SHOW_INSTALL_PROGRESS_PAGE=true
SHOW_COMPONENT_LOCATIONS_PAGE=true
SHOW_CUSTOM_TREE_PAGE=true
SHOW_SUMMARY_PAGE=true
SHOW_CONFIG_TOOL_PAGE=true
SHOW_REQUIRED_CONFIG_TOOL_PAGE=true
SHOW_OPTIONAL_CONFIG_TOOL_PAGE=true
SHOW_RELEASE_NOTES=false
SHOW_ROOTSH_CONFIRMATION=true
SHOW_END_SESSION_PAGE=true
SHOW_EXIT_CONFIRMATION=true
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
SHOW_DEINSTALL_CONFIRMATION=true
SHOW_DEINSTALL_PROGRESS=true
SHOW_IAS_COMPONENT_CONFIG_PAGE=true
ACCEPT_LICENSE_AGREEMENT=true
RESTART_SYSTEM=<Value Unspecified>
CLUSTER_NODES=<Value Unspecified>
PreReqConfigSelections=""
n_ValidationPreReqConfigSelections=0
DEINSTALL_LIST={"oracle.iappserver.iapptop", "9.0.4.0.0"}
TOPLEVEL_COMPONENT={"oracle.iappserver.iapptop", "9.0.4.0.0"}
oracle.iappserver.iapptop:SHOW_IAS_COMPONENT_CONFIG_PAGE=FALSE
COMPONENT_LANGUAGES={"en"}
INSTALL_TYPE="Portals"
b_launchInfrastructureUse=true
b_configureWireless=true
b_configurePortal=true
szl_RepositoryUserInput={"domain.com:1521:iasdb:iasdb.domain.com"}
oracle.webdb:silent=true
oracle.iappserver.iapptop:b_centralMonitor=false
oracle.iappserver.iapptop:b_configureCalypso=true
szlSpecifyOIDLogin={"cn=orcladmin", "infra12345"}
szlOIDRegister={"hostname.domain", "389"}
OIDhost="westgate.us.oracle.com"
OIDport="3060"
szOIDwithSSLStatus="N"
nStartProcValidation=0
nValidationOID=0
nValidationOID2=0
nValidationRepository=0
oracle.iappserver.instance:szl_
```

```
InstanceInformation={"portal","portal12345","portal12345"}
oracle.iappserver.iapptop:nValidationInstanceInfo=0
oracle.iappserver.instance:nValidationInstanceInfo=0
oracle.apache.apache:s_group="dba"
oracle.apache.apache:s_groupid="dba"
JDKHome="<path to jdk>"
```

Note: The OracleAS Infrastructure 10g *ORACLE_*
HOME/install/portlist.ini and *ORACLE_*
HOME/config/ias.properties files show port assignments.

D.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 ias_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
```

D.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 during installation.

The `silentInstall<time_stamp>.log` file contains the following line if your 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 B, "Troubleshooting"](#)

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 OracleAS Configuration Assistants do not execute.

After Configuration Assistants failure, perform the operations described in [Section 7.17, "Install Fragment: The Last Few Screens of the Installation"](#).

You must run the OracleAS Configuration Assistants commands from the command line. The commands are available from the script file `ORACLE_HOME/cfgtoollogs/configToolCommands`.

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 4.4.2, "Using Custom Port Numbers \(the "Static Ports" Feature\)"](#) for details.

E.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.

E.2 Default Port Numbers

[Table E-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 4.4.2, "Using Custom Port Numbers \(the "Static Ports" Feature\)"](#) for details.

Table E-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)			
OC4J AJP	3301	3301 - 3400	Not settable
OC4J RMI	3201	3201 - 3300	Not settable
JMS	3701	3701 - 3800	Not settable
IIOP	3401	3401 - 3500	Not settable
IIOPS1	3501	3501 - 3600	Not settable
IIOPS2	3601	3601 - 3700	Not settable
OracleAS Discoverer			
OracleAS Discoverer	--	--	Uses the same port as Oracle HTTP Server.
OracleAS Discoverer OSAgent	16001	16001 - 16020	Discoverer OSAgent port
OracleAS Forms Services			
OracleAS Forms Services	Uses the same port as Oracle HTTP Server		
Oracle HTTP Server			
Oracle HTTP Server Listener (OracleAS Web Cache not configured)	7777	7777 - 7877	Oracle HTTP Server Listen port
Oracle HTTP Server Listener (SSL)	4443	4443 - 4543	Oracle HTTP Server Listen (SSL) port
Oracle HTTP Server Listener (non-SSL, OracleAS Web Cache configured)	7778	7777 - 7877	Oracle HTTP Server port

Table E-1 Default Port Numbers and Ranges (Grouped by Component)

Component	Default Port	Port Number Range	Name in staticports.ini
Oracle HTTP Server Listener (SSL, OracleAS Web Cache configured)	4444	4443 - 4543	Oracle HTTP Server SSL port
JServ servlet engine	8007	8007 - 8107	Oracle HTTP Server Jserv 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
Port Tunneling	7501	7501 - 7599	Not settable
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 Reports Services			
SQL*Net (for 6i backward compatibility only)	1950	1950 - 1960	Reports Services SQL*Net port
OracleAS Reports Services Visigenics CORBA	14000	14000 - 14010	Not settable
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
OracleAS Web Cache Invalidation	4001	4000 - 4300	Web Cache Invalidation port

Table E-1 Default Port Numbers and Ranges (Grouped by Component)

Component	Default Port	Port Number Range	Name in staticports.ini
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
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 <i>Oracle Application Server 10g Administrator's Guide</i> for details.
Log Loader	44000	44000 - 44099	Log Loader port
Oracle Internet Directory			
Oracle Internet Directory	389 (but see the Note on page 4-30)	3060 - 3129	Oracle Internet Directory port
Oracle Internet Directory (SSL)	636 (but see the Note on page 4-30)	3130 - 3199	Oracle Internet Directory (SSL) port
OracleAS Certificate Authority			
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

Ports to Open in Firewalls

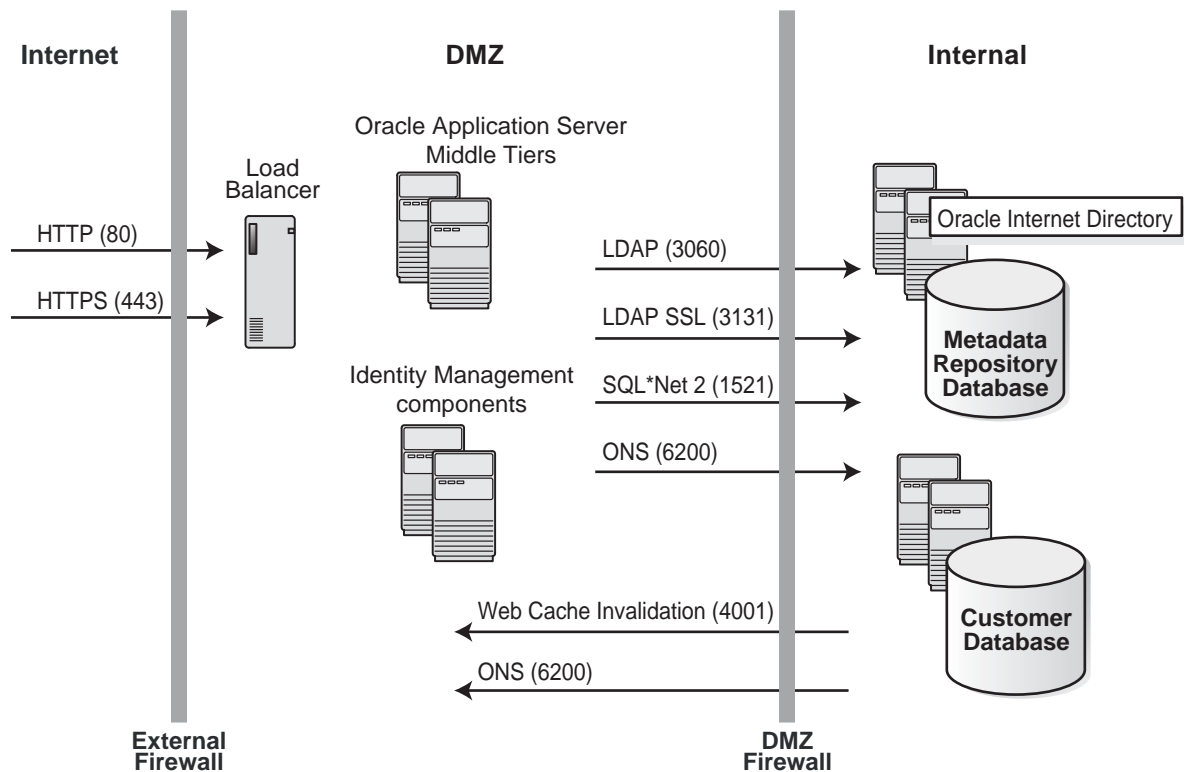
If you plan to install Oracle Application Server behind firewalls, you need to open certain ports in the firewall during installation (and also during runtime).

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 F-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 F-1 Ports Needed to Be Opened in the Firewall When Installing Oracle Application Server Behind Firewalls



URLs for Components

Table G-1 shows the URLs and login IDs to use to access components after installation.

The URLs in the table use the default ports. The components in your environment might use different ports. To determine the port numbers for components, you can look in the `ORACLE_HOME/install/portlist.ini` file.

Table G-1 URLs for Components

Component	URL	Entry in portlist.ini	Login and Password
OracleAS Welcome Pages	<code>http://host:7777</code>	Oracle HTTP Server port or Web Cache Listen port	n/a
Oracle HTTP Server	<code>http://host:7777</code> (without Web Cache) <code>http://host:7778</code> (with Web Cache)	Oracle HTTP Server Listen port	n/a
OracleAS Web Cache Manager	<code>http://host:4000/webcacheadmin</code>	Web Cache Administration port	administrator or ias_admin Password: use the password for ias_admin that you supplied during installation.
OracleAS Portal	<code>http://host:7777/pls/portal</code>	Web Cache Listen port	portal Password: use the password for ias_admin that you supplied during installation.

Table G-1 URLs for Components

Component	URL	Entry in portlist.ini	Login and Password
OracleAS Wireless	http://host:7777/webtool/login.uix	Web Cache Listen port	orcladmin Password: The default password for orcladmin is the same as the password for ias_admin, which you specified during installation.
OracleAS Discoverer Viewer	http://host:7777/discoverer/viewer	Web Cache Listen port	n/a
OracleAS Discoverer Plus	http://host:7777/discoverer/plus	Web Cache Listen port	n/a
OracleAS Discoverer Provider	http://host:7777/discoverer/portletprovider	Web Cache Listen port	n/a
OracleAS Forms Services	http://host:7777/forms90/f90servlet	Web Cache Listen port	orcladmin Password: The default password for orcladmin is the same as the password for ias_admin, which you specified during installation.
OracleAS Reports Services	http://host:7777/reports/rwservlet/getserverinfo	Web Cache Listen port	orcladmin Password: The default password for orcladmin is the same as the password for ias_admin, which you specified during installation.
OracleAS Syndication Services	http://host:7777/syndserver/server	Web Cache Listen port	syndication Password: 4syndication
OracleAS UDDI Registry	http://host:7777/uddi	Web Cache Listen port	n/a
OracleAS Single Sign-On Administration Pages	http://host:7777/pls/orasso	Oracle HTTP Server Listen port	orcladmin Password: The default password for orcladmin is the same as the password for ias_admin, which you specified during installation.

Table G–1 URLs for Components

Component	URL	Entry in portlist.ini	Login and Password
Oracle Enterprise Manager Application Server Control	http://host:1810	Application Server Control port	ias_admin Password: Use the ias_admin password you supplied during installation.
Oracle Internet Directory Manager	ORACLE_HOME/bin/oidadmin	n/a	orcladmin Password: The default password for orcladmin is the same as the password for ias_admin, which you specified during installation.
Oracle Delegated Administration Services	http://host:7777/oiddas	Oracle HTTP Server Listen port	orcladmin Password: The default password for orcladmin is the same as the password for ias_admin, which you specified during installation.
OracleAS Certificate Authority Administration Interface	http://host:4400/oca/admin	Oracle Certificate Authority SSL Server Authentication port	Certificate Authority Administrator Password: Use the password you supplied for the OracleAS Certificate Authority administrator during installation.
OracleAS Personalization	https://host:7777/OP/Admin	Web Cache Listen port	Use the login and password you supplied when you configured OracleAS Personalization.

Contents of the "OracleAS RepCA and Utilities" CD-ROM

Table H-1 lists the contents of the "OracleAS RepCA and Utilities" CD-ROM. On the Oracle Application Server DVD, you can find these items in the `repca_utilities` directory.

Table H-1 Items on the "OracleAS RepCA and Utilities" CD-ROM

Item	Function	Location
OracleAS RepCA	Enables you to install the OracleAS Metadata Repository in an existing database. For details, see Chapter 10, "Installing the OracleAS Metadata Repository in an Existing Database" .	CD-ROM: <code>repca/</code> DVD: <code>repca_utilities/repca/</code>
OracleAS Backup and Recovery Tool	Enables you to back up and recover your Oracle Application Server installations. For details, see the <i>Oracle Application Server 10g Administrator's Guide</i> .	CD-ROM: <code>utilities/backup/</code> DVD: <code>repca_utilities/utilities/backup/</code>
Metadata Repository Container upgrade	Enables you to upgrade an older version of the metadata repository to 10g (9.0.4). For details, see the <i>Oracle Application Server 10g Upgrading to 10g (9.0.4)</i> guide.	CD-ROM: <code>utilities/upgrade/</code> DVD: <code>repca_utilities/utilities/upgrade/</code>

Table H-1 Items on the "OracleAS RepCA and Utilities" CD-ROM

Item	Function	Location
Compatibility utility	Enables you to update entries in Oracle Internet Directory and OracleAS Metadata Repository so that you can run Oracle Application Server 10g (9.0.4) with Oracle9iAS Release 2 (9.0.2) or 9.0.3, if desired. For details, see Chapter 3, "Compatibility with Earlier Versions" .	CD-ROM: utilities/imconfig/ DVD: repca_utilities/utilities/imconfig/
High availability utilities	Enables you to synchronize files in OracleAS Active Failover Cluster environments. For details, see the <i>Oracle Application Server 10g High Availability Guide</i> .	CD-ROM: utilities/ha/ DVD: repca_utilities/utilities/ha/
Plug-ins for web servers	Contains the OC4J Plug-in and the Proxy Plug-in, which you can use with web servers such as the Sun ONE Web Server Enterprise Edition and the Microsoft Internet Information Server. For details, see the <i>Oracle HTTP Server Administrator's Guide</i> .	CD-ROM: utilities/plugin_ins/ DVD: repca_utilities/utilities/plugin_ins/
Fonts	Contains fonts that you can install if you are running in a non-English environment and the user interface is not displayed correctly. For details, see Section B.2, "User Interface Does Not Display Properly" .	CD-ROM: utilities/fonts/ DVD: repca_utilities/utilities/fonts/
Start and stop scripts	Contains scripts for starting and stopping Oracle Application Server instances.	CD-ROM: utilities/startup/ DVD: repca_utilities/utilities/startup/

Red Hat Enterprise Linux AS/ES Installation Notes

This appendix provides some information about using Oracle Application Server with Red Hat Enterprise Linux AS/ES. The topics include:

- [Section I.1, "Red Hat Enterprise Linux AS/ES Distributions"](#)
- [Section I.2, "Hardware Compatibility"](#)
- [Section I.3, "Errata Download for Red Hat Enterprise Linux AS/ES 2.1"](#)
- [Section I.4, "Package Download"](#)
- [Section I.5, "Useful Linux References"](#)

I.1 Red Hat Enterprise Linux AS/ES Distributions

Red Hat Enterprise Linux AS/ES is available from Red Hat through the following channels:

- **Boxed product**

Purchase the boxed product from the Red Hat web site:

<http://www.redhat.com>

- **RHN (Red Hat Network) store**

To obtain Red Hat Enterprise Linux AS/ES from the RHN store:

- a. **Register with the RHN (Red Hat Network):**

<http://www.redhat.com>

Information about different service levels is available from the following web sites:

<http://www.redhat.com/software/rhn/offerings/>
<http://rhn.redhat.com/help/faq/>

- b. Download a Red Hat ISO CD-ROM image. Note that ISO CD-ROM images are not available to all service level subscriptions.

I.2 Hardware Compatibility

Before purchasing Red Hat Enterprise Linux AS/ES, check whether the hardware is certified to run the Red Hat distribution using the following Red Hat web site:

<http://hardware.redhat.com/hcl/>

I.3 Errata Download for Red Hat Enterprise Linux AS/ES 2.1

Register with the Red Hat Network at <http://www.redhat.com> to download the required Errata. Oracle Application Server 10g (9.0.4) requires following kernel Errata for Red Hat Enterprise Linux AS/ES 2.1, depending upon the Red Hat Linux installation:

```
kernel-2.4.9-e.25.rpm  
kernel-smp-2.4.9-e.25.rpm  
kernel-enterprise-2.4.9-e.25.rpm
```

To download the Errata from Red Hat Network site, search for kernel RPMs and download the appropriate kernel Errata RPM depending upon the Red Hat Linux installation.

I.4 Package Download

[Table 4-6](#) and [Table 4-7](#) list the packages required by Oracle Application Server 10g (9.0.4), download the RPMs from the Red Hat Network web site.

The packages may also be available on the distribution CD from Red Hat. Use the rpm utility to install the packages from the Red Hat Enterprise Linux AS/ES CD-ROMs.

I.5 Useful Linux References

The Linux Technology Center gathers together all the resources—downloads, sample code, tutorials, discussion forums, news, and more—associated with Linux technology and Oracle Products:

<http://otn.oracle.com/linux>

For updated information on this release of Oracle Application Server, and a global repository of technical knowledge, register with Oracle MetaLink:

<http://metalink.oracle.com>

Use the search engine to find relevant articles. For example, enter `Red Hat or linux kernel` to find articles concerning Linux.

Installing Oracle Cluster Management Software on Linux

This appendix provides information about installing Oracle Cluster Management Software on Linux, which is a requirement for installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster environment.

This appendix includes the following topics:

- [Section J.1, "Overview"](#)
- [Section J.2, "Requirements"](#)
- [Section J.3, "Pre-installation Steps"](#)
- [Section J.4, "Installation Steps"](#)
- [Section J.5, "Post-installation Steps"](#)
- [Section J.6, "Using Oracle Cluster Management Software"s](#)
- [Section J.7, "Using a Private Network"](#)
- [Section J.8, "Deinstallation Steps"](#)

J.1 Overview

The Oracle Cluster Management Software allows you to create a cluster of Linux systems for an OracleAS Active Failover Cluster environment, which is described in [Section 9.3, "OracleAS Active Failover Cluster"](#).

Note: The cluster created by Oracle Cluster Management Software is not a general-purpose cluster. Oracle supports this cluster only within an OracleAS Active Failover Cluster environment.

The Oracle Cluster Management Software is required both during the installation and at runtime of OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster environment. During the installation, the option to perform the installation in an OracleAS Active Failover Cluster environment is only available if:

- The installer detects an Oracle Cluster Management Software instance.
- The Oracle Home specified for the installation is the same Oracle Home as the Oracle Cluster Management Software installation.

At runtime, certain OracleAS Infrastructure 10g components (such as the Metadata Repository) will start only if an Oracle Cluster Management Software instance exists.

Once Oracle Cluster Management Software has been installed, all cluster nodes are marked as Oracle Cluster Management Software nodes. Being marked as a cluster node is a requirement for installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster environment but it can affect the ability to install other Oracle products. If Oracle Cluster Management Software is installed and you plan to install an Oracle product other than OracleAS Infrastructure 10g, Oracle recommends unmarking the nodes as an Oracle Cluster Management Software cluster node before you attempt the planned installation and to use a different `/etc/oraInst.loc` file from the one used for the Oracle Cluster Management Software installation. Unmarking is described in [Section J.8, "Deinstallation Steps"](#). Unmarking only affects the installation, not runtime, of Oracle products and does not affect the OracleAS Active Failover Cluster environment after it has been successfully installed.

Note: Oracle recommends that you store installation related files for Oracle Cluster Management Software in an empty directory. If the `/etc/oraInst.loc` file exists on the nodes where Oracle Cluster Management Software is being installed, rename the `/etc/oraInst.loc` file to `/etc/oraInst.loc.orig` and specify an empty directory to store installation related files during the Oracle Cluster Management Software installation. The installer will create a new `/etc/oraInst.loc` file pointing to this empty directory.

The version of Oracle Cluster Management Software included with this release is the same version as that included with Oracle9i Release 1 (9.0.1).

J.2 Requirements

The requirements for installing the Oracle Cluster Management Software are:

- You must have two or more nodes connected to the same network.
- Each node must meet the requirements listed in [Section 4-2, "Hardware Requirements for Linux Systems"](#).
- The same version of Linux must be installed on each node.
- The same Linux patch level must be installed on each node.
- An Oracle Cluster Management Software instance must not exist on any of the nodes. To check whether an Oracle Cluster Management Software instance exists, use the procedure described in [Section 9.1.2.3, "Checking Oracle Cluster Management Software on Linux"](#).
- The nodes cannot be clustered by any clustering software.
- Each node must have sufficient disk space for:
 - 2 MB on a local filesystem for the Oracle Cluster Management Software
 - 128 MB raw disk partition on a shared storage accessible by each node

Note: Installing OracleAS Infrastructure 10g in an OracleAS Active Failover Cluster environment requires:

- disk space on the same local filesystem where the Oracle Cluster Management Software files are installed
- additional raw disk partitions on a shared storage device accessible by each node of the proposed cluster

Note these OracleAS Infrastructure 10g disk requirements, which are described in [Section 9.3, "OracleAS Active Failover Cluster"](#), when setting up the disks for the Oracle Cluster Management Software installation.

J.3 Pre-installation Steps

Complete the following sections before installing Oracle Cluster Management Software:

- [Section J.3.1, "Set Up Node Equivalency for User, Group and Directory"](#)
- [Section J.3.2, "Set Up User Equivalency"](#)
- [Section J.3.3, "Check Remote Copy and Remote Shell Capability"](#)
- [Section J.3.4, "Check the hangcheck-timer Module"](#)

J.3.1 Set Up Node Equivalency for User, Group and Directory

Note: For more information on setting up node equivalency, see [Section 9.3.1.5, "Create Identical Users and Groups on All Nodes in the Cluster"](#).

Set up the same user, group, and directories for the installation and temporary files on each node of the cluster. For example, if you want to install Oracle Cluster Management Software on a two node cluster using the `oracle` user, the `oinstall` group and you want to install into the `/mnt/app/oracle/OraInfra_904` directory using values set in the `TMP` and `TMPDIR` environment variables to store temporary files:

Note: The examples in this chapter assumes you are installing the Oracle Cluster Management Software as the `oracle` user. If you install the software as a different user, substitute that username for all instances of the `oracle` user in this chapter.

1. Check that the `oracle` user exists on each node.
2. Check that the `oracle` user belongs to the `oinstall` group on each node.
3. Check that the `oracle` user has permissions to write in the `/mnt/app/oracle/OraInfra_904` directory on each node.
4. Check that the `/mnt/app/oracle/OraInfra_904` directory is within the filesystem setup for the Oracle Cluster Management Software installation on each node.

5. Check that the directories specified in the `TMP` or `TMPDIR` environment variables exist and contain sufficient space for temporary files on each node.

Note: The `TMP` and `TMPDIR` environment variable requirement refers to the shell of the `oracle` user who performs the installation. These directories need to exist on the installation node as well and on all the other nodes of the cluster.

J.3.2 Set Up User Equivalency

Note: For more information on setting up user equivalency, see [Section 9.3.1.6, "Set Up User Equivalence"](#).

To set up user equivalency:

1. Add the node names of all the nodes in the cluster to the `.rhosts` file in the home directory of the user who will perform the Oracle Cluster Management Software installation. Remember to include the node name of the local node, that is, the node on which you are modifying the `.rhosts` file.
2. Repeat step 1 for each node of the planned cluster.

For example, if you want to install Oracle Cluster Management Software on a two node cluster, `node1` and `node2`, using the `oracle` user, make sure the following entries exist in the `.rhosts` file in the home directory of the `oracle` user on both `node1` and `node2`:

```
node1
node2
```

J.3.3 Check Remote Copy and Remote Shell Capability

Make sure that remote shell and remote copy work on each node of the cluster. For example, to check remote copy and remote shell capability from `node2` to `node1` of a two node cluster for the `oracle` user:

Note: Oracle Cluster Management Software is also supported if the nodes are configured to use Secure Shell (`scp` and `ssh`). Substitute `scp` for `rcp`, and `ssh` for `rsh` in the procedure if the nodes are configured to use `scp` and `ssh`.

1. Make sure the following files exist:

```
/usr/bin/rcp
/usr/bin/rsh
```

2. Log in as the `oracle` user on `node1`.
3. Enter the following command on `node1`:

```
$ echo hello > /tmp/testfile
```

4. Log in as the `oracle` user on `node2`.
5. Enter the following commands on `node2`:

```
$ cd /tmp
$ /usr/bin/rsh node1 ls /tmp
```

The output should list the contents of the `/tmp` directory on `node1` without pausing for a response.

6. Enter the following commands on `node2`:

```
$ cd /tmp
$ /usr/bin/rcp node1:/tmp/testfile .
$ cat /tmp/testfile
```

The output of the `cat` command should list the string `hello` and the `rcp` command should not prompt you for a username or password.

7. Repeat steps similar to steps 1 to 6 to ensure that `node1` has remote access to `node2`.

Note: If your system is configured to use `scp` and `ssh`, ensure the equivalent test commands for `scp` and `ssh` in steps 5 and 6 execute without pausing for a response. If the command pauses for a Yes or No response, answering Yes will often prevent pauses when you run the command again. Also, ensure that no error or warning messages are sent to `stderr`.

J.3.4 Check the hangcheck-timer Module

Check whether the hangcheck-timer module is already loaded into the kernel by running the following command on each node of the cluster:

```
# /sbin/lsmmod | grep hangcheck-timer
```

If a line is displayed with the string `hangcheck-timer`, the hangcheck-timer module is already loaded. Ask the system administrator of the node for a list of the parameter values used to load the module. On Red Hat Linux distributions, this is usually recorded in the `/etc/rc.d/rc.local` file. If these parameters are any different than the following values, ask the system administrator to unload the hangcheck-timer module and load the module using the instruction in this section.

Table J-1 Required Parameter Values for hangcheck-timer Module

Parameter	Value
hangcheck_tick	30
hangcheck_margin	180

The hangcheck-timer module is included with the kernel rpm on the Red Hat Enterprise Linux AS/ES 2.1 distribution. To load the hangcheck-timer module into the kernel, perform the following steps on each node:

1. Run the following command to determine the kernel version-type:

```
# uname -a
```

An example of a kernel version-type is `2.4.9-e.25smp`.

2. Confirm that the hangcheck-timer module is available on the node by entering the following command, where *kernel_version-type* is the kernel version-type from step 1:

```
# ls /lib/modules/kernel_version-type/kernel/drivers/char/hangcheck-timer.o
```

3. Load the module into the kernel by entering the following command:

```
# /sbin/insmod hangcheck-timer hangcheck_tick=30 hangcheck_margin=180
```

4. Check that the module loaded correctly by entering the following command:

```
# /sbin/lsmmod | grep hangcheck-timer
```

5. Add the following line to a system initialization script to ensure the module is loaded on system startup:

```
/sbin/insmod hangcheck-timer hangcheck_tick=30 hangcheck_margin=180
```

For example, add the line to the `/etc/rc.d/rc.local` file on Red Hat systems.

Note: You only need to load the `hangcheck-timer` module once. Reloading the module is only required if you unload the module or if the module was loaded with incorrect parameters.

J.4 Installation Steps

Start the installer:

1. If the Linux system does not mount CD-ROMs or DVDs automatically, you need to set the mount point manually. See [Section 5.14, "Setting the Mount Point for the Discs"](#) for details.
2. Log in. Typically you install the Oracle Cluster Management Software as the `oracle` user.
3. Insert Oracle Application Server Disk 1 or the DVD into the CD-ROM or DVD drive.

Follow this procedure to install Oracle Cluster Management Software

Table J-2 Steps for Installing Oracle Cluster Management Software

Screen	Action
1. --	<p>Run the Oracle Universal Installer from the CD-ROM or DVD by entering the following commands:</p> <p>CD-ROM users:</p> <pre>prompt> cd prompt> mount_point/ocms/runInstaller</pre> <p>DVD users:</p> <pre>prompt> cd prompt> mount_point/application_server/ocms/runInstaller</pre>
2. Welcome	Click Next .

Table J-2 Steps for Installing Oracle Cluster Management Software

Screen	Action
3. Specify Inventory Directory	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>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.</p> <p>Example: <code>/mnt/app/oracle/oraInventory</code></p> <p>Click OK.</p>
4. UNIX Group Name	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Enter the name of the operating system group to have permission to update Oracle software installations on this system.</p> <p>Example: <code>oinstall</code></p> <p>Click Next.</p>
5. Run <code>oraInstRoot.sh</code>	<p>This screen appears only if this is the first installation of any Oracle product on this computer.</p> <p>Run the <code>oraInstRoot.sh</code> script in a different shell as the root user. The script is located in the installer inventory directory specified in the Specify Inventory Directory screen.</p> <p>Run the script on the node where you are running the installer.</p> <p>Click Continue after you have run the script.</p>
6. Specify File Locations	<p>Destination Name: Enter a name to identify this Oracle home.</p> <p>Example: <code>oracleas</code></p> <p>Destination Path: Enter the full path to the destination directory. This is the Oracle home. The installer will use this path as the Oracle home for all nodes.</p> <p>Example: <code>/mnt/app/oracle/OraInfra_904</code></p> <p>Click Next.</p>
7. Language Selection	<p>This release of the Oracle Cluster Management Software supports only the English language. English is automatically selected and cannot be deselected.</p> <p>Click Next.</p>
8. Cluster Node Selection	<p>Enter the hostnames of all the remote nodes of the cluster. You do not need to enter the hostname of the local node that you are using to perform the Oracle Cluster Management Software installation.</p> <p>Click Next.</p>

Table J-2 Steps for Installing Oracle Cluster Management Software

Screen	Action
9. Quorum Disk Information	Enter the full path to the 128 MB raw disk partition created for the Oracle Cluster Management Software installation. Click Next .
10. Summary	Verify your selections. Pay attention to any items listed in red. This indicates an issue that will cause the installation to fail. In particular, expand all items within Space Requirements to confirm that sufficient disk is available for the installation. Click Install .
11. Install Progress	This screen shows the progress of the installation.
12. Run <code>root.sh</code>	Note: Do not run the <code>root.sh</code> script until prompted. When prompted, run the <code>root.sh</code> script in a different shell as the root user. The script is located in this instance's Oracle home directory. Note: You have to run this script on each node where you are installing Oracle Cluster Management Software. Click OK after you have run the script on all nodes.
13. End of Installation	Click Exit to quit the installer.

J.5 Post-installation Steps

After running the installer, complete the following steps on each node of the cluster to confirm that the installation was successful and to configure the installation:

1. Confirm that the `Destination_path_of_Oracle_Home/oracm/admin/nmcfg.ora` file exists and contains values of the hostnames and Quorum Disk entered during the installation.
2. Modify the `Destination_path_of_Oracle_Home/oracm/admin/ocmargs.ora` file and replace all occurrences of `dba` with the group name of the `Destination_Path_of_Oracle_Home/oracm/bin/oracm` file.

For example, the output of the following command shows that the group name is `oinstall`:

```
$ ls -l /mnt/app/oracle/OraInfra_904/oracm/bin/oracm
-rwxr-xr-x 1 oracle oinstall 251385 Oct 31 15:50 oracm
```


In this case, replace `dba` with `oinstall`.

3. Confirm that the `/var/opt/ORCLcluster/oracm/lib` directory contains the following two files on each node of the cluster:

```
libcmddl.so
libwddapi.so
```

Note: The `/var/opt/ORCLcluster/oracm/lib` directory and the files in that directory are created when you run the `root.sh` script during the Oracle Cluster Management Software installation. This is described in step 12. of [Table J-2](#).

J.6 Using Oracle Cluster Management Software

To start an Oracle Cluster Management Software instance, run commands similar to the following on all nodes of the cluster as the root user. Example in Bourne shell:

```
# ORACLE_HOME=Destination_Path_of_Oracle_Home
# export ORACLE_HOME
# $ORACLE_HOME/oracm/bin/ocmstart.sh
```

The `ocmstart.sh` script starts one `watchdogd` process and multiple `oracm` and `oranm` processes. Use the commands listed in [Section 9.1.2.3, "Checking Oracle Cluster Management Software on Linux"](#) to confirm that an Oracle Cluster Management Software instance has been started. If an Oracle Cluster Management Software instance is not detected, check the `.log` files in the `$ORACLE_HOME/oracm/log` directory for more information.

To stop an Oracle Cluster Management Software instance, run commands similar to the following on all nodes of the cluster as the root user. Example in Bourne shell:

```
# ORACLE_HOME=Destination_Path_of_Oracle_Home
# export ORACLE_HOME
# $ORACLE_HOME/oracm/bin/ocmstop.sh
```

J.7 Using a Private Network

Typically, a cluster is configured using a private interconnect to separate the cluster traffic from all other network traffic. This helps to maximize performance. Normally, the private interconnect is created by adding an additional Network

Interface Card (NIC) on all nodes of the cluster. If such a configuration is available, complete the following steps to use the private interconnect:

1. Modify `Destination_path_of_Oracle_Home/oracm/admin/nmcfg.ora` and replace all public hostnames with the hostnames configured and recognized by the private interconnect.
2. Repeat step 1 on all nodes of the cluster
3. Stop and restart the Oracle Cluster Management Software instances on all nodes of the cluster as described in [Section J.6, "Using Oracle Cluster Management Software"](#).

Note: Remote shell and remote copy must work on each node of the cluster using the private network hostnames. Complete the steps described in [Section J.3.3, "Check Remote Copy and Remote Shell Capability"](#) using the hostnames configured for the private interconnect to make sure remote shell and remote copy capabilities are configured correctly.

The following example shows the configuration of node1 of a two-node Oracle Cluster Management Software cluster with public hostnames, node1 and node2. It also shows the configuration of a private interconnect configured between the same two nodes, identified by, node1-pri and node2-pri, respectively:

```
$ cat /etc/hosts
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1          localhost.localdomain localhost
138.1.137.46      nodel.mydomain.com  nodel
10.0.0.1          nodel-pri.mydomain.com nodel-pri
138.1.137.47      node2.mydomain.com  node2
10.0.0.2          node2-pri.mydomain.com node2-pri
$ /sbin/ifconfig
eth0      Link encap:Ethernet  HWaddr 00:B0:D0:68:B4:3D
          inet addr:138.1.137.46  Bcast:138.1.139.255  Mask:255.255.252.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:23500323  errors:0  dropped:0  overruns:0  frame:0
          TX packets:18955501  errors:0  dropped:0  overruns:0  carrier:0
          collisions:0  txqueuelen:100
          RX bytes:823841864 (785.6 Mb)  TX bytes:40738070 (38.8 Mb)
          Interrupt:26  Base address:0xe0c0  Memory:f89b7000-f89b7c40

eth1      Link encap:Ethernet  HWaddr 00:02:B3:28:80:8C
```

```
inet addr:10.0.0.1 Bcast:10.0.0.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:829 errors:0 dropped:0 overruns:0 frame:0
TX packets:92 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:100
RX bytes:112411 (109.7 Kb) TX bytes:6699 (6.5 Kb)
Interrupt:23 Base address:0xccc0 Memory:f89b9000-f89b9c40

lo        Link encap:Local Loopback
          inet addr:127.0.0.1 Mask:255.0.0.0
          UP LOOPBACK RUNNING MTU:16436 Metric:1
          RX packets:16121286 errors:0 dropped:0 overruns:0 frame:0
          TX packets:16121286 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:1457050223 (1389.5 Mb) TX bytes:1457050223 (1389.5 Mb)
```

To change this Oracle Cluster Management Software cluster to use the private interconnect:

1. On node1, replace all instances of `node1` and `node2` in the *Destination_Path_of_Oracle_Home/oracm/admin/nmcfg.ora* file with `node1-pri` and `node2-pri`, respectively.
2. On node2, replace all instances of `node1` and `node2` in the *Destination_Path_of_Oracle_Home/oracm/admin/nmcfg.ora* file with `node1-pri` and `node2-pri`, respectively.
3. Stop and restart the Oracle Cluster Management Software on both `node1` and `node2`.

J.8 Deinstallation Steps

To deinstall the Oracle Cluster Management Software, complete the following steps:

1. Stop the Oracle Cluster Management Software instance on each node of the cluster. See [Section J.6, "Using Oracle Cluster Management Software"](#).
2. Log in to the installation node as the user that installed the Oracle Cluster Management Software.
3. Insert Oracle Application Server Disk1 or DVD into the CD-ROM or DVD drive.
4. Run the Oracle Universal Installer from the CD-ROM or DVD by entering the following commands.

CD-ROM users:

```
prompt> cd
prompt> mount_point/ocms/runInstaller
```

DVD users:

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

5. At the **Welcome** screen, click on **Deinstall Products...**
6. At the **Inventory** screen, expand all items and select **Oracle Cluster Management Software 9.0.1.4.0**.
7. Click on **Remove...**
8. At the **Confirmation** screen, confirm that you wish to deinstall by clicking on **Yes**.
9. At the **Inventory** Screen, expand all items and select each node of the cluster under **Cluster Nodes**.
10. Click on **Remove...**
11. At the **Confirmation** screen, confirm that you wish to deinstall by clicking on **Yes**.
12. At the **Inventory** Screen, expand all items and confirm that **Oracle Cluster Management Software 9.0.1.4.0** and **Cluster Nodes** are not listed.
13. Click on **Close**.
14. At the **Welcome** screen, click on **Cancel** to exit the Oracle Universal Installer.
15. Log in to the installation node as the `root` user.
16. Set the `ORACLE_HOME` environment variable to the directory of the Oracle Home of the Oracle Cluster Management Software installation.
17. Enter the following commands:

```
# rm -rf $ORACLE_HOME/oracm
# rm -rf /var/opt/ORCLcluster/oracm
```
18. Log in to each node of the cluster as the `root` user and perform steps 16 and 17.

If you do not want to deinstall Oracle Cluster Management Software, but you need to unmark a node as an Oracle Cluster Management Software cluster node to perform other Oracle product installations:

1. Log in as the root user.
2. Rename all the files in the `/var/opt/ORCLcluster/oracm/lib` directory. The value of the new names is not important. For example, enter the following commands:

```
# cd /var/opt/ORCLcluster/oracm/lib
# mv libcmdll.so libcmdll.so.orig
# mv libwddapi.so libwddapi.so.orig
```


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