Oracle® Application Server

Installation Guide

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Preface

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

Intended Audience

This guide is intended for users who are comfortable running some system administration operations, such as creating users and groups and adding users to groups.

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Structure

This guide contains the following chapters and appendixes:

Chapter 1, "Summary of Installation Steps"

This chapter provides an overview of the installation steps.

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

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

Chapter 3, "Compatibility with Earlier Releases"

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

Chapter 4, "Requirements"

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

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

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

Chapter 6, "Installing OracleAS Infrastructure"

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

Chapter 7, "Installing Middle Tiers"

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

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

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

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

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

Chapter 10, "Installing in High Availability Environments: Overview"

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

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

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

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

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

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

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

Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database"
This chapter just gives a pointer to the *Oracle Application Server Metadata Repository Creation Assistant User's Guide*.

Chapter 15, "Recommended Topologies"
This chapter describes how to create recommended development and deployment topologies for Oracle Application Server.

Chapter 16, "Post-Installation Tasks"
This chapter describes additional set-up steps that you should do after installation.

Appendix A, "Installing OracleAS Developer Kits"
This appendix describes how to install the OracleAS Developer Kits.

Appendix B, "Silent and Non-Interactive Installation"
This appendix describes how to install Oracle Application Server using response files.

Appendix C, "Default Port Numbers"
This appendix lists the port numbers assigned to components by the installer.

Appendix D, "Ports to Open in Firewalls"
This appendix shows the ports that you have to open in a firewall if you are installing and running Oracle Application Server in such environments.

Appendix E, "Installing Java Access Bridge"
This appendix describes how to install the Java Access Bridge, which enables assistive technologies to read Java-based interfaces (such as the installer) running on Windows platforms.

Appendix F, "Deinstallation and Reinstallation"
This appendix describes how to remove Oracle Application Server from your computer.

Appendix G, "Configuration Assistants"
This appendix describes the configuration assistants run by the installer.

Appendix H, "Troubleshooting"
This appendix describes how to solve problems that might arise during installation and deinstallation.

Related Documents

For additional information, see the following manuals:

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

Conventions

This guide uses the following conventions:

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

1

Summary of Installation Steps

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

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

The steps for installing Oracle Application Server are:

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

     You can find the latest version of the release notes on Oracle Technology Network (`http://www.oracle.com/technology/documentation`).
2. Check that the computers where you want to run Oracle Application Server meet the requirements. This includes:
   - Section 4.1, "System Requirements"
   - Section 4.2, "Windows System Files (wsf.exe)"
   - Section 4.3, "Ports"
   - Section 4.4, "Operating System User"
   - Section 4.5, "Environment Variables"
   - Section 4.6, "The %WINDIR%\system32\drivers\etc\hosts File"
   - Section 4.7, "Network Topics"
3. Read Chapter 5, "Things You Should Know Before Starting the Installation" to get a big picture of how the different parts of Oracle Application Server work together. This chapter describes the OracleAS Infrastructure, Oracle Application Server middle tiers, where you can install them, and what values the installer expects on some of the installation screens.
4. Read Chapter 6, "Installing OracleAS Infrastructure" and Chapter 7, "Installing Middle Tiers" to get details on the main parts of Oracle Application Server.
5. If you want to run Oracle Application Server in high availability environments such as OracleAS Cold Failover Cluster or OracleAS Disaster Recovery, read Chapter 10, "Installing in High Availability Environments: Overview".
6. Learn about recommended topologies. You can install Oracle Application Server on multiple computers to improve scalability, availability, security, and performance. Chapter 15, "Recommended Topologies" describes the recommended development and deployment topologies.

7. Install Oracle Application Server (infrastructure and/or middle tiers). Follow the appropriate procedures in Chapter 6, "Installing OracleAS Infrastructure" and Chapter 7, "Installing Middle Tiers".
8. After you install Oracle Application Server, access the Welcome page and run some demos to ensure that the installation was successful.

2

What's New in the Installation

This chapter describes new features in the Oracle Universal Installer. This chapter is mostly of interest to users who have installed previous versions of Oracle Application Server.

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

Contents:

- Section 2.1, "OracleAS Metadata Repository Uses Oracle Database 10g"
- Section 2.2, "Support for More High Availability Environments"
- Section 2.3, "Support for Oracle Internet Directory Replication"
- Section 2.4, "Windows NT No Longer Supported"
- Section 2.5, "New Screen for Specifying the staticports.ini File"
- Section 2.6, "Additional Tool for Deinstallation"
- Section 2.7, "Changed Option Name in Select Configuration Options Screen for J2EE and Web Cache"
- Section 2.8, "Recording Feature for Silent Installations"
- Section 2.9, "Generating Installation Statistics"

2.1 OracleAS Metadata Repository Uses Oracle Database 10*g*

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

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

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

- Specify Database Configuration Options
- Specify Database Schema Passwords

For details, see Section 6.28, "Install Fragment: Database Screens".

2.2 Support for More High Availability Environments

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

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

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

There are also new screens related to high availability.

For details, see:

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

2.3 Support for Oracle Internet Directory Replication

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

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

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

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

2.4 Windows NT No Longer Supported

In this release, Windows NT is no longer supported, because Microsoft is ending its support for Windows NT.

2.5 New Screen for Specifying the staticports.ini File

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

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

For details, see Section 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)".

2.6 Additional Tool for Deinstallation

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

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

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

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

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

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

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

2.8 Recording Feature for Silent Installations

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

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

2.9 Generating Installation Statistics

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

Table 2–1 Installer Options for Generating Installation Statistics

Option	Description
`-printtime`	Use this option to get information on the time taken for the installation. The installer writes the information in the following file: `C:\Program Files\Oracle\Inventory\logs\time`*`timestamp`*`.log`
`-printmemory`	Use this option to get information on the memory used for the installation. The installer writes the information in the following file: `C:\Program Files\Oracle\Inventory\logs\memory`*`timestamp`*`.log`
`-printdiskusage`	Use this option to get information on the disk space used for the installation. The installer writes the information in the following file: `C:\Program Files\Oracle\Inventory\logs\diskusage`*`timestamp`*`.log`

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

```
setup.exe -printtime -printmemory -printdiskusage
```

3

Compatibility with Earlier Releases

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

4

Requirements

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

Table 4–1 Sections in This Chapter

Section	Highlights
Section 4.1, "System Requirements"	Lists requirements such as supported operating systems, processor speed, memory, disk space, and virtual memory.
Section 4.2, "Windows System Files (wsf.exe)"	Describes how to run `wsf.exe` to update Windows system files. Applicable only if the installer prompts you to do so.
Section 4.3, "Ports"	Describes how to configure components to use ports other than the default ports.
Section 4.4, "Operating System User"	Describes how to ensure that the user who will be doing the installation belongs to the Administrators group.
Section 4.5, "Environment Variables"	Describes how to set or unset environment variables required for installation.
Section 4.6, "The %WINDIR%\system32\drivers\etc\hosts File"	Describes how the installer uses the information in the `hosts` file. This section also describes how to specify the same information without editing the file.
Section 4.7, "Network Topics"	Describes network issues such as installing Oracle Application Server on a remote computer, or on a computer that uses DHCP, or even on a non-networked computer.
Section 4.8, "Prerequisite Checks Performed by the Installer"	Lists the items checked by the installer, such as length of the Oracle home name and whether or not the Oracle home directory already contains another Oracle product.

4.1 System Requirements

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

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

CD-ROM (assumes E: is the CD-ROM drive):

```
E:\> setup.exe -executeSysPrereqs
```

DVD-ROM (assumes E: is the DVD-ROM drive):

```
E:\> cd application_server
E:\application_server> setup.exe -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 4.8, "Prerequisite Checks Performed by the Installer".

Table 4–2 System Requirements

Item	Requirement
Operating system	Microsoft Windows 2000 with Service Pack 3 or above Microsoft Windows Server 2003 (32-bit) Microsoft Windows XP is supported only for these scenarios: ▪ J2EE and Web Cache middle tier without an OracleAS Infrastructure ▪ J2EE and Web Cache middle tier running on Windows XP, using services from an OracleAS Infrastructure running on a different (non-XP) platform ▪ OracleAS Developer Kits Although the installer allows you to install other Oracle Application Server installation types on Windows XP, they are not supported. The installer displays a warning, but allows you to continue with the installation. If you are running Windows XP with Service Pack 2, please see Document ID 280874.1 on the Oracle*MetaLink* site (`http://metalink.oracle.com`.). **Note:** Oracle Application Server is **not supported** on Windows operating systems that include Terminal Services (for example, Windows 2000 with Terminal Services is not supported). **Checked by Installer:** Yes
Network	You can install Oracle Application Server on a computer that is connected to a network, or on a "standalone" computer (not connected to the network). If you are installing Oracle Application Server on a standalone computer, you can connect the computer to a network after installation. You have to perform some configuration tasks when you connect it to the network; see the *Oracle Application Server Administrator's Guide* for details. **Checked by Installer:** No
IP	You can install Oracle Application Server on a computer that uses static IP or DHCP-based IP. **Notes:** ▪ If you are installing on DHCP computers, see Section 4.7.1, "Installing on DHCP Computers" for additional requirements. ▪ If you are installing on static IP computers **and** you want to be able to run Oracle Application Server on or off the network, see Section 4.7.5, "Installing on Static IP Computers that You Want to Disconnect from the Network Later" for additional requirements. **Checked by Installer:** No
Hostname	Ensure that your hostnames are not longer than 255 characters.
Processor Speed	300 MHz or higher Intel Pentium processor recommended **Checked by Installer:** No

Table 4–2 (Cont.) System Requirements

Item	Requirement
Memory	OracleAS Infrastructure: ■ OracleAS Metadata Repository and Identity Management: 1 GB ■ Identity Management only: 1 GB ■ OracleAS Metadata Repository only: 1 GB Oracle Application Server middle tier: ■ J2EE and Web Cache: 512 MB ■ Portal and Wireless: 1 GB OracleAS Developer Kits: 256 MB **Notes:** ■ The installer checks the amount of memory on your computer and will not let you proceed if your computer does not meet the minimum memory requirements. ■ These values assume you are running only one Oracle Application Server instance per computer. If you plan to run multiple instances on the same computer, see Section 4.1.1, "Memory and Pagefile Requirements for Running Multiple Instances on the Same Computer". ■ These are minimum values that are enough to install and run Oracle Application Server. For most production sites, you should configure at least 1 GB of physical memory. For sites with substantial traffic, increasing the amount of memory further may improve performance. For Java applications, you should either increase the maximum heap allocated to the OC4J processes or configure additional OC4J processes to utilize this memory. See the *Oracle Application Server Performance Guide* for details. ■ To determine the optimal amount of memory for your installation, the best practice is to load test your site. Resource requirements can vary substantially for different applications and different usage patterns. In addition, some operating system utilities for monitoring memory can overstate memory usage, partially due to the representation of shared memory. The preferred method for determining memory requirements is to monitor the improvement in performance resulting from the addition of physical memory in your load test. Refer to your platform vendor documentation for information on how to configure memory and processor resources for testing purposes. **Checked by Installer:** Yes
File system type	NTFS is recommended over FAT32 or FAT file system types because NTFS includes security features such as enforcing permission restrictions on files. **Checked by Installer:** No
Disk space	OracleAS Infrastructure: ■ OracleAS Metadata Repository and Identity Management: 2.5 GB You can install the data files for the OracleAS Metadata Repository database on a disk that is different from the disk where you are installing OracleAS Infrastructure. If you do this, make sure the disk for the data files has at least 1.3 GB of free space. ■ Identity Management only: 2.5 GB ■ OracleAS Metadata Repository only: 2.5 GB Oracle Application Server middle tier: ■ J2EE and Web Cache: 400 MB ■ Portal and Wireless: 760 MB OracleAS Developer Kits: 520 MB **Checked by Installer:** No

Table 4–2 (Cont.) System Requirements

Item	Requirement
Space in TEMP directory	55 MB to run the installer, but you need 256 MB to install certain installation types. If the TEMP directory does not have enough free space, you can specify a different directory by setting the TEMP environment variable. See Section 4.5.5, "TEMP" for details. **Checked by Installer:** Yes

Table 4–2 (Cont.) System Requirements

Item	Requirement
Total Pagefile size (Virtual Memory)	These values are estimates. You should use the values recommended by Windows based on the amount of memory on your computer. OracleAS Infrastructure: ■ OracleAS Metadata Repository and Identity Management: 1 GB ■ Identity Management only: 1 GB ■ OracleAS Metadata Repository only: 1 GB Oracle Application Server middle tier: ■ J2EE and Web Cache: 512 MB ■ Portal and Wireless: 512 MB OracleAS Developer Kits: 512 MB If you plan to use OracleAS Clusters, Oracle recommends a minimum of 1 GB. In a production environment, Oracle recommends a minimum of 1 GB. To view and change the total pagefile size (virtual memory): **Windows 2000:** 1. Select **Start > Settings > Control Panel > System**. 2. Select the **Advanced** tab. 3. Click **Performance Options**. 4. Click **Change** to review and change the virtual memory setting. **Windows XP / Windows 2003:** 1. Display the System control panel. On Windows XP, select **Start > Control Panel**, then double-click **System**. On Windows 2003, select **Start > Control Panel > System**. 2. Select the **Advanced** tab. 3. Click **Settings** in the Performance section. 4. Select the **Advanced** tab. 5. Click **Change** to review and change the virtual memory setting. **Checked by Installer:** Yes
Monitor	256 color display **Checked by Installer:** Yes
Supported browsers	Oracle Enterprise Manager is supported on the following browsers: ■ Microsoft Internet Explorer 5.5, 6.0 (supported on Microsoft Windows only) ■ On Windows XP with SP2, use the Microsoft Internet Explorer 6.0.2900.2180.xpsp_sp2_rtm.040803-2158. This is the version packaged with SP2. ■ Netscape 7.1, 7.2 ■ Mozilla 1.5. You can download Mozilla from `http://www.mozilla.org`. Note that Firefox, the standalone Mozilla browser, is currently not certified. But check the Oracle*MetaLink* site (`http://metalink.oracle.com`) for the most current list of certified browsers. For the most current list of supported browsers, check the Oracle*MetaLink* site (`http://metalink.oracle.com`). **Checked by Installer:** No. However, if you access Oracle Enterprise Manager using a non-supported browser, you will get a warning message.

4.1.1 Memory and Pagefile Requirements for Running Multiple Instances on the Same Computer

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

The pagefile values below were suggested by Windows based on the amount of memory on the computer. Use the value suggested for your computer.

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 and Pagefile Requirements for Running Multiple Instances on the Same Computer

Description	Memory	Pagefile
OracleAS Infrastructure plus J2EE and Web Cache	1 GB	1.5 GB
OracleAS Infrastructure plus Portal and Wireless	1.5 GB	2.0 - 2.5 GB

4.1.2 Tips for Reducing Memory Usage

If you need to reduce memory consumption:

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

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

4.2 Windows System Files (wsf.exe)

Note: Perform this procedure only if prompted by the installer.

Oracle Application Server requires minimum versions of some system files in the Windows system directory (typically `C:\Windows\system32` or `C:\Winnt\system32`). When you run the installer for Oracle Application Server, the installer checks the Windows system files on your computer. If it finds old versions of these files, and the files are in use by other processes, then it prompts you to exit the installer and run `wsf.exe` to install the latest Windows system files. (If it finds old versions of the files, but the files are not in use by other processes, then it just replaces the files and you do not have to run `wsf.exe`.)

You can find `wsf.exe` in the same directory as the installer.

To run `wsf.exe`, which you need to do only if prompted by the installer, perform these steps:

1. Start `wsf.exe`, which starts up Oracle Universal Installer to install the Windows system files.

   CD-ROM (assumes E: is the CD-ROM drive):

   ```
   E:\> wsf.exe
   ```

   DVD-ROM (assumes E: is the DVD-ROM drive):

   ```
   E:\> cd application_server
   E:\> wsf.exe
   ```

2. Follow the screens in the installer:

Table 4–4 Screens for Installing Windows System Files

	Screen	Action
1.	Welcome	Click Next.
2.	Specify File Locations	**Destination Name:** Enter a name for the Oracle home for wsf. **Destination Path**: Enter any full path. The installer installs the files in the proper system directories, regardless of the value you enter in this field. Click **Next**.
3.	Warning: System Reboot Required	If you see this screen, the installer will reboot your computer automatically at the end of this installation to complete the Windows system files installation. Save and close applications (other than this installer) that you have running on your computer. Click **Next**.
4.	Summary	Click **Next** to start installing the Windows system files.
5.	End of Installation	Click Exit to exit the installer.

3. If the installer displayed the "Warning: System Reboot Required" screen during installation, the installer now reboots your computer. If not, please reboot your computer before continuing.

4.3 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 4.3.1, "About Ephemeral Ports"
- Section 4.3.2, "Checking If a Port Is in Use"
- Section 4.3.3, "Using Default Port Numbers"
- Section 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)"
- Section 4.3.5, "If Port 1521 Is in Use"

4.3.1 About Ephemeral Ports

Problem: Components Cannot Start Up Because of Conflicts with Ephemeral Ports

On rare occasions, Oracle Application Server processes are unable to start up because required ports are not available. Processes may fail to start up or report that they are

unable to "bind" to ports. The behavior may be transient in that if you try to restart the affected process later, it does start successfully.

The cause of this problem is that by default, Oracle Application Server uses a number of ports that fall into the range of "ephemeral" ports. Ephemeral ports are usually used on the client ends of client/server TCP/IP connections. Because client processes usually are unconcerned with which port value is used on the client side of the connection, all TCP/IP implementations allow clients to defer to the operating system the choice of which port value to use for the client side. The operating system selects a port from the "ephemeral" port range for each client connection of this type.

On the other hand, server processes (for example, Oracle Application Server processes) cannot use ephemeral ports. They must use fixed port values so that clients can always connect to the same server port to communicate with the server.

Port conflicts with ephemeral ports arise when an Oracle Application Server process is configured to use a port in the ephemeral port range. The Oracle Application Server process tries to start up, but discovers that the port that it needs is already in use by a client process (the client received the ephemeral port assignment from the operating system). This client can be any process on the computer capable of communicating via TCP/IP. The Oracle Application Server process fails to start up when the port that it needs is unavailable.

This problem occurs relatively more frequently on Microsoft Windows than on other operating systems because by default Windows uses a small range of ports for ephemeral client connections.

Ephemeral Port Range

The ephemeral port range on Microsoft Windows is ports 1024 through 5000, inclusive.

Only the upper end of this range is adjustable in Windows. In most other operating systems, the ephemeral range by default is much larger, and the lower and upper bounds of the range are adjustable.

Several Application Server processes, including Oracle HTTP Server, OracleAS Web Cache, Oracle Enterprise Manager Application Server Control, and OC4J, use ports in the ephemeral port range. These processes cannot start up if the ports that they need are already in use by clients.

How to Avoid Conflicts with Ephemeral Ports

To avoid conflicts with ephemeral ports, you have these options:

- Install Oracle Application Server using staticports.ini so that Oracle Application Server components do not use ports within the ephemeral range. In the staticports.ini file, use port numbers below 1024 or above 5000.

  See Section 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

- If you have already installed Oracle Application Server, you can reconfigure the components to use ports below 1024 or above 5000. See the *Oracle Application Server Administrator's Guide* to learn how to change the current ports used by Application Server processes.

- (This option can be done post-installation.) Modify the ephemeral port range on your computer. Use this option only if you cannot use any of the alternatives above. This option is the least preferred because it makes changes to the Windows registry, and it affects all products that you run on your computer.

This option moves the ephemeral port range to a new location. Before making the change, you must verify that none of the products you are using (Oracle or non-Oracle) on your computer use non-ephemeral ports within the ephemeral port range. If any products do so, you must relocate them to the new ReservedPorts range (see below), above the new ephemeral range, or below port 1024.

To implement this option, perform these steps:

– Raise the upper bound of the ephemeral port range to expand the size of the range.

  Set the MaxUserPort value in the registry to at least 13000, but no higher than 65534. MaxUserPort is the upper bound of the ephemeral port range.

  For steps, see Microsoft Knowledge Base article 196271: http://support.microsoft.com/default.aspx?scid=kb;[LN];196271.

– Reserve a portion of the newly expanded ephemeral port range for use by Oracle Application Server.

  Set the ReservedPorts value in the registry so that ports 1024 through 8000 are reserved for Oracle Application Server. The reserved range incorporates the range of ports normally used by Oracle Application Server.

  For steps, see Microsoft Knowledge Base article 812873: http://support.microsoft.com/default.aspx?scid=kb;[LN];812873.

– Restart your computer for the changes to take effect.

After performing the steps, you end up with the following: ports from 1024 through 8000 are reserved for Oracle Application Server, and ports 8001 through 13000 are the new ephemeral port range (assuming you set the MaxUserPort to 13000). The reserved range incorporates the range of ports normally used by Oracle Application Server, and the ephemeral range has the same size as the original.

4.3.2 Checking If a Port Is in Use

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

```
C:\> netstat -an | find "portnum"
```

Note that you need double-quotes around the port number.

4.3.3 Using Default Port Numbers

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

Note the following points:

- The installer assigns the default ports to components only if the ports are not in use by other applications. If the default port is in use, the installer tries other ports in the port number range for the component. For example, the default non-SSL

port for Oracle HTTP Server for the middle tier is port 80. If this port is in use by another application, the installer assigns a port in the 7777 - 7877 range.

- The default ports for Oracle HTTP Server depend on the installation type (Table 4–5). The middle tier gets ports 80 and 443 because it is where you would deploy your applications. Users would send requests to the middle tier's Oracle HTTP Server/OracleAS Web Cache to access the applications.

  In Table 4–5, the values in parenthesis indicate the ports that the installer will try to assign to Oracle HTTP Server if the default port is already in use.

Table 4–5 Default Ports for Oracle HTTP Server

Installation Type	Default Non-SSL Port	Default SSL Port
OracleAS Infrastructure	7777 (7777 - 7877)	4443 (4443 - 4543)
Middle tier	80 (7777 - 7877)	443 (4443 - 4543)

- The installer no longer checks the `services` file to determine if a port is in use. In earlier releases, the installer would not assign a port number if the port number is listed in the file.

  The `services` file is located in the `C:\%SystemRoot%\system32\drivers\etc` directory, where `%SystemRoot%` is `winnt` on Windows 2000, and `windows` on Windows XP and Windows 2003.

If You Plan to Install OracleAS Infrastructure and Middle Tier on the Same Computer

If you plan to install multiple instances (such as an OracleAS Infrastructure and a middle tier, or multiple middle tiers) on the same computer, **only the first instance that you install on the computer will use the default ports**. When you install additional instances, the installer will detect that the default ports are already in use by the first instance, and it will assign other ports to the additional instances.

The components where this is most visible are Oracle HTTP Server and OracleAS Web Cache, as shown in the following scenarios:

Table 4–6 Oracle HTTP Server Ports in Different Scenarios

Scenario	Non-SSL Port	SSL Port
OracleAS Infrastructure and a middle tier installed on the same computer	Oracle HTTP Server on the OracleAS Infrastructure: 7777 Oracle HTTP Server on the middle tier: 80	Oracle HTTP Server on the OracleAS Infrastructure: 4443 Oracle HTTP Server on the middle tier: 443
Two middle tiers installed on the same computer	Oracle HTTP Server on the first middle tier: 80 Oracle HTTP Server on the second middle tier: 7777	Oracle HTTP Server on the first middle tier: 443 Oracle HTTP Server on the second middle tier: 4443

4.3.4 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 4.3.4.1, "Format of the staticports.ini File" describes the file format. This file is typically called the `staticports.ini` file, but you can name it anything you want.

2. In the installer, on the Specify Port Configuration Options screen, select **Manual** and enter the *full path* to the `staticports.ini` file.

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

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

4.3.4.1 Format of the staticports.ini File

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

```
# J2EE and Web Cache
Oracle HTTP Server port = port_num
Oracle HTTP Server Listen port = port_num
Oracle HTTP Server SSL port = port_num
Oracle HTTP Server Listen (SSL) port = port_num
Oracle HTTP Server Diagnostic port = port_num
Java Object Cache port = port_num
DCM Java Object Cache port = port_num
DCM Discovery port = port_num
Oracle Notification Server Request port = port_num
Oracle Notification Server Local port = port_num
Oracle Notification Server Remote port = port_num
Application Server Control port = port_num
Application Server Control RMI port = port_num
Oracle Management Agent port = port_num
Web Cache HTTP Listen port = port_num
Web Cache HTTP Listen (SSL) port = port_num
Web Cache Administration port = port_num
Web Cache Invalidation port = port_num
Web Cache Statistics port = port_num
Log Loader port = port_num

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

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

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

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

Media	Location of staticports.ini File (assumes E: is your CD-ROM or DVD-ROM drive)
CD-ROM	Disk 1: `E:\stage\Response\staticports.ini`
DVD-ROM	`E:\application_server\stage\Response\staticports.ini`

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

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

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

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

   ```
   Application Server Control port = 2000
   Web Cache Administration port = 2001
   Web Cache Invalidation port = 2002
   Web Cache Statistics port = 2003
   ```

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

   Notes on Choosing Port Numbers:

   - Port numbers cannot be greater than 65535.
   - If you plan to set port numbers for Oracle HTTP Server and OracleAS Web Cache, be sure you read Section 4.3.4.3, "Ports for Oracle HTTP Server and OracleAS Web Cache".

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

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

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

Using portlist.ini as the staticports.ini File

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

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

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

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

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

4.3.4.3 Ports for Oracle HTTP Server and OracleAS Web Cache

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

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

If You Are Configuring OracleAS Web Cache and Oracle HTTP Server

1. Set the port for OracleAS Web Cache.

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

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

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

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

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

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

   the `Port` directive would be set to 7979.

2. Set the port for Oracle HTTP Server.

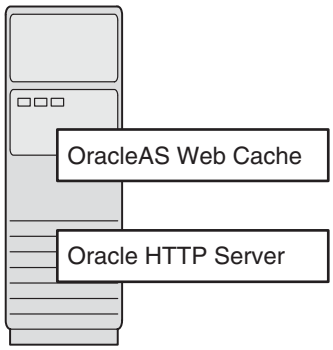
   Oracle HTTP Server uses the port specified by the `Listen` directive. To set this port, use this line in the `staticports.ini` file:

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

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

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

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



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

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

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

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

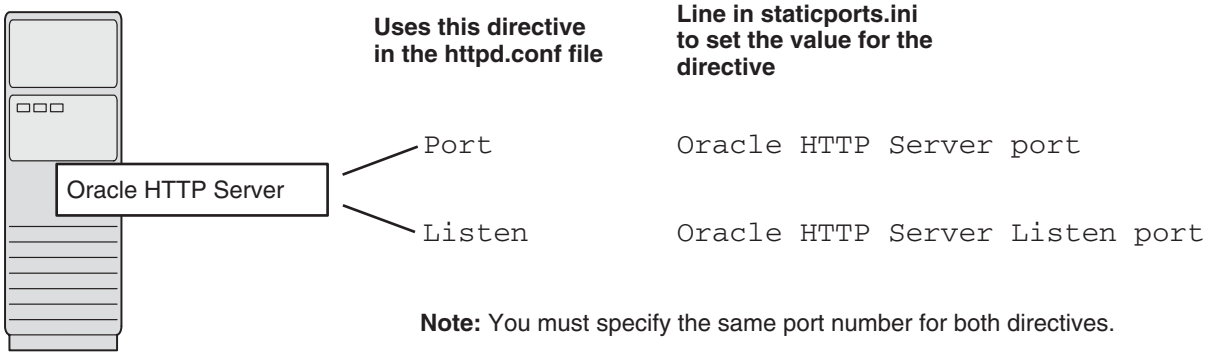
```
Oracle HTTP Server port = 8080
Oracle HTTP Server Listen port = 8080
```

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

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

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

Figure 4–2 Configuring Only Oracle HTTP Server



4.3.5 If Port 1521 Is in Use

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

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

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

- Section 4.3.5.1, "If Port 1521 Is In Use by an Existing Oracle Database"
- Section 4.3.5.2, "If Port 1521 Is In Use by Some Other Application"

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

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

You might be able to use the same listener for both the existing database and the OracleAS Metadata Repository database. You have to consider the version of the existing listener as well as the port number. Table 4–8 shows scenarios and outcomes.

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

Table 4–8 Scenarios and Outcomes if You Have an Existing Database on the Computer Where You Want to Install the OracleAS Metadata Repository

Version of the Existing Listener	Existing Listener Uses Port 1521	Existing Listener Uses a Port Other Than 1521
Earlier than 10.1.0.2	You need two listeners: one for the existing database and one for the OracleAS Metadata Repository. See Section 4.3.5.1.1, "Scenario 1: Existing Listener Uses Port 1521 and Listener Version Is Earlier Than 10.1.0.2".	You need two listeners: one for the existing database and one for the OracleAS Metadata Repository. See Section 4.3.5.1.3, "Scenario 3: Existing Listener Uses a Port Other Than 1521".
10.1.0.2 or later	The existing listener supports both the existing database and the OracleAS Metadata Repository. See Section 4.3.5.1.2, "Scenario 2: Existing Listener Uses Port 1521 and Listener Version Is 10.1.0.2 or Later"	You need two listeners: one for the existing database and one for the OracleAS Metadata Repository. See Section 4.3.5.1.3, "Scenario 3: Existing Listener Uses a Port Other Than 1521".

To check the listener version, run the following command:

```
C:\> cd ORACLE_HOME\bin
C:\> 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:

```
C:\OraHome_1\BIN>lsnrctl VERSION
LSNRCTL for 32-bit Windows: Version 10.1.0.3.0 - Production on 18-AUG-2004
18:42:10
Copyright (c) 1991, 2004, Oracle.  All rights reserved.
Connecting to
(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=as-pc.oracle.com)(PORT=1521)))
TNSLSNR for 32-bit Windows: Version 10.1.0.3.0 - Production
        TNS for 32-bit Windows: Version 10.1.0.3.0 - Production
        Oracle Bequeath NT Protocol Adapter for 32-bit Windows: Version 10.1.0.3.0
- Production
        Windows NT Named Pipes NT Protocol Adapter for 32-bit Windows: Version
10.1.0.3.0 - Production
        Windows NT TCP/IP NT Protocol Adapter for 32-bit Windows: Version
10.1.0.3.0 - Production,,
The command completed successfully
```

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

Listeners earlier than version 10.1.0.2 are **not compatible** with the OracleAS Metadata Repository from this Oracle Application Server release (10.1.2). What you need to do is to install the OracleAS Metadata Repository, which installs a version 10.1.0.3 listener. You can then use this new listener to service your existing database and the OracleAS Metadata Repository database.

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

   ```
   C:\> cd ORACLE_HOME\bin
   C:\> lsnrctl stop
   ```

   ORACLE_HOME is the home directory for your existing database.

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

2. Install the OracleAS Metadata Repository.

   See any of the procedures that install an OracleAS Metadata Repository in Chapter 6, "Installing OracleAS Infrastructure" (for example, Section 6.19, "Installing OracleAS Infrastructure" or Section 6.20, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory").

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

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

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

      * TCP Port 1521
      * IPC key EXTPROC

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

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

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

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

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

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

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

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

The listener can be running during installation.

4.3.5.1.3 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.

4.3.5.2 If Port 1521 Is In Use by Some Other Application

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

4.4 Operating System User

The operating system user performing the installation must belong to the Administrators group.

> **Note:** The user must be listed directly in the Administrators group. The user cannot belong to the Administrators group indirectly (for example, by being a member of a group that is part of the Administrators group).

Perform the following steps to check if you belong to the Administrators group:

1. Display the Computer Management dialog.

   On Windows 2000 or Windows XP: Right-click **My Computer** on the desktop and select **Manage**.

   On Windows 2003: Right-click the local computer icon on the desktop and select **Manage**.

2. On the left side, expand **Local Users and Groups**, and select **Users**.
3. On the right side, right-click the user and select **Properties**. This displays the Properties dialog.
4. In the Properties dialog, select the **Member Of** tab.

If you are not a member of the Administrators group, get an administrator to add you to the group or log in as a user who is a member of the Administrators group.

4.5 Environment Variables

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

Table 4–9 summarizes whether you set or unset an environment variable.

Table 4–9 Environment Variable Summary

Environment variable	Set or Unset
ORACLE_HOME and ORACLE_SID	Must not be set.
PATH	Must not be longer than 1023 characters.
TNS_ADMIN	Must not be set.
TEMP	Optional. If unset, defaults to `C:\temp`.

4.5.1 How to Set Environment Variables

This section describes how to set environment variables in Windows:

1. Display the System control panel.

   On Windows 2000: Select **Start > Settings > Control Panel > System**.

   On Windows 2003: Select **Start > Control Panel > System**.

   On Windows XP: Select **Start > Control Panel**, then double-click **System**.

2. Select the **Advanced** tab.
3. Click **Environment Variables**.

4. To change the value of a variable, select the variable and click **Edit**.

4.5.2 ORACLE_HOME and ORACLE_SID

These environment variables must not be set.

4.5.3 PATH

The PATH environment variable cannot be longer than 1023 characters. Otherwise, the installation may fail.

4.5.4 TNS_ADMIN

Ensure that the TNS_ADMIN environment variable is not set when you run the installer. If set, it can cause errors during installation. Section H.3.12, "Database Configuration Assistant (DBCA) Failures" shows such an error.

4.5.5 TEMP

During installation, the installer needs to write temporary files to a "temporary" directory. By default, the "temporary" directory is `C:\temp`.

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

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

4.6 The %WINDIR%\system32\drivers\etc\hosts File

Although the contents of the `%WINDIR%\system32\drivers\etc\hosts` file affect these items:

- Section 4.6.1, "Location of the Default Identity Management Realm"
- Section 4.6.2, "Hostname for OracleAS Single Sign-On"

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

`%WINDIR%` specifies the Windows operating system directory. Typically, it is `C:\WINDOWS` for Windows 2003, and `C:\WINNT` for Windows 2000.

4.6.1 Location of the Default Identity Management Realm

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

The `hosts` file should use the following format:

```
ip_address   fully_qualified_hostname   short_hostname
```

Example:

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

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

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

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

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

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

4.6.2 Hostname for OracleAS Single Sign-On

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

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

```
E:\> setup.exe OUI_HOSTNAME=myserver.mydomain.com
```

4.7 Network Topics

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

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

- Section 4.7.1, "Installing on DHCP Computers"
- Section 4.7.2, "Installing on Multihomed (Multi-IP) Computers"
- Section 4.7.3, "Installing on Computers with Multiple Aliases"
- Section 4.7.4, "Installing on Non-Networked Computers"
- Section 4.7.5, "Installing on Static IP Computers that You Want to Disconnect from the Network Later"
- Section 4.7.6, "Installing a Loopback Adapter"
- Section 4.7.7, "Copying CD-ROMs or DVD-ROM to Hard Drive, and Installing from the Hard Drive"
- Section 4.7.8, "Installing from a Remote CD-ROM or DVD-ROM Drive"

- Section 4.7.9, "Installing on Remote Computers Through Remote Control Software"

4.7.1 Installing on DHCP Computers

Note this limitation when running Oracle Application Server on DHCP computers: Oracle Application Server instances on DHCP computers cannot communicate with other instances running on other computers. For example, you cannot have OracleAS Infrastructure on one computer and a middle tier on another computer if any one of those computers uses DHCP. All the instances that need to communicate with each other need to run on the same computer. There are no limitations on clients: clients from other computers can access the instances running on the DHCP computer, as long as the client computer can resolve the DHCP computer on the network.

Before installing Oracle Application Server on a DHCP computer, perform these steps:

1. Install a loopback adapter on the DHCP computer.

   When you install a loopback adapter, the loopback adapter assigns a local IP for your computer. Having a loopback adapter and a local IP address means that you do not have to run the `chgiphost` script after installation each time the IP address changes (due to DHCP).

   Which Is the Primary Network Adapter?

   Windows considers loopback adapters as a type of network adapter. After installing a loopback adapter on your computer, you have at least two network adapters on your computer: your network adapter and the loopback adapter.

   You want Windows to use the loopback adapter as the primary adapter. The primary adapter is determined by the order in which you installed the adapters:

   - On Windows 2000, the primary adapter is the *last* adapter installed. You can just install the loopback adapter. However, if you install additional network adapters after you install the loopback adapter, you need to deinstall the loopback adapter and reinstall it.

   To install a loopback adapter on the different Windows platforms, see Section 4.7.6, "Installing a Loopback Adapter".

2. Ping each computer where you plan to install Oracle Application Server.

   - Ping the computer from itself, using only the hostname and using the fully qualified name.

     For example, if you installed a loopback adapter on a computer called `mycomputer`, check the following:

```
prompt> ping mycomputer                 Ping itself using just the hostname.
Reply from 10.10.10.10                     Returns loopback adapter IP.
prompt> ping mycomputer.mydomain.com    Ping using a fully qualified name.
Reply from 10.10.10.10                     Returns loopback adapter IP.
```

Note: When you ping a computer from itself, the `ping` command should return the IP of the loopback adapter. It should not return the network IP of the computer.

- Ping the computer from other computers on the network, using only the hostname and using the fully qualified name.

  In this case, the `ping` command returns the network IP of the computer.

```
prompt> ping mycomputer                 Ping using the hostname.
Reply from 139.185.140.166                 Returns network IP.
prompt> ping mycomputer.mydomain.com    Ping using a fully qualified name.
Reply from 139.185.140.166                 Returns network IP.
```

If `ping` fails, then consult your network administrator.

4.7.2 Installing on Multihomed (Multi-IP) Computers

A multihomed computer is associated with multiple IP addresses. This is typically achieved by multiple network cards on the computer. Each IP address is associated with a hostname; additionally you can set up aliases for the hostname.

When you install Oracle Application Server on a multihomed computer, the installer configures Oracle Application Server to use the hostname/IP address on the primary network adapter.

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

How Windows determines the primary network adapter is described in "Which Is the Primary Network Adapter?" on page 4-21.

If you want to use a network adapter that is not the primary adapter, start up the installer with the `OUI_HOSTNAME` command-line parameter. Specify the hostname that you want to use in the parameter. For example:

CD-ROM (assumes E: is the CD-ROM drive):

```
E:\> setup.exe OUI_HOSTNAME=myserver.mydomain.com
```

4.7.3 Installing on Computers with Multiple Aliases

A computer with multiple aliases refers to a computer registered with the naming service under a single IP but with multiple aliases. The naming service resolves any of those aliases to the same computer.

Before installing Oracle Application Server on such computers, you must:

- install a loopback adapter on the computer
- make sure the loopback adapter is the primary network adapter

The loopback adapter ensures that when Oracle Application Server queries for the hostname, it always gets the same name (because the queries are done locally). Without the loopback adapter, the queries can return any of the aliases for the computer (because the queries get the response from the naming service).

To learn how Windows determines which adapter is the primary adapter, see "Which Is the Primary Network Adapter?" on page 4-21.

For steps on how to install a loopback adapter, see Section 4.7.6, "Installing a Loopback Adapter".

4.7.4 Installing on Non-Networked Computers

You can install Oracle Application Server on a non-networked computer, such as a laptop. Because a non-networked computer has no access to other computers, you have to install all the components that you need on the computer. Examples:

- You can install a J2EE and Web Cache middle tier without Identity Management or farm repository. See Section 7.1, "Middle-tier Types" for details.
- If you install a middle tier that requires infrastructure services, you need to install both OracleAS Infrastructure and middle tier on the computer. Ensure your computer has enough resources to run both instances. See Section 4.1.1, "Memory and Pagefile Requirements for Running Multiple Instances on the Same Computer".

Note that to install Oracle Application Server on a non-networked computer, the computer must have networking capabilities. Non-networked means that the computer is not connected to a network.

If you want to install Oracle Application Server on a non-networked computer, and you never want to connect the computer to a network after installation, ever, then you can just go ahead and install Oracle Application Server on your non-networked computer.

However, if you plan to connect the computer to a network after installation, perform these steps before you install Oracle Application Server on the non-networked computer.

1. Install a loopback adapter on the computer. See Section 4.7.6, "Installing a Loopback Adapter".

   The loopback adapter and local IP address simulate a networked computer. If you connect the computer to the network, Oracle Application Server still uses the local IP and hostname.

2. Ping the computer from itself, using only the hostname and using the fully qualified name.

   For example, if you installed a loopback adapter on a computer called `mycomputer`, check the following:

```
prompt> ping mycomputer                  Ping itself using just the hostname.
Reply from 10.10.10.10                      Returns loopback adapter IP.
prompt> ping mycomputer.mydomain.com     Ping using a fully qualified name.
Reply from 10.10.10.10                      Returns loopback adapter IP.
```

   Note: When you ping a computer from itself, the `ping` command should return the IP of the loopback adapter.

   If `ping` fails, then you need to talk with your network administrator.

Connecting the Computer to the Network After Installation

If you connect the computer to a network after installation, your Oracle Application Server instance on your computer can work with other instances on the network. Recall that you must have installed a loopback adapter on your computer. Your computer can use a static IP or DHCP, depending on the network to which you are connected.

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

4.7.5 Installing on Static IP Computers that You Want to Disconnect from the Network Later

If you plan to install Oracle Application Server on a networked computer with static IP and you want to be able to run Oracle Application Server when you disconnect the computer from the network, you need to do the following steps before installing Oracle Application Server:

1. Install a loopback adapter on your computer. See Section 4.7.6, "Installing a Loopback Adapter" for details.

   Without a loopback adapter, Oracle Application Server cannot function correctly when you disconnect the computer from the network because the static IP is no longer available.

2. Make sure the loopback adapter is the primary network adapter. See "Which Is the Primary Network Adapter?" on page 4-21. To check, `ping` the computer from itself using (1) the hostname only and (2) the fully qualified name.

   For example, if you installed a loopback adapter on a computer called `mycomputer`, you can run these commands:

   ```
   prompt> ping mycomputer                  Ping itself using just the hostname.
   Reply from 10.10.10.10                      Returns loopback adapter IP.
   prompt> ping mycomputer.mydomain.com     Ping using a fully qualified name.
   Reply from 10.10.10.10                      Returns loopback adapter IP.
   ```

   When you ping a computer from itself, the `ping` command should return the IP of the loopback adapter. It should not return the network IP of the computer.

These steps are required regardless of whether the computer is using static IP or DHCP. If this is a DHCP computer, you already know you need a loopback adapter; see Section 4.7.1, "Installing on DHCP Computers".

When you disconnect the computer from the network, the computer has no access to any network resources. Make sure you have all the instances (for example, OracleAS Infrastructure and middle tier) you need on your computer.

4.7.6 Installing a Loopback Adapter

A loopback adapter is required in any of these scenarios:

- you are installing on a DHCP computer (see Section 4.7.1, "Installing on DHCP Computers"), or
- you are installing on a non-networked computer and plan to connect the computer to a network after installation (see Section 4.7.4, "Installing on Non-Networked Computers"), or
- you are installing on a computer with multiple aliases (see Section 4.7.3, "Installing on Computers with Multiple Aliases"), or
- you are installing on a networked computer (with static IP or DHCP), but you want to be able to run Oracle Application Server when you take the computer off the network.

The procedure for installing a loopback adapter depends on the version of Windows:

- Section 4.7.6.1, "Checking If a Loopback Adapter Is Installed on Your Computer"
- Section 4.7.6.2, "Installing a Loopback Adapter on Windows 2000"

- Section 4.7.6.3, "Installing a Loopback Adapter on Windows 2003 or Windows XP"
- Section 4.7.6.4, "Checking the Hostname"
- Section 4.7.6.5, "Removing a Loopback Adapter on Windows 2000, Windows 2003, or Windows XP"

4.7.6.1 Checking If a Loopback Adapter Is Installed on Your Computer

To check if a loopback adapter is installed on your computer, run the "`ipconfig /all`" command:

```
prompt> ipconfig /all
```

If there is a loopback adapter installed, you would see a section that lists the values for the loopback adapter. For example:

```
Ethernet adapter Local Area Connection 2:
  Connection-specific DNS Suffix  . :
  Description . . . . . . . . . . . : Microsoft Loopback Adapter
  Physical Address. . . . . . . . . : 02-00-4C-4F-4F-50
  DHCP Enabled. . . . . . . . . . . : Yes
  Autoconfiguration Enabled . . . . : Yes
  Autoconfiguration IP Address. . . : 169.254.25.129
  Subnet Mask . . . . . . . . . . . : 255.255.0.0
```

4.7.6.2 Installing a Loopback Adapter on Windows 2000

Windows 2000 reports on the *last* network adapter installed. This means that if you install additional network adapters after you install the loopback adapter, you need to remove and reinstall the loopback adapter. The loopback adapter must be the last network adapter installed on the computer.

To install a loopback adapter on Windows 2000:

1. Select **Start > Settings > Control Panel**.
2. Double-click **Add/Remove Hardware**. This starts up the Add/Remove Hardware wizard.
3. "Welcome page": Click **Next**.
4. "Choose a Hardware Task" page: Select **Add/Troubleshoot a device**, and click **Next**.
5. "Choose a Hardware Device" page: Select **Add a new device**, and click **Next**.
6. "Find New Hardware" page: Select **No, I want to select the hardware from a list**, and click **Next**.
7. "Hardware Type" page: Select **Network adapters**, and click **Next**.
8. "Select Network Adapter" page

   Manufacturers: select **Microsoft**.

   Network Adapter: select **Microsoft Loopback Adapter**.

   Click **Next**.
9. "Start Hardware Installation" page: Click **Next**.
10. "Completing the Add/Remove Hardware Wizard" page: Click **Finish**.
11. Right-click **My Network Places** on the desktop and choose **Properties**. This displays the Network and Dial-up Connections control panel.

12. Right-click the connection that was just created. This is usually "Local Area Connection 2". Choose **Properties**.
13. On the **General** tab, select **Internet Protocol (TCP/IP)**, and click **Properties**.
14. In the Properties dialog (Figure 4–3), enter the following values:

    IP Address: Enter a non-routable IP for the loopback adapter. The following non-routable addresses are recommended:

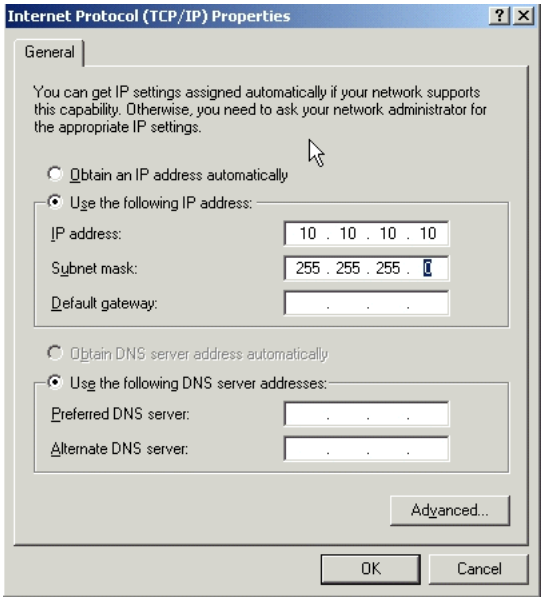
    - 192.168.*x*.*x* (*x* is any value between 1 and 255)
    - 10.10.10.10

    Subnet mask: Enter `255.255.255.0`.

    Leave all other fields empty.

    Click **OK**.

Figure 4–3 Internet Protocol (TCP/IP) Properties Dialog Showing Values for the Loopback Adapter



15. Click **OK** in the Local Area Connection 2 Properties dialog.
16. Restart the computer.
17. Add a line to the `C:\winnt\system32\drivers\etc\hosts` file with the following format:

    ```
    IP_address   hostname.domainname   hostname
    ```

    This line should come after the `localhost` line in the file.

    Replace *IP_address* with the non-routable IP address you entered in step 14.

    Replace *hostname* and *domainname* with the appropriate values.

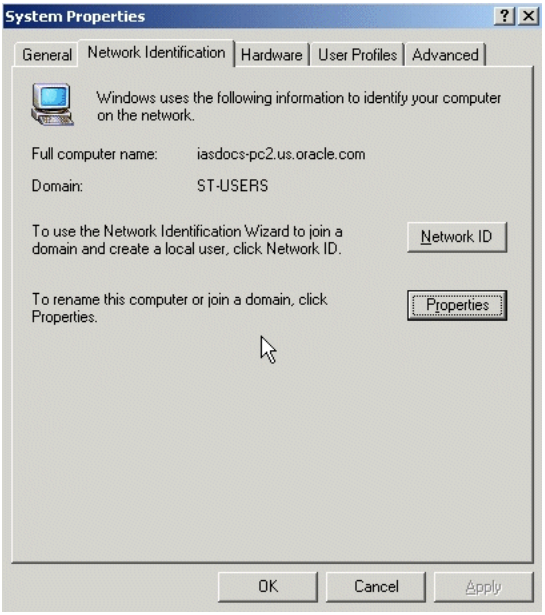
    Example:

    ```
    10.10.10.10   mycomputer.mydomain.com   mycomputer
    ```

18. Check the network configuration:

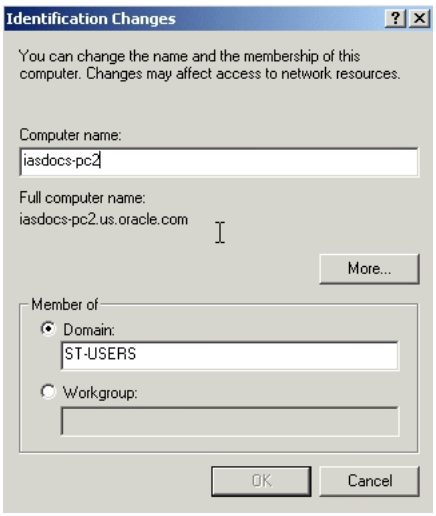
a. Open the System control panel, and select the **Network Identification** tab. In **Full computer name**, make sure you see the hostname and the domain name (Figure 4–4).

Figure 4–4 System Control Panel, Network Identification Tab



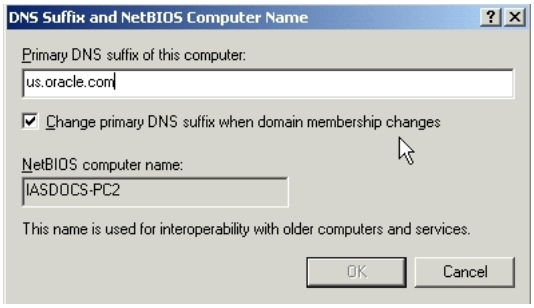
b. Click **Properties**. In **Computer name**, you should see the hostname, and in **Full computer name**, you should see the hostname and domain name (Figure 4–5).

Figure 4–5 Identification Changes Dialog



c. Click **More**. In **Primary DNS suffix of this computer**, you should see the domain name (Figure 4–6).

Figure 4–6 DNS Suffix and NetBIOS Computer Name Dialog



4.7.6.3 Installing a Loopback Adapter on Windows 2003 or Windows XP

To install a loopback adapter on Windows 2003 or Windows XP:

1. Select **Start > Control Panel**.
2. Double-click **Add Hardware**. This starts up the Add Hardware wizard.
3. "Welcome" page: Click **Next**.
4. "Is the hardware connected?" page: Select **Yes, I have already connected the hardware**, and click **Next**.
5. "The following hardware is already installed on your computer" page: Select **Add a new hardware device**, and click **Next**.
6. "The wizard can help you install other hardware" page: Select **Install the hardware that I manually select from a list**, and click **Next**.
7. "From the list below, select the type of hardware you are installing" page: Select **Network adapters**, and click **Next**.
8. "Select Network Adapter" page

   Manufacturer: select **Microsoft**.

   Network Adapter: select **Microsoft Loopback Adapter**.

   Click **Next**.
9. "The wizard is ready to install your hardware": Click **Next**.
10. "Completing the Add Hardware Wizard" page: Click **Finish**.
11. (Windows 2003) Restart your computer.
12. Right-click **My Network Places** on the desktop and choose **Properties**. This displays the Network Connections control panel.
13. Right-click the connection that was just created. This is usually "Local Area Connection 2". Choose **Properties**.
14. On the **General** tab, select **Internet Protocol (TCP/IP)**, and click **Properties**.
15. In the Properties dialog (Figure 4–3), enter the following values:

    IP Address: Enter a non-routable IP for the loopback adapter. The following non-routable addresses are recommended:

    - 192.168.*x*.*x* (*x* is any value between 1 and 255)
    - 10.10.10.10

Subnet mask: Enter `255.255.255.0`.

Leave all other fields empty.

Click **OK**.

16. Click **OK** in the Local Area Connection 2 Properties dialog.
17. Restart the computer.
18. Add a line to the `C:\windows\system32\drivers\etc\hosts` file with the following format:

    ```
    IP_address   hostname.domainname   hostname
    ```

    This line should come after the `localhost` line in the file.

    Replace *IP_address* with the non-routable IP address you entered in step 15.

    Replace *hostname* and *domainname* with the appropriate values.

    Example:

    ```
    10.10.10.10   mycomputer.mydomain.com   mycomputer
    ```

19. Check the network configuration:
    a. Open the System control panel, and select the **Computer Name** tab. In **Full computer name**, make sure you see the hostname and the domain name.
    b. Click **Change**. In **Computer name**, you should see the hostname, and in **Full computer name**, you should see the hostname and domain name (Figure 4–5).
    c. Click **More**. In **Primary DNS suffix of this computer**, you should see the domain name (Figure 4–6).

4.7.6.4 Checking the Hostname

If your DHCP server also assigns the hostname for your computer (in addition to assigning an IP address), the installer might use this hostname instead of the hostname you defined locally.

To ensure that the installer uses the local hostname, you have two options:

- Option 1: Start up the installer with the OUI_HOSTNAME parameter. This parameter specifies the hostname that you want to use.

  ```
  E:\> setup.exe OUI_HOSTNAME=myhostname.mydomain.com
  ```

- Option 2: Before running the installer, add a line to the `C:\winnt\system32\drivers\etc\hosts` file with the following format:

  ```
  IP_address   hostname.domainname   hostname
  ```

  This line should come after the `localhost` line in the file.

  Replace *IP_address* with the loopback adapter's IP address. This should be a non-routable IP address.

  Replace *hostname* and *domainname* with the appropriate values.

  Example:

  ```
  10.10.10.10   mycomputer.mydomain.com   mycomputer
  ```

If you have already installed Oracle Application Server, you can change the hostname after installation using the change IP/hostname procedures documented in the *Oracle Application Server Administrator's Guide*.

4.7.6.5 Removing a Loopback Adapter on Windows 2000, Windows 2003, or Windows XP

To remove a loopback adapter on Windows 2000, Windows 2003, or Windows XP:

1. Display the System control panel.

   Windows 2000: Select **Start > Settings > Control Panel**, then double-click **System**.

   Windows 2003: Select **Start > Control Panel > System**.

   Windows XP: Select **Start > Control Panel**, then double-click **System**.

2. In the Hardware tab, click **Device Manager**.
3. In the Device Manager windows, expand **Network adapters**. You should see **Microsoft Loopback Adapter**.
4. Right-click **Microsoft Loopback Adapter** and select **Uninstall**.

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

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

(You can install from remote CD-ROM or DVD-ROM drives; see Section 4.7.8, "Installing from a Remote CD-ROM or DVD-ROM Drive".)

When you install from the hard drive, the installer does not prompt you to swap CD-ROMs. It can find all the files if they are in the proper locations (see Figure 4–7).

Accessing the Hard Drive from Other Computers

If you want to install Oracle Application Server on remote computers from the hard drive where you copied the contents of the CD-ROM or DVD-ROM, you have to do the following steps:

1. On the local computer, share the hard drive.
2. On the computers where you want to install Oracle Application Server, map to the shared hard drive.
3. Run the installer from the remote computers where you want to install Oracle Application Server.

   Note that you have to use the drive letter for the mapped drive to access the installer (for example, H:\appserver10_1_2\setup.exe).

   You cannot use the universal naming convention (UNC) syntax (*hostname**sharename*) to access the installer.

Space Requirement

Ensure that the hard drive contains enough space to hold the contents of the CD-ROMs or the `application_server` directory on the DVD-ROM. Each CD-ROM contains approximately 650 MB. This means that if you are copying three CD-ROMs, you need approximately 1.9 GB of disk space.

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

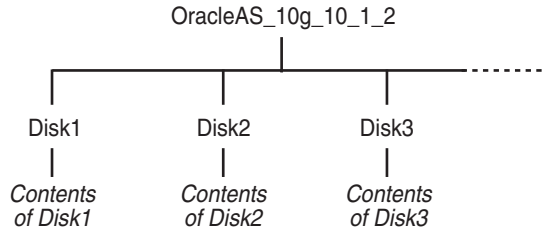
This space is in addition to the space required for installing Oracle Application Server (listed in Table 4–2).

To Copy the CD-ROMs:

1. Create a directory structure on your hard drive as shown in Figure 4–7.

   You need to create a parent directory (called `OracleAS_10g_10_1_2` in the example, but you can name it anything you like), and, under the parent directory, create subdirectories called `Disk1`, `Disk2`, and so on. The names of the subdirectories must be `Disk`*N*, where *N* is the CD-ROM number.

Figure 4–7 Directory Structure for Copying CD-ROMs to Disk



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

   You can copy the files using Windows Explorer or the command line. If you are using the command line, you can use the `xcopy` command.

   The following example assumes E: is the CD-ROM drive, and `C:\OracleAS_10g_10_1_2\Disk`*N* are the directories that you want to copy the CD-ROMs to.

```
E:\> xcopy /e /i  E:\1012disk1  C:\OracleAS_10g_10_1_2\Disk1
E:\> xcopy /e /i  E:\1012disk2  C:\OracleAS_10g_10_1_2\Disk2
... Repeat for each CD-ROM.
```

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

```
C:\> cd OracleAS_10g_10_1_2\Disk1
C:\OracleAS_10g_10_1_2\Disk1> setup.exe
```

To Copy the application_server Directory from the DVD-ROM

You can copy the `application_server` directory using Windows Explorer or the command line. If you are using the command line, here are the steps:

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

   The example assumes E: is the DVD-ROM drive, and `C:\application_server` is the destination directory:

```
E:\> xcopy /e /i  E:\application_server  C:\application_server
```

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

```
C:\> cd application_server
C:\application_server> setup.exe
```

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

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

On the Remote Computer, Share the CD-ROM or DVD-ROM Drive

The remote CD-ROM or DVD-ROM drive that you want to use must allow shared access. To set this up, perform these steps on the remote computer (which has the CD-ROM or DVD-ROM drive):

1. Log in to the remote computer as an Administrator user.
2. Start up Windows Explorer.
3. Right-click the CD-ROM or DVD-ROM drive letter and choose **Sharing** (Windows 2000) or **Sharing and Security** (Windows 2003, Windows XP).
4. In the **Sharing** tab (Figure 4–8):

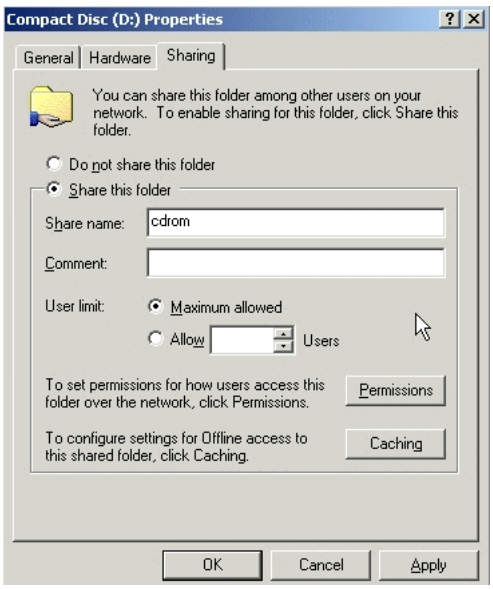
   Select **Share this folder**.

   Share name: Give it a share name such as `cdrom` or `dvd`. You will use this name when you map the CD-ROM or DVD-ROM drive on the local computer. See step d on page 4-33.

   Click **Permissions**. You need at least "read" permission for the user who will be accessing it to install Oracle Application Server.

   Click **OK** when done.

Figure 4–8 Sharing a CD-ROM Drive



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

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

On the Local Computer, Map the CD-ROM or DVD-ROM Drive

Perform these steps on the local computer to map the CD-ROM or DVD-ROM drive and to run the installer:

1. Map the remote CD-ROM or DVD-ROM drive.
   a. Start up Windows Explorer on the local computer.
   b. Select **Tools > Map Network Drive**. This displays the Map Network Drive dialog.
   c. Select a drive letter to use for the remote CD-ROM or DVD-ROM drive.
   d. In **Folder**, enter the location of the remote CD-ROM or DVD-ROM drive using the following format:

      `\\remote_hostname\share_name`

      Replace *remote_hostname* with the name of the remote computer with the CD-ROM or DVD-ROM drive.

      Replace *share_name* with the share name that you entered in step 4 on page 4-32.

      Example: `\\computer2\cdrom`

   e. If you need to connect to the remote computer as a different user:

      Click **different user name**, and enter the username.

   f. Click **Finish**.
2. Run the installer from the mapped CD-ROM or DVD-ROM drive.

   When the installer prompts you to switch CD-ROMs, eject the CD-ROM and insert the requested CD-ROM.

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

4.7.9 Installing on Remote Computers Through Remote Control Software

If you want to install and run Oracle Application Server on a remote computer (that is, the remote computer has the hard drive and will run Oracle Application Server components), but you do not have physical access to the computer, you can still perform the installation on the remote computer if it is running remote control software such as VNC or Symantec pcAnywhere. You also need the remote control software running on your local computer.

You can install Oracle Application Server on the remote computer in one of two ways:

- If you have copied the contents of the Oracle Application Server CD-ROM or DVD-ROM to a hard drive, you can install from the hard drive.

- You can insert the CD-ROM or DVD-ROM into a drive on your local computer, and install from the CD-ROM or DVD-ROM.

Installing from a Hard Drive

If you have copied the contents of the Oracle Application Server CD-ROM or DVD-ROM to a hard drive, you can install from the hard drive.

The steps that you have to do are:

1. Make sure that the remote control software is installed and running on the remote and local computers.
2. Share the hard drive that contains the Oracle Application Server CD-ROM or DVD-ROM.
3. On the remote computer, map a drive letter to the shared hard drive. You would use the remote control software to do this on the remote computer.
4. Through the remote control software, run the installer on the remote computer. You access the installer from the shared hard drive.

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

You can insert the CD-ROM or DVD-ROM into a drive on your local computer, and install from the CD-ROM or DVD-ROM. This is similar to the scenario described in Section 4.7.8, "Installing from a Remote CD-ROM or DVD-ROM Drive".

The steps that you have to do are:

1. Make sure that the remote control software is installed and running on the remote and local computers.
2. On the local computer, share the CD-ROM or DVD-ROM drive.

   On the remote computer, map a drive letter to the shared CD-ROM or DVD-ROM drive. You would use the remote control software to do this on the remote computer.

   These steps are described in Section 4.7.8, "Installing from a Remote CD-ROM or DVD-ROM Drive".
3. Through the remote control software, run the installer on the remote computer. You access the installer from the shared CD-ROM or DVD-ROM drive.

4.8 Prerequisite Checks Performed by the Installer

Table 4–10 lists the checks performed by the installer:

Table 4–10 Prerequisite Checks Performed by the Installer

Item	Description
User	The installer checks that the user has administrative privileges.
Monitor	The installer checks that the monitor is configured to display at least 256 colors.
Operating system version	See Table 4–2 for supported versions.
Windows service pack	See Table 4–2 for supported service packs.
Memory	See Table 4–2 for recommended values.
Total pagefile (virtual memory) size	See Table 4–2 for recommended values.

Table 4–10 (Cont.) Prerequisite Checks Performed by the Installer

Item	Description
Space in TEMP directory	See Table 4–2 for recommended values.
Instance name	The installer checks that the computer on which you are installing Oracle Application Server does not already have an instance of the same name.
Oracle home directory name	The installer checks that the Oracle home directory name does not contain any spaces.
Path to 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.
Oracle home directory	You should install Oracle Application Server in a new directory, unless you are expanding a middle tier (see Section 7.14, "Expanding a Middle Tier") or installing a middle tier in an Oracle home that contains Oracle Developer Suite 10*g* Release 2 (10.1.2) (see Section 5.4, "Oracle Home Directory"). Here are some examples of installations that are **not allowed**: ■ Any type of Oracle Application Server into an 8.0, 8*i*, 9.0.1, or 9.2 database Oracle home ■ Any type of Oracle Application Server into an Oracle Management Service Oracle home ■ Any type of Oracle Application Server into an Oracle Collaboration Suite Oracle home ■ Any type of Oracle Application Server into an Oracle HTTP Server standalone Oracle home ■ Any type of Oracle Application Server into an OracleAS Web Cache standalone Oracle home ■ Any type of Oracle Application Server into an Oracle9*i* Developer Suite 9.0.2 Oracle home ■ Any type of Oracle Application Server into an Oracle Application Server Containers for J2EE standalone Oracle home ■ Any type of Oracle Application Server into an Oracle9*i*AS 1.0.2.2 Oracle home ■ Oracle Application Server middle tier into an infrastructure 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ Oracle Application Server middle tier into an Oracle9*i*AS 9.0.2, 9.0.3, or 9.0.4 middle tier Oracle home ■ OracleAS Developer Kits into an infrastructure 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ OracleAS Developer Kits into an Oracle9*i*AS middle tier 9.0.2, 9.0.3, 9.0.4, or 10.1.2 Oracle home ■ OracleAS Developer Kits into an Oracle Developer Suite 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ OracleAS Infrastructure into any Oracle9*i*AS 9.0.2, 9.0.3, or 9.0.4 Oracle home ■ OracleAS Infrastructure into an Oracle Application Server 10*g* Release 2 (10.1.2) middle tier or OracleAS Developer Kits Oracle home ■ OracleAS Infrastructure into an Oracle Developer Suite 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ OracleAS Infrastructure or middle tier into an Oracle home installed from the Business Intelligence CD-ROM

Table 4–10 (Cont.) Prerequisite Checks Performed by the Installer

Item	Description
Port 1521	The installer displays a warning if port 1521 is in use by any application, including database listeners of any version. You need to stop the application that is using port 1521, then click **OK** in the warning dialog. If it is a database listener that is using port 1521, you might be able to use it for the metadata repository database. See Section 4.3.5, "If Port 1521 Is in Use" for details. If it is another application that is using port 1521, you need to stop it or configure it to use a different port. Alternatively, you can change the database listener to use a port other than 1521, but you can do this only after installation. See the *Oracle Application Server Administrator's Guide* for details.
Static port conflicts	The installer checks the ports listed in the `staticports.ini` file, if specified. See Section 4.3, "Ports".
DBCA_RAW_CONFIG environment variable	If you are installing the OracleAS Infrastructure in a Real Application Clusters environment, you need to set this environment variable to point to a file that describes the locations of your raw partitions.
Cluster file system	The installer checks that you are not installing Oracle Application Server in a cluster file system (CFS).
Oracle Enterprise Manager directories are writable	The installer runs this check only if you are expanding a middle tier or if you are reinstalling Oracle Application Server in the same Oracle home. The installer checks that these directories are writable by the operating system user running the installer: ■ `ORACLE_HOME\sysman\emd` ■ `ORACLE_HOME\sysman\config` ■ `ORACLE_HOME\sysman\webapps\emd\WEB-INF\config`
Oracle Enterprise Manager files exist	The installer runs this check only if you are expanding a middle tier or if you are reinstalling Oracle Application Server in the same Oracle home. The installer checks that these files exist: ■ `ORACLE_HOME\sysman\config\iasadmin.properties` ■ `ORACLE_HOME\sysman\webapps\emd\WEB-INF\config\consoleConfig.xml`

5

Things You Should Know Before Starting the Installation

Contents:

- Section 5.1, "Basic Concepts"
- Section 5.2, "Order of Installation"
- Section 5.3, "Where Do I Install Oracle Application Server?"
- Section 5.4, "Oracle Home Directory"
- Section 5.5, "Oracle Home Name"
- Section 5.6, "Installing Additional Languages"
- Section 5.7, "Oracle Application Server Instances and Instance Names"
- Section 5.8, "The ias_admin User and Restrictions on its Password"
- Section 5.9, "Comparing Installing Components against Configuring Components"
- Section 5.10, "Installing Oracle9i Application Server Release 2 (9.0.2) on the Same Computer"
- Section 5.11, "Where Does the Installer Write Files?"
- Section 5.12, "Connecting to Oracle Internet Directory Through SSL Connections"
- Section 5.13, "Starting the Oracle Universal Installer"

5.1 Basic Concepts

Oracle Application Server is made up of:

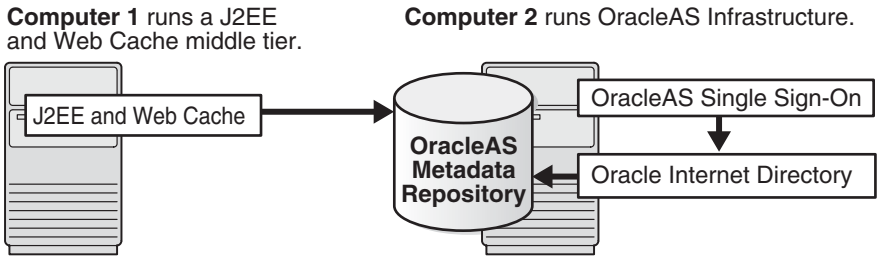
- Oracle Application Server middle tier
- OracleAS Infrastructure

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

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

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

Figure 5–1 A Middle Tier Using Infrastructure Services



5.2 Order of Installation

In most cases, you must install OracleAS Infrastructure first, because the middle tiers depend on OracleAS Infrastructure services. The one case where the infrastructure is optional is the J2EE and Web Cache middle-tier type. (But see Section 7.4, "Configuration Options for the J2EE and Web Cache Middle Tier")

5.3 Where Do I Install Oracle Application Server?

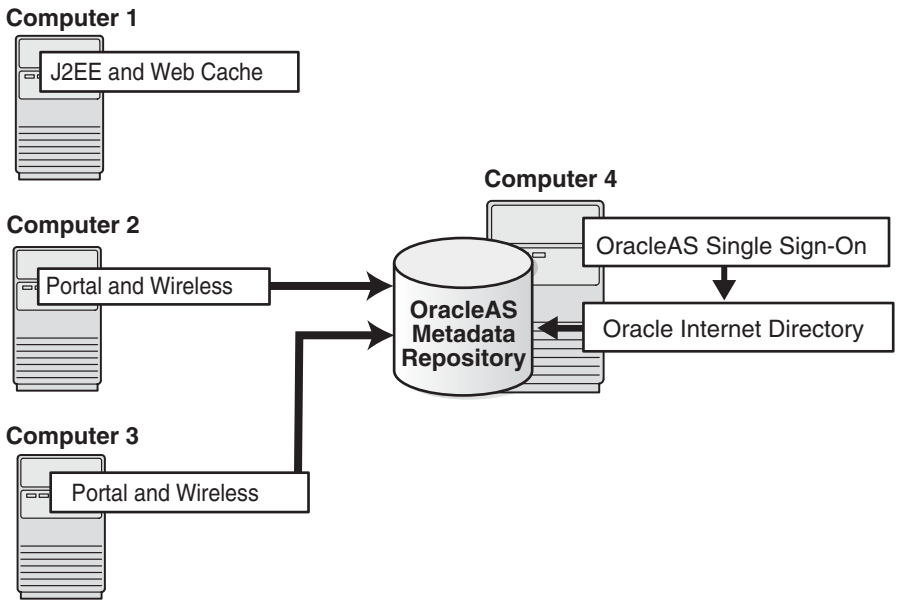
You can install the middle tiers and the infrastructure on the same computer or on separate computers. You can get better performance if you install the infrastructure on its own computer, and the middle tiers on other computers.

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

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

See Chapter 15, "Recommended Topologies" for topology examples.

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



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

5.4 Oracle Home Directory

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

For example, you can install OracleAS Infrastructure in `C:\oracle\OraHome_infra_10_1_2`, and you can name it "Infra_10_1_2".

Notes:

- Spaces are not allowed anywhere in the Oracle home directory path. For example, you cannot install in "`C:\program files\oracle\infra10_1_2`" because of the space character in "`program files`". The installer does not check for this until several screens after you have entered the path.
- You cannot install on another computer by mapping to a drive on that computer. If you want to install on another computer, you can do it through remote control software. See Section 4.7.9, "Installing on Remote Computers Through Remote Control Software" for details.

See also the next section, Section 5.5, "Oracle Home Name", which describes how the name is used.

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

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

5.4.1 Installing in an Existing Oracle Home

Generally, you cannot install Oracle Application Server in an existing Oracle home. See "Oracle home directory" on page 4-35 for a list of combinations that are not allowed. Two exceptions to the rule are:

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

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

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

5.4.2 Installing in a Non-Empty Oracle Home

You cannot install Oracle Application Server in a directory that already contains some files, except for the cases mentioned in Section 5.4.1, "Installing in an Existing Oracle Home". For example, if you cancel an installation, or if an installation failed, you have to clean up the directory before you can reinstall Oracle Application Server in it. Also, the installer cannot "repair" an installation. See Section H.3.2, "Message About Installing in a Non-Empty Directory" for instructions on how to clean up the directory.

5.5 Oracle Home Name

One of the screens in the installer prompts you for the Oracle home directory (which is the destination directory) and also an Oracle home name. This Oracle home name does not need to be the same as the directory name.

The Oracle home name can consist of alphanumeric and the underscore (_) characters, and cannot be longer than 128 characters.

The Oracle home name is used in the following ways:

- Some Oracle Application Server components run as Windows services. When naming these services, the installer inserts the Oracle home name in the service name using the following format:

  `Oracle<OracleHomeName><ComponentName>`

  For example: if you name the Oracle home "Infra10_1_2", the process management service will be called `OracleInfra10_1_2ProcessManager`.

- The installer also uses the Oracle home name in **Start** menu items. For example, if the Oracle home name is "Infra10_1_2", you will get these menu items:
  - Start > Programs > Oracle - Infra10_1_2
  - Start > Programs > OracleAS 10g - Infra10_1_2

If You Are Installing OracleAS Infrastructure and Middle Tier on the Same Computer

Because middle tiers depend on OracleAS Infrastructure services, you need to ensure that the OracleAS Infrastructure services are started first, followed by middle-tier services. You can do this in the following ways:

- Give the OracleAS Infrastructure an Oracle home name that alphabetically comes before the middle-tier name. (When you restart a computer, Windows typically starts up services in alphabetical order.) For example: name the OracleAS Infrastructure "Infra10_1_2", and name the middle tier "J2EE".
- Edit the registry (using the Registry Editor) to delay the start of the middle-tier services by setting up dependencies between the OracleAS Infrastructure and middle-tier services. You do this after installing both OracleAS Infrastructure and middle tier. See Section 16.6, "Service Dependencies" for details.

5.6 Installing Additional Languages

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

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

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

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

You can install fonts after installation. See Section H.3.7, "User Interface Does Not Display in the Desired Language, or Does Not Display Properly".

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

5.7 Oracle Application Server Instances and Instance Names

When you install the infrastructure or middle tier, what you get is an Oracle Application Server instance. The installer prompts you to provide a name for the Oracle Application Server instance you are installing. For example, you can name an instance "infra10_1_2" or "J2EE_10_1_2". This name can be different from the Oracle home name.

You cannot change this name after installation.

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

Valid Characters in Instance Names

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

There is no maximum length restriction for instance names.

Restrictions on Oracle Application Server Instance Names

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

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

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

How Oracle Application Server Uses Instance Names

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

When you administer Oracle Application Server using Oracle Enterprise Manager Application Server Control (or Application Server Control for short), the instance name appears on the screens. You can click the instance name to see details about the instance, such as the components that are installed in that instance, if the components are running or stopped, and the log files for the components. The Application Server Control is a browser-based administration tool for Oracle Application Server. See the *Oracle Application Server Administrator's Guide* for details about this administration tool.

The instance name also appears in menu items in the **Start** menu for starting and stopping components in the associated instance:

- **Start > Programs > OracleAS 10g -** *OracleHomeName* **> Start** *instanceName*
- **Start > Programs > OracleAS 10g** - *OracleHomeName* **> Stop** *instanceName*

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

5.8 The ias_admin User and Restrictions on its Password

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

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

Password for the ias_admin User

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

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

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

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

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

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

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

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

5.9 Comparing Installing Components against Configuring Components

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

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

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

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

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

5.11 Where Does the Installer Write Files?

The installer writes files to the following directories:

Table 5–1 Directories Where the Installer Writes Files

Directory	Description
Oracle home directory	This directory contains Oracle Application Server files. You specify this directory when you install Oracle Application Server.
Inventory directory (*system_drive*`:\Program Files\Oracle\Inventory`)	The installer uses the inventory directory to keep track of which Oracle products are installed on the computer. The inventory directory is created when you install the first Oracle product on the computer. In subsequent installations, the installer uses the same inventory directory.
TEMP directory	The installer writes files needed only during installation to a "temporary" directory. The "temporary" directory is specified by the TEMP variable. See Section 4.5.5, "TEMP" for details.

Additionally, the installer also creates entries in the Windows registry.

5.12 Connecting to Oracle Internet Directory Through SSL Connections

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

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

5.13 Starting the Oracle Universal Installer

1. Log in to the computer as a user who is a member of the Windows Administrators group.
2. Insert the disk.

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

   DVD-ROM users: Insert the Oracle Application Server DVD-ROM into the DVD-ROM drive.
3. If your computer supports the auto run feature, the installer launches automatically.

   If your computer does not support the auto run feature, you have to start up the installer manually:

   Note: If you are running the installer on a computer that is already running Oracle Database 10*g*, then you have to start up the installer with the following option:

   ```
   E:\> setup.exe -J-Dsun.java2d.noddraw=true
   ```

   If you do not start up the installer with the option, then the installer may not display.

   CD-ROM users: Double-click `setup.exe`.

   DVD-ROM users: Double-click `setup.exe` in the `application_server` directory.

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

6

Installing OracleAS Infrastructure

Table 6–1 Contents of This Chapter

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

6.1 Infrastructure Installation Types

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

Table 6–2 OracleAS Infrastructure Components

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

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

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

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

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

6.2 Why Would I Select the Different Infrastructure Installation Types?

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

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

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

6.3 Order of Installation for the Infrastructure

If you plan to install both OracleAS Metadata Repository and Identity Management components on the same computer, select the "Identity Management and OracleAS Metadata Repository" option. The installer installs the components in the proper order. See Section 6.19, "Installing OracleAS Infrastructure" for the step-by-step procedure.

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

1. Install the OracleAS Metadata Repository.

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

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

   See:

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

2. Install the Identity Management components.

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

   See Section 6.22, "Installing Identity Management Components Only (Including Oracle Internet Directory)" for the step-by-step procedure.

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

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

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

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

  To manage this instance, you use database management tools. For more information, see the chapter "Introduction to Administration Tools" in the *Oracle Application Server Administrator's Guide*.
- At the end of installation, Oracle HTTP Server is also not started up, because you do not need it to manage this instance.

6.4 Can I Install Components on Separate Computers?

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

Examples:

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

Table 6–3 shows some possible OracleAS Infrastructure configurations:

Table 6–3 OracleAS Infrastructure Configurations

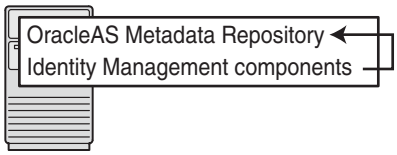
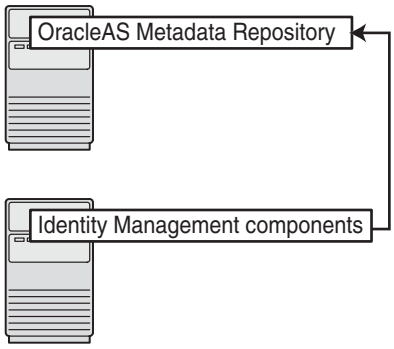
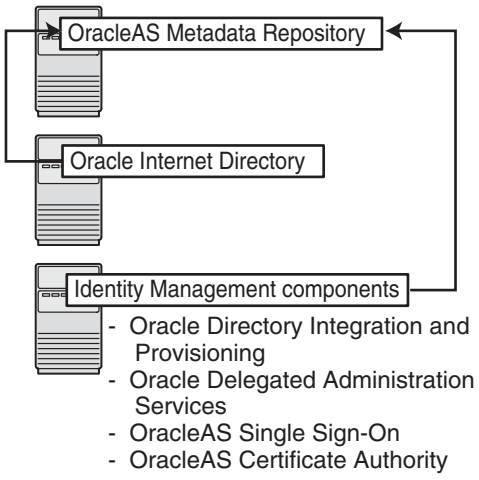
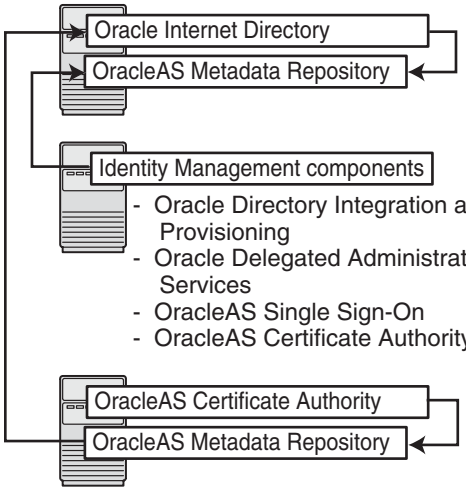
Configuration	Description / How to Install
	In this configuration, the OracleAS Metadata Repository and the Identity Management components run from the same Oracle home. To install this configuration, install the OracleAS Metadata Repository and the Identity Management components at the same time. For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

Table 6–3 (Cont.) OracleAS Infrastructure Configurations

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

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

6.5 Tips for Installing Identity Management Components Separately

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

- You *cannot* install and configure more than one OracleAS Certificate Authority against the same OracleAS Metadata Repository. You *can* install and configure more than one OracleAS Single Sign-On, Oracle Delegated Administration Services, or Oracle Directory Integration and Provisioning against the same OracleAS Metadata Repository. If you want to configure more than one Oracle Internet Directory against the same OracleAS Metadata Repository, see the *Oracle Internet Directory Administrator's Guide*.
- You must select at least one component to configure. Otherwise the installation will not succeed.
- If you configure OracleAS Single Sign-On and Oracle Delegated Administration Services in separate installations against the same Oracle Internet Directory, make sure you configure OracleAS Single Sign-On before Oracle Delegated Administration Services. This is because Oracle Delegated Administration Services depends on mod_osso, which will not be set up during installation unless the Oracle Internet Directory it points to already has OracleAS Single Sign-On configured.

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

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

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

6.7 Can I Configure Components After Installation?

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

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

See Section 16.10, "Component Configuration After Installation" for details.

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

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

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

6.9 Can I Use an Existing Oracle Internet Directory?

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

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

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

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

```
C:\> oidldapd -version
```

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

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

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

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

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

Table 6–4 Database Registration Scenarios

Scenario	Registration	Schema Passwords
Install and configure the OracleAS Metadata Repository and Oracle Internet Directory in the same installation session For steps, see Section 6.19, "Installing OracleAS Infrastructure".	Automatic	Randomized
Install the OracleAS Metadata Repository against an existing Oracle Internet Directory See Section 6.20, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory".	Automatic	Randomized
Install an Oracle Internet Directory against an existing OracleAS Metadata Repository See Section 6.24, "Installing Oracle Internet Directory Only".	Automatic	Randomized (the metadata repository schemas are given new randomized passwords)
Install the OracleAS Metadata Repository only (without installing Identity Management components) and you choose to register it with Oracle Internet Directory This scenario applies to installing it in a new database or in an existing database. Section 6.21, "Installing OracleAS Metadata Repository in a New Database" Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database"	Yes	Randomized
Install the OracleAS Metadata Repository only (without installing Identity Management components) and you choose **not** to register it with Oracle Internet Directory This scenario applies to installing it in a new database or in an existing database.	No	The schemas are locked, and the passwords are expired.

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

6.11 Contents of the OracleAS Metadata Repository

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

- Product Metadata schemas

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

- Identity Management schemas

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

- Management schemas

  These schemas are used by components such as DCM.

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

6.12 Can I Use Multiple Metadata Repositories?

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

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

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

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

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

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

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

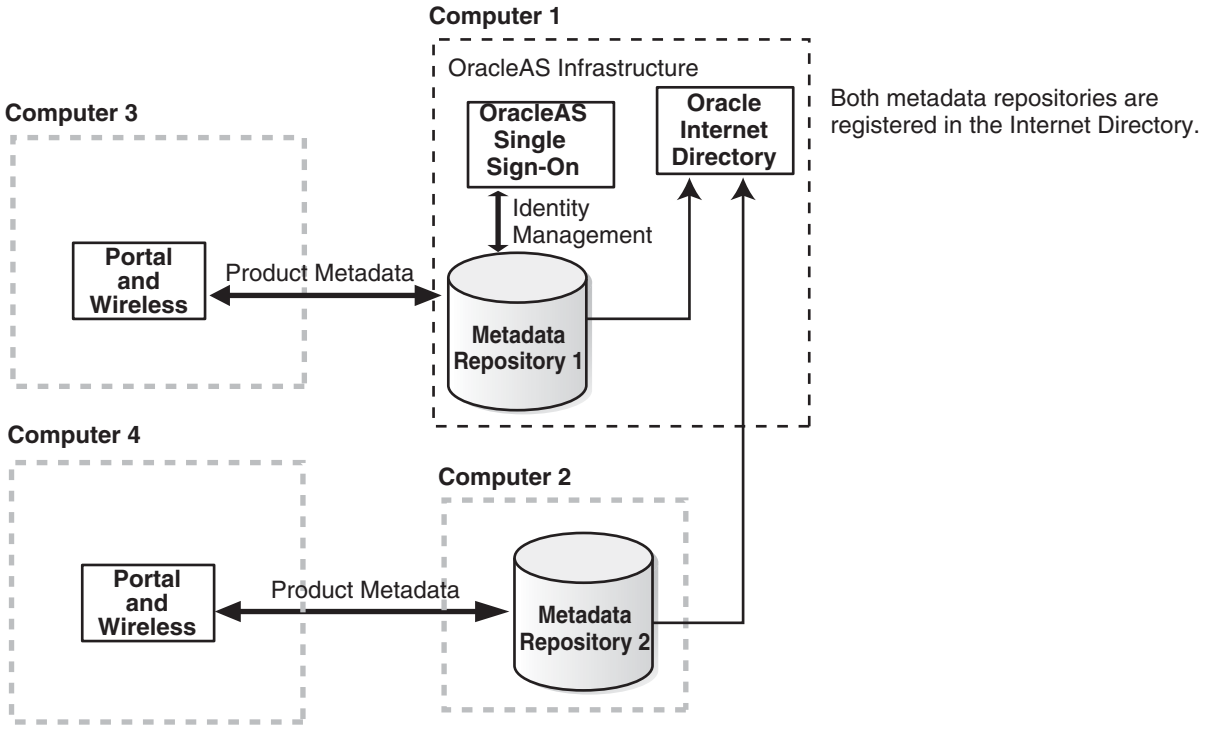
  - If you need only the Database-Based Farm feature, you do not need to register the second metadata repository. The reason for this is that you might not have an Oracle Internet Directory.

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

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

- Computer 2 has a metadata repository that is registered with the Oracle Internet Directory running on Computer 1.
- Computer 3 has a Portal and Wireless middle tier. This middle tier knows to use the metadata repository on Computer 1 for its product metadata because it was registered with that metadata repository during installation.
- Computer 4 also has a Portal and Wireless middle tier. This middle tier knows to use the metadata repository on Computer 2 for its product metadata because it was registered with that metadata repository during installation.

Figure 6–1 Multiple Metadata Repositories in Use



Notes:

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

6.13 What High Availability Options Does Oracle Application Server Support?

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

- OracleAS Cold Failover Cluster

- OracleAS Cluster (Identity Management)
- OracleAS Disaster Recovery

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

6.14 Restrictions on the Passwords for the SYS and SYSTEM Users

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

- Passwords must be shorter than 30 characters.
- Passwords can contain only alphanumeric characters from your database character set, the underscore (_), the dollar sign ($), and the number sign (#).
- Passwords must begin with an alphabetic character. Passwords cannot begin with a number, the underscore (_), the dollar sign ($), or the number sign (#).
- Passwords cannot be Oracle reserved words. The *Oracle SQL Reference* lists the reserved words. You can find this guide on Oracle Technology Network (`http://www.oracle.com/technology/documentation`). Or you can just avoid using words that sound like they might be reserved words.
- Passwords cannot be the default passwords, which are `change_on_install` and `manager`.

6.15 Support for NE8ISO8859P10 and CEL8ISO8859P14 Characters Sets

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

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

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

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

Select the suggested namespace if it meets your deployment requirements. If not, enter a DN that you want in the custom namespace field. The installer determines the suggested namespace from the `%WINDIR%\system32\drivers\etc\hosts` file. See Section 4.6, "The %WINDIR%\system32\drivers\etc\hosts File".

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

6.17 How to Determine Port Numbers Used by Components

During installation, you might need to know port numbers used by certain Oracle Application Server components. For example, if you install OracleAS Infrastructure against an existing Oracle Internet Directory, the installer prompts for the Oracle Internet Directory hostname and port number.

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

- Use Oracle Enterprise Manager Application Server Control.

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

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

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

6.18 Can I Add OracleAS Certificate Authority After Installation?

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

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

- Install OracleAS Certificate Authority only.

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

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

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

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

6.19 Installing OracleAS Infrastructure

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

If you want to use an existing Oracle Internet Directory, see Section 6.20, "Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory".

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

Table 6–5 Steps for Installing OracleAS Infrastructure

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select Identity Management and **OracleAS Metadata Repository**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Select **OracleAS Certificate Authority (OCA)** if you want to configure your own certificate authority which can issue certificates for users and servers. Do not select **High Availability and Replication**. Click Next.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file. Click **Next**.
4.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
5.	OracleAS Certificate Authority screens	If you select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens where you need to enter OracleAS Certificate Authority information. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens".
6.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.28, "Install Fragment: Database Screens".
7.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.20 Installing OracleAS Infrastructure Against an Existing Oracle Internet Directory

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

Prerequisite: Oracle Internet Directory version 9.0.4 or later

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

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

It is unlikely that you would use this procedure to install other Identity Management components (OracleAS Single Sign-On, Oracle Delegated Administration Services, or Oracle Directory Integration and Provisioning), because this procedure installs a new OracleAS Metadata Repository. To install Identity Management components without OracleAS Metadata Repository, follow the procedure in Section 6.23, "Installing Identity Management Components Only (Excluding Oracle Internet Directory)".

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select Identity Management and **OracleAS Metadata Repository**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory** because you want to use an existing one. Do not select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services** and/or **OracleAS Directory Integration and Provisioning** if you need the services provided by these components. See Section 6.6, "Do I Need the Oracle Delegated Administration Services or the Oracle Directory Integration and Provisioning Components?" Select **OracleAS Certificate Authority (OCA)** if you want to configure your own certificate authority which can issue certificates for users and servers. Do not select **High Availability and Replication**. Click Next.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file. Click **Next**.
4.	Register with Oracle Internet Directory	Hostname: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port at which Oracle Internet Directory is listening. See Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click Next.

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

	Screen	Action
5.	Specify Login for Oracle Internet Directory	Username: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. See Section 8.3, "Groups Required to Configure or Deinstall Components" for details. Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.
6.	OracleAS Certificate Authority screens	If you select **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens where you need to enter OracleAS Certificate Authority information. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens".
7.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.28, "Install Fragment: Database Screens".
8.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.21 Installing OracleAS Metadata Repository in a New Database

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

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

	Screen	Action
1.	--	Start the installer. See Section 5.13, "Starting the Oracle Universal Installer" for details.
2.	Welcome	Click Next.
3.	Specify File Locations	Name: Enter a name to identify this Oracle home. The name can consist of alphanumeric and the underscore (_) characters only, and cannot be longer than 128 characters. Example: `OH_MR_10_1_2` Destination Path: Enter the full path to the destination directory. This is the Oracle home. If the directory does not exist, the installer creates it. You can also create the directory beforehand, if you want. Example: `C:\oracle\appserver10_1_2\mr_10_1_2` Click Next.
4.	Select a Product to Install	Select **OracleAS Infrastructure**. If you need to install additional languages, click **Product Languages**. See Section 5.6, "Installing Additional Languages" for details. Click Next.
5.	Select Installation Type	Select **OracleAS Metadata Repository**. Click Next. If you get an error message saying that the TEMP environment variable is not set, it means that the default temp directory does not have enough space. You can either set the TEMP environment variable to point to a different directory or free up enough space in the default temp directory. For details on the TEMP environment variable, see Section 4.5.5, "TEMP".
6.	Confirm Pre-Installation Requirements	Verify that your computer meets all the requirements. Click **Next**.
7.	Select Configuration Options	For installing the OracleAS Metadata Repository in a new database, there are no configuration options. Click **Next**.
8.	Register OracleAS Metadata Repository	If you already have an Oracle Internet Directory and know its connect information, select **Yes** and enter the name of the computer where Oracle Internet Directory is running and the port number. See Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. If you do not have an Oracle Internet Directory, or do not know its connect information, select No. Click Next.
9.	Specify Login for Oracle Internet Directory	This screen appears only if you selected Yes in the previous screen. Username: Enter the username for logging into Oracle Internet Directory. The user must belong to the iAS Admins group in Oracle Internet Directory. Password: Enter the password. Realm: This field appears only if your Oracle Internet Directory contains multiple realms. Enter the name of the realm against which to authenticate the user. Click Next.

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

	Screen	Action
10.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.28, "Install Fragment: Database Screens".
11.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

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

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

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

Follow this procedure to configure Oracle Internet Directory against a remote OracleAS Metadata Repository. You have installed the OracleAS Metadata Repository in an existing database (see Chapter 14, "Installing the OracleAS Metadata Repository in an Existing Database") or in a new database (Section 6.21, "Installing OracleAS Metadata Repository in a New Database").

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

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services** and/or **OracleAS Directory Integration and Provisioning** if you need the services provided by these components. See Section 6.6, "Do I Need the Oracle Delegated Administration Services or the Oracle Directory Integration and Provisioning Components?" Select **OracleAS Certificate Authority (OCA)** if you want to configure your own certificate authority which can issue certificates for users and servers. Do not select **High Availability and Replication**. Click Next.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file. Click **Next**.
4.	Specify Repository	Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.

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

	Screen	Action
6.	Enter information to configure OracleAS Certificate Authority	Provide the information as prompted by the OracleAS Certificate Authority screens. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.
7.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

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

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

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

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

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services** and/or **OracleAS Directory Integration and Provisioning** if you need the services provided by these components. See Section 6.6, "Do I Need the Oracle Delegated Administration Services or the Oracle Directory Integration and Provisioning Components?" Select **OracleAS Certificate Authority (OCA)** if you want to configure your own certificate authority which can issue certificates for users and servers. Do not select **High Availability and Replication**. Click Next.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file. Click **Next**.
4.	Register with Oracle Internet Directory	Hostname: Enter the name of the computer where Oracle Internet Directory is running. Port: Enter the port on which Oracle Internet Directory is listening. See Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click **Next**.
5.	Specify Login for Oracle Internet Directory	Username: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. See Section 8.3, "Groups Required to Configure or Deinstall Components" for details. Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.

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

	Screen	Action
6.	Enter information to configure OracleAS Certificate Authority	Provide the information as prompted by the OracleAS Certificate Authority screens. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.
7.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.24 Installing Oracle Internet Directory Only

Perform this procedure to install an Oracle Internet Directory.

Prerequisite: OracleAS Metadata Repository

Table 6–10 Steps for Installing Oracle Internet Directory

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Do not select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Do not select High Availability and Replication. Click Next.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file. Click **Next**.

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

	Screen	Action
4.	Specify Repository	Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
6.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
7.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.25 Installing OracleAS Certificate Authority and OracleAS Metadata Repository Only

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

Prerequisites: Oracle Internet Directory version 9.0.4 or later

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select Identity Management and **OracleAS Metadata Repository**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory** because you want to use an existing one. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Do not select **OracleAS Directory Integration and Provisioning**. Select **OracleAS Certificate Authority (OCA)**. Do not select **High Availability and Replication**. Click Next.
3.	Select Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file. Click **Next**.
4.	Register with Oracle Internet Directory	Hostname: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port on which Oracle Internet Directory is listening. See Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click Next.
5.	Specify Login for Oracle Internet Directory	Username: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the Trusted Application Admins group and to the iAS Admins group in Oracle Internet Directory. Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.
6.	OracleAS Certificate Authority screens	Enter information to configure OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens".

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

	Screen	Action
7.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.28, "Install Fragment: Database Screens".
8.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_oca_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

6.26 Install Fragment: The First Few Screens of the Installation

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

Table 6–12 First Few Screens of the Installation

	Screen	Action
1.	--	Start the installer. See Section 5.13, "Starting the Oracle Universal Installer" for details.
2.	Welcome	Click Next.
3.	Specify File Locations	Name: Enter a name to identify this Oracle home. The name can consist of alphanumeric and the underscore (_) characters only, and cannot be longer than 128 characters. Example: `OH_INFRA_10_1_2` Destination Path: Enter the full path to the destination directory. This is the Oracle home. If the directory does not exist, the installer creates it. You can also create the directory beforehand, if you want. You must specify a directory on the local computer (where you are running the installer). You cannot install on a drive that is mapped to another computer. Example: `C:\oracle\appserver10_1_2\infra_10_1_2` Click Next.
4.	Select a Product to Install	Select **OracleAS Infrastructure**. If you need to install additional languages, click **Product Languages**. See Section 5.6, "Installing Additional Languages" for details. Click Next.

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

	Screen	Action
5.	Select Installation Type	The options displayed on this screen depend on what you selected in the "Select a Product to Install" screen. The installation types for OracleAS Infrastructure are: ■ **Identity Management and OracleAS Metadata Repository** ■ **Identity Management** ■ **OracleAS Metadata Repository** Click Next. If you get an error message saying that the TEMP environment variable is not set, it means that the default temp directory does not have enough space. You can either set the TEMP environment variable to point to a different directory or free up enough space in the default temp directory. For details on the TEMP environment variable, see Section 4.5.5, "TEMP".
6.	Upgrade Existing Oracle9iAS Infrastructure	This screen appears if the installer detects an Infrastructure Release 2 (9.0.2) instance on the computer and you selected to install OracleAS Infrastructure. This screen presents you with the option to upgrade the existing Release 2 (9.0.2) infrastructure, or to install a 10*g* Release 2 (10.1.2) infrastructure. If you want to upgrade, see the *Oracle Application Server Upgrade and Compatibility Guide*.
7.	Confirm Pre-Installation Requirements	Verify that your computer meets all the requirements. Click **Next**.

6.27 Install Fragment: The Last Few Screens of the Installation

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

Table 6–13 Last Few Screens in the Installation

	Screen	Action
1.	Summary	Verify your selections and click Install.
2.	Install Progress	This screen shows the progress of the installation.
3.	Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
4.	End of Installation	Click Exit to quit the installer.

6.28 Install Fragment: Database Screens

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

Table 6–14 Database Screens

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

6.29 Install Fragment: OracleAS Certificate Authority Screens

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

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

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

Table 6–15 OracleAS Certificate Authority Screens

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

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

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

7

Installing Middle Tiers

Table 7–1 Contents of This Chapter

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

7.1 Middle-tier Types

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

- J2EE and Web Cache
- Portal and Wireless

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

Middle Tiers and Infrastructure

The Portal and Wireless type requires an OracleAS Infrastructure, because components in these middle-tier types need to access their schemas in the OracleAS Metadata Repository.

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

7.2 Components in the Middle Tier

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

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

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

Table 7–2 Components in the Middle Tier

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

7.3 Which Components Do I Need?

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

If you know what components you will be using in your applications, you can choose the appropriate middle-tier type. For example, if you need portal functionality, then you would install the Portal and Wireless type.

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

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

Table 7–3 Mapping Features to Components

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

7.4 Configuration Options for the J2EE and Web Cache Middle Tier

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

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

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

Option	Description and Requirements

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

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

7.4.1 What Is a Farm?

A farm is a collection of one or more instances that share the same metadata repository. When instances belong to a farm, you can manage them as a group and you can also cluster them.

Oracle Application Server can store repository information in a database ("database-based repository") or file system ("file-based repository"). Repository information includes things such as the list of instances that belong to a farm, whether or not the instances are clustered, and configuration information for clusters.

For a file-based repository, the repository information is stored with a specific instance. This instance is called the "repository host".

For a database-based repository, the repository information is stored in the OracleAS Metadata Repository.

You can set a J2EE and Web Cache instance to belong to a farm during or after installation. If you are unsure during installation, you can install the instance as a standalone instance (that is, not belonging to a farm). After installation, if you so desire, you can associate the instance with a farm. Conversely, you can install an instance as part of a farm and after installation, you can convert the instance to a standalone instance.

For details about farms, see the *Distributed Configuration Management Reference Guide* and the *Oracle Application Server High Availability Guide*.

7.4.2 What Is an OracleAS Cluster?

You can cluster instances that belong to a farm. All the instances in a cluster have the same configuration. Any instance in a cluster can handle requests directed to any cluster member.

The installer does not cluster instances for you. You have to do this after installation.

For details about OracleAS Clusters, see the *Distributed Configuration Management Reference Guide* and the *Oracle Application Server High Availability Guide*.

7.4.3 Special Requirements for Installing J2EE and Web Cache Instances with OracleAS File-Based Repository Across a Firewall

If you are installing J2EE and Web Cache instances that use the OracleAS File-based Repository feature, and the instances are on different sides of a firewall, then you need to ensure that these instances can communicate with each other across the firewall.

A scenario of when you would install the instances in this manner is in the "myJ2EECompany.com" architecture. In this architecture, you install OracleAS Web Cache in the Web tier, and OC4J in the Application tier, and these tiers are separated by a firewall. The myJ2EECompany.com architecture is described in detail in the *Oracle Application Server Enterprise Deployment Guide*.

To enable instances to communicate with each other across the firewall, you need to open up some ports in the firewall after the first installation. For details, see Chapter 3, "Configuring the Application Infrastructure for myJ2EECompany.com", in the *Oracle Application Server Enterprise Deployment Guide*.

7.5 How to Determine the Password for the DCM Schema

If you install the J2EE and Web Cache middle tier with the **OracleAS Database-Based Farm Repository** option selected, but without the **Identity Management Access** option, the installer prompts you to enter the password for the `DCM` schema in the OracleAS Metadata Repository.

This password is generated randomly. You have two choices:

- Change the Random Password on page 7-5
- Determine the Random Password Using Oracle Internet Directory on page 7-6

Change the Random Password

If you did not register the OracleAS Metadata Repository with an Oracle Internet Directory, you need to change the random password to a known value. You can do this using the "alter user" SQL command in SQL*Plus. The following example changes the password to "`newpassword`":

```
C:\> ORACLE_HOME\bin\sqlplus "sys/sys_password as sysdba"
```

```
SQL> alter user dcm identified by newpassword;
```

You need to log in as the sys user to change the password.

Determine the Random Password Using Oracle Internet Directory

> **Note:** This procedure can only be performed by the Oracle Internet Directory superuser (`cn=orcladmin`).

If you did register the OracleAS Metadata Repository with an Oracle Internet Directory, you can use the Oracle Directory Manager to determine the random password.

However, if you do have an Oracle Internet Directory and the OracleAS Metadata Repository is registered with it, it might make more sense to select both **OracleAS Database-Based Farm Repository** and **Identity Management Access** in the Select Configuration Options screen. If you select both, the installer does not prompt you to enter the `DCM` password.

To determine the random password in Oracle Internet Directory:

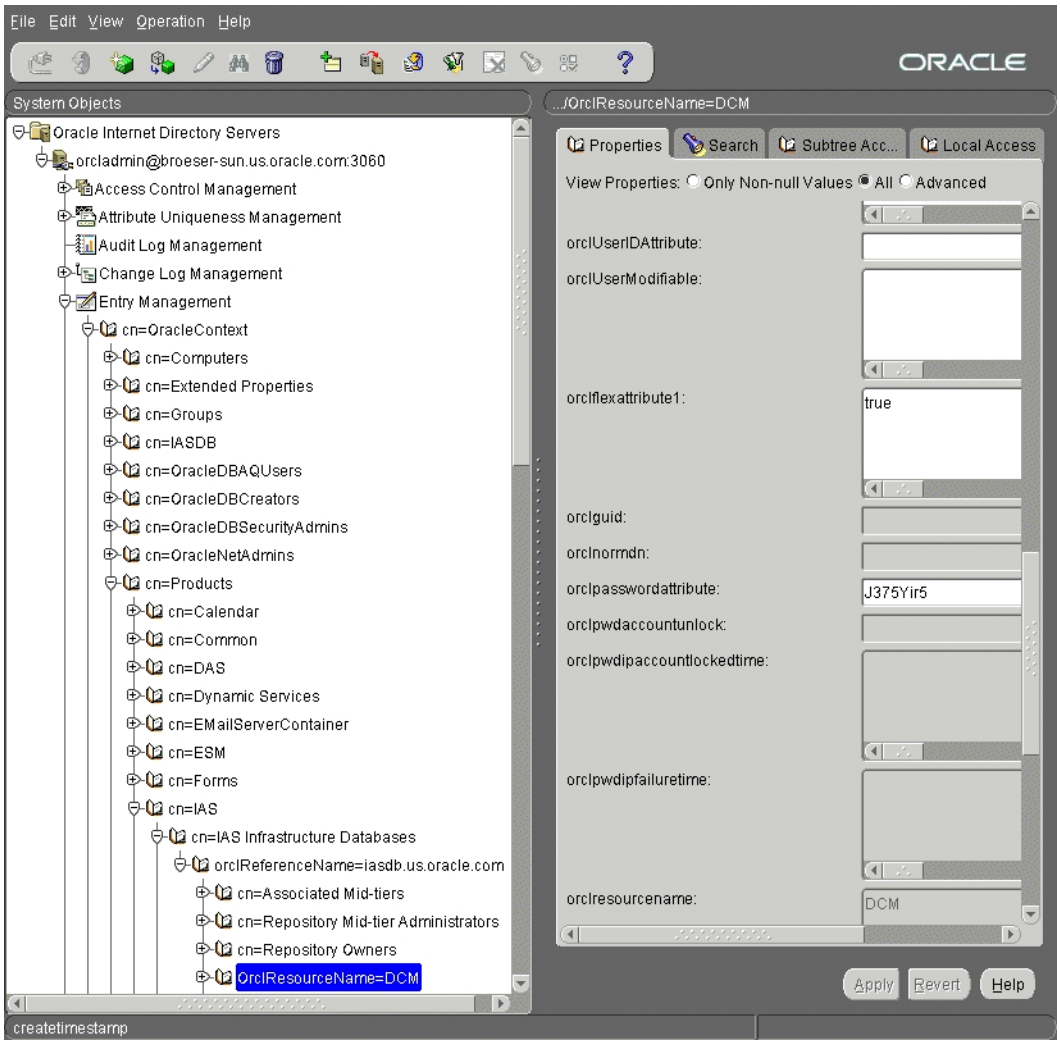
1. Start up Oracle Directory Manager.

   Select **Start** > **Programs** > **Oracle** - *OracleHomeName* > **Integrated Management Tools** > **Oracle Directory Manager**.

2. Log in to Oracle Internet Directory as the `cn=orcladmin` superuser.

3. Expand the structure as shown in Figure 7–1. On the left side, select **OrclResourceName=DCM**, as shown. The password for the `DCM` schema is shown in the **orclpasswordattribute** field on the right side.

Figure 7–1 Viewing the DCM Schema's Password in Oracle Internet Directory



7.6 How to Determine Port Numbers Used by Components

During installation, you might need to know port numbers used by certain components. For example, when you install Oracle Application Server middle tiers, the installer prompts for the Oracle Internet Directory port.

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

- Use Oracle Enterprise Manager Application Server Control.

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

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

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

7.7 If You Plan to Install Middle Tiers Against an Upgraded Oracle Internet Directory

If you plan to install middle-tiers against an Oracle Internet Directory that was upgraded from version 9.2.0.x to 10*g* Release 2 (10.1.2), make sure you followed the steps on upgrading Oracle Internet Directory 9.2.0.x to 10*g* Release 2 (10.1.2) as documented in the *Oracle Application Server Upgrade and Compatibility Guide*. The instructions are in the "Upgrading the Identity Management Services" chapter.

7.8 Installing a J2EE and Web Cache Without an Infrastructure

Perform this procedure to install a J2EE and Web Cache instance that does not require an infrastructure.

Table 7–5 Steps for Installing J2EE and Web Cache

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ▪ In the Select Installation Type screen, select **J2EE and Web Cache**. Click Next.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Do *not* select Identity Management Access because this option requires Oracle Internet Directory and OracleAS Single Sign-On. Do *not* select **OracleAS Farm Repository**. Click Next.
2.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
3.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
4.	--	Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.9 Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access

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

Prerequisite: OracleAS Infrastructure

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ▪ In the Select Installation Type screen, select **J2EE and Web Cache**.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Select Identity Management Access. Select **OracleAS Farm Repository**. Click Next.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
4.	Select Repository Type	Select **Join an Existing OracleAS Database-based Farm**. Click **Next**.
5.	Register with Oracle Internet Directory	Host: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port at which Oracle Internet Directory is listening. If you do not know the port number, see Section 7.6, "How to Determine Port Numbers Used by Components". **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click Next.
6.	Specify Login for Oracle Internet Directory	Username: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. See Section 8.3, "Groups Required to Configure or Deinstall Components" for details. Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.

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

	Screen	Action
7.	Select Metadata Repository for OracleAS Cluster	Select the OracleAS Metadata Repository from the dropdown list. Click Next.
8.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `j2ee_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.10 Installing J2EE and Web Cache in a Database-Based Farm Repository but Without Identity Management Access

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

Prerequisite: OracleAS Metadata Repository

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **J2EE and Web Cache**.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Select **OracleAS Farm Repository**. Deselect Identity Management Access. Click Next.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
4.	Select Repository Type	Select **Join an Existing OracleAS Database-based Farm**. Click **Next**.

Table 7–7 (Cont.) Steps for Installing J2EE and Web Cache in a Database-Based Farm Repository but Without Identity Management Access

	Screen	Action
5.	Specify Metadata Repository for DB-Managed Cluster	Password: Enter the password for the `DCM` schema. The initial password for the schema is `dcm`. See Section 7.5, "How to Determine the Password for the DCM Schema" for details. Hostname and Port: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host.domain:port`*. Example: `myhost.mydomain.com:1521`. Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
6.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `j2ee_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
7.	--	Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.11 Installing J2EE and Web Cache in a File-Based Farm Repository but Without Identity Management Access

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

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **J2EE and Web Cache**. Click Next.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Select **OracleAS Farm Repository**. Do *not* select Identity Management Access because this option requires Oracle Internet Directory and OracleAS Single Sign-On. Click Next.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
4.	Select Repository Type	If you want to start a new file-based farm, select **Create a New OracleAS File-based Farm for this Instance**. If you want this instance to join an existing file-based farm, select **Join an Existing OracleAS File-based Farm**. The installer will prompt for the location of the existing farm. Click **Next**.

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

	Screen	Action

5.	Specify File-Based Farm Repository	Enter the location of the existing file-based farm repository on this screen. This screen appears only if you selected **Join an Existing OracleAS File-based Farm** in the previous screen.
		
		Repository Host: Enter the name of the computer where the existing farm is being hosted.
		
		Repository Port: Enter the port number for the repository.
		
		You can determine the repository host and port by running the "`dcmctl getRepositoryID`" command:
		
		`prompt> ORACLE_HOME/dcm/bin/dcmctl getRepositoryID`
		`File-based Repository ID  mymachine2.mydomain.com:7102`
		
		`ORACLE_HOME` specifies the home directory of any existing Oracle Application Server instance that belongs to the farm that you want to join. In the example above, the repository host is `mymachine2.mydomain.com`, and the port is `7102`.
		
		Click Next.

6.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
7.	--	Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.12 Installing J2EE and Web Cache in a File-Based Farm Repository and with Identity Management Access

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

Prerequisite: Oracle Internet Directory

Table 7–9 Steps for Installing J2EE and Web Cache in a File-Based Farm Repository and with Identity Management Access

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **J2EE and Web Cache**. Click Next.
2.	Select Configuration Options	Select **OracleAS Web Cache**. Select **OracleAS Farm Repository**. Select Identity Management Access. Click Next.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
4.	Select Repository Type	If you want to start a new file-based farm, select **Create a New OracleAS File-based Farm for this Instance**. If you want this instance to join an existing file-based farm, select **Join an Existing OracleAS File-based Farm**. The installer will prompt for the location of the existing farm. Click **Next**.

5.	Specify File-Based Farm Repository	Enter the location of the existing file-based farm repository on this screen. This screen appears only if you selected **Join an Existing OracleAS File-based Farm** in the previous screen.
		Repository Host: Enter the name of the computer where the existing farm is being hosted.
		Repository Port: Enter the port number for the repository.
		You can determine the repository host and port by running the "`dcmctl getRepositoryID`" command:
		`prompt> ORACLE_HOME/dcm/bin/dcmctl getRepositoryID`
		`File-based Repository ID  mymachine2.mydomain.com:7102`
		ORACLE_HOME specifies the home directory of any existing Oracle Application Server instance that belongs to the farm that you want to join. In the example above, the repository host is `mymachine2.mydomain.com`, and the port is `7102`.
		Click Next.

6.	Register with Oracle Internet Directory	Host: Enter the name of the computer where Oracle Internet Directory is running. **Port**: Enter the port at which Oracle Internet Directory is listening. If you do not know the port number, see Section 7.6, "How to Determine Port Numbers Used by Components". **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click Next.

Table 7–9 (Cont.) Steps for Installing J2EE and Web Cache in a File-Based Farm Repository and with Identity Management Access

	Screen	Action
7.	Specify Login for Oracle Internet Directory	Username: Enter the username to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. See Section 8.3, "Groups Required to Configure or Deinstall Components" for details. Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.
8.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `J2EE_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.13 Installing Portal and Wireless

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

Prerequisite: OracleAS Infrastructure

Table 7–10 Steps for Installing Portal and Wireless

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Note: ■ In the Select Installation Type screen, select **Portal and Wireless**.
2.	Select Configuration Options	Select the components that you will be using, and click **Next**. You do not have to select all the components. For Portal and Wireless, the options are: ■ **OracleAS Portal** ■ **OracleAS Wireless**
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.

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

	Screen	Action
4.	Register with Oracle Internet Directory	Host: Enter the name of the computer where Oracle Internet Directory is running. Port: Enter the port number at which Oracle Internet Directory is listening. If you do not know the port number, see Section 7.6, "How to Determine Port Numbers Used by Components". **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click Next.
5.	Specify Login for Oracle Internet Directory	Username: Enter the username to use to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. See Section 8.3, "Groups Required to Configure or Deinstall Components" for details. Password: Enter the user's password. Realm: Enter the realm against which to validate the user. This field appears only if your Oracle Internet Directory contains more than one realm. If the Oracle Internet Directory contains only one realm, then the installer validates the user against that realm. Click Next.
6.	Select OracleAS Metadata Repository	Repository: Select the OracleAS Metadata Repository that you want to use for this middle-tier instance. The installer will register this instance with the selected OracleAS Metadata Repository. Click **Next**.
7.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example 1: `PW_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

7.14 Expanding a Middle Tier

After installing a middle tier and using it, you may decide that you need a component that is in a larger middle tier. For example, you installed a J2EE and Web Cache middle tier, and you realize you need OracleAS Portal.

What you can do is to install the Portal and Wireless type in the same Oracle home as the J2EE and Web Cache instance. The installer installs and configures the additional components in the larger middle tier without changing the configuration of existing components.

You can expand middle tiers in the following ways:

- J2EE and Web Cache to Portal and Wireless

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

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

  Instead of the Specify Instance Name and ias_admin Password screen, the installer displays the Specify ias_admin Password screen. In this screen, you enter the existing password for the ias_admin user.
- The instance name remains the same.

Remember that the Portal and Wireless type requires an infrastructure.

You cannot "shrink" a middle tier: you cannot go from a larger middle tier to a smaller middle tier.

Note that you cannot expand an infrastructure.

Procedure: Expanding a Middle Tier

Perform the following procedure to expand a middle tier:

Table 7–11 Steps for Expanding a Middle Tier

	Screen	Action

1.	--	Stop all processes associated with the middle tier that you want to expand. If you need help on how to stop the processes, see the *Oracle Application Server Administrator's Guide*.
		In particular, be sure that you stop the Application Server Control and DCM before performing the expansion.
		To stop Application Server Control, run the following command:
		`C:\> ORACLE_HOME\bin\emctl stop iasconsole`
		To stop OracleAS Web Cache (if configured), run the following command:
		`C:\> ORACLE_HOME\opmn\bin\opmnctl stopproc ias-component=WebCache`
		To ensure that DCM is stopped, run the following command:
		`C:\> ORACLE_HOME\dcm\bin\dcmctl shutdown`

2.	--	Start up the installer and complete the first few screens. See Section 7.16, "Install Fragment: The First Few Screens for Installing Middle Tiers" for details. Notes: ■ In the Specify File Locations screen, enter the Oracle home directory of the middle tier you want to expand. ■ In the Select Installation Type screen, select **Portal and Wireless**.
3.	Select Configuration Options	Select the components that you need, and click **Next**. For Portal and Wireless, the options are: ■ **OracleAS Portal** ■ **OracleAS Wireless**
4.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.

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

	Screen	Action
5.	Register with Oracle Internet Directory	Host: Enter the name of the computer where Oracle Internet Directory is running. Port: Enter the port number at which Oracle Internet Directory is listening. If you do not know the port number, see Section 7.6, "How to Determine Port Numbers Used by Components". **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. Click Next.
6.	Specify Login for Oracle Internet Directory	Username: Enter the username to use to log in to Oracle Internet Directory. You must log in as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. See Section 8.3, "Groups Required to Configure or Deinstall Components" for details. Password: Enter the user's password. Realm: Enter the realm against which to validate the user. This field appears only if your Oracle Internet Directory contains more than one realm. If the Oracle Internet Directory contains only one realm, then the installer validates the user against that realm. Click Next.
7.	Select OracleAS Metadata Repository	Repository: Select the OracleAS Metadata Repository that you want to use for this middle-tier instance. The installer will register this instance with the selected OracleAS Metadata Repository. Click **Next**.
8.	Specify ias_admin Password	ias_admin Password: Enter the password for the ias_admin user of the middle tier you are expanding. Click **Next**.
9.	--	Finish the installation. See Section 7.17, "Install Fragment: The Last Few Screens of the Installation".

If you did not shut down DCM when you performed the expansion, you may find that OracleAS Web Cache is not enabled after expanding the middle tier. In this case, perform these steps:

1. Enable OracleAS Web Cache by changing its status to "`enabled`" in the file `ORACLE_HOME\opmn\conf\opmn.xml`:

   ```
   <ias-component id="WebCache" status="enabled">
   ```

2. Reload OPMN.

   ```
   C:\> ORACLE_HOME\opmn\bin\opmnctl reload
   ```

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

If you have a middle tier from the 10*g* (9.0.4) release and you want to upgrade it to a 10*g* Release 2 (10.1.2) middle tier of the same type (for example, J2EE and Web Cache 10*g* (9.0.4) middle tier to J2EE and Web Cache 10*g* Release 2 (10.1.2) middle tier), follow the instructions in the *Oracle Application Server Upgrade and Compatibility Guide*.

If you want to upgrade a middle tier and expand it at the same time (for example, going from J2EE and Web Cache 10*g* (9.0.4) to Portal and Wireless 10*g* Release 2 (10.1.2)), you have to perform two procedures:

1. Upgrade the middle tier to the same type middle tier in 10*g* Release 2 (10.1.2). This procedure is documented in the *Oracle Application Server Upgrade and Compatibility Guide*.
2. Expand the middle tier in the 10*g* Release 2 (10.1.2) Oracle home. The previous section, Section 7.14, "Expanding a Middle Tier", has details.

7.16 Install Fragment: The First Few Screens for Installing Middle Tiers

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

Table 7–12 First Few Screens of the Middle-tier Installation

	Screen	Action
1.	--	Start the installer. See Section 5.13, "Starting the Oracle Universal Installer".
2.	Welcome	Click Next.
3.	Specify File Locations	Name: Enter a name to identify this Oracle home. The name can consist of alphanumeric and the underscore (_) characters only, and cannot be longer than 128 characters. Example: `OH_J2EE_10_1_2` Destination Path: Enter the full path to the destination directory. This is the Oracle home. If the directory does not exist, the installer creates it. You can also create the directory beforehand, if you want. You must specify a directory on the local computer (where you are running the installer). You cannot install on a drive that is mapped to another computer. Example: `C:\oracle\OraJ2EE_10_1_2` Click Next.
4.	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.
5.	Select Installation Type	The options displayed on this screen depend on what you selected in the "Select a Product to Install" screen. If you selected **Oracle Application Server** (which refers to the Oracle Application Server middle tier), the screen displays: ▪ **J2EE and Web Cache** ▪ **Portal and Wireless** Click Next. If you get an error message saying that the TEMP environment variable is not set, it means that the default temp directory does not have enough space. You can either set the TEMP environment variable to point to a different directory or free up enough space in the default temp directory. For details on the TEMP environment variable, see Section 4.5.5, "TEMP".
6.	Confirm Pre-Installation Requirements	Verify that you meet all the requirements listed on the screen, select all the checkboxes, and click **Next**.

7.17 Install Fragment: The Last Few Screens of the Installation

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

Table 7–13 Last Few Screens in the Installation

	Screen	Action
1.	Summary	Verify your selections and click Install.
2.	Install Progress	This screen shows the progress of the installation.
3.	Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
4.	End of Installation	Click Exit to quit the installer.

8

Configuring Oracle Internet Directory for Oracle Application Server Installation Privileges

When you install certain middle-tier or infrastructure components, the installer prompts you for a username to log in to Oracle Internet Directory. For the installation to complete successfully, this user must belong to certain groups in Oracle Internet Directory. The groups that are required depend on what you are installing.

By putting users into groups, you allow other users to perform installations. Users do not have to log in as the `cn=orcladmin` superuser to perform the installations.

Contents:

- Section 8.1, "Default Users in Oracle Internet Directory"
- Section 8.2, "Groups in Oracle Internet Directory"
- Section 8.3, "Groups Required to Configure or Deinstall Components"
- Section 8.4, "Groups Required to Install Middle Tiers"
- Section 8.5, "Groups Required to Install Additional Metadata Repositories"
- Section 8.6, "Example of Installation with Different Users"
- Section 8.7, "How to Create Users in Oracle Internet Directory"
- Section 8.8, "How to Add Users to Groups in Oracle Internet Directory"
- Section 8.9, "Contents of a New Oracle Internet Directory"
- Section 8.10, "On the Specify Login for Oracle Internet Directory Screen, What Username and Realm Do I Enter?"

8.1 Default Users in Oracle Internet Directory

When you install Oracle Internet Directory, it has two users: `cn=orcladmin` and `orcladmin`:

- `cn=orcladmin` is the Oracle Internet Directory superuser. This user has all the privileges to perform all tasks in Oracle Internet Directory.

  The initial password for `cn=orcladmin` is the same as the password for the ias_admin user for the Oracle Application Server instance. You specified this password during installation.

  `cn=orcladmin` is the owner of the objects created in the same installation session. For example, if you installed Oracle Internet Directory, OracleAS Metadata

Repository, and Oracle Delegated Administration Services, the cn=orcladmin user is created and becomes a member of the Repository Owners group and the DAS Component Owners group. cn=orcladmin also becomes a member of the iAS Admins group.

Note that you cannot log in to Oracle Internet Directory as the superuser (cn=orcladmin) using Oracle Delegated Administration Services. To log in as cn=orcladmin, you must use the Oracle Directory Manager.

- The orcladmin user is also created when you install Oracle Internet Directory. The DN for this user is: cn=orcladmin,cn=users,<default realm DN>.

  The initial password for orcladmin is the same as the password for the ias_admin user for the Oracle Application Server instance. You specified this password during installation.

  You can log in to Oracle Internet Directory as orcladmin using Oracle Delegated Administration Services to manage other Oracle Internet Directory users. You can do this because orcladmin is a valid OracleAS Single Sign-On user.

8.2 Groups in Oracle Internet Directory

Groups in Oracle Internet Directory can be classified into these categories:

- Section 8.2.1, ""Global" Groups"
- Section 8.2.2, "Groups for Each Metadata Repository"
- Section 8.2.3, "Groups for Each Component"

8.2.1 "Global" Groups

Table 8–1 describes the groups that affect all Oracle Application Server instances and components registered with Oracle Internet Directory.

Table 8–1 "Global" Groups

Group	Description
IAS Admins DN: cn=IASAdmins, cn=groups, cn=OracleContext	IAS Admins have the following privileges: ■ Install and register new metadata repositories. IAS Admins have no privileges to manage existing repositories already registered with Oracle Internet Directory. ■ Install middle tiers.
Trusted Application Admins DN: cn=Trusted Application Admins, cn=groups, cn=OracleContext	To install Identity Management, OracleAS Portal, or OracleAS Wireless components, you must belong to several groups, one of which is the Trusted Application Admins group. Table 8–4 lists the required groups for each component.
IAS & User Management Application Admins DN: cn=IAS & User Mgmt Application Admins, cn=groups, cn=OracleContext	To install OracleAS Portal or OracleAS Wireless, you must belong to several groups, one of which is the IAS & User Management Application Admins group. Table 8–4 lists the required groups for each component.

8.2.2 Groups for Each Metadata Repository

Each metadata repository registered with Oracle Internet Directory has its own groups, as described in Table 8–2. This enables you to assign different owners and users for each repository.

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

Group	Description
Repository Owners DN: cn=Repository Owners, orclReferenceName=*dbName*, cn=IAS Infrastructure Databases, cn=IAS, cn=Products, cn=OracleContext	The user who installs the metadata repository becomes a member of this group. Repository Owners have the following privileges: ■ Add/remove users to/from this group. ■ De-register this repository. ■ Add/remove users to/from the Mid-Tier Admins group for this repository. ■ Add/remove middle-tier instances to/from this repository. ■ All privileges of the Mid-Tier Administrators group.
Mid-Tier Administrators DN: cn=Repository Mid-tiers, orclReferenceName=*dbName*, cn=IAS Infrastructure Databases, cn=IAS, cn=Products, cn=OracleContext	Mid-Tier Administrators have the following privileges: ■ Add/remove middle-tier instances from the Associated Middle Tiers group for this repository. This is required to install a middle tier or to configure a middle-tier component to use a different repository. ■ Access metadata for the repository database object.
Associated Middle Tiers DN: cn=Associated Mid-tiers, orclReferenceName=*dbName*, cn=IAS Infrastructure Databases, cn=IAS, cn=Products, cn=OracleContext	Members of this group are middle-tier instances associated with this metadata repository. The middle-tier instances are added to this group during installation. You do not have to add the instances manually to this group. Members of this group have the following privilege: ■ Access metadata for the repository database object and its schemas.

8.2.3 Groups for Each Component

Oracle Application Server components also have groups in Oracle Internet Directory. Each component has a Component Owners group and an Associated Middle Tiers group, as described in Table 8–3.

Table 8–3 Groups Associated with Each Component

Group	Description
Component Owners DN: cn=Component Owners, orclApplicationCommonName=*componentCommonName*, cn=*componentName*, cn=Products, cn=OracleContext	Component Owners have the following privileges: ■ Add/remove owners for this component. ■ De-register this component. ■ Associate additional middle tiers with this component.
Associated Middle Tiers DN: cn=Associated Mid-tiers, orclApplicationCommonName=*componentCommonName*, cn=*componentName*, cn=Products, cn=OracleContext	Members of this group are middle-tier instances.

Figure 8–6 shows these groups for the Oracle Delegated Administration Services component.

8.3 Groups Required to Configure or Deinstall Components

Table 8–4 shows the groups that a user needs to belong to in order to configure or deinstall Oracle Application Server components.

The user who installs and configures the components becomes the owner of the components.

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

To Configure This Component	User Must Be a Member of ALL Listed Groups:
Infrastructure Components	
OracleAS Metadata Repository	To register OracleAS Metadata Repository against Oracle Internet Directory, you must log in to Oracle Internet Directory as a user who belongs to the iAS Admins group.
Oracle Internet Directory	In OracleAS Cluster (Identity Management) environments, to install subsequent Oracle Internet Directory instances after the first one, you must be the Oracle Internet Directory superuser (`cn=orcladmin`).
Oracle Delegated Administration Services	▪ Trusted Application Admins ▪ iAS Admins ▪ Mid-Tier Admins group for the metadata repository used by OracleAS Single Sign-On If you are unsure which metadata repository is used by OracleAS Single Sign-On, see "To Determine the Metadata Repository Used by OracleAS Single Sign-On" on page 8-6. ▪ Component Owners for the Oracle Delegated Administration Services component **Note:** This is required only if you are installing multiple instances of Oracle Delegated Administration Services. When you are installing the second and subsequent instances, then you need to belong to the Component Owners group. You do not need to be a member when you install the first Oracle Delegated Administration Services instance. See Section 8.8.1, "Using Oracle Directory Manager to Add Users to Groups" for steps on how to add users to groups.
OracleAS Single Sign-On	You must install OracleAS Single Sign-On as the superuser (`cn=orcladmin`).
Oracle Directory Integration and Provisioning	▪ iAS Admins ▪ Trusted Application Admins ▪ Admin for Oracle Directory Integration and Provisioning, which is identified by "`cn=dipadmingrp,cn=odi,cn=oracle internet directory`" ▪ Mid-Tier Admins group for the metadata repository used by OracleAS Single Sign-On. If you are unsure which metadata repository is used by OracleAS Single Sign-On, see "To Determine the Metadata Repository Used by OracleAS Single Sign-On" on page 8-6.
OracleAS Certificate Authority, configured against an existing OracleAS Metadata Repository	▪ Trusted Application Admins ▪ iAS Admins ▪ Repository Owners group for the existing metadata repository

Table 8–4 (Cont.) Oracle Internet Directory Groups Required to Configure Components

To Configure This Component	User Must Be a Member of ALL Listed Groups:
OracleAS Certificate Authority, configured against a new OracleAS Metadata Repository (that is, you are installing and configuring OracleAS Certificate Authority and OracleAS Metadata Repository in the same installation session)	■ Trusted Application Admins ■ iAS Admins
J2EE and Web Cache Middle-tier Features	
Identity Management Access only	■ iAS Admins
Identity Management Access and Farm Repository (Database-Based or File-Based)	■ iAS Admins ■ Mid-Tier Admins or Repository Owners group for the metadata repository
Portal and Wireless Middle-tier Components	
OracleAS Portal	■ Trusted Application Admins ■ IAS & User Management Application Admins ■ iAS Admins ■ Mid-Tier Admins or Repository Owners group for the metadata repository ■ Component Owners group for the OracleAS Portal component **Note:** This group is applicable only when you are installing additional OracleAS Portal instances. It does not apply for the first OracleAS Portal installation. For subsequent OracleAS Portal installations, you can perform the installation as the same Oracle Internet Directory user who performed the first installation. If you want to allow a different Oracle Internet Directory user to install OracleAS Portal, you have to add this user to the Component Owners group for the Portal application entity.
OracleAS Wireless	■ IAS & User Management Application Admins ■ iAS Admins ■ Mid-Tier Admins or Repository Owners group for the metadata repository ■ Component Owners group for the OracleAS Wireless component **Note:** This group is applicable only when you are installing additional OracleAS Wireless instances. It does not apply for the first OracleAS Wireless installation. For subsequent OracleAS Wireless installations, you can perform the installation as the same Oracle Internet Directory user who performed the first installation. If you want to allow a different Oracle Internet Directory user to install OracleAS Wireless, you have to add this user to the Component Owners group for the Wireless application entity. ■ In addition, the user must be one of the owners of the OracleAS Wireless application entity. To determine the name of the OracleAS Wireless application entity, run the following command from the first OracleAS Wireless installation: `prompt> ORACLE_HOME\wireless\bin\getAppEntityName.bat` Then add the user as a component owner for this application entity. You can do this using the Deployment Delegation Console or the Oracle Directory Manager.

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

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

```
C:\> ldapsearch -h oidhostname -p oidport -D cn=orcladmin -w password
 -b "orclapplicationcommonname=orasso_ssoserver,cn=sso,cn=products,
      cn=oraclecontext"
 -s base "objectclass=*" seealso
```

   Values you need to provide:

   oidhostname - name of the computer running Oracle Internet Directory. Example: `dbmachine.mydomain.com`.

   oidport - port number on which Oracle Internet Directory is listening. Example: `389`.

   passwd - password for the `cn=orcladmin` user.

2. If the command in the preceding step does not return the name of the metadata repository, then run the following commands:

   a. Run this command first to get the "orclreplicaid" value, which you need for the next command.

```
C:\> ldapsearch -h oidhostname -p oidport -D cn=orcladmin -w password
 -b "" -s base "objectclass=*" orclreplicaid
```

   b. Then run this command.

```
C:\> ldapsearch -h oidhostname -p oidport -D cn=orcladmin -w password
 -b "orclreplicaid=value_from_previous_command,cn=replication
configuration"
 -s base "objectclass=*" seealso
```

   This returns a "seealso" value in the format: `cn=Metadata repository DB Name,cn=oraclecontext`.

8.4 Groups Required to Install Middle Tiers

When you install middle tiers, the installer prompts you to log in to Oracle Internet Directory. Log in as a user who is a member of these groups:

- Section 8.4.1, "Groups Required to Install Against the Desired Metadata Repository"
- Section 8.4.2, "Groups Required to Install Middle-tier Components"

8.4.1 Groups Required to Install Against the Desired Metadata Repository

To install middle tiers against a metadata repository, the user must belong to these groups:

- IAS Admins group
- Mid-Tier Admins group for the metadata repository to be used with the middle tier. When the installer prompts for the OracleAS Metadata Repository to use with this middle tier, the installer displays only the metadata repositories for which the user is a mid-tier admin. For example, in Figure 8–2, userA can see only the repository for asdb.oracle.com, and userB can see only the repository for asdb1.oracle.com.

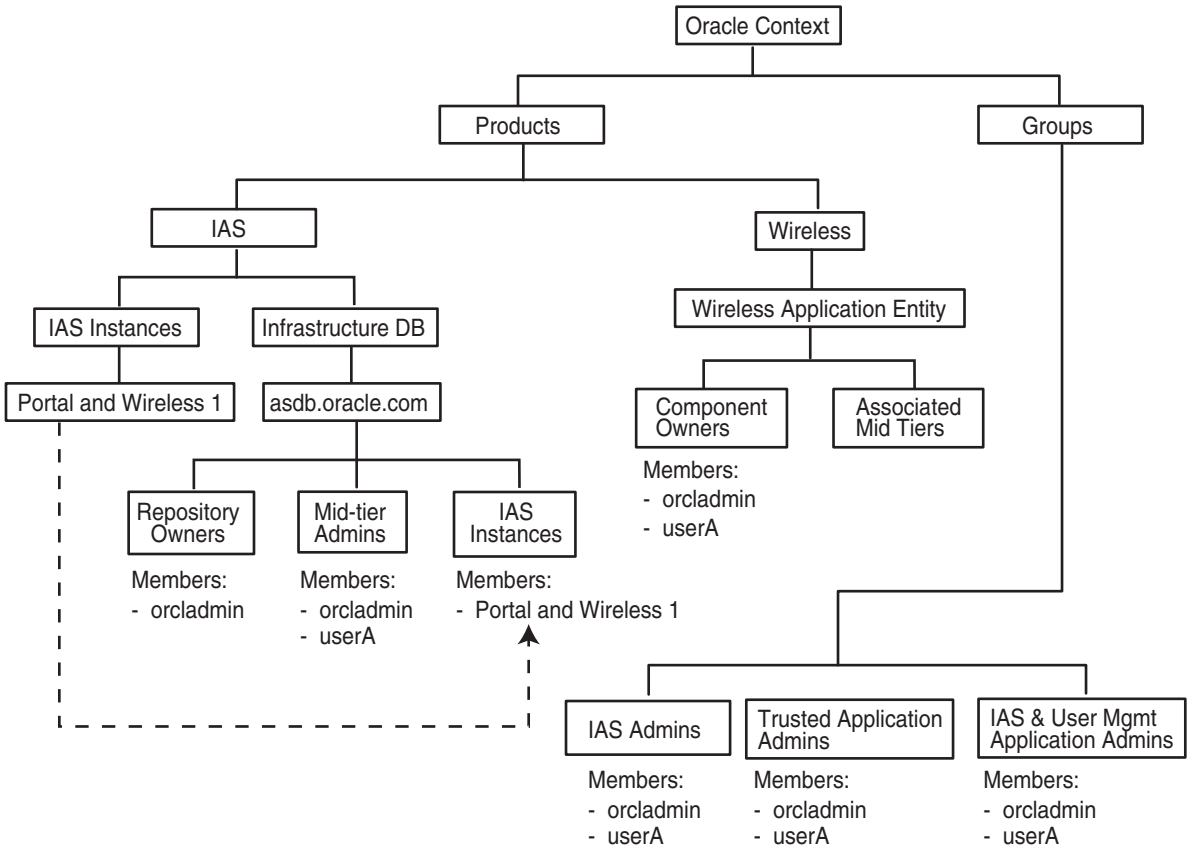
8.4.2 Groups Required to Install Middle-tier Components

To install middle-tier components, such as OracleAS Portal and OracleAS Wireless, the user must belong to additional groups. See Table 8–4 for a list of components and required groups.

8.4.3 Example

Figure 8–1 shows an Oracle Internet Directory with one metadata repository and one middle-tier instance. userA can install middle tiers against the asdb metadata repository because userA belongs to the Mid-Tier Admins and the IAS Admins groups. userA can also install middle-tier components because userA belongs to the Trusted Application Admins group, the IAS & User Management Application Admins group, and the Component Owners group for Wireless.

Figure 8–1 Contents of Oracle Internet Directory with One Infrastructure and One Middle Tier



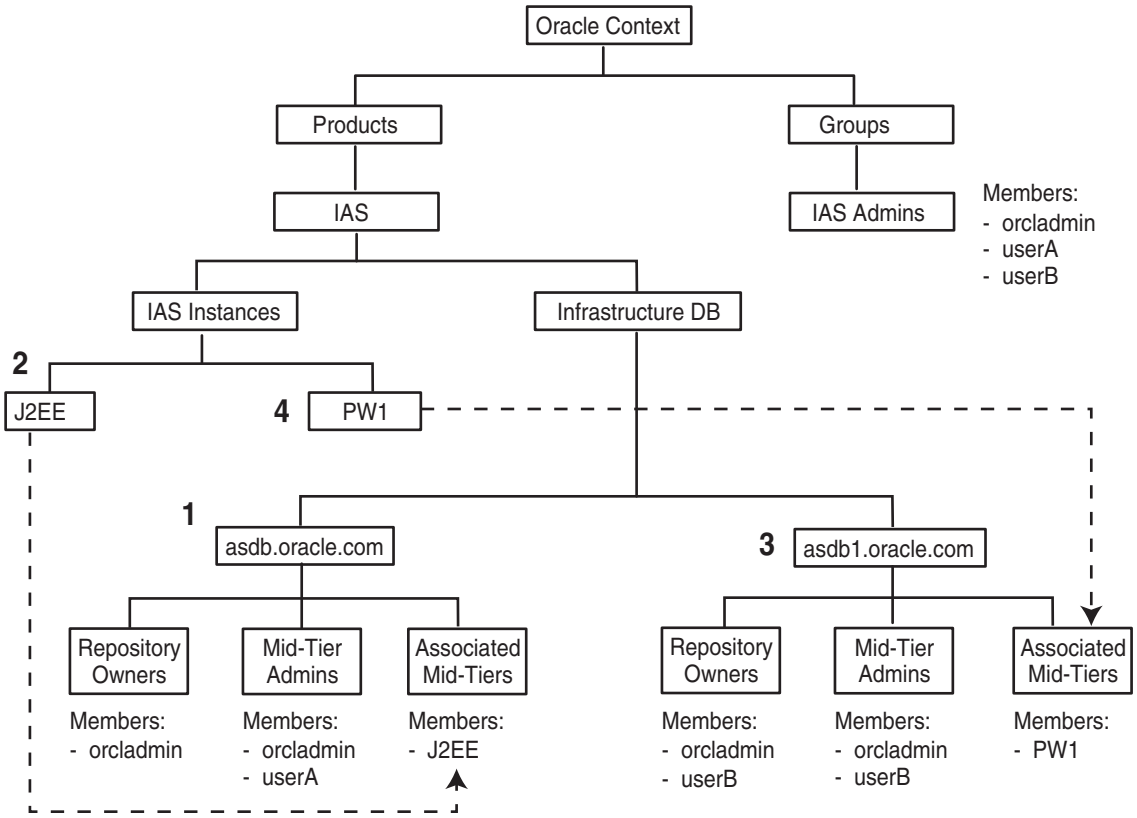
8.5 Groups Required to Install Additional Metadata Repositories

To install additional metadata repositories, a user must be a member of the IAS Admins group. After installation, the user then becomes a member of the Repository Owners group for that metadata repository.

8.6 Example of Installation with Different Users

Figure 8–2 shows an Oracle Internet Directory with two metadata repositories and two middle tiers installed by different users.

Figure 8–2 Oracle Internet Directory with Two Metadata Repositories and Two Middle Tiers



The numbers in the figure correspond to these steps:

1. Install OracleAS Infrastructure (including Oracle Internet Directory and OracleAS Metadata Repository)

This first installation creates an Oracle Internet Directory and a metadata repository.

The installer registers the metadata repository with Oracle Internet Directory by creating the "asdb.oracle.com" entry.

The orcladmin user becomes a member of the Repository Owners group and the Mid-Tier Admins group for this repository.

2. Install J2EE and Web Cache Middle Tier

userA was added to the following groups:

- Mid-Tier Admins group of "asdb.oracle.com"

  This enables userA to use the "asdb.oracle.com" repository for this middle tier. Note that this group is required only if you install the J2EE and Web Cache middle tier with the OracleAS Database-Based Cluster option. If you install the middle tier without this option, userA does not need to belong to this Mid-Tier Admins group.

- iAS Admins group

The installer registers this middle tier with Oracle Internet Directory by creating the "J2EE" entry. (The "J2EE" is the name of the middle-tier instance, specified by userA.)

The middle tier becomes a member of the Associated Mid-Tiers group for "asdb.oracle.com".

3. Install OracleAS Infrastructure (OracleAS Metadata Repository only)

userB was added to the iAS Admins group so that userB can perform this installation. See Section 8.5, "Groups Required to Install Additional Metadata Repositories".

The installer registers this new repository with Oracle Internet Directory by creating the "asdb1.oracle.com" entry.

userB becomes a member of the Repository Owners group and the Mid-Tier Admins group for the new repository.

4. Install Portal and Wireless Middle Tier

userB was added to these groups:

- Mid-Tier Admins group of "asdb1.oracle.com", so that userB can use the repository for this middle tier
- Trusted Application Admins, required for installing OracleAS Portal
- IAS & User Management Application Admins, required for installing OracleAS Portal and OracleAS Wireless
- iAS Admins, required for installing OracleAS Portal and OracleAS Wireless

The installer registers this middle tier with Oracle Internet Directory by creating the "PW1" entry.

The middle tier becomes a member of the Associated Mid-Tiers group for "asdb1.oracle.com".

8.7 How to Create Users in Oracle Internet Directory

You can create users in Oracle Internet Directory using the Self-Service Console, which is part of the Oracle Delegated Administration Services. See the *Oracle Internet Directory Administrator's Guide* for details.

> **Note:** You **cannot** connect to Oracle Internet Directory as the `cn=orcladmin` superuser using the Oracle Delegated Administration Services consoles. To connect to Oracle Internet Directory as the superuser, use Oracle Directory Manager.

8.8 How to Add Users to Groups in Oracle Internet Directory

To add users to groups in Oracle Internet Directory, you can use these tools:

- Oracle Directory Manager is a Java-based tool for managing Oracle Internet Directory.
- Oracle Delegated Administration Services is a Web-based tool intended for end-users to perform tasks such as changing their passwords and editing their personal information. If users have the proper privileges, they can also use this tool to create groups and users.

> **Note:** You cannot log in to Oracle Internet Directory as the `cn=orcladmin` superuser using Oracle Delegated Administration Services. In cases where you have to log in as the superuser to add users to groups (or to perform other Oracle Internet Directory-related tasks), you have to use Oracle Directory Manager.

8.8.1 Using Oracle Directory Manager to Add Users to Groups

When you have to log in as the `cn=orcladmin` superuser to add users to groups, you have to use Oracle Directory Manager, instead of Oracle Delegated Administration Services.

To add users using Oracle Directory Manager:

1. Start up Oracle Directory Manager. ORACLE_HOME refers to the home directory where Oracle Internet Directory is installed.

   Select **Start** > **Programs** > **Oracle** - *OracleHomeName* > **Integrated Management Tools** > **Oracle Directory Manager**.

2. In the Oracle Directory Manager Connect screen, enter the connect information for Oracle Internet Directory:

   - **User**: Enter `cn=orcladmin`.
   - **Password**: Enter the password for `cn=orcladmin`.
   - **Server** and **Port**: Click the icon at the right of the field to enter the name of the computer running Oracle Internet Directory and the port number on which Oracle Internet Directory is listening.
   - Click **Login**.

3. On the left side, navigate to the group to which you want to add users. Select the group on the left side to display its attributes on the right side.

   To navigate to "global" groups, see Section 8.8.1.1, "Navigating to "Global" Groups".

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

   To navigate to component groups, see Section 8.8.1.3, "Navigating to Component Groups".

4. Add new users to the group by adding the DNs of the users to the `uniquemember` attribute.

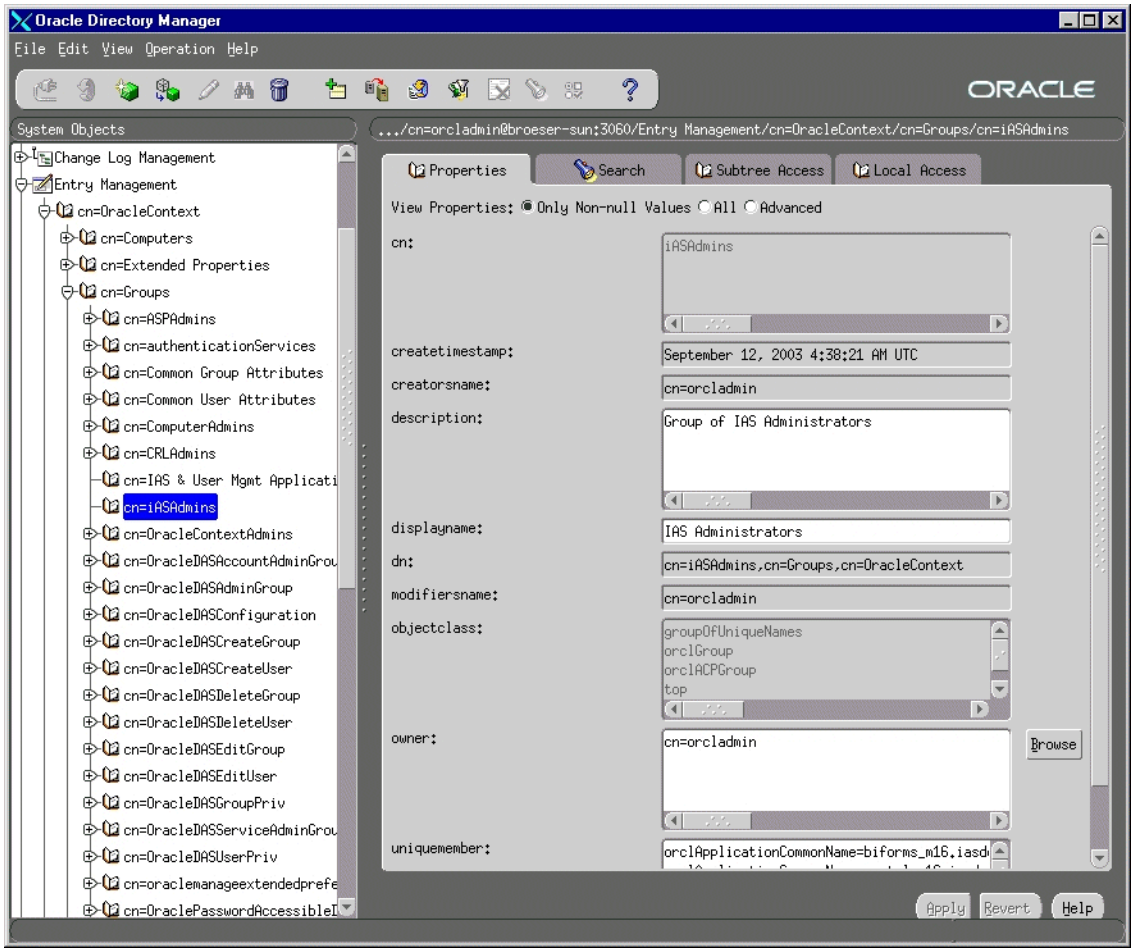
8.8.1.1 Navigating to "Global" Groups

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

The general navigation path is as follows. See Figure 8–3 for a screenshot.

1. Expand the top-level entry, "Oracle Internet Directory Servers".
2. Expand the specific Oracle Internet Directory.
3. Expand the following entries: **Entry Management** > **cn=OracleContext** > **cn=Groups**.
4. Click the group to which you want to add users. Figure 8–3 shows Oracle Directory Manager with the iASAdmins group selected.

Figure 8–3 Using Oracle Directory Manager to Add Users to "Global" Groups



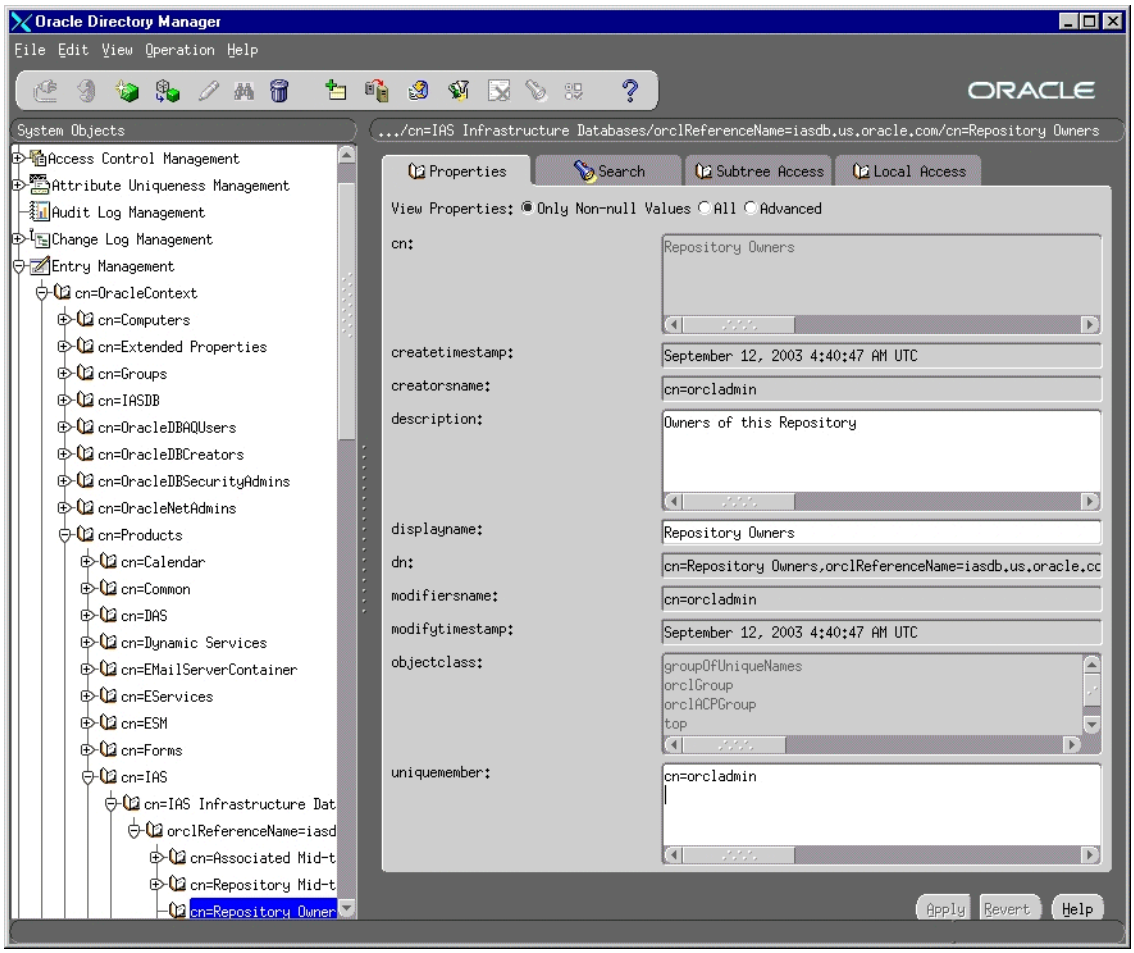
8.8.1.2 Navigating to Metadata Repository Groups

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

The general navigation path is as follows. See Figure 8–4 for a screenshot.

1. Expand the top-level entry, "Oracle Internet Directory Servers".
2. Expand the specific Oracle Internet Directory.
3. Expand the following entries: **Entry Management** > **cn=OracleContext** > **cn=Products** > **cn=IAS** > **cn=IAS Infrastructure Databases** > **orclReferenceName=***dbName*, where *dbName* is the name of the OracleAS Metadata Repository database.
4. Click the group to which you want to add users. Figure 8–4 shows Oracle Directory Manager with the Repository Owners group for the asdb.us.oracle.com database selected.

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



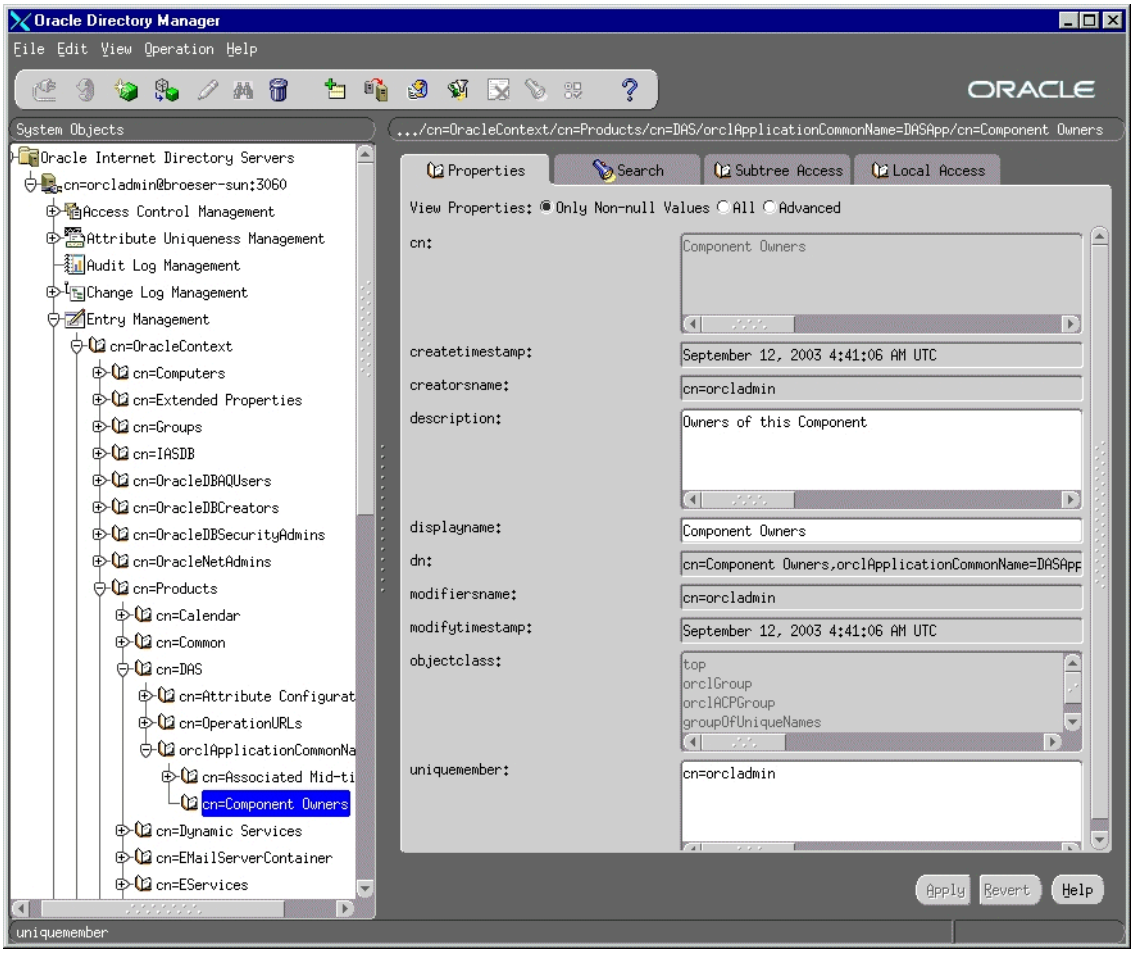
8.8.1.3 Navigating to Component Groups

The component groups are listed in Table 8–3.

The general navigation path is as follows. See Figure 8–5 for a screenshot.

1. Expand the top-level entry, "Oracle Internet Directory Servers".
2. Expand the specific Oracle Internet Directory.
3. Expand the following entries: **Entry Management** > **cn=OracleContext** > **cn=Products**.
4. Expand the particular component (for example, **cn=DAS**) whose groups you want to add users to.
5. Expand **orclApplicationCommonName=***appName*, where *appName* is specific to the component and application server instance. If you have installed multiple instances of a component, you would see multiple instances of this entry.
6. Click the group to which you want to add users. Figure 8–5 shows Oracle Directory Manager with the Component Owners group for Oracle Delegated Administration Services selected.

Figure 8–5 Using Oracle Directory Manager to Add Users to the Component Users Group for the Oracle Delegated Administration Services Component



8.8.2 Using Deployment Delegation Console to Add Users to Groups

Using the Deployment Delegation Console, which is installed as part of Oracle Delegated Administration Services, you can add users to or remove users from the following groups:

- Repository Owners
- Mid-Tier Administrators
- Component Owners

> **Note:** You can add users to these groups only if these groups have existing members other than the `cn=orcladmin` superuser. If the only member of these groups is the superuser, then you have to use Oracle Directory Manager to add users to these groups. See Section 8.8.1, "Using Oracle Directory Manager to Add Users to Groups".

To add users to these groups:

1. Ensure that the Oracle Delegated Administration Services and Oracle Internet Directory are running.
2. Display the Deployment Delegation Console page. The URL is:

   `http://`*`hostname`*`:`*`port`*`/oiddas/ui/oidinstallhome`

   hostname specifies the name of the computer where you installed Oracle Delegated Administration Services.

   port specifies the port on which Oracle HTTP Server is listening.
3. Click **Login**.
4. Enter a username and password to log in to Oracle Internet Directory, and click **Login**. The login user must have sufficient privileges to allow you to add users to the desired group:

To add users to this group:	Log in as a user who belongs to:
Repository Owners	the same Repository Owners group.
Mid-Tier Administrators	the Repository Owners group for the same repository.
Component Owners	the same Component Owners group.

5. Perform the steps to add the user to the desired group:

To add the user to the Repository Owners group

1. Click the **Repository** tab.

   This displays all the metadata repositories for which you are an owner.
2. Select the metadata repository to which you want to add a user, and click **Manage Owners**.
3. On the page that displays the current owners, click **Add**.
4. Enter the first few characters of the user's name in the **Search** field and click **Go**. If you leave the **Search** field empty and click **Go**, you would get a list of all users in Oracle Internet Directory.
5. Select the user that you want to add to the Repository Owners group and click **Select**.
6. Click **Submit** on the Manage Repository Owners page.

To add the user to the Mid-Tier Administrators group

1. Click the **Repository** tab.

   This displays all the metadata repositories for which you are an owner.
2. Select the metadata repository to which you want to add a user, and click **Manage Administrators**.
3. On the page that displays the current administrators, click **Add**.
4. Enter the first few characters of the user's name in the **Search** field and click **Go**. If you leave the **Search** field empty and click **Go**, you would get a list of all users in Oracle Internet Directory.
5. Select the user that you want to add to the Mid-Tier Administrators group and click **Select**.
6. Click **Submit** on the Manage Administrators page.

To add the user to the Component Owners group

1. Click the **Components** tab.

   This displays all the components for which you are an owner.
2. Select the component to which you want to add a user, and click **Manage Owners**.
3. On the page that displays the current component owners, click **Add**.
4. Enter the first few characters of the user's name in the **Search** field and click **Go**. If you leave the **Search** field empty and click **Go**, you would get a list of all users in Oracle Internet Directory.
5. Select the user that you want to add to the Component Owners group and click **Select**.
6. Click **Submit** on the Manage Component Owners page.

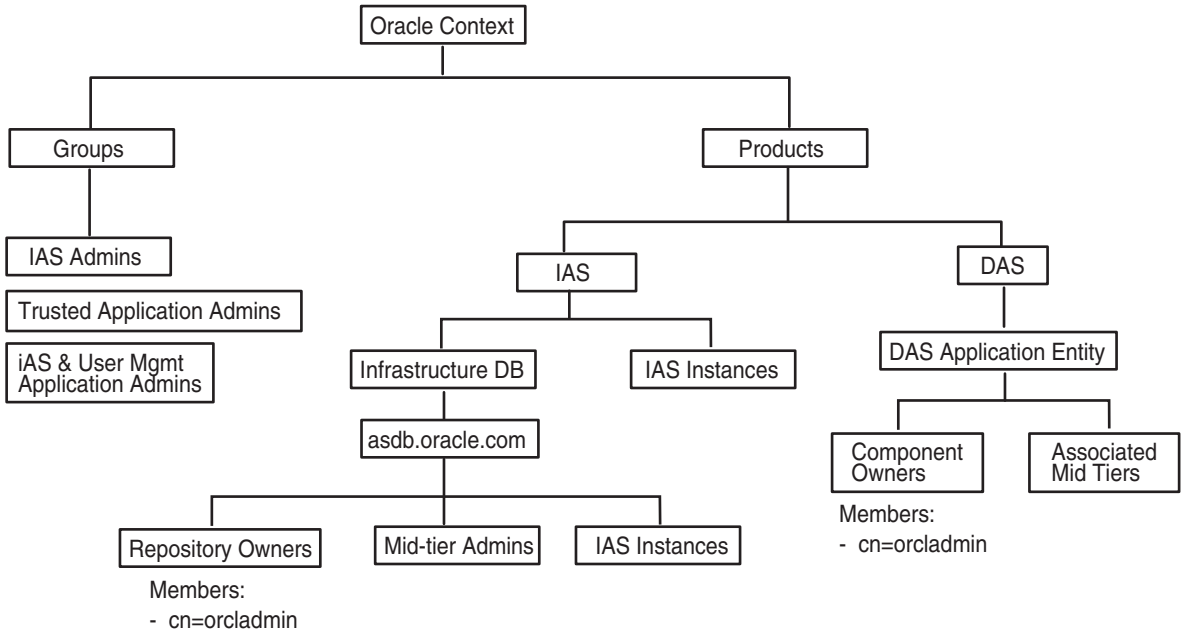
8.9 Contents of a New Oracle Internet Directory

When you install OracleAS Infrastructure with Oracle Internet Directory, OracleAS Metadata Repository, and Oracle Delegated Administration Services, the Oracle Internet Directory contains the following objects (Figure 8–6):

- "Global" groups as listed in Table 8–1
- The `cn=orcladmin` superuser
- The `orcladmin` user belonging to the default realm
- An entry for the metadata repository registered with the Oracle Internet Directory. This metadata repository is associated with the groups listed in Table 8–2. The `cn=orcladmin` superuser is a member of the Repository Owners group.
- An application entity entry for the Oracle Delegated Administration Services component. This component is associated with the groups listed in Table 8–3. The `cn=orcladmin` superuser is a member of the Component Owners group.

  To enable other users to install additional instances of Oracle Delegated Administration Services, log in as `cn=orcladmin` in Oracle Directory Manager and add the users to the Component Owners group. See Section 8.8.1, "Using Oracle Directory Manager to Add Users to Groups".

Figure 8–6 Contents of a New Oracle Internet Directory



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

The installer displays the Specify Login for Oracle Internet Directory screen:

- when you are installing OracleAS Infrastructure and you are using an existing Oracle Internet Directory
- when you are installing a middle tier that requires an infrastructure.

This screen prompts you to enter a username and password to log in to Oracle Internet Directory.

Username

In the Username field, enter either the simple username or the user's DN.

Simple username example: `jdoe`

DN example: `cn=orcladmin`

The user must belong to specific groups for installing and configuring certain components. See Table 8–4 for details.

If you want to specify the superuser, enter `cn=orcladmin`, not just `orcladmin`.

Realm

The Realm field appears only if your Oracle Internet Directory contains more than one realm. The username that you enter is authenticated against the specified realm. If you are unsure what the realm name is, contact your Oracle Internet Directory administrator.

Example 1: in a hosted deployment, the realm name could be similar to the name of the hosted company: `XYZCorp`.

Example 2: within an enterprise, you could have separate realms for internal users and external users. The realm name for the external users could be `externalUsers`.

9

Installing Oracle Internet Directory in Replicated Mode

This chapter describes how to install Oracle Internet Directory in replicated mode, that is, how to install Oracle Internet Directory masters and replicas.

Contents:

- Section 9.1, "Oracle Internet Directory Replication Overview"
- Section 9.2, "Requirements"
- Section 9.3, "Installation Order"
- Section 9.4, "Installing a Master Oracle Internet Directory"
- Section 9.5, "Installing an Oracle Internet Directory Replica"
- Section 9.6, "Accessing OracleAS Single Sign-On and Oracle Delegated Administration Services"

9.1 Oracle Internet Directory Replication Overview

To run Oracle Internet Directory in a replication environment means that you have more than one Oracle Internet Directory, each with its own OracleAS Metadata Repository. The Oracle Internet Directory instances synchronize the data in the metadata repositories so that the data in the repositories are "loosely consistent". This means that the data in the repositories are not guaranteed to be synchronized in "real time", but the data become identical within an acceptable time interval.

For More Information

This chapter provides information from an installation point of view. For in-depth information on replication, see the following guides:

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

Types of Replication

There are two types of replication. During installation, you select the type of replication that you want.

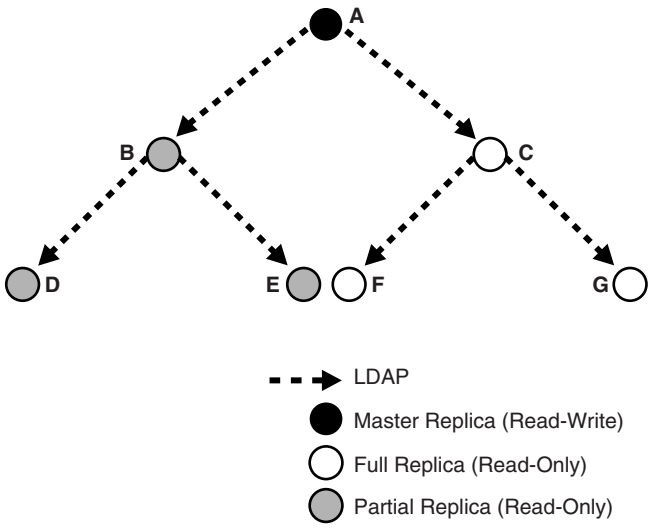
- Section 9.1.1, "Fan-Out Replication (LDAP Replication)"
- Section 9.1.2, "Multimaster Replication (Advanced Replication)"

9.1.1 Fan-Out Replication (LDAP Replication)

In fan-out replication, one Oracle Internet Directory is the master, and the other Oracle Internet Directory instances are called the Oracle Internet Directory replicas.

Clients modify the data in the master Oracle Internet Directory only. The master then propagates the changes to the replicas. These replicas, in turn, can update other Oracle Internet Directory replicas.

Figure 9–1 Example of Fan-Out Replication (LDAP Replication)



In fan-out replication, Oracle Internet Directory instances use the LDAP protocol to communicate with each other. The Select Oracle Internet Directory Replication Mode screen in the installer uses the term **LDAP Replication** to refer to fan-out replication.

The procedure for installing a master Oracle Internet Directory is the same as installing a "regular" (non-replicated) Oracle Internet Directory.

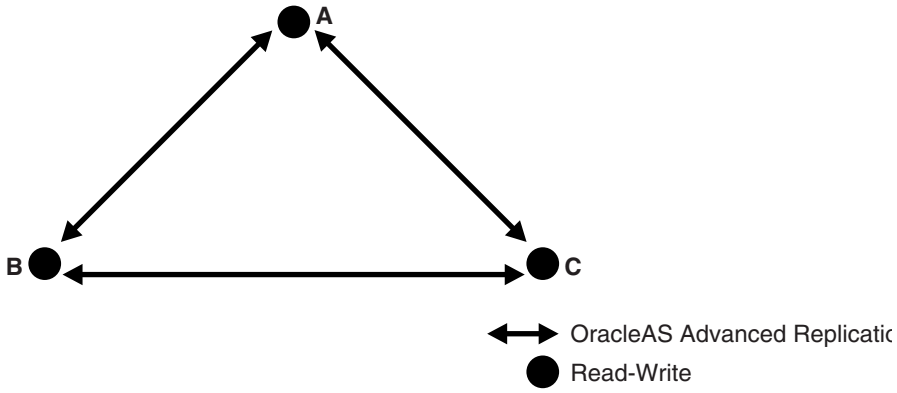
The procedure for installing replicas is different. When installing a replica, you must select the **High Availability and Replication** option in the Select Configuration Options screen, and you need to provide connect information to the master Oracle Internet Directory.

The Oracle Application Server instance that runs the Oracle Internet Directory (master or replica) can also run other Oracle Application Server components, such as the OracleAS Metadata Repository, OracleAS Single Sign-On, Oracle Delegated Administration Services, and/or Oracle Directory Integration and Provisioning.

9.1.2 Multimaster Replication (Advanced Replication)

In multimaster replication, you have one or more master Oracle Internet Directory instances. You can also have other Oracle Internet Directory instances that are replicas. Clients can update data in any Oracle Internet Directory (master or replica). The Oracle Internet Directory instances propagate the changes among themselves.

Figure 9–2 Example of Multimaster Replication (Advanced Replication)



In multimaster replication, Oracle Internet Directory instances use the Oracle Database Advanced Replication protocol to communicate with each other. The Select Oracle Internet Directory Replication Mode screen in the installer uses the term **Advanced Replication** to refer to multimaster replication.

The procedure for installing a master Oracle Internet Directory is the same as installing a "regular" (non-replicated) Oracle Internet Directory.

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

The Oracle Application Server instance that runs the Oracle Internet Directory (master or replica) can also run other Oracle Application Server components, such as the OracleAS Metadata Repository, OracleAS Single Sign-On, Oracle Delegated Administration Services, and/or Oracle Directory Integration and Provisioning.

9.2 Requirements

Check that you meet the following requirements for installing Oracle Internet Directory in replication mode:

- Section 9.2.1, "Database Requirements"
- Section 9.2.2, "Clock Synchronization"

9.2.1 Database Requirements

Each Oracle Internet Directory, whether master or replica, needs its own OracleAS Metadata Repository. You can install it with a new OracleAS Metadata Repository, or against an existing OracleAS Metadata Repository.

If installing against an existing OracleAS Metadata Repository, you can create an existing OracleAS Metadata Repository in two different ways:

- You can install it by selecting the **OracleAS Metadata Repository** option in the Select Installation Type screen.
- You can install the OracleAS Metadata Repository in an existing database. See the *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details on how to load the OracleAS Metadata Repository in an existing database.

If you are installing against an existing OracleAS Metadata Repository, the **OracleAS Metadata Repository must not be already registered with another Oracle Internet Directory**. If you specify an OracleAS Metadata Repository that is already registered with an Oracle Internet Directory, the installer assumes you are installing a high availability environment, and it does not display the replication options.

9.2.2 Clock Synchronization

Check that the clocks on the computers running the masters and replicas are within 250 seconds of each other.

9.3 Installation Order

To install Oracle Internet Directory in replicated mode, you need a master Oracle Internet Directory and one or more Oracle Internet Directory replicas. You install them in the following order:

1. Install the master Oracle Internet Directory first.
2. Install the Oracle Internet Directory replicas. The installer will prompt you to enter connect information for the master Oracle Internet Directory.

9.4 Installing a Master Oracle Internet Directory

The procedure for installing a master Oracle Internet Directory is the same as installing a "regular" (non-replicated) Oracle Internet Directory. You can install the master Oracle Internet Directory against an existing database, or you can install it with a new database.

Notes:

- In the Select Configuration Options screen, you must select **Oracle Internet Directory**. You can select other components to configure, as desired.
- Also in the Select Configuration Options screen, you do not need to select **High Availability and Replication**. Select this option only if you are installing this Oracle Application Server instance in a high availability configuration.
- If you select the **High Availability and Replication** option in Select Configuration Options screen, the installer displays the Select High Availability Option screen. In this, **do not** select the **Replication** option, because this option is for installing a replica Oracle Internet Directory, not a master Oracle Internet Directory.

You can use any of the procedures in Chapter 6, "Installing OracleAS Infrastructure" to install a master Oracle Internet Directory. Examples:

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

You can also install a master Oracle Internet Directory in high availability environments. See Chapter 11, "Installing in High Availability Environments: OracleAS Cold Failover Cluster" and Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)" for details.

9.5 Installing an Oracle Internet Directory Replica

You can install an Oracle Internet Directory replica against an existing database, or you can install it with a new database.

Contents of this section:

- Section 9.5.1, "Overview of Installing a Replica"
- Section 9.5.2, "Installing an Oracle Internet Directory Replica with a New Database"
- Section 9.5.3, "Installing an Oracle Internet Directory Replica against an Existing Database"

9.5.1 Overview of Installing a Replica

When installing an Oracle Internet Directory replica, remember the following:

- In the Select Configuration Options screen, you must select **Oracle Internet Directory** and **High Availability and Replication**.
- In the Select High Availability Option screen, select **Replication**.
- When the installer prompts you to enter connect information for the master Oracle Internet Directory, you need to connect as the Oracle Internet Directory superuser (`cn=orcladmin`). You need to know the password for the superuser.
- The master Oracle Internet Directory must not already contain a registration for a database with the same global database name or SID as the OracleAS Metadata Repository to be used for the replica.
- The OracleAS Metadata Repository for the replica cannot already be registered with any Oracle Internet Directory.

9.5.2 Installing an Oracle Internet Directory Replica with a New Database

Follow these steps to install an Oracle Internet Directory replica with a new database:

Table 9–1 Installing an Oracle Internet Directory Replica with a New Database

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select a Product to Install screen, select **OracleAS Infrastructure**. ■ In the Select Installation Type screen, select **Identity Management** and **OracleAS Metadata Repository**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **High Availability and Replication**. The other options on this screen are optional: Select **OracleAS Single Sign-On**, **OracleAS Delegated Administration Services**, **OracleAS Directory Integration and Provisioning**, and/or **OracleAS Certificate Authority (OCA)** if you need these components. Click **Next**.

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

	Screen	Action
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
4.	Select High Availability Option	This screen is required to install a replica. This screen appears only if you selected **High Availability and Replication** in the Select Configuration Options screen. Select **Replication**, and click **Next**.
5.	Select Oracle Internet Directory Replication Mode	Select **LDAP Replication** if you want fan-out replication. Select **Advanced Replication** if you want multimaster replication. Click **Next**.
6.	Specify Oracle Internet Directory Master Node	**Hostname**: Enter the name of the computer running the master Oracle Internet Directory. **Port**: Enter the port at which the master Oracle Internet Directory is listening. Do not select **Use only SSL connections with this Oracle Internet Directory**. If you want Oracle Internet Directory to run in SSL-only mode, you can make this configuration change after installation. See the *Oracle Application Server Administrator's Guide* for details. Click **Next**.
7.	Specify Master Oracle Internet Directory Login	**Username**: Enter `cn=orcladmin` because you have to connect to the master Oracle Internet Directory as the superuser. **Password**: Enter the password for the superuser. Click **Next**.
8.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
9.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.

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

	Screen	Action
10.	Specify Database Configuration Options	Global Database Name: Enter a name for the OracleAS Metadata Repository database. Append the domain name of your computer to the database name. Example: `asdb.mydomain.com` **Note**: Ensure that the master Oracle Internet Directory does not already contain a registration for a database with the same global database name or SID. (The installer checks this for you.) SID: Enter the system identifier for the OracleAS Metadata Repository database. Typically this is the same as the global database name, but without the domain name. The SID must be unique across all databases. The SID cannot be longer than eight characters. Example: `asdb` Select Database Character Set: Select the character set to use. **Specify Database File Location**: Enter the full path to the parent directory for the data files directory. This parent directory must already exist, and you must have write permissions in this directory. The installer will create a subdirectory in this parent directory, and the subdirectory will have the same name as the SID. The data files will be placed in this subdirectory. Example: If you enter `/u02/oradata`, and the SID is `asdb`, then the data files will be located in `/u02/oradata/asdb`. Click Next.
11.	Specify Database Schema Passwords	Set the passwords for these privileged database schemas: SYS, SYSTEM, SYSMAN, and DBSNMP. You can set different passwords for each schema, or you can set the same password for all the schemas. See Section 6.14, "Restrictions on the Passwords for the SYS and SYSTEM Users" for rules on setting passwords for these accounts. Click Next.
12.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **ias_admin Password** and **Confirm Password**: Enter and confirm the password for the ias_admin user. This is the administrative user for this infrastructure instance. This password will also become the password for the following users: ▪ the Oracle Internet Directory superuser ("`cn=orcladmin`") ▪ the Oracle Internet Directory database user ("`ods`") ▪ the replication DN, which is the identity used by the replication server. The DN is: "`cn=replication dn, orclreplicaid=`*replica_ID*`, cn=replication configuration`", where *replica_ID* is the replica ID of the Oracle Internet Directory being installed. See Section 5.8, "The ias_admin User and Restrictions on its Password" for password requirements. Example: `welcome99` Click **Next**.
13.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

9.5.3 Installing an Oracle Internet Directory Replica against an Existing Database

Follow these steps to install an Oracle Internet Directory replica against an existing database.

Table 9–2 Installing an Oracle Internet Directory Replica against an Existing Database

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select a Product to Install screen, select **OracleAS Infrastructure**. ■ In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **High Availability and Replication**. The other options on this screen are optional: Select **OracleAS Single Sign-On**, **OracleAS Delegated Administration Services**, **OracleAS Directory Integration and Provisioning**, and/or **OracleAS Certificate Authority (OCA)** if you need these components. Click **Next**.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
4.	Specify Repository	Enter information for the OracleAS Metadata Repository that you want to use for the replica. **Notes**: ■ This OracleAS Metadata Repository cannot already be registered with any Oracle Internet Directory. ■ The master Oracle Internet Directory, which you will specify in step 7., must not already contain a registration for a database with the same global database name or SID as this OracleAS Metadata Repository. (**The installer does not check this for you.**) Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Select High Availability Option	This screen is required to install a replica. If you do not see this screen, return to the Select Configuration Options screen and ensure you selected **High Availability and Replication**. Select **Replication**. Click **Next**.
6.	Select Oracle Internet Directory Replication Mode	Select **LDAP Replication** if you want fan-out replication. Select **Advanced Replication** if you want multimaster replication. Click **Next**.

Table 9–2 (Cont.) Installing an Oracle Internet Directory Replica against an Existing Database

	Screen	Action
7.	Specify Oracle Internet Directory Master Node	**Hostname**: Enter the name of the computer running the master Oracle Internet Directory. **Port**: Enter the port at which the master Oracle Internet Directory is listening. Do not select **Use only SSL connections with this Oracle Internet Directory**. If you want Oracle Internet Directory to run in SSL-only mode, you can make this configuration change after installation. See the *Oracle Application Server Administrator's Guide* for details. Click **Next**.
8.	Specify Master Oracle Internet Directory Login	**Username**: Enter `cn=orcladmin` because you have to connect to the master Oracle Internet Directory as the superuser. **Password**: Enter the password for the superuser. Click **Next**.
9.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
10.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.
11.	Specify OracleAS Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. This password will also become the password for the following users: ▪ the Oracle Internet Directory superuser ("`cn=orcladmin`") ▪ the Oracle Internet Directory database user ("`ods`") ▪ the replication DN, which is the identity used by the replication server. The DN is: "`cn=replication dn, orclreplicaid=`*replica_ID*`, cn=replication configuration`", where *replica_ID* is the replica ID of the Oracle Internet Directory being installed. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
12.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

9.6 Accessing OracleAS Single Sign-On and Oracle Delegated Administration Services

To access OracleAS Single Sign-On or Oracle Delegated Administration Services on the replica node, you have to use the password for the `orcladmin` user on the master Oracle Internet Directory, not the replica Oracle Internet Directory.

Example:

1. Enter the URL for OracleAS Single Sign-On or Oracle Delegated Administration Services in your browser:

   For OracleAS Single Sign-On, the URL is: `http://`*`host`*`:`*`port`*`/pls/orasso`.

   For Oracle Delegated Administration Services, the URL is: `http://`*`host`*`:`*`port`*`/oiddas`.

   host specifies the name of the computer where you installed the Oracle Internet Directory replica.

   port specifies the port number on which Oracle HTTP Server is listening.

2. To log in, enter `orcladmin` as the user name and the password you entered when you installed the **master Oracle Internet Directory**. If you enter the password for the replica Oracle Internet Directory, the login will not succeed.

10

Installing in High Availability Environments: Overview

This chapter provides an overview of the high availability configurations supported by Oracle Application Server. Subsequent chapters provide the details.

Contents of this chapter:

- Section 10.1, "Overview of High Availability Configurations"
- Section 10.2, "Installation Order for High Availability Configurations"

10.1 Overview of High Availability Configurations

This chapter provides only a brief overview of the high availability configurations in Oracle Application Server. For a complete description of the configurations, see the *Oracle Application Server High Availability Guide*.

Oracle Application Server supports the following types of high availability configurations:

- Section 10.1.1, "OracleAS Cold Failover Cluster"
- Section 10.1.2, "OracleAS Cluster (Identity Management)"
- Section 10.1.3, "OracleAS Disaster Recovery"

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

10.1.1 OracleAS Cold Failover Cluster

OracleAS Cold Failover Cluster configurations have the following characteristics:

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

active node fails, the virtual IP and hostname switches to point to the new active node.

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

10.1.2 OracleAS Cluster (Identity Management)

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

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

OracleAS Cluster (Identity Management) is used for installing Identity Management components in a high availability configuration. It is not used for middle tiers. For details on OracleAS Cluster (Identity Management), see Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)".

10.1.3 OracleAS Disaster Recovery

OracleAS Disaster Recovery configurations have the following characteristics:

- A production site and a standby site that mirrors the production site. Typically, these sites are located some distance from each other to guard against site failures such as floods, fires, or earthquakes. During normal operation, the production handles all the requests. If the production site goes down, the standby site takes over and handles all the requests.
- Each site has all the hardware and software to run: it contains nodes for running OracleAS Infrastructure and the middle tiers; load balancers; and DNS servers.

OracleAS Disaster Recovery includes OracleAS Infrastructure and middle tiers. For details, see Chapter 13, "Installing in High Availability Environments: OracleAS Disaster Recovery".

10.1.4 Summary of Differences

Table 10–1 summarizes the differences among the high availability configurations:

Table 10–1 Differences Among the High Availability Configurations

	OracleAS Cold Failover Cluster	OracleAS Cluster (Identity Management)	OracleAS Disaster Recovery
Node configuration	Active-Passive	Active-Active	Active-Passive
Hardware cluster	Yes	No	Optional (hardware cluster required only if you installed the OracleAS Infrastructure in an OracleAS Cold Failover Cluster configuration)
Virtual hostname	Yes	No	Yes

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

	OracleAS Cold Failover Cluster	OracleAS Cluster (Identity Management)	OracleAS Disaster Recovery
Load balancer	No	Yes	No
Shared storage	Yes	No	No

10.2 Installation Order for High Availability Configurations

For all high availability configurations, you install the components in the following order:

1. OracleAS Metadata Repository
2. Identity Management components

   If you are distributing the Identity Management components, you install them in the following order:

   a. Oracle Internet Directory and Oracle Directory Integration and Provisioning
   b. OracleAS Single Sign-On and Oracle Delegated Administration Services
3. Middle tiers

11

Installing in High Availability Environments: OracleAS Cold Failover Cluster

This chapter describes how to install Oracle Application Server in OracleAS Cold Failover Cluster configurations.

- Section 11.1, "OracleAS Cold Failover Cluster: Introduction"
- Section 11.2, "Pre-Installation Steps for OracleAS Cold Failover Cluster"
- Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration"
- Section 11.4, "Installing a Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration"
- Section 11.5, "Installing an OracleAS Cold Failover Cluster (Identity Management) Configuration"
- Section 11.6, "Installing a Distributed OracleAS Cold Failover Cluster (Identity Management) Configuration"
- Section 11.7, "Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in an OracleAS Cold Failover Cluster"
- Section 11.8, "Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment"
- Section 11.9, "Installing OracleAS Cold Failover Cluster (Middle-Tier)"
- Section 11.10, "Installing OracleAS Cold Failover Cluster (Infrastructure) and OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes"
- Section 11.11, "Post-Installation Steps for OracleAS Cold Failover Cluster"
- Section 11.12, "Supporting Procedures"
- Section 11.13, "Installing Middle Tiers Against an OracleAS Cold Failover Cluster Infrastructure"

11.1 OracleAS Cold Failover Cluster: Introduction

In OracleAS Cold Failover Cluster configurations, you have an active and a passive node, and shared storage that can be accessed by either node.

During normal operation, the active node runs Oracle Application Server processes and processes requests from clients. If the active node fails, then a failover event occurs. The passive node takes over and becomes the active node. It mounts the shared storage and runs the processes.

Configurations

You can install OracleAS Cold Failover Cluster in these configurations:

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

11.2 Pre-Installation Steps for OracleAS Cold Failover Cluster

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

- Section 11.2.1, "Ensure that the Event Log Service Is Running"
- Section 11.2.2, "Get a Virtual Address for the Cluster"
- Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes"
- Section 11.2.4, "Determine the Name of the Cluster"
- Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe"
- Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node"
- Section 11.2.7, "Create a Group in Oracle Fail Safe"

11.2.1 Ensure that the Event Log Service Is Running

The "Event Log" service must be running on both nodes in the cluster. You can check it in the Services dialog. To access the Services dialog:

- Windows 2000: Select **Start > Programs > Administrative Tools > Services**.
- Windows 2003: Select **Start > Administrative Tools > Services**.

11.2.2 Get a Virtual Address for the Cluster

You need a virtual address to associate with the cluster. A virtual address consists of a virtual hostname and an IP address. Clients access the OracleAS Cold Failover Cluster using the virtual hostname. The virtual address is in addition to each node's own hostname and IP address. Figure 11–13 shows a virtual address for the two nodes in the cluster.

To get a virtual address, consult your network administrator. Virtual hostnames and IP addresses are any valid hostname and IP address in the context of the subnet containing the 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.

11.2.3 Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes

To verify that MSCS is installed on a computer, check that you can launch the Cluster Administrator from the Start menu:

Windows 2000: **Start > Programs > Administrative Tools > Cluster Administrator**

Windows 2003: **Start > Administrative Tools > Cluster Administrator**

Note that the "Cluster IP Address" and "Cluster Name" used by MSCS are different from the virtual hostname and virtual IP created in the previous step.

11.2.4 Determine the Name of the Cluster

You can use the Cluster Administrator to find out the name of your cluster.

11.2.5 Determine a Domain User to Administer Oracle Fail Safe

You need a domain user to own the "OracleMSCSServices" service, which gets installed when you install Oracle Fail Safe.

Requirements for this user:

- This user must be defined at the domain level (as opposed to a user defined locally) because you need to specify the same user on both nodes during installation.
- Make sure that you do not have a local user with the same name on either node.
- This user must have Administrator privileges on both nodes in the cluster.
- This user must also belong to the DBA group.

During Oracle Fail Safe installation, you specify the domain and the user using the *domainname**username* format. If you are running on Windows 2000, you can also use the *username*@*dnsDomainName* format.

11.2.6 Install Oracle Fail Safe on the Local Storage of Each Node

You need to install Oracle Fail Safe on the local storage of both nodes. For example, Figure 11–13 shows Oracle Fail Safe installed on `C:\Oracle\OFS` on both nodes.

Oracle Fail Safe is shipped with Oracle Application Server. It is available on the Oracle Fail Safe CD-ROM.

Overview of Steps to Install Oracle Fail Safe on Both Nodes

The sequence of steps for installing Oracle Fail Safe on each node is:

1. Before you start installing Oracle Fail Safe, you need to know the domain and user who will own the "OracleMSCSServices" service. This service gets installed when you install Oracle Fail Safe. See Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe" for details on this user.
2. Install Oracle Fail Safe on node 1. See details in the next section, "Steps for Installing Oracle Fail Safe" on page 11-4.
3. Restart node 1.
4. Install Oracle Fail Safe on node 2.
5. Restart node 2.

6. Verify the cluster using Oracle Fail Safe Manager.

Steps for Installing Oracle Fail Safe

This section describes the screens for installing Oracle Fail Safe. For a full description of the screens, refer to the *Oracle Fail Safe Installation Guide*.

1. Insert the Oracle Fail Safe CD-ROM and double-click `setup.exe` to start up the installer.
2. Welcome screen: click **Next**.
3. Specify File Locations screen:

   Name: Enter the name for this Oracle home. Example: `ofs`.

   Path (in the **Destination** section): Enter the full path where you want to install Oracle Fail Safe. You must install Oracle Fail Safe on the local storage. Example: `C:\oracle\OFS`.

   Click **Next**.
4. Select Installation Type screen: Select **Typical**, and click **Next**.

   This installs the following components:

   - Oracle Fail Safe Manager
   - Oracle Services for MSCS
5. Reboot Needed After Installation screen: This screen reminds you that you need to restart your computer after installation. Click **Next**.
6. Summary screen: Click **Install**.
7. Oracle Services for MSCS Account/Password screen:

   Domain\Username: Enter the domain name and the username under which you want to run the OracleMSCSServices service.

   Password and **Confirm Password**: Specify and confirm the password for the user.

   Click **OK**.
8. Configuration Assistants screen: This screen shows the progress as the configuration assistants run.
9. End of Installation: Click **Exit**.

Verify the Cluster

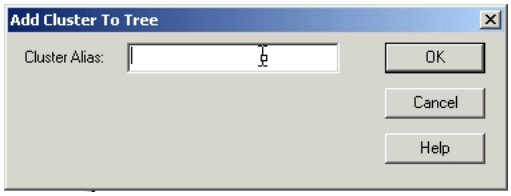
After installing Oracle Fail Safe, verify the cluster using Oracle Fail Safe Manager.

1. Start Oracle Fail Safe Manager from the Start menu:

   Start > Programs > Oracle - *OracleHomeName* **> Oracle Fail Safe Manager**

   OracleHomeName refers to the name that you gave to the Oracle home where you installed Oracle Fail Safe.
2. Enter the cluster name in **Cluster Alias** in the Add Cluster to Tree dialog (Figure 11–1). You defined the cluster name using Cluster Administrator. Click **OK**.

Figure 11–1 Oracle Fail Safe Manager: Add Cluster to Tree dialog

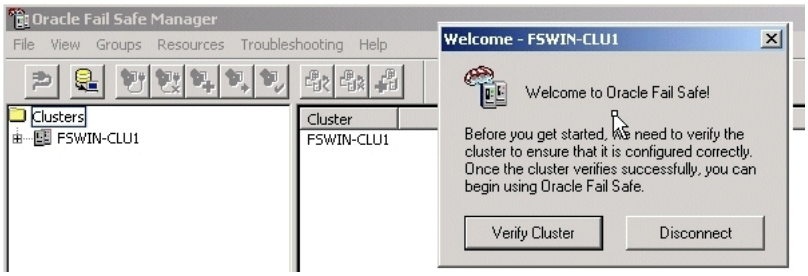


3. In the left frame, select the cluster. This causes Oracle Fail Safe Manager to display the Welcome dialog (Figure 11–2). In the figure, "FSWIN-CLU1" is the cluster name.

   Click **Verify Cluster**.

   You might see some warnings related to Oracle software. These warnings are expected because you have not installed any products in the cluster yet. However, if you see any system warnings, you should investigate them.

Figure 11–2 Oracle Fail Safe Manager: Welcome / Verify Cluster dialog



11.2.7 Create a Group in Oracle Fail Safe

A group in Oracle Fail Safe is a logical collection of resources that will fail over to the standby node as a unit. Before you install OracleAS Infrastructure in an OracleAS Cold Failover Cluster, you need to create a group using Oracle Fail Safe Manager, and add these resources to the group:

Table 11–1 Resources to Add to the Group Before Installing OracleAS Infrastructure

To add this resource to a group:	Use This Tool
IP of virtual host	Oracle Fail Safe Manager
Virtual hostname	Oracle Fail Safe Manager
Shared disk	Cluster Administrator

Follow these steps to create and set up a group. This procedure creates a group with default attributes (for things such as failover and failback policies). You can change these attributes later if necessary. For details, see the *Oracle Application Server High Availability Guide* and the Oracle Fail Safe documentation.

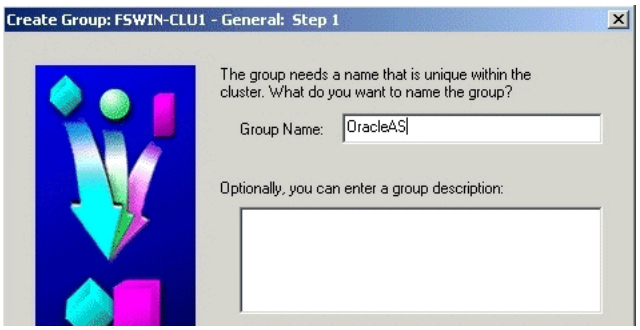
1. Start up Oracle Fail Safe Manager from the Start menu:

   Start > Programs > Oracle - *OracleHomeName* **> Oracle Fail Safe Manager**

OracleHomeName refers to the name that you gave to the Oracle home directory where you installed Oracle Fail Safe.

2. Expand the cluster on the left side.
3. Right-click **Groups**, and select **Create** from the pop-up menu. This starts up the Create Group wizard.
4. Follow the screens in the Create Group wizard to create a group called "OracleAS".
   a. General, Step 1, screen: Enter the group name for the infrastructure resources and click **Next**. This guide calls the group "`OracleAS`".

Figure 11–3 Oracle Fail Safe Manager: Create Group Wizard, General Screen

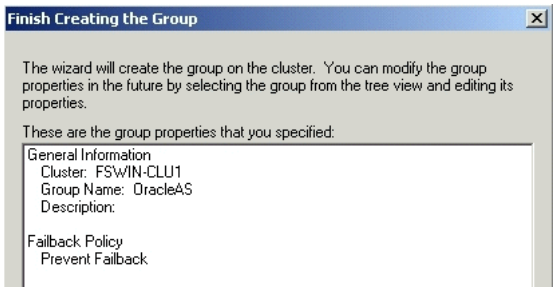


   b. Failback Policies, Step 2, screen: Select **Prevent Failback** and click **Next**.

Figure 11–4 Oracle Fail Safe Manager: Create Group Wizard, Failback Policies Screen

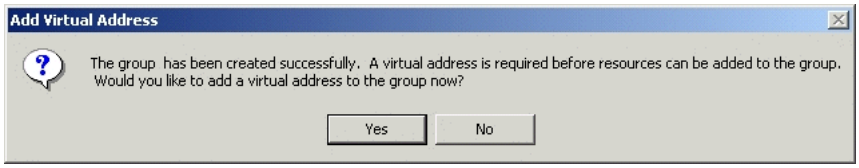
   c. Finish Creating the Group screen: Review the information and click **OK**.

Figure 11–5 Oracle Fail Safe Manager: Create Group Wizard, Finish Creating the Group Screen



   d. Add Virtual Address screen: Click **Yes**.

Figure 11–6 Oracle Fail Safe Manager: Create Group Wizard, Add Virtual Address Screen



e. Add Resource to Group - Virtual Address screen:

Select **Show networks accessible by clients**.

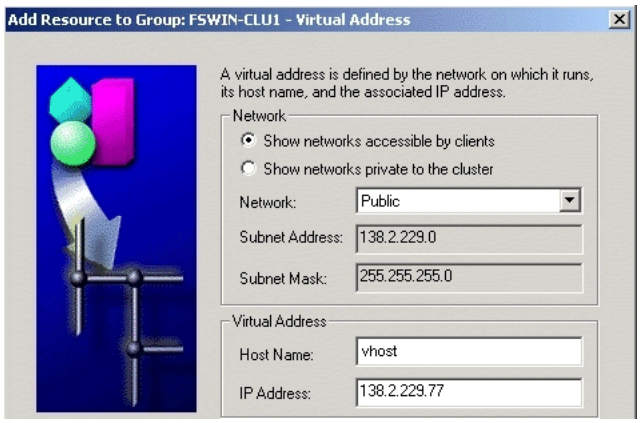
Network: Select the name associated with the primary network interface card on the node. By default, it is "Local Area Connection".

Host Name: Enter the virtual hostname. Example: `vhost`.

IP Address: Enter the IP of the virtual hostname. Example: `138.2.229.77`.

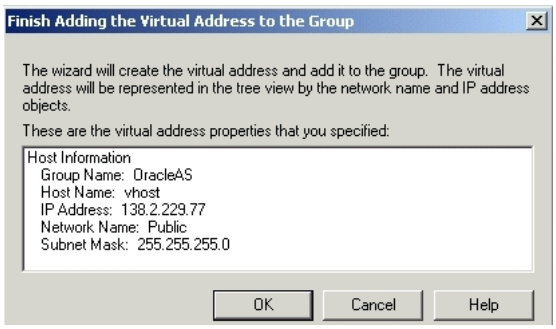
Click **Next**.

Figure 11–7 Oracle Fail Safe Manager: Create Group Wizard, Add Resource to Group - Virtual Address Screen



f. Finish Adding the Virtual Address to the Group screen: Review the information and click **OK**.

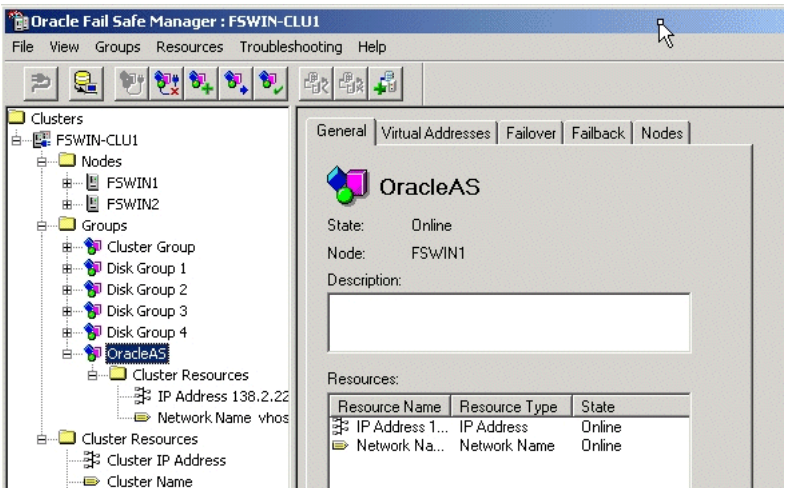
Figure 11–8 Oracle Fail Safe Manager: Create Group Wizard, Finish Adding the Virtual Address to the Group Screen



5. Verify that you can see the group that you just created in Oracle Fail Safe Manager (Figure 11–9) and that the group has these two resources in it:

- virtual hostname
- IP address of the virtual host

Figure 11–9 Oracle Fail Safe Manager Showing the Resources in the New Group



6. Using Cluster Administrator, move the shared disk where you will be installing OracleAS Infrastructure into the group that you just created in Oracle Fail Safe Manager.

   a. Start up Cluster Administrator from the Start menu:

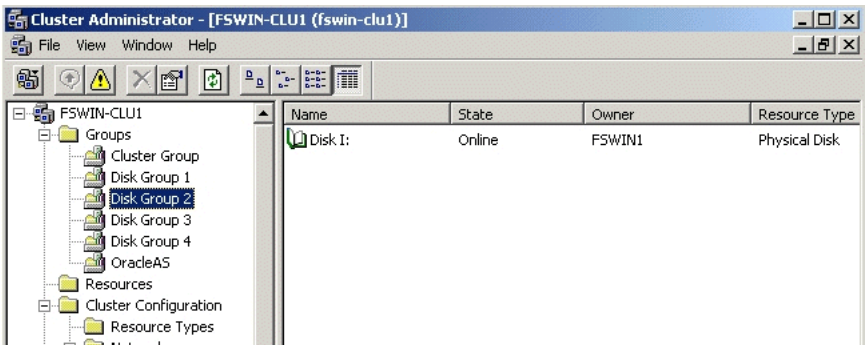
      Windows 2000: **Start > Programs > Administrative Tools > Cluster Administrator**

      Windows 2003: **Start > Administrative Tools > Cluster Administrator**

   b. On the left side, select the disk group that contains the shared disk. In Figure 11–10, Disk I is the shared disk.

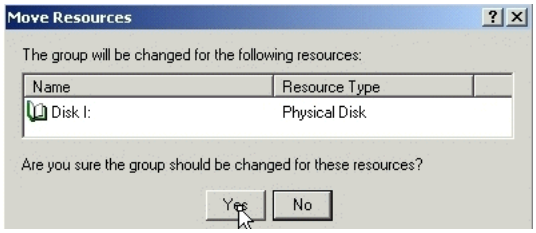
      Note the "OracleAS" group on the left side. This is the group that you created in Oracle Fail Safe Manager.

Figure 11–10 Cluster Administrator Showing the Shared Disk



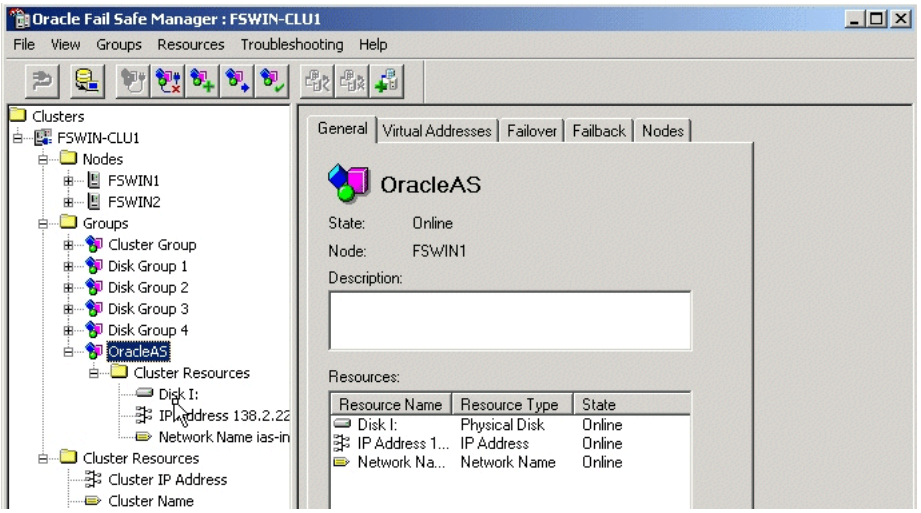
   c. Drag and drop the shared disk (Disk I in the example) from the right side to the "OracleAS" group on the left side. If the Cluster Administrator prompts you to confirm (Figure 11–11), click **Yes**.

Figure 11–11 Cluster Administrator: Move Resources Confirmation Dialog



7. In Oracle Fail Safe Manager, check that the group now includes the shared disk.

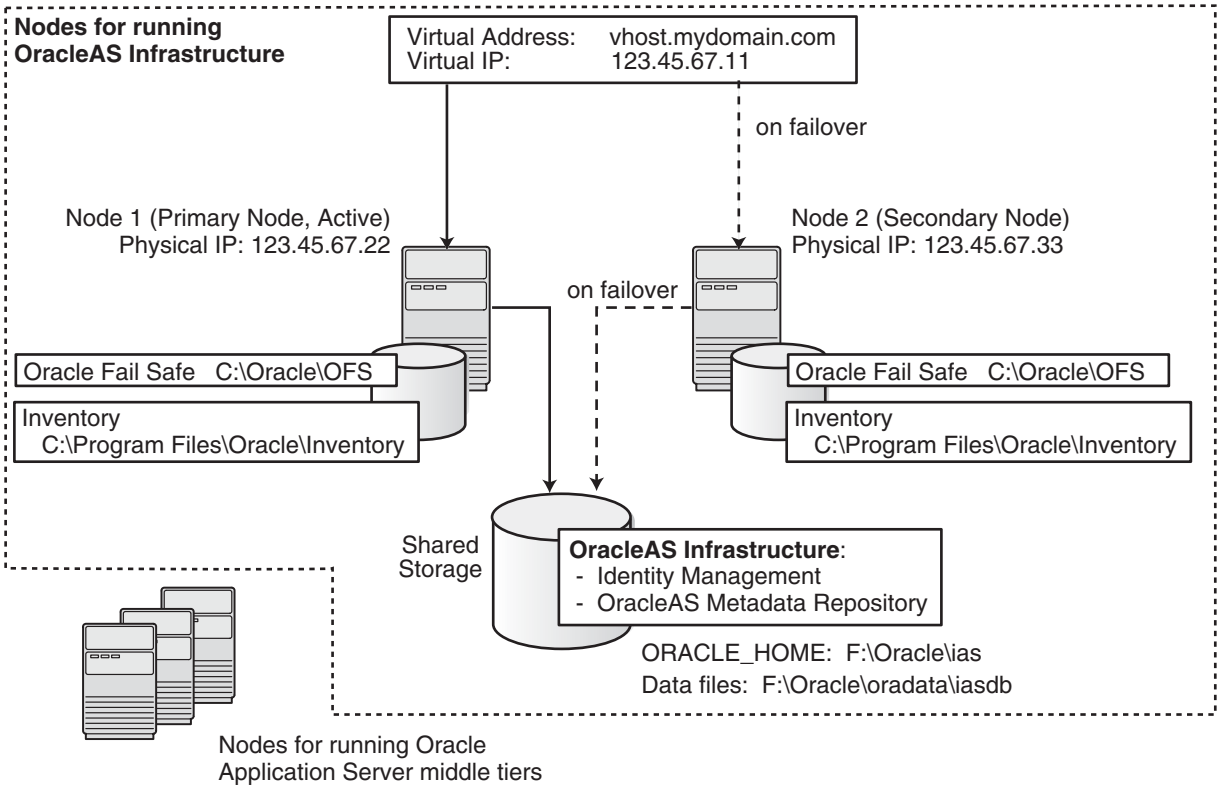
Figure 11–12 Oracle Fail Safe Manager After Adding the Shared Disk to the Group



11.3 Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration

Figure 11–13 shows an OracleAS Cold Failover Cluster (Infrastructure) configuration.

Figure 11–13 OracleAS Cold Failover Cluster (Infrastructure) Configuration



The figure shows:

- two nodes running Oracle Fail Safe. Oracle Fail Safe performs tasks specific to OracleAS Infrastructure during the failover, such as configuring the database listener and starting up OracleAS Infrastructure processes on the other node in the proper order.
- storage devices local to each node
- storage device that can be accessed by both nodes. You install OracleAS Infrastructure on this shared storage device.

During normal operation, one node ("node 1") acts as the active node. It mounts the shared storage to access the OracleAS Infrastructure files, runs OracleAS Infrastructure processes, and handles all requests.

If the active node goes down for any reason, MSCS fails over OracleAS Infrastructure processes to the other node ("node 2"), which now becomes the active node. It mounts the shared storage, runs the processes, and handles all requests.

These nodes appear as one computer to clients through the use of a virtual address. To access the OracleAS Infrastructure, clients, including middle-tier components and applications, use the virtual address associated with the cluster. The virtual address is associated with the active node (node 1 during normal operation, node 2 if node 1 goes down). Clients do not need to know which node (node 1 or node 2) is servicing requests.

You use the virtual hostname in URLs that access the infrastructure. For example, if `vhost.mydomain.com` is the virtual hostname, the URLs for the Oracle HTTP Server and the Application Server Control would look like the following:

URL for:	Example URL
Oracle HTTP Server, Welcome page	http://vhost.mydomain.com:80
Oracle HTTP Server, secure mode	https://vhost.mydomain.com:443
Application Server Control	http://vhost.mydomain.com:1810

Location of Software

Table 11–2 shows the location of key software on these storage devices:

Table 11–2 Software for the Infrastructure Nodes

Software	Installed on
Oracle Fail Safe Release 3.3.3	Local storage device on each node
Microsoft Cluster Server (MSCS)	Local storage device on each node
OracleAS Infrastructure	Shared storage device

MSCS Requirements

Because these nodes use MSCS, ensure that they meet the hardware requirements for MSCS. See the Microsoft site (`http://www.microsoft.com`) for details.

> **Note:** Because the nodes use MSCS, their IP addresses must be static. These nodes cannot use DHCP.

Oracle Application Server Middle Tiers

You can install and run the middle tiers on other nodes (nodes that are not running OracleAS Infrastructure). During installation, you set up the middle tiers to use services from the OracleAS Infrastructure installed on the shared storage device.

If you want to install and run the middle tiers on the same cluster that is running the OracleAS Infrastructure, see Section 11.10, "Installing OracleAS Cold Failover Cluster (Infrastructure) and OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes".

11.3.1 OracleAS Cold Failover Cluster (Infrastructure): Overview of Installation Steps

To set up an OracleAS Cold Failover Cluster (Infrastructure) configuration, perform these steps:

> **Note:** You have to install OracleAS Infrastructure **twice**: once from node 1 and once from node 2. This ensures that the local storage on each node is updated with the proper information (such as Windows registry and inventory information).
>
> Before you can install OracleAS Infrastructure from node 2, you have to remove the files that were installed from node 1.

Table 11–3 Overview of Installation Steps for OracleAS Cold Failover Cluster (Infrastructure)

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.1, "Ensure that the Event Log Service Is Running" ■ Section 11.2.2, "Get a Virtual Address for the Cluster" ■ Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes" ■ Section 11.2.4, "Determine the Name of the Cluster" ■ Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe" ■ Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node" ■ Section 11.2.7, "Create a Group in Oracle Fail Safe"
2.	Install OracleAS Infrastructure on the Shared Drive from Node 1	In this step, you run the installer from node 1 to install OracleAS Infrastructure on the shared drive.
3.	Stop the OracleAS Infrastructure Services on Node 1, and Set Their Startup Type to Manual	Stop the OracleAS Infrastructure services because you will be removing the Oracle home.
4.	Remove the Database Instance	Remove the database instance that you just installed because you will be installing it again from node 2.
5.	Restart Node 1	Restart node 1.
6.	Delete the Oracle Home	This step is very important. You have to delete the Oracle home that you just installed because you will be installing it again from node 2.
7.	Install OracleAS Infrastructure on the Shared Disk from Node 2	This step is identical to step 2., except that you run the installer from node 2. You enter the same values that you used before.
8.	Restart Node 2	Restart node 2.
9.	Move the Group to Node 2	Move the Oracle Fail Safe group that you created to be under the control of node 2.
10.	Start up OracleAS Infrastructure Services on Node 2	Start up OracleAS Infrastructure services on node 2.
11.	Verify Installation	Before making the OracleAS Metadata Repository, OPMN, and Application Server Control highly available, check that OracleAS Infrastructure was installed correctly by accessing the Application Server Control.
12.	Create a pfile for the Database	Create a pfile (parameter text file) for the OracleAS Metadata Repository database. The pfile is used by Oracle Fail Safe.
13.	Make OracleAS Metadata Repository Highly Available	Add OracleAS Metadata Repository as a resource to the group that you created in Oracle Fail Safe.
14.	Add the Shared Disk as a Dependency for the Listener	This step enables the listener to fail over successfully.
15.	Make OPMN Highly Available	Add OPMN as a resource to the group that you created in Oracle Fail Safe.
16.	Make Application Server Control Highly Available	Add Application Server Control as a resource to the group that you created in Oracle Fail Safe.
17.	Check that the Correct Listener Is Active	At this time, you end up with two listeners. Check that you have the correct one running.

11.3.2 OracleAS Cold Failover Cluster (Infrastructure): Details of Installation Steps

This section lists the steps for installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure) configuration.

Step 1 Perform Pre-Installation Steps

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

Step 2 Install OracleAS Infrastructure on the Shared Drive from Node 1

For OracleAS Cold Failover Cluster (Infrastructure), you install both OracleAS Metadata Repository and Identity Management in the same Oracle home by selecting **Identity Management and OracleAS Metadata Repository** in the Select Installation Type screen. This option creates a new database for the OracleAS Metadata Repository and a new Oracle Internet Directory.

Key Points

- The destination directory must be on the shared disk.
- Remember to select **High Availability and Replication** in the Select Configuration Options screen. By default, this option is not selected.
- You enter the virtual hostname in the Specify Virtual Hostname screen.

Installer Screens

Run the installer and follow the screen sequence shown in Table 11–4:

Table 11–4 Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
1.	--	Start up the installer. See Section 5.13, "Starting the Oracle Universal Installer" for details.
2.	Welcome	Click Next.
3.	Specify File Locations	Name: Enter a name to identify this Oracle home. The name can consist of alphanumeric and the underscore (_) characters only, and cannot be longer than 128 characters. Example: `OH_INFRA_10_1_2` Destination Path: Enter the full path to the destination directory on the shared drive. This is the Oracle home. **Note:** ▪ You must install OracleAS Infrastructure on the shared drive. ▪ You must enter a new Oracle home name and directory. Do **not** select an existing Oracle home from the drop down list. Example: `F:\oracle\OraInfra_10_1_2` Click **Next**.
4.	Select a Product to Install	Select **OracleAS Infrastructure** to install an infrastructure. If you need to install additional languages, click **Product Languages**. See Section 5.6, "Installing Additional Languages" for details. Click **Next**.

Table 11–4 (Cont.) Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
5.	Select Installation Type	Select **Identity Management and OracleAS Metadata Repository**. Click **Next**. If you get an error message saying that the TEMP environment variable is not set, it means that the default temp directory does not have enough space. You can either set the TEMP environment variable to point to a different directory or free up enough space in the default temp directory. For details on the TEMP environment variable, see Section 4.5.5, "TEMP".
6.	Confirm Pre-Installation Requirements	Verify that you meet all the listed requirements, and click **Next**.
7.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Select **OracleAS Certificate Authority (OCA)** if you want a certificate authority. Select **High Availability and Replication**. You must select this option. Click **Next**.
8.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
9.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
10.	Specify Namespace in Internet Directory	Ensure the value shown in Suggested Namespace is valid. If not, enter a valid value in **Custom Namespace**. Click **Next**.
11.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.
12.	Specify Virtual Hostname	**Note:** This is a critical screen when installing the infrastructure in an OracleAS Cold Failover Cluster. If you do not see this screen, check the following: ▪ Return to the Select High Availability or Replication Option screen and ensure that you selected **Virtual Host**. ▪ Return to the Select Configuration Options screen and ensure that you selected **High Availability and Replication**. **Virtual Hostname**: Enter the virtual hostname for the OracleAS Cold Failover Cluster. You created the virtual hostname in Section 11.2.2, "Get a Virtual Address for the Cluster". Example: `vhost.mydomain.com` Click **Next**.

Table 11–4 (Cont.) Installing OracleAS Infrastructure in an OracleAS Cold Failover Cluster (Infrastructure)

	Screen	Action
13.	Specify Database Configuration Options	Global Database Name: Enter a name for the OracleAS Metadata Repository database. Append the domain name of your computer to the database name. Example: `asdb.mydomain.com` SID: Enter the system identifier for the OracleAS Metadata Repository database. Typically this is the same as the global database name, but without the domain name. The SID must be unique across all databases. The SID cannot be longer than eight characters. Example: `asdb` Select Database Character Set: Select the character set to use. **Specify Database File Location**: Enter the full path to the parent directory for the data files directory. This parent directory must already exist, and you must have write permissions in this directory. **Note:** You must enter a directory on the shared drive. The installer will create a subdirectory in this parent directory, and the subdirectory will have the same name as the SID. The data files will be placed in this subdirectory. Example: If you enter `F:\oracle\oradata`, and the SID is `asdb`, then the data files will be located in `F:\oracle\oradata\asdb`. Click Next.
14.	Specify Passwords for the Database Schemas	Set the passwords for these privileged database schemas: SYS, SYSTEM, SYSMAN, and DBSNMP. You can set different passwords for each schema, or you can set the same password for all the schemas. See Section 6.14, "Restrictions on the Passwords for the SYS and SYSTEM Users" for rules on setting passwords for these accounts. Click Next.
15.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric and underscore characters only. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **ias_admin Password** and **Confirm Password**: Enter and confirm the password for the ias_admin user. This is the administrative user for this infrastructure instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for password requirements. Example: `welcome99` Click **Next**.
16.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

Step 3 Stop the OracleAS Infrastructure Services on Node 1, and Set Their Startup Type to Manual

1. Display the Services window.

   Windows 2000: Select **Start > Programs > Administrative Tools > Services**.

   Windows 2003: Select **Start > Administrative Tools > Services**.

2. Stop these services:

   - `Oracle<`*`OracleHomeName`*`>AScontrol`

- Oracle<*OracleHomeName*>ProcessManager
- Oracle<*OracleHomeName*>TNSListener
- OracleService<*SID*>

To stop a service, right-click the service and select **Stop** from the pop-up menu.

3. Set the start type of the services listed above to manual.
   a. Right-click the service, and select **Properties**.
   b. Select **Manual** from the "Startup Type" section, and click **OK**.

Step 4 Remove the Database Instance

On node 1, run the following command to remove the OracleAS Metadata Repository database instance.

```
F:\oracle\bin> oradim -delete -sid sid
```

Step 5 Restart Node 1

Restart node 1. During the restart, the resources defined under the "OracleAS" group fail over to node 2. The resources include the virtual hostname, the IP of the virtual host, and the shared disk. Node 2 now owns these resources.

Step 6 Delete the Oracle Home

From node 2, delete these directories on the shared disk:

- Oracle home directory where you installed OracleAS Infrastructure
- the directory where you installed the database files

You need to delete these directories because you will be installing the files in the same directories when you perform the installation from node 2. See the next step.

Step 7 Install OracleAS Infrastructure on the Shared Disk from Node 2

Install OracleAS Infrastructure on the shared drive again, but this time install it from node 2. Make sure you use the same values (same Oracle home name and destination directory, same instance name and password, and so on) that you used when you installed it from node 1.

You need to install OracleAS Infrastructure from node 2 so that the installer can update the Windows registry and inventory information on node 2's local storage.

See Step 2, "Install OracleAS Infrastructure on the Shared Drive from Node 1" on page 11-13 for specific steps.

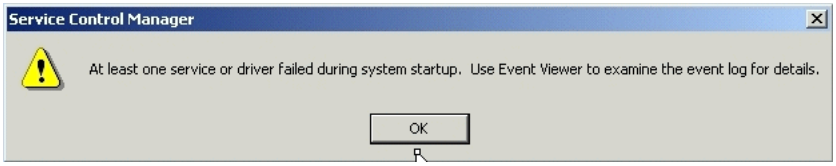
Step 8 Restart Node 2

Restart node 2.

Note that the OracleAS Infrastructure services will fail to start up because the shared drive failed over to node 1 during the node 2 restart. Node 2 is unable to access the shared drive to start up the infrastructure services.

Click **OK**.

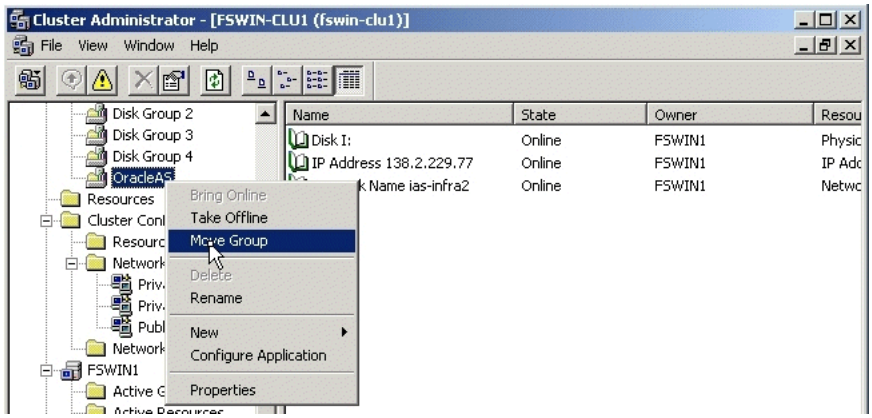
Figure 11–14 Error Message When Node 2 Boots Up



Step 9 Move the Group to Node 2

Once node 2 is up, move the group to node 2. In Cluster Administrator, right-click the group and select **Move Group** (Figure 11–15).

Figure 11–15 Cluster Administrator: Move the Group to Node 2



Step 10 Start up OracleAS Infrastructure Services on Node 2

After moving the group to node 2, start up OracleAS Infrastructure services on node 2.

1. Start up the database services:
   - `OracleService<SID>`
   - `Oracle<OracleHomeName>TNSListener`
2. Start up the database, if it is not started. To check if the database is started, you can log in to the database using SQL*Plus:

   ```
   C:\> sqlplus "sys/password as sysdba"
   ```

   If SQL*Plus reports that you are connected to an idle instance, then the database is not started. Start up the database by running the following command in SQL*Plus:

   ```
   SQL> startup
   ```

3. Start up the remaining services.
   - `Oracle<OracleHomeName>ProcessManager`
   - `Oracle<OracleHomeName>ASControl`

Step 11 Verify Installation

To verify that OracleAS Infrastructure was installed correctly, access the Application Server Control page for the OracleAS Infrastructure using the virtual hostname in the URL (for example: http://vhost.mydomain.com:1810).

The virtual hostname is the value you entered in the Specify Virtual Hostname screen (step 12. on page 11-14).

The default port number is 1810. You can verify the port number by looking in the `ORACLE_HOME\install\portlist.ini` file.

Step 12 Create a pfile for the Database

Oracle Fail Safe requires that the database has a pfile, which is a text file that contains the parameters for the database. See Section 11.12.1, "Create a pfile for the Database" for specific steps.

Step 13 Make OracleAS Metadata Repository Highly Available

Add OracleAS Metadata Repository as a resource to the group that you created in Oracle Fail Safe. This enables Oracle Fail Safe to fail over OracleAS Metadata Repository to the secondary node if the primary node fails.

See Section 11.12.2, "Make OracleAS Metadata Repository Highly Available" for details.

Step 14 Add the Shared Disk as a Dependency for the Listener

This enables the listener to fail over successfully. You do this using Oracle Fail Safe. See Section 11.12.3, "Add the Shared Disk as a Dependency for the Listener".

Step 15 Make OPMN Highly Available

Add OPMN as a resource to the group that you created in Oracle Fail Safe. See Section 11.12.5, "Make OPMN Highly Available" for details.

Step 16 Make Application Server Control Highly Available

Add Application Server Control as a resource to the group that you created in Oracle Fail Safe. See Section 11.12.6, "Make Application Server Control Highly Available" for details.

Step 17 Check that the Correct Listener Is Active

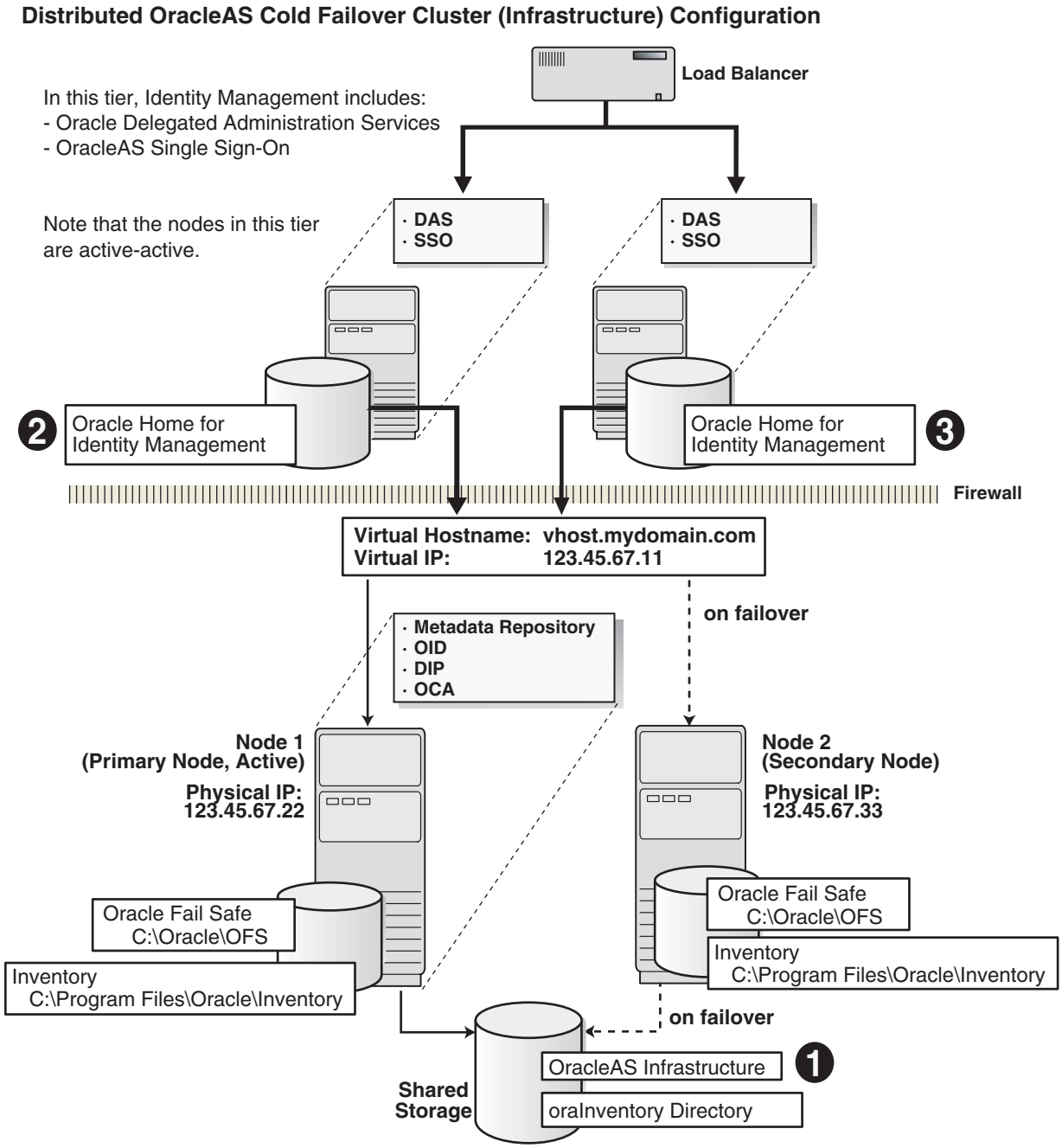
Oracle Fail Safe creates another listener, and this is the listener that needs to be running. See Section 11.12.7, "Check that the Correct Listener Is Active" for details.

11.4 Installing a Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration

Figure 11–16 shows a distributed OracleAS Cold Failover Cluster (Infrastructure) configuration.

This configuration is similar to the configuration described in Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration", except that the OracleAS Single Sign-On and Oracle Delegated Administration Services components are installed separately on other nodes.

Figure 11–16 Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration



In a distributed OracleAS Cold Failover Cluster (Infrastructure) configuration, you run the OracleAS Metadata Repository, Oracle Internet Directory, Oracle Directory Integration and Provisioning, and OracleAS Certificate Authority in an *active-passive* configuration.

However, the OracleAS Single Sign-On and Oracle Delegated Administration Services components run in an *active-active* configuration. You have a load balancer to direct requests to the nodes running these components.

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

11.4.1 Distributed OracleAS Cold Failover Cluster (Infrastructure): Overview of Installation Steps

To set up a distributed OracleAS Cold Failover Cluster (Infrastructure) configuration, perform these steps:

Note: You have to install OracleAS Infrastructure **twice**: once from node 1 and once from node 2. This ensures that the local storage on each node is updated with the proper information (such as Windows registry and inventory information).

Before you can install OracleAS Infrastructure from node 2, you have to remove the files that were installed from node 1.

Table 11–5 Overview of Installation Steps for Distributed OracleAS Cold Failover Cluster (Infrastructure)

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.1, "Ensure that the Event Log Service Is Running" ■ Section 11.2.2, "Get a Virtual Address for the Cluster" ■ Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes" ■ Section 11.2.4, "Determine the Name of the Cluster" ■ Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe" ■ Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node" ■ Section 11.2.7, "Create a Group in Oracle Fail Safe"
2.	Install OracleAS Infrastructure on the Shared Drive from Node 1	In this step, you run the installer from node 1 to install OracleAS Infrastructure on the shared drive. You install all components except OracleAS Single Sign-On and Oracle Delegated Administration Services.
3.	Stop the OracleAS Infrastructure Services on Node 1, and Set Their Startup Type to Manual	Stop the OracleAS Infrastructure services because you will be removing the Oracle home.
4.	Remove the Database Instance	Remove the database instance that you just installed because you will be installing it again from node 2.
5.	Restart Node 1	Restart node 1.
6.	Delete the Oracle Home	This step is very important. You have to delete the Oracle home that you just installed because you will be installing it again from node 2.
7.	Install OracleAS Infrastructure on the Shared Disk from Node 2	This step is identical to step 2., except that you run the installer from node 2. You enter the same values that you used before.
8.	Restart Node 2	Restart node 2.
9.	Move the Group to Node 2	Move the group that you created in Oracle Fail Safe to be under the control of node 2.
10.	Start up OracleAS Infrastructure Services on Node 2	Start up the OracleAS Infrastructure services on node 2.

Table 11–5 (Cont.) Overview of Installation Steps for Distributed OracleAS Cold Failover Cluster

	Step	Description
11.	Verify Installation	Before making the OracleAS Metadata Repository, OPMN, and Application Server Control highly available, check that OracleAS Infrastructure was installed correctly by accessing the Application Server Control.
12.	Create a pfile for the Database	Create a pfile (parameter text file) for Oracle Fail Safe.
13.	Make OracleAS Metadata Repository Highly Available	Add OracleAS Metadata Repository as a resource to the group that you created in Oracle Fail Safe.
14.	Add the Shared Disk as a Dependency for the Listener	This step enables the listener to fail over successfully.
15.	Make OPMN Highly Available	Add OPMN as a resource to the group that you created in Oracle Fail Safe.
16.	Make Application Server Control Highly Available	Add Application Server Control as a resource to the group that you created in Oracle Fail Safe.
17.	Check that the Correct Listener Is Active	At this time, you end up with two listeners. Check that you have the correct one running.
18.	Install OracleAS Single Sign-On and Oracle Delegated Administration Services	In this step, you install OracleAS Single Sign-On and Oracle Delegated Administration Services.

11.4.2 Distributed OracleAS Cold Failover Cluster (Infrastructure): Details of Installation Steps

Step 1 Perform Pre-Installation Steps

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

Step 2 Install OracleAS Infrastructure on the Shared Drive from Node 1

In a distributed OracleAS Cold Failover Cluster (Infrastructure) configuration, you install both OracleAS Metadata Repository and Identity Management components (except for OracleAS Single Sign-On and Oracle Delegated Administration Services) in the same Oracle home by selecting **Identity Management and OracleAS Metadata Repository** in the Select Installation Type screen. This option creates a new database for the OracleAS Metadata Repository and a new Oracle Internet Directory.

The steps are the same as those listed in step 2, "Install OracleAS Infrastructure on the Shared Drive from Node 1" on page 11-13, except that in the Select Configuration Options screen, do not select **OracleAS Single Sign-On** and **OracleAS Delegated Administration Services**.

Step 3 Stop the OracleAS Infrastructure Services on Node 1, and Set Their Startup Type to Manual

1. Display the Services window.

   Windows 2000: Select **Start > Programs > Administrative Tools > Services**.

   Windows 2003: Select **Start > Administrative Tools > Services**.

2. Stop these services:

   - `Oracle<OracleHomeName>ASControl`

- Oracle<*OracleHomeName*>ProcessManager
- Oracle<*OracleHomeName*>TNSListener
- OracleService<*SID*>

To stop a service, right-click the service and select **Stop** from the pop-up menu.

3. Set the start type of the services listed above to manual.
   a. Right-click the service, and select **Properties**.
   b. Select **Manual** from the "Startup Type" section, and click **OK**.

Step 4 Remove the Database Instance

On node 1, run the following command to remove the OracleAS Metadata Repository database instance.

```
F:\oracle\bin> oradim -delete -sid sid
```

Step 5 Restart Node 1

Restart node 1. During the restart, the resources defined under the "OracleAS" group fail over to node 2. The resources include the virtual hostname, the IP of the virtual host, and the shared disk. Node 2 now owns these resources.

Step 6 Delete the Oracle Home

From node 2, delete these directories on the shared disk:

- Oracle home directory where you installed OracleAS Infrastructure
- the directory where you installed the database files

You need to delete these directories because you will be installing the files in the same directories when you perform the installation from node 2. See the next step.

Step 7 Install OracleAS Infrastructure on the Shared Disk from Node 2

Install OracleAS Infrastructure on the shared drive again, but this time install it from node 2. Make sure you use the same values (same Oracle home name and destination directory, same instance name and password, and so on) that you used when you installed it from node 1.

You need to install OracleAS Infrastructure from node 2 so that the installer can update the Windows registry and inventory information on node 2's local storage.

See step 2, "Install OracleAS Infrastructure on the Shared Drive from Node 1" on page 11-13 for specific steps.

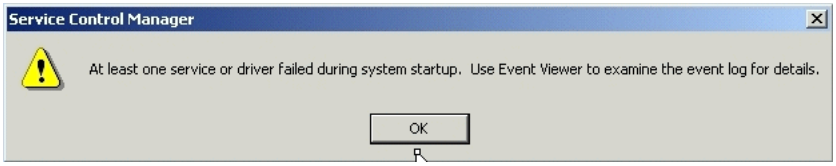
Step 8 Restart Node 2

Restart node 2.

Note that the OracleAS Infrastructure services will fail to start up because the shared drive failed over to node 1 during the node 2 restart. Node 2 is unable to access the shared drive to start up the infrastructure services.

Click **OK**.

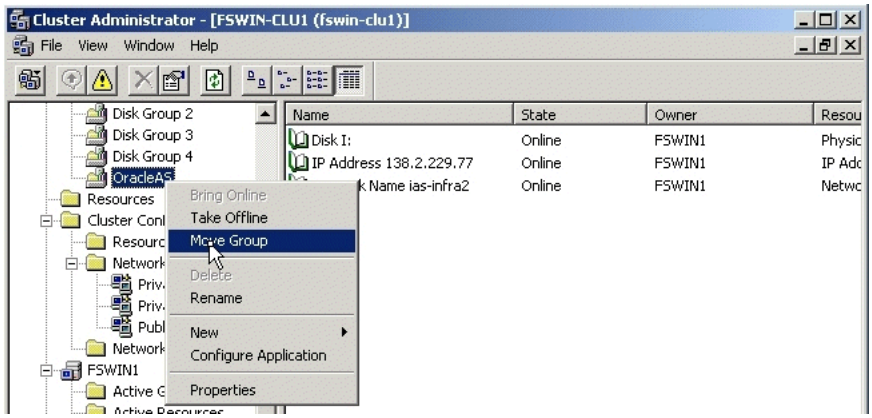
Figure 11–17 Error Message When Node 2 Boots Up



Step 9 Move the Group to Node 2

Once node 2 is up, move the group to node 2. In Cluster Administrator, right-click the group and select **Move Group** (Figure 11–18).

Figure 11–18 Cluster Administrator: Move the Group to Node 2



Step 10 Start up OracleAS Infrastructure Services on Node 2

After moving the group to node 2, start up OracleAS Infrastructure services on node 2.

1. Start up the database services:
   - `OracleService<SID>`
   - `Oracle<OracleHomeName>TNSListener`
2. Start up the database, if it is not started. To check if the database is started, you can log in to the database using SQL*Plus:

   ```
   C:\> sqlplus "sys/password as sysdba"
   ```

   If SQL*Plus reports that you are connected to an idle instance, then the database is not started. Start up the database by running the following command in SQL*Plus:

   ```
   SQL> startup
   ```

3. Start up the remaining services.
   - `Oracle<OracleHomeName>ProcessManager`
   - `Oracle<OracleHomeName>ASControl`

Step 11 Verify Installation

To verify that OracleAS Infrastructure was installed correctly, access the Application Server Control page for the OracleAS Infrastructure using the virtual hostname in the URL (for example: http://vhost.mydomain.com:1810).

The virtual hostname is the value you entered in the Specify Virtual Hostname screen (step 12. on page 11-14).

The default port number is 1810. You can verify the port number by looking in the `ORACLE_HOME\install\portlist.ini` file.

Step 12 Create a pfile for the Database

Oracle Fail Safe requires that the database has a pfile, which is a text file that contains the parameters for the database. See Section 11.12.1, "Create a pfile for the Database" for specific steps.

Step 13 Make OracleAS Metadata Repository Highly Available

Add OracleAS Metadata Repository as a resource to the group that you created in Oracle Fail Safe. This enables Oracle Fail Safe to fail over OracleAS Metadata Repository to the secondary node if the primary node fails.

See Section 11.12.2, "Make OracleAS Metadata Repository Highly Available" for details.

Step 14 Add the Shared Disk as a Dependency for the Listener

This enables the listener to fail over successfully. You do this using Oracle Fail Safe. See Section 11.12.3, "Add the Shared Disk as a Dependency for the Listener".

Step 15 Make OPMN Highly Available

Add OPMN as a resource to the group that you created in Oracle Fail Safe. See Section 11.12.5, "Make OPMN Highly Available" for details.

Step 16 Make Application Server Control Highly Available

Add Application Server Control as a resource to the group that you created in Oracle Fail Safe. See Section 11.12.6, "Make Application Server Control Highly Available" for details.

Step 17 Check that the Correct Listener Is Active

Oracle Fail Safe creates another listener, and this is the listener that needs to be running. See Section 11.12.7, "Check that the Correct Listener Is Active" for details.

Step 18 Install OracleAS Single Sign-On and Oracle Delegated Administration Services

You install OracleAS Single Sign-On and Oracle Delegated Administration Services on the local disks of each node. You perform these installations separately.

Pre-Installation Steps

This installation is actually an OracleAS Cluster (Identity Management) installation. As such, you perform the OracleAS Cluster (Identity Management) setup steps in Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)":

- Section 12.2.1, "Use the Same Path for the Oracle Home Directory (recommended)"
- Section 12.2.2, "Synchronize Clocks on All Nodes"
- Section 12.2.3, "Configure Virtual Server Names and Ports for the Load Balancer"
- Section 12.2.5, "Set up Cookie Persistence on the Load Balancer"

Installation Steps

The steps are the same as those listed in Section 12.6.5, "Installing OracleAS Single Sign-On and Oracle Delegated Administration Services on Each Node".

11.5 Installing an OracleAS Cold Failover Cluster (Identity Management) Configuration

Figure 11–19 shows an OracleAS Cold Failover Cluster (Identity Management) configuration.

This configuration is suitable if you have the OracleAS Metadata Repository database in a separate highly available environment and you want to use an active-passive configuration for the Identity Management components. You install the Identity Management components on a shared disk different from the share disk that contains the OracleAS Metadata Repository database.

This configuration includes:

- two clustered nodes
- storage devices local to each node
- two shared disks that can be accessed by both nodes. One shared disk contains the Oracle home for the database (on which you will load the OracleAS Metadata Repository), and on the other shared disk, you will install Identity Management.

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

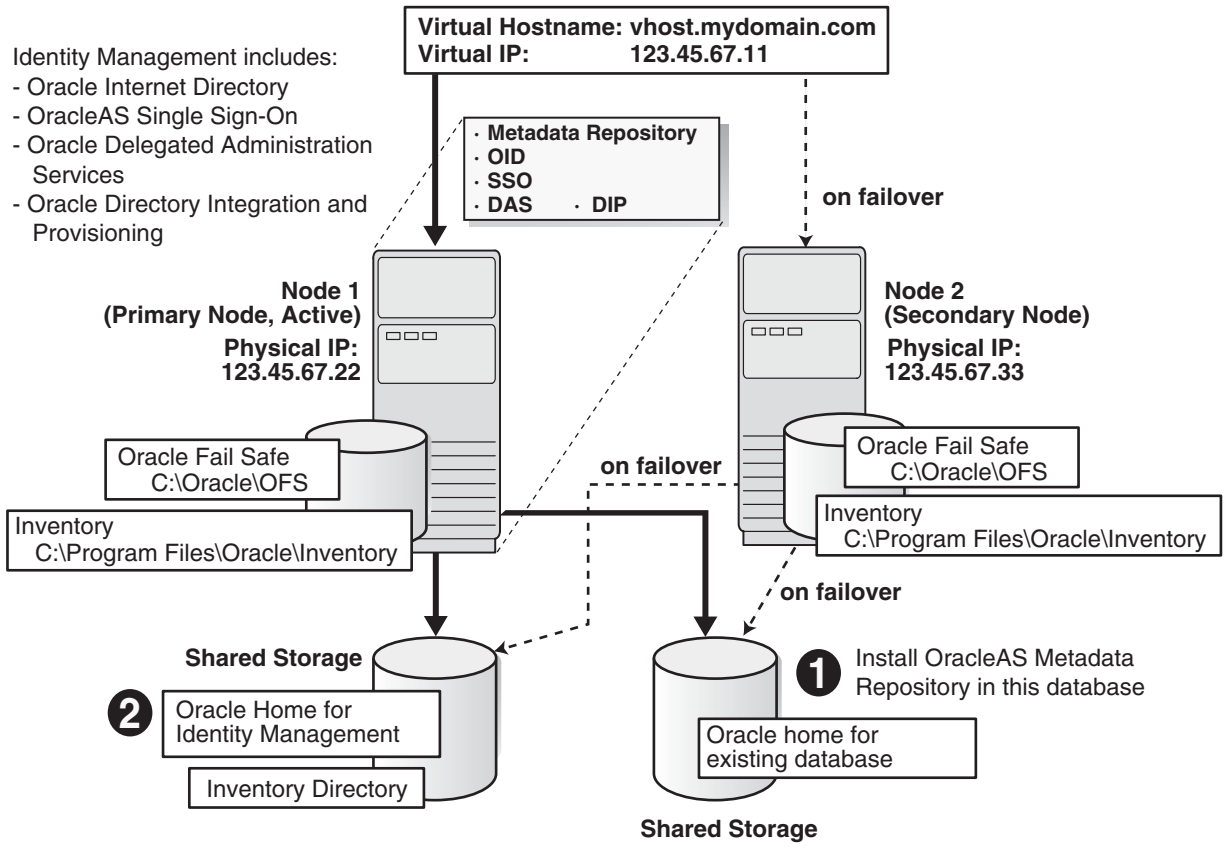
If node 1 goes down for any reason, the clusterware fails over the Identity Management and database processes to node 2. Node 2 becomes the active node, mounts both shared disks, runs the processes, and handles all requests.

To access the active node in an OracleAS Cold Failover Cluster, clients, including middle-tier components and applications, use the virtual hostname associated with the OracleAS Cold Failover Cluster. The virtual hostname is associated with the active node (node 1 during normal operation, node 2 if node 1 goes down). Clients do not need to know which node (primary or secondary) is servicing requests.

You also use the virtual hostname in URLs that access the infrastructure. For example, if `vhost.mydomain.com` is the name of the virtual host, the URLs for the Oracle HTTP Server and the Application Server Control would look like the following:

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

Figure 11–19 OracleAS Cold Failover Cluster (Identity Management) Configuration



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

To create an OracleAS Cold Failover Cluster (Identity Management) configuration against an existing cold failover cluster database, perform these steps:

Note: You have to install OracleAS Infrastructure **twice**: once from node 1 and once from node 2. This ensures that the local storage on each node is updated with the proper information (such as Windows registry and inventory information).

Before you can install OracleAS Infrastructure from node 2, you have to remove the files that were installed from node 1.

Table 11–6 Overview of Installation Steps for OracleAS Cold Failover Cluster (Identity Management)

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.1, "Ensure that the Event Log Service Is Running" ■ Section 11.2.2, "Get a Virtual Address for the Cluster" ■ Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes" ■ Section 11.2.4, "Determine the Name of the Cluster" ■ Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe" ■ Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node" ■ Section 11.2.7, "Create a Group in Oracle Fail Safe"
2.	Install OracleAS Metadata Repository	Install OracleAS Metadata Repository on your existing cold failover cluster database.
3.	Install the Identity Management Components	Install the Identity Management components from node 1.
4.	Stop the Oracle Application Server Services on Node 1, and Set Their Startup Type to Manual	Stop the OracleAS Infrastructure services because you will be removing the Oracle home.
5.	Restart Node 1	Restart node 1.
6.	Delete the Oracle Home	This step is very important. You have to delete the Oracle home that you just installed because you will be installing it again from node 2.
7.	Install Identity Management Components on the Shared Disk from Node 2	Same as step 3., but you perform the installation from node 2.
8.	Restart Node 2	Restart node 2.
9.	Move the Group to Node 2	Move the group that you created in Oracle Fail Safe to be under the control of node 2.
10.	Start up OracleAS Infrastructure Services on Node 2	Start up the OracleAS Infrastructure services on node 2.
11.	Verify Installation	Before making the OracleAS Metadata Repository, OPMN, and Application Server Control highly available, check that OracleAS Infrastructure was installed correctly by accessing the Application Server Control.
12.	Make OPMN Highly Available	Add OPMN as a resource to the group that you created in Oracle Fail Safe.
13.	Make Application Server Control Highly Available	Add Application Server Control as a resource to the group that you created in Oracle Fail Safe.

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

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

Step 1 Perform Pre-Installation Steps

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

Step 2 Install OracleAS Metadata Repository

You use the OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository in an existing database. See the *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

If you do not have an existing database, you can use the installer to create one. Note that you have to create the database with a virtual hostname. See Section 11.8, "Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment" for details.

Step 3 Install the Identity Management Components

You install the Identity Management on the other shared disk. Follow the installation steps described in Table 11–7.

Key Points

- When the installer prompts you for the Oracle home path, enter a path on the shared disk. Make sure that both nodes can access this path.
- In the Select High Availability or Replication Option screen, select **Virtual Host**.
- In the Specify Virtual Hostname screen, enter the virtual hostname.

Installer Screens

Table 11–7 Installing Identity Management Components

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: a) The Select Hardware Cluster Installation Mode screen appears only if Oracle Cluster Ready Services is installed. If this screen appears, select Single Node or Cold Failover Cluster Installation because you are installing Identity Management on the shared disk. It is OK if you do not see this screen because Oracle Cluster Ready Services is not required for OracleAS Cold Failover Cluster. b) In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Select **OracleAS Certificate Authority (OCA)** if you want a certificate authority. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.

Table 11–7 (Cont.) Installing Identity Management Components

	Screen	Action
4.	Specify Repository	Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
6.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
7.	OCA screens	If you selected **OracleAS Certificate Authority (OCA)** in the Select Configuration Options screen, the installer displays screens for configuring OracleAS Certificate Authority. See Section 6.29, "Install Fragment: OracleAS Certificate Authority Screens" for details.
8.	Specify Virtual Hostname	**Note:** This is a critical screen when installing the infrastructure in an OracleAS Cold Failover Cluster. If you do not see this screen, check the following: ▪ Return to the "Select High Availability or Replication Option" screen and ensure that you selected **Virtual Host**. ▪ Return to the Select Configuration Options screen and ensure that you selected **High Availability and Replication**. **Virtual Hostname**: Enter the virtual hostname for the OracleAS Cold Failover Cluster configuration. Example: `vhost.mydomain.com` Click **Next**.
9.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
10.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

Step 4 Stop the Oracle Application Server Services on Node 1, and Set Their Startup Type to Manual

1. Display the Services window.

Windows 2000: Select **Start > Programs > Administrative Tools > Services**.

Windows 2003: Select **Start > Administrative Tools > Services**.

2. Stop these services.
   - `Oracle<OracleHomeName>ASControl`
   - `Oracle<OracleHomeName>ProcessManager`

   To stop a service, right-click the service and select **Stop** from the pop-up menu.
3. Set the start type of the services listed above to manual.
   a. Right-click the service, and select **Properties**.
   b. Select **Manual** from the "Startup Type" section, and click **OK**.

Step 5 Restart Node 1

Restart node 1. During the restart, the resources defined under the "OracleAS" group fail over to node 2. The resources include the virtual hostname, the IP of the virtual host, and the shared disk. Node 2 now owns these resources.

Step 6 Delete the Oracle Home

From node 2, delete these directories on the shared disk:

- Oracle home directory where you installed OracleAS Infrastructure
- the directory where you installed the database files

You need to delete these directories because you will be installing the files in the same directories when you perform the installation from node 2. See the next step.

Step 7 Install Identity Management Components on the Shared Disk from Node 2

Install the Identity Management components on the shared drive again, but this time install it from node 2. Make sure you use the same values (same Oracle home name and destination directory, same instance name and password, and so on) that you used when you installed it from node 1.

You need to install the Identity Management components from node 2 so that the installer can update the Windows registry and inventory information on node 2's local storage.

See Step 3, "Install the Identity Management Components" on page 11-28 for specific steps.

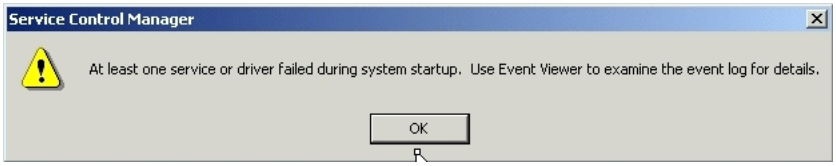
Step 8 Restart Node 2

Restart node 2.

Note that the OracleAS Infrastructure services will fail to start up because the shared drive failed over to node 1 during the node 2 restart. Node 2 is unable to access the shared drive to start up the infrastructure services.

Click **OK**.

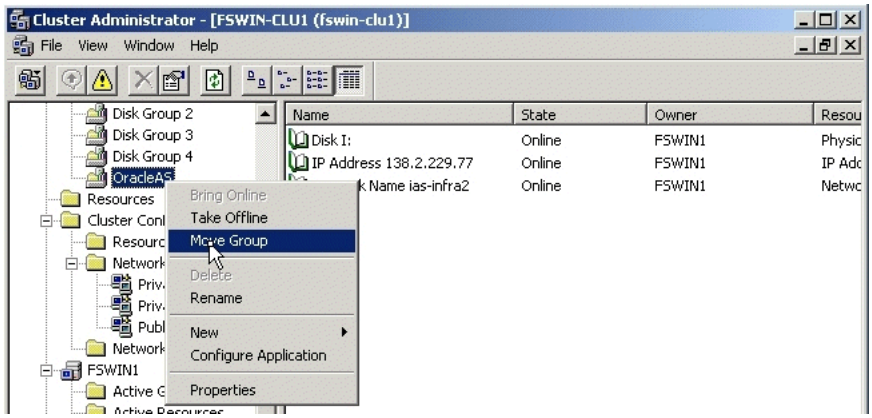
Figure 11–20 Error Message When Node 2 Boots Up



Step 9 Move the Group to Node 2

Once node 2 is up, move the group to node 2. In Cluster Administrator, right-click the group and select **Move Group** (Figure 11–21).

Figure 11–21 Cluster Administrator: Move the Group to Node 2



Step 10 Start up OracleAS Infrastructure Services on Node 2

After moving the group to node 2, start up OracleAS Infrastructure services on node 2.

1. Start up the database, if it is not started. To check if the database is started, you can log in to the database using SQL*Plus:

   ```
   C:\> sqlplus "sys/password as sysdba"
   ```

   If SQL*Plus reports that you are connected to an idle instance, then the database is not started. Start up the database by running the following command in SQL*Plus:

   ```
   SQL> startup
   ```

2. Start up the services.

   - `Oracle<OracleHomeName>ProcessManager`
   - `Oracle<OracleHomeName>ASControl`

Step 11 Verify Installation

To verify that the Identity Management components were installed correctly, access the Application Server Control page using the virtual hostname in the URL (for example: http://vhost.mydomain.com:1810).

The virtual hostname is the value you entered in the Specify Virtual Hostname screen (step 8. on page 11-29).

The default port number is 1810. You can verify the port number by looking in the `ORACLE_HOME\install\portlist.ini` file.

Step 12 Make OPMN Highly Available

Add OPMN as a resource to the group that you created in Oracle Fail Safe. See Section 11.12.5, "Make OPMN Highly Available" for details.

Step 13 Make Application Server Control Highly Available

Add Application Server Control as a resource to the group that you created in Oracle Fail Safe. See Section 11.12.6, "Make Application Server Control Highly Available" for details.

11.6 Installing a Distributed OracleAS Cold Failover Cluster (Identity Management) Configuration

This configuration is suitable:

- if you want to run Oracle Internet Directory and Oracle Directory Integration and Provisioning on the same tier as your database, and Oracle Delegated Administration Services and OracleAS Single Sign-On on a different tier
- if you want to install the OracleAS Metadata Repository in an existing cold failover cluster database

Figure 11–22 shows a distributed OracleAS Cold Failover Cluster (Identity Management) configuration.

It consists of:

- two nodes running Oracle Delegated Administration Services and OracleAS Single Sign-On. These nodes are accessed through a load balancer.
- two nodes running clusterware. These nodes will run the existing cold failover cluster database, Oracle Internet Directory, and Oracle Directory Integration and Provisioning.
- storage devices local to each node
- two shared disks. One shared disk contains the database Oracle home. On the other shared disk, you will install Oracle Internet Directory and Oracle Directory Integration and Provisioning.
- firewalls to separate the tiers

Tier Running the Oracle Internet Directory, Oracle Directory Integration and Provisioning, and Database

In this tier, during normal operation, the active node mounts the shared disks to access the Identity Management and database; runs the Oracle Internet Directory, Oracle Directory Integration and Provisioning, and database processes; and handles all requests.

If the active node goes down for any reason, the clusterware fails over the processes to the secondary node (node 2), which becomes the new active node, mounts the shared disks, runs the processes, and handles all requests.

To access the active node, clients, including middle-tier components and applications, use the virtual hostname. The virtual hostname is associated with the active node (which is the primary node during normal operation, the secondary node upon failover). Clients do not need to know which node (primary or secondary) is servicing requests.

You need to use the virtual hostname in URLs to access the active node. For example, if `vhost.mydomain.com` is the virtual hostname, the URLs for the Oracle HTTP Server and the Application Server Control for this tier would look like the following:

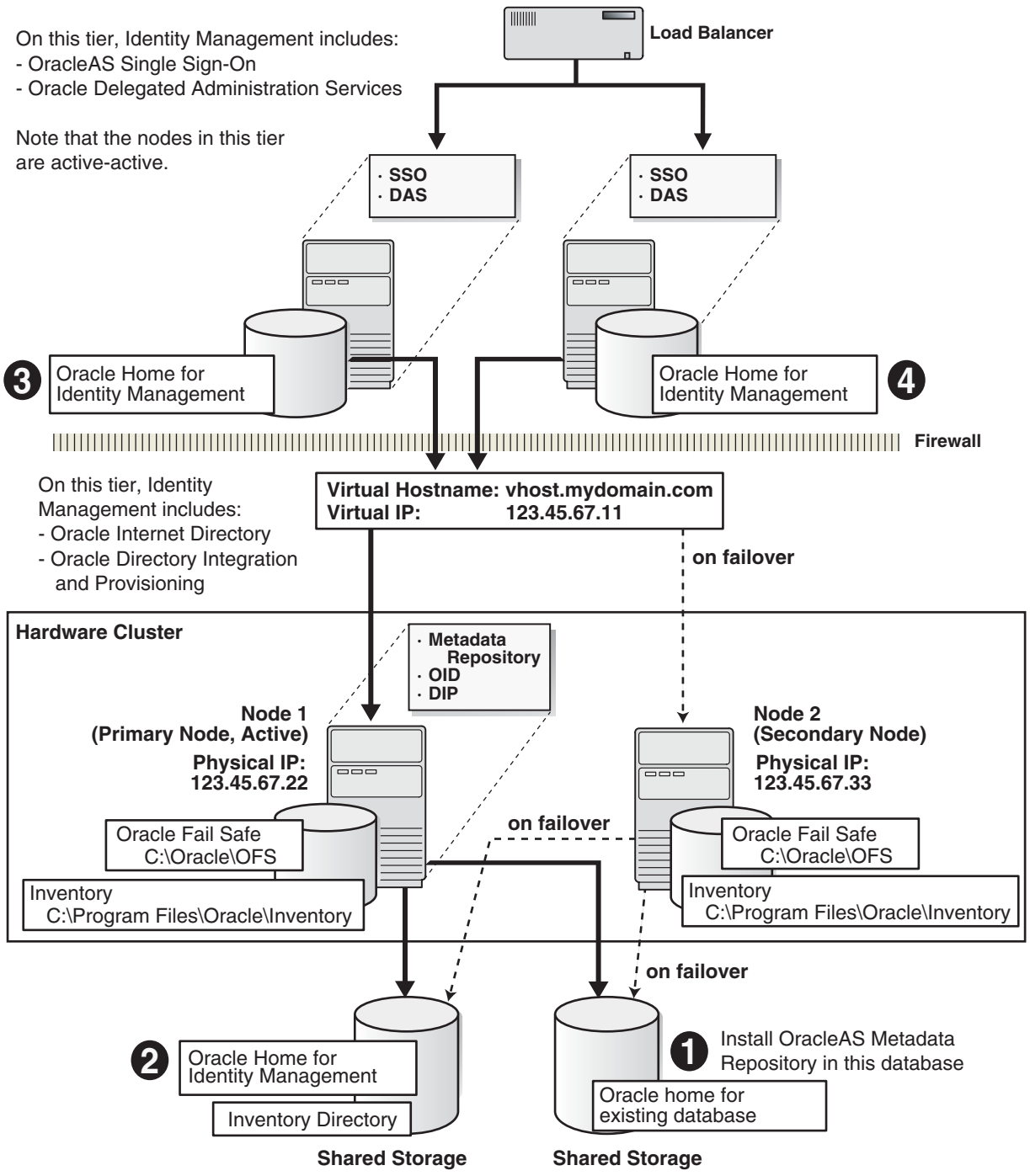
URL for:	Example URL
Oracle HTTP Server Welcome page	http://vhost.mydomain.com:7777
Oracle HTTP Server, secure mode	https://vhost.mydomain.com:4443
Application Server Control	http://vhost.mydomain.com:1810

Tier Running Oracle Delegated Administration Services and OracleAS Single Sign-On

Note that the nodes in this tier are not clustered. Both nodes are active at the same time, and you install the files locally on each node. To access these nodes, clients go through a load balancer. For example, if the name of the load balancer is `loadbalance1.mydomain.com`, the URLs for the Oracle HTTP Server and the Application Server Control for this tier would look like the following:

URL for:	Example URL
Oracle HTTP Server Welcome page	http://loadbalance1.mydomain.com:7777
Oracle HTTP Server, secure mode	https://loadbalance1.mydomain.com:4443
Application Server Control	http://loadbalance1.mydomain.com:1810

Figure 11–22 Distributed OracleAS Cold Failover Cluster (Identity Management) Configuration



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

To create a distributed OracleAS Cold Failover Cluster (Identity Management) configuration against an existing cold failover cluster database, perform these steps:

Note: You have to install OracleAS Infrastructure **twice**: once from node 1 and once from node 2. This ensures that the local storage on each node is updated with the proper information (such as Windows registry and inventory information).

Before you can install OracleAS Infrastructure from node 2, you have to remove the files that were installed from node 1.

Table 11–8 Overview of Installation Steps for Distributed OracleAS Cold Failover Cluster (Identity Management)

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.1, "Ensure that the Event Log Service Is Running" ■ Section 11.2.2, "Get a Virtual Address for the Cluster" ■ Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes" ■ Section 11.2.4, "Determine the Name of the Cluster" ■ Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe" ■ Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node" ■ Section 11.2.7, "Create a Group in Oracle Fail Safe"
2.	Install OracleAS Metadata Repository	Install OracleAS Metadata Repository on your existing cold failover cluster database.
3.	Install Oracle Internet Directory and Oracle Directory Integration and Provisioning	Install the Oracle Internet Directory and Oracle Directory Integration and Provisioning components from node 1.
4.	Stop the Oracle Application Server Services on Node 1, and Set Their Startup Type to Manual	Stop the OracleAS Infrastructure services because you will be removing the Oracle home.
5.	Restart Node 1	Restart node 1.
6.	Delete the Oracle Home	This step is very important. You have to delete the Oracle home that you just installed because you will be installing it again from node 2.
7.	Install OracleAS Infrastructure on the Shared Disk from Node 2	Same as step 3., but you perform the installation from node 2.
8.	Restart Node 2	Restart node 2.
9.	Move the Group to Node 2	Move the group that you created in Oracle Fail Safe to be under node 2's control.
10.	Start up OracleAS Infrastructure Services on Node 2	Start up the OracleAS Infrastructure services on node 2.
11.	Verify Installation	Before making the OracleAS Metadata Repository, OPMN, and Application Server Control highly available, check that OracleAS Infrastructure was installed correctly by accessing the Application Server Control.
12.	Make OPMN Highly Available	Add OPMN as a resource to the group that you created in Oracle Fail Safe.
13.	Make Application Server Control Highly Available	Add Application Server Control as a resource to the group that you created in Oracle Fail Safe.

Table 11–8 (Cont.) Overview of Installation Steps for Distributed OracleAS Cold Failover Cluster (Identity Management)

	Step	Description
14.	Install OracleAS Single Sign-On and Oracle Delegated Administration Services	In this step, you install the OracleAS Single Sign-On and Oracle Delegated Administration Services components.

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

Step 1 Perform Pre-Installation Steps

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

Step 2 Install OracleAS Metadata Repository

You use the OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository in an existing database. See the *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

If you do not have an existing database, you can use the installer to create one. Note that you have to create the database with a virtual hostname. See Section 11.8, "Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment" for details.

Step 3 Install Oracle Internet Directory and Oracle Directory Integration and Provisioning

You install the Oracle Internet Directory and Oracle Directory Integration and Provisioning components on the other shared disk. Follow the installation steps described in Table 11–9.

Key Points

- In the Select Installation Type screen, select **Identity Management**.
- In the Select Configuration Options screen, select **Oracle Internet Directory**, **OracleAS Directory Integration and Provisioning**, and **High Availability and Replication**.
- In the Select High Availability or Replication Option screen, select **Virtual Host**.
- In the Specify Virtual Hostname screen, enter the virtual hostname.

Installer Screens

Table 11–9 Installing Oracle Internet Directory and Oracle Directory Integration and Provisioning

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: a) The Select Hardware Cluster Installation Mode screen appears only if Oracle Cluster Ready Services is installed. If this screen appears, select Single Node or Cold Failover Cluster Installation because you are installing Identity Management on the shared disk. It is OK if this screen does not appear because Oracle Cluster Ready Services is not required for OracleAS Cold Failover Cluster. b) In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.
4.	Specify Repository	Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
6.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.

Table 11–9 (Cont.) Installing Oracle Internet Directory and Oracle Directory Integration and Provisioning

	Screen	Action
7.	Specify Virtual Hostname	**Note:** This is a critical screen when installing the infrastructure in an OracleAS Cold Failover Cluster. If you do not see this screen, check the following: ▪ Return to the Select High Availability or Replication Option screen and ensure that you selected **Virtual Host**. ▪ Return to the Select Configuration Options screen and ensure that you selected **High Availability and Replication**. **Virtual Hostname**: Enter the virtual hostname for the OracleAS Cold Failover Cluster configuration. Example: `vhost.mydomain.com` Click **Next**.
8.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_dip_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

Step 4 Stop the Oracle Application Server Services on Node 1, and Set Their Startup Type to Manual

1. Display the Services window.

   Windows 2000: Select **Start > Programs > Administrative Tools > Services**.

   Windows 2003: Select **Start > Administrative Tools > Services**.

2. Stop these services.

   ▪ `Oracle<`*`OracleHomeName`*`>ASControl`

   ▪ `Oracle<`*`OracleHomeName`*`>ProcessManager`

   To stop a service, right-click the service and select **Stop** from the pop-up menu.

3. Set the start type of the services listed above to manual.

   a. Right-click the service, and select **Properties**.

   b. Select **Manual** from the "Startup Type" section, and click **OK**.

Step 5 Restart Node 1

Restart node 1. During the restart, the resources defined under the "OracleAS" group fail over to node 2. The resources include the virtual hostname, the IP of the virtual host, and the shared disk. Node 2 now owns these resources.

Step 6 Delete the Oracle Home

From node 2, delete these directories on the shared disk:

- Oracle home directory where you installed OracleAS Infrastructure
- the directory where you installed the database files

You need to delete these directories because you will be installing the files in the same directories when you perform the installation from node 2. See the next step.

Step 7 Install OracleAS Infrastructure on the Shared Disk from Node 2

Install the Identity Management components on the shared drive again, but this time install it from node 2. Make sure you use the same values (same Oracle home name and destination directory, same instance name and password, and so on) that you used when you installed it from node 1.

You need to install the Identity Management components from node 2 so that the installer can update the Windows registry and inventory information on node 2's local storage.

See Step 3, "Install the Identity Management Components" on page 11-28 for specific steps.

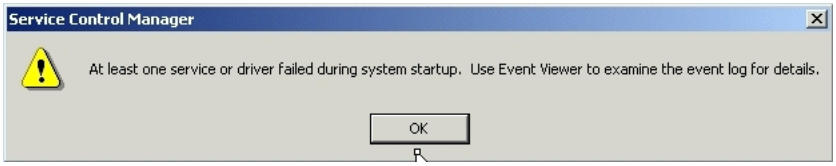
Step 8 Restart Node 2

Restart node 2.

Note that the OracleAS Infrastructure services will fail to start up because the shared drive failed over to node 1 during the node 2 restart. Node 2 is unable to access the shared drive to start up the infrastructure services.

Click **OK**.

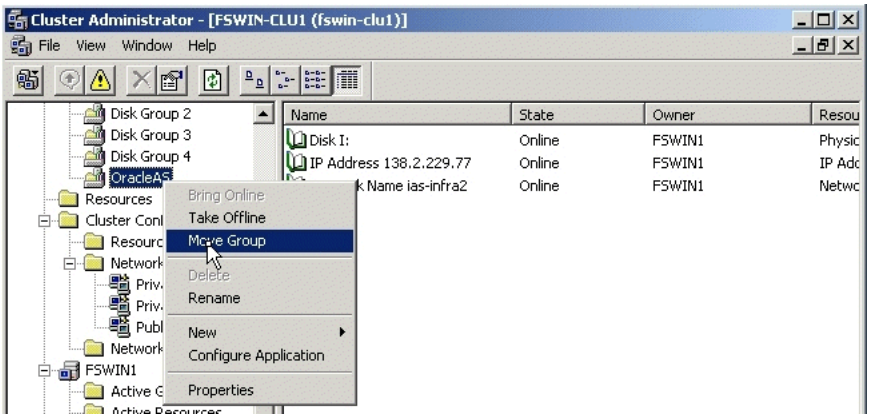
Figure 11–23 Error Message When Node 2 Boots Up



Step 9 Move the Group to Node 2

Once node 2 is up, move the group to node 2. In Cluster Administrator, right-click the group and select **Move Group** (Figure 11–24).

Figure 11–24 Cluster Administrator: Move the Group to Node 2



Step 10 Start up OracleAS Infrastructure Services on Node 2

After moving the group to node 2, start up OracleAS Infrastructure services on node 2.

1. Start up the database, if it is not started. To check if the database is started, you can log in to the database using SQL*Plus:

   ```
   C:\> sqlplus "sys/password as sysdba"
   ```

   If SQL*Plus reports that you are connected to an idle instance, then the database is not started. Start up the database by running the following command in SQL*Plus:

   ```
   SQL> startup
   ```

2. Start up the services.
   - `Oracle<OracleHomeName>ProcessManager`
   - `Oracle<OracleHomeName>ASControl`

Step 11 Verify Installation

To verify that the Identity Management components were installed correctly, access the Application Server Control page using the virtual hostname in the URL (for example: http://vhost.mydomain.com:1810).

The virtual hostname is the value you entered in the Specify Virtual Hostname screen (step 8. on page 11-29).

The default port number is 1810. You can verify the port number by looking in the `ORACLE_HOME\install\portlist.ini` file.

Step 12 Make OPMN Highly Available

Add OPMN as a resource to the group that you created in Oracle Fail Safe. See Section 11.12.5, "Make OPMN Highly Available" for details.

Step 13 Make Application Server Control Highly Available

Add Application Server Control as a resource to the group that you created in Oracle Fail Safe. See Section 11.12.6, "Make Application Server Control Highly Available" for details.

Step 14 Install OracleAS Single Sign-On and Oracle Delegated Administration Services

Install these components in an OracleAS Cluster (Identity Management) configuration. In this configuration, you install them on the local disks of each node. You perform these installations separately.

Pre-Installation steps: Because this installation is actually an OracleAS Cluster (Identity Management) installation, you can follow the OracleAS Cluster (Identity Management) setup steps in Chapter 12, "Installing in High Availability Environments: OracleAS Cluster (Identity Management)":

- Section 12.2.1, "Use the Same Path for the Oracle Home Directory (recommended)"
- Section 12.2.2, "Synchronize Clocks on All Nodes"
- Section 12.2.3, "Configure Virtual Server Names and Ports for the Load Balancer"
- Section 12.2.5, "Set up Cookie Persistence on the Load Balancer"

Installation steps: The installation steps are described in Section 12.6.5, "Installing OracleAS Single Sign-On and Oracle Delegated Administration Services on Each Node".

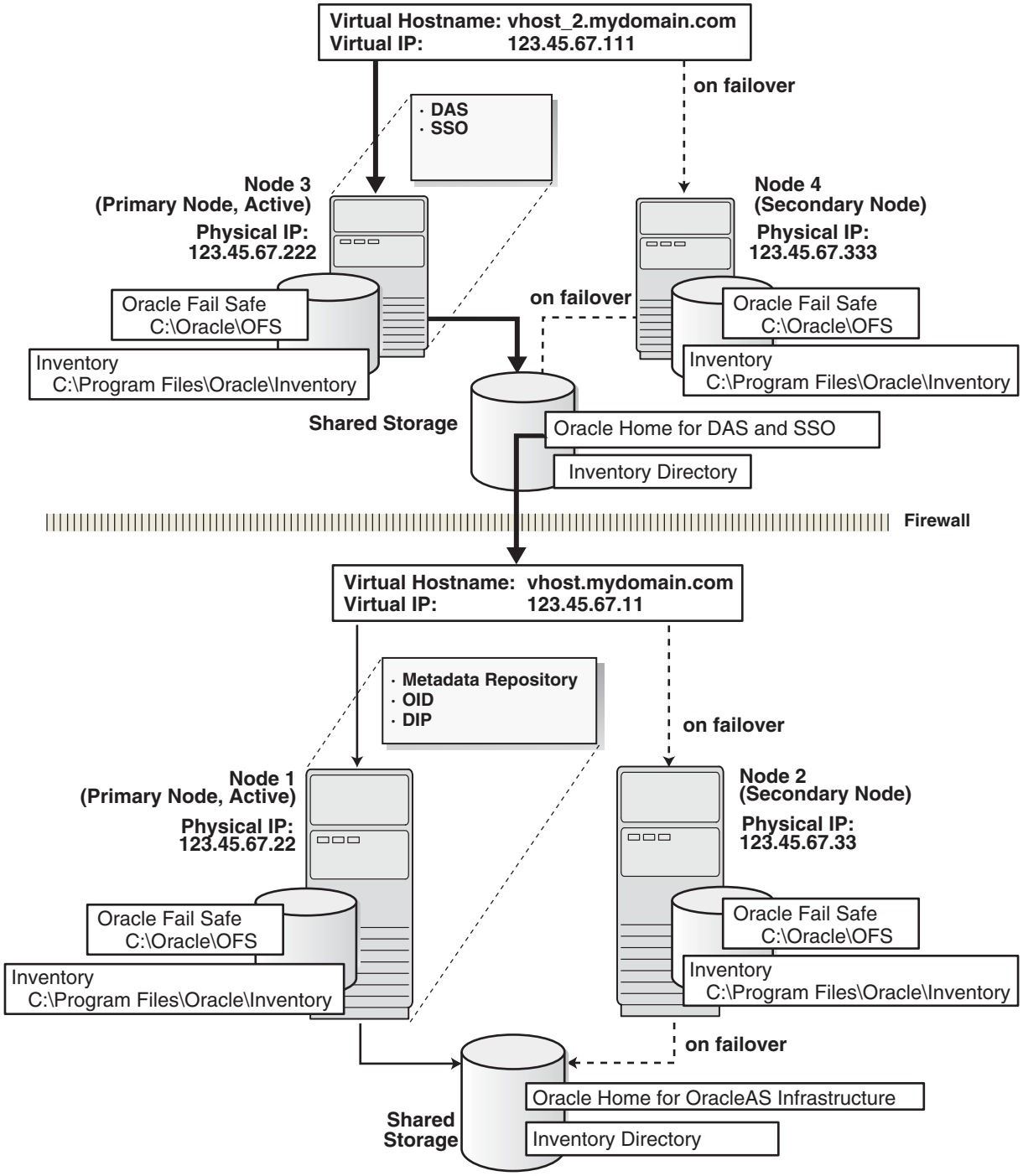
11.7 Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in an OracleAS Cold Failover Cluster

The configuration described in this section is similar to that described in Section 11.4, "Installing a Distributed OracleAS Cold Failover Cluster (Infrastructure) Configuration". The difference is that in the configuration described in this section, OracleAS Single Sign-On and Oracle Delegated Administration Services run in an OracleAS Cold Failover Cluster configuration.

You need two sets of clustered nodes. See Figure 11–25. One set runs the OracleAS Metadata Repository and Oracle Internet Directory, and another set runs Oracle Delegated Administration Services and OracleAS Single Sign-On.

For each set, you need a shared storage and a virtual hostname. You install Oracle homes for the various Oracle Application Server components on the shared storage.

Figure 11–25 Oracle Delegated Administration Services and OracleAS Single Sign-On in a Cold Failover Cluster



11.7.1 Oracle Delegated Administration Services and OracleAS Single Sign-On in OracleAS Cold Failover Cluster: Overview of Installation Steps

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

Table 11–10 Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in an OracleAS Cold Failover Cluster

	Step	Description
1.	Perform Pre-Installation Steps	Pre-installation tasks, described in Section 11.2, include: ■ Section 11.2.1, "Ensure that the Event Log Service Is Running" ■ Section 11.2.2, "Get a Virtual Address for the Cluster". You need to get two virtual addresses, one for each set of nodes. ■ Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes". You need to install MSCS on all nodes. ■ Section 11.2.4, "Determine the Name of the Cluster". You need two clusters, one for each set of nodes. ■ Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe" ■ Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node" ■ Section 11.2.7, "Create a Group in Oracle Fail Safe". You need two groups, one for each set of nodes.
2.	Create staticports.ini Files	Create two staticports.ini files, one for each set of nodes. This is to ensure that the installer configures the components with the same ports.
3.	Install OracleAS Metadata Repository and Oracle Internet Directory on the Shared Drive from Node 1	From node 1, install OracleAS Metadata Repository and Oracle Internet Directory on the shared disk. The steps are the same as those listed in step 2, "Install OracleAS Infrastructure on the Shared Drive from Node 1" on page 11-13, except that in the Select Configuration Options screen, you select only **Oracle Internet Directory**, **OracleAS Directory Integration and Provisioning**, and **High Availability and Replication**.
4.	Install Oracle Delegated Administration Services and OracleAS Single Sign-On from Node 3	From node 3, install Oracle Delegated Administration Services and OracleAS Single Sign-On on the shared disk.
5.	Stop the OracleAS Infrastructure Services on Node 1, and Set Their Startup Type to Manual	From node 1, stop the OracleAS Infrastructure services because you will be removing the Oracle home.

Table 11–10 (Cont.) Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in an OracleAS Cold Failover Cluster

	Step	Description
6.	Stop the OracleAS Infrastructure Services on Node 3, and Set Their Startup Type to Manual	From node 3, stop the OracleAS Infrastructure services because you will be removing the Oracle home.
7.	Remove the Database Instance	From node 1, run the `oradim` command to remove the database instance. You will be re-installing it from node 2.
8.	Remove the Oracle Home for the OracleAS Metadata Repository and Oracle Internet Directory	From node 1, delete the Oracle home directory for the OracleAS Metadata Repository and Oracle Internet Directory.
9.	Remove the Oracle Home for Oracle Delegated Administration Services and OracleAS Single Sign-On	From node 3, delete the Oracle home directory for Oracle Delegated Administration Services and OracleAS Single Sign-On.
10.	Install OracleAS Metadata Repository and Oracle Internet Directory	From node 2, install OracleAS Metadata Repository and Oracle Internet Directory on the shared disk. Use the same values (Oracle home name, Oracle home directory, instance name, and so on) that you used in step 2.
11.	Install Oracle Delegated Administration Services and OracleAS Single Sign-On	From node 4, install Oracle Delegated Administration Services and OracleAS Single Sign-On on the shared disk. Use the same values (Oracle home name, Oracle home directory, instance name, and so on) that you used in step 4.
12.	Create a pfile for the Database	Create a pfile (parameter text file) for the OracleAS Metadata Repository database. The pfile is required by Oracle Fail Safe.
13.	Make OracleAS Metadata Repository Highly Available	Add OracleAS Metadata Repository as a resource to the "MROID" group in Oracle Fail Safe.
14.	Add the Shared Disk as a Dependency for the Listener	Make the listener dependent on the shared disk.
15.	Make OPMN Highly Available	Add OPMN as a resource to the "MROID" group in Oracle Fail Safe.
16.	Make Application Server Control Highly Available	Add Application Server Control as a resource to the "MROID" group in Oracle Fail Safe.
17.	Move the "SSODAS" Group to Node 4	Move the "SSODAS" group in Oracle Fail Safe to node 4.
18.	Start up Services on the Oracle Home in Node 4	Start up Oracle Delegated Administration Services and OracleAS Single Sign-On on node 4.
19.	Verify Installations	Access the Application Server Control to validate the installations.
20.	Make OPMN Highly Available	Add OPMN as a resource to the "SSODAS" group in Oracle Fail Safe.
21.	Add the Shared Disk as a Dependency for OPMN	Make OPMN be dependent on the shared disk.
22.	Make Application Server Control Highly Available	Add Application Server Control as a resource to the "SSODAS" group in Oracle Fail Safe.
23.	Check that the Correct Listener Is Active	At this time, you end up with two listeners. Check that you have the correct one running.

11.7.2 Oracle Delegated Administration Services and OracleAS Single Sign-On in OracleAS Cold Failover Cluster: Details of Installation Steps

Step 1 Perform Pre-Installation Steps

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

- Section 11.2.1, "Ensure that the Event Log Service Is Running"
- Section 11.2.2, "Get a Virtual Address for the Cluster"

  You need to get two virtual addresses, one for each set of nodes.
- Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes"

  You need to install MSCS on all nodes.
- Section 11.2.4, "Determine the Name of the Cluster"

  You need two clusters, one for each set of nodes.
- Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe"
- Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node"
- Section 11.2.7, "Create a Group in Oracle Fail Safe"

  You need to create two groups, one for each set of nodes. The steps below use the following sample names for the Oracle Fail Safe groups:

  For the OracleAS Metadata Repository and Oracle Internet Directory installation, the group is called "MROID".

  For the Oracle Delegated Administration Services and OracleAS Single Sign-On installation, the group is called "SSODAS".

Step 2 Create staticports.ini Files

Create two staticports.ini files, one for each set of nodes. You need to have a staticports.ini file because you need to ensure that you get the same ports when you install from either node. For information on staticports.ini, see Section 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)".

Step 3 Install OracleAS Metadata Repository and Oracle Internet Directory on the Shared Drive from Node 1

Install OracleAS Metadata Repository and Oracle Internet Directory in the same Oracle home by selecting **Identity Management and OracleAS Metadata Repository** in the Select Installation Type screen. This option creates a new database for the OracleAS Metadata Repository and a new Oracle Internet Directory.

The steps are the same as those listed in step 2, "Install OracleAS Infrastructure on the Shared Drive from Node 1" on page 11-13, with these differences:

- In the Select Configuration Options screen, select these components/options:
  - **Oracle Internet Directory**
  - **OracleAS Directory Integration and Provisioning**
  - **High Availability and Replication**

  Do not select these components:
  - **OracleAS Single Sign-On**

  - **OracleAS Delegated Administration Services**
  - **OracleAS Certificate Authority (OCA)**

- In the Specify Port Configuration Options screen, select **Manual** and enter the fullpath to the staticports.ini file that you created in the previous step.

Step 4 Install Oracle Delegated Administration Services and OracleAS Single Sign-On from Node 3

From node 3, install Oracle Delegated Administration Services and OracleAS Single Sign-On on the shared disk by following the steps in Table 11–11.

Key Points

- When the installer prompts you for the Oracle home path, enter a path on the shared disk. Make sure that both nodes can access this path.
- In the Select High Availability or Replication Option screen, select **Virtual Host**.
- In the Specify Virtual Hostname screen, enter the virtual hostname.

Table 11–11 Installing Oracle Delegated Administration Services and OracleAS Single Sign-On

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: a) The Select Hardware Cluster Installation Mode screen appears only if Oracle Cluster Ready Services is installed. If this screen appears, select Single Node or Cold Failover Cluster Installation because you are installing Identity Management on the shared disk. It is OK if this screen does not appear because Oracle Cluster Ready Services is not required for OracleAS Cold Failover Cluster. b) In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Do not select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	Select **Manual** and enter the fullpath to your staticports.ini file in the provided field. You created the staticports.ini file in step 2, "Create staticports.ini Files" on page 11-45. Click **Next**.
4.	Select High Availability or Replication Option	Select **Virtual Host**, and click **Next**.
5.	Register with Oracle Internet Directory	Enter connect information for the Oracle Internet Directory that you installed earlier. Hostname: Enter the virtual hostname to access the Oracle Internet Directory host. Port: Enter the port on which Oracle Internet Directory is listening. See Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want to use only SSL to connect to Oracle Internet Directory. Click **Next**.

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

	Screen	Action
6.	Specify OID Login	Username: Enter the username to log in to the Oracle Internet Directory. Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.
7.	Specify Virtual Hostname	**Note:** This is a critical screen when installing in an OracleAS Cold Failover Cluster. If you do not see this screen, check the following: ▪ Return to the Select High Availability or Replication Option screen and ensure that you selected **Virtual Host**. ▪ Return to the Select Configuration Options screen and ensure that you selected **High Availability and Replication**. **Virtual Hostname**: Enter the virtual hostname for the OracleAS Cold Failover Cluster configuration. Example: `vhost_2.mydomain.com` Click **Next**.
8.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for the instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `sso_das` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
9.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

Step 5 Stop the OracleAS Infrastructure Services on Node 1, and Set Their Startup Type to Manual

1. Display the Services window.

   Windows 2000: Select **Start > Programs > Administrative Tools > Services**.

   Windows 2003: Select **Start > Administrative Tools > Services**.

2. Stop these services:

   - `Oracle<`*`OracleHomeName`*`>AScontrol`
   - `Oracle<`*`OracleHomeName`*`>ProcessManager`
   - `Oracle<`*`OracleHomeName`*`>TNSListener`
   - `OracleService<`*`SID`*`>`

   To stop a service, right-click the service and select **Stop** from the pop-up menu.

3. Set the start type of the services listed above to manual.

   a. Right-click the service, and select **Properties**.

   b. Select **Manual** from the "Startup Type" section, and click **OK**.

Step 6 Stop the OracleAS Infrastructure Services on Node 3, and Set Their Startup Type to Manual

1. Display the Services window.

   Windows 2000: Select **Start > Programs > Administrative Tools > Services**.

   Windows 2003: Select **Start > Administrative Tools > Services**.

2. Stop these services:

   - `Oracle<OracleHomeName>ASControl`
   - `Oracle<OracleHomeName>ProcessManager`

   To stop a service, right-click the service and select **Stop** from the pop-up menu.

3. Set the start type of the services listed above to manual.

   a. Right-click the service, and select **Properties**.

   b. Select **Manual** from the "Startup Type" section, and click **OK**.

Step 7 Remove the Database Instance

On node 1, run the following command to remove the OracleAS Metadata Repository database instance.

```
F:\oracle\bin> oradim -delete -sid sid
```

Step 8 Remove the Oracle Home for the OracleAS Metadata Repository and Oracle Internet Directory

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

Step 9 Remove the Oracle Home for Oracle Delegated Administration Services and OracleAS Single Sign-On

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

Step 10 Install OracleAS Metadata Repository and Oracle Internet Directory

From node 2, install the OracleAS Metadata Repository and Oracle Internet Directory. Use the same value for Oracle home, instance name, SID, and so on when you installed it from node 1. Follow the steps in step 3, "Install OracleAS Metadata Repository and Oracle Internet Directory on the Shared Drive from Node 1" on page 11-45.

Step 11 Install Oracle Delegated Administration Services and OracleAS Single Sign-On

From node 4, install Oracle Delegated Administration Services and OracleAS Single Sign-On. Use the same value for Oracle home, instance name, SID, and so on when you installed it from node 3. Follow the steps in step 4, "Install Oracle Delegated Administration Services and OracleAS Single Sign-On from Node 3" on page 11-46.

Step 12 Create a pfile for the Database

Oracle Fail Safe requires that the database has a pfile, which is a text file that contains the parameters for the database. See Section 11.12.1, "Create a pfile for the Database" for specific steps.

Step 13 Make OracleAS Metadata Repository Highly Available

Add OracleAS Metadata Repository as a resource to the "MROID" group in Oracle Fail Safe. This enables Oracle Fail Safe to fail over OracleAS Metadata Repository to the secondary node if the primary node fails. See Section 11.12.2, "Make OracleAS Metadata Repository Highly Available" for details.

Step 14 Add the Shared Disk as a Dependency for the Listener

This enables Oracle Fail Safe to access the shared disk first, then the listener, which is installed on the shared disk. See Section 11.12.3, "Add the Shared Disk as a Dependency for the Listener" for details.

Step 15 Make OPMN Highly Available

Add OPMN as a resource to the "MROID" group in Oracle Fail Safe. See Section 11.12.5, "Make OPMN Highly Available" for details.

Step 16 Make Application Server Control Highly Available

Add Application Server Control as a resource to the "MROID" group in Oracle Fail Safe. See Section 11.12.6, "Make Application Server Control Highly Available" for details.

Step 17 Move the "SSODAS" Group to Node 4

Using Cluster Administrator, move the "SSODAS" group to node 4. In Cluster Administrator, right-click the group and select **Move Group**.

Step 18 Start up Services on the Oracle Home in Node 4

Start up services associated with the Oracle home in node 4:

- `Oracle<`*`OracleHomeName`*`>ProcessManager`
- `Oracle<`*`OracleHomeName`*`>ASControl`

Step 19 Verify Installations

To verify the installation on nodes 1 and 2, access the Application Server Control page for the node using the virtual hostname in the URL (for example: http://vhost.mydomain.com:1810).

The virtual hostname is the value you entered in the Specify Virtual Hostname screen (step 12. on page 11-14). The default port number is 1810. You can verify the port number by looking in the `ORACLE_HOME\install\portlist.ini` file.

Similarly, to verify the installation on nodes 3 and 4, access the Application Server Control page for the node using the virtual hostname in the URL (for example, http://vhost_2.mydomain.com:1810).

The virtual hostname is the value you entered in the Specify Virtual Hostname screen (step 7. on page 11-47).

Step 20 Make OPMN Highly Available

Add OPMN as a resource to the "SSODAS" group in Oracle Fail Safe. See Section 11.12.5, "Make OPMN Highly Available" for details.

Step 21 Add the Shared Disk as a Dependency for OPMN

This ensures Oracle Fail Safe access the shared disk before starting up OPMN. See Section 11.12.4, "Add the Shared Disk as a Dependency for OPMN".

Step 22 Make Application Server Control Highly Available

Add Application Server Control as a resource to the "SSODAS" group in Oracle Fail Safe. See Section 11.12.6, "Make Application Server Control Highly Available" for details.

Step 23 Check that the Correct Listener Is Active

Oracle Fail Safe creates another listener, and this is the listener that needs to be running. See Section 11.12.7, "Check that the Correct Listener Is Active" for details.

11.8 Installing Only the OracleAS Metadata Repository in an OracleAS Cold Failover Cluster Environment

This section describes how to install the OracleAS Metadata Repository in a new database (that is, the installer will create a new database for you and populate it with the OracleAS Metadata Repository). You can use this database in an OracleAS Cold Failover Cluster environment.

Prerequisites:

- Check that you have configured a virtual hostname and virtual IP.

Table 11–12 Installing the OracleAS Metadata Repository Only

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: ■ In the Select Installation Type screen, select **Identity Management and Metadata Repository**. **Note**: Do **not** select the **Metadata Repository** option. This option creates a new database with the OracleAS Metadata Repository, but this database is not configured for OracleAS Cold Failover Cluster.
2.	Select Configuration Options	Do not select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Do not select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	Select **Automatic**. Click **Next**.

Table 11–12 (Cont.) Installing the OracleAS Metadata Repository Only

	Screen	Action
4.	Register OracleAS Metadata Repository	If you already have an Oracle Internet Directory and know its connect information, select **Yes** and enter the name of the computer where Oracle Internet Directory is running and the port number. See Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Select this option if you want Oracle Application Server components to use only SSL to connect to Oracle Internet Directory. If you do not have an Oracle Internet Directory, or do not know its connect information, select No. Click Next.
5.	Specify Login for Oracle Internet Directory	This screen appears only if you selected Yes in the previous screen. Username: Enter the username for logging into Oracle Internet Directory. The user must belong to the iAS Admins group in Oracle Internet Directory. Password: Enter the password. Realm: This field appears only if your Oracle Internet Directory contains multiple realms. Enter the name of the realm against which to authenticate the user. Click Next.
6.	Select High Availability Option	Select **Virtual Host**. Click **Next**.
7.	Specify Virtual Hostname	**Virtual Hostname**: Enter the name of the virtual host. Click **Next**.
8.	Oracle Database screens	Enter information for the OracleAS Metadata Repository database. See Section 6.28, "Install Fragment: Database Screens".
9.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `infra_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
10.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

11.9 Installing OracleAS Cold Failover Cluster (Middle-Tier)

You can also install Oracle Application Server middle tiers in an OracleAS Cold Failover Cluster configuration (see Figure 11–26).

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

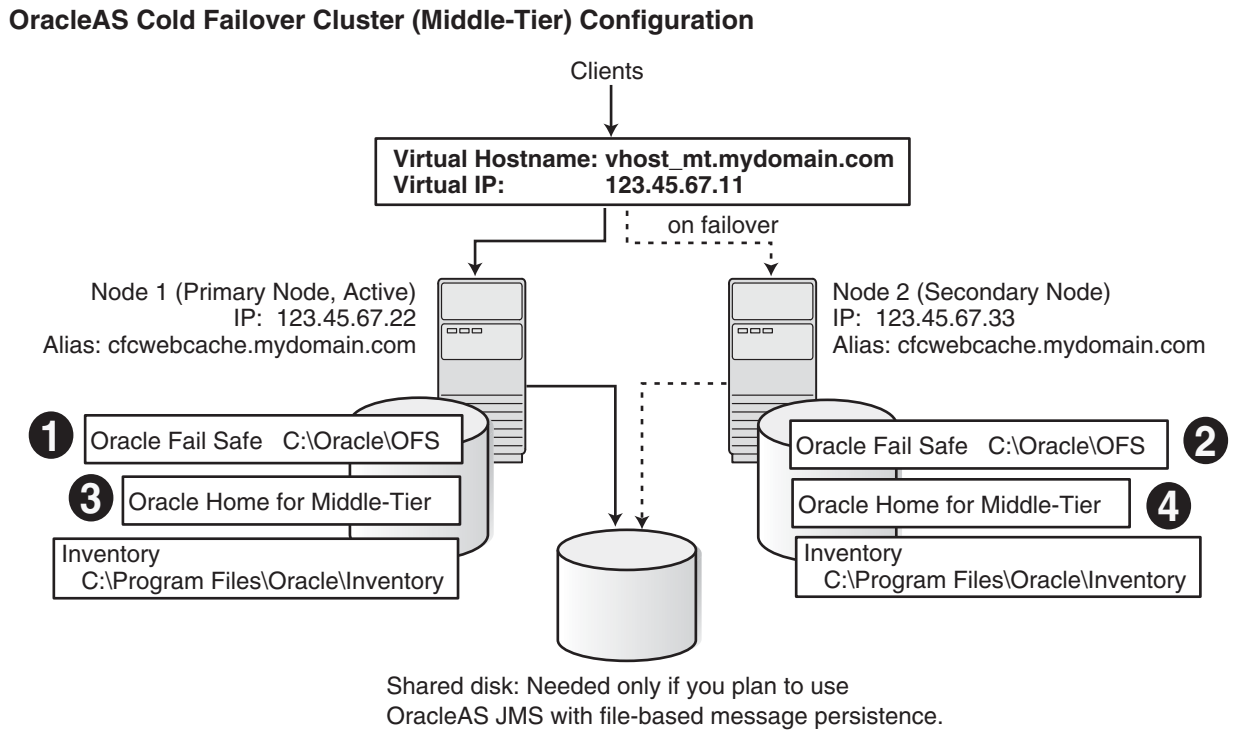
Virtual Hostname

Clients access the active node (for example, `node1`) using the virtual hostname (`vhost_mt.mydomain.com` in Figure 11–26). If `node1` fails, the virtual hostname points to `node2`, and `node2` becomes the active node.

Shared Disk Optional

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

Figure 11–26 OracleAS Cold Failover Cluster (Middle-Tier) Configuration



11.9.1 Pre-Installation Steps

Before installing the middle tier, perform the following generic pre-installation steps listed near the beginning of this chapter:

- Section 11.2.1, "Ensure that the Event Log Service Is Running"
- Section 11.2.2, "Get a Virtual Address for the Cluster"
- Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes"
- Section 11.2.4, "Determine the Name of the Cluster"
- Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe"
- Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node"

In addition, you also need to perform the following steps:

- Section 11.9.1.1, "Create an Alias for the Hostnames"

- Section 11.9.1.2, "Set up staticports.ini File"

11.9.1.1 Create an Alias for the Hostnames

You do this by adding a line to the `C:\%SystemRoot%\system32\drivers\etc\hosts` file on each node. *%SystemRoot%* is `Winnt` on Windows 2000, and `Windows` on Windows 2003 or XP.

Lines in the `hosts` file have the following format. You can have one or more aliases.

ip_address official_hostname aliases...

For example, if the nodes are called `node1` and `node2`, and you want the alias to be called `cfcwebcache`, then you would add these lines to the `hosts` file:

- In the `hosts` file on `node1`, add this line:

```
123.45.67.22  node1.mydomain.com  node1  cfcwebcache.mydomain.com
```

- In the `hosts` file on `node2`, add this line:

```
123.45.67.33  node2.mydomain.com  node2  cfcwebcache.mydomain.com
```

11.9.1.2 Set up staticports.ini File

Both installations must use the same ports. To do this, set up a staticports.ini file to use when installing the middle tiers. See Section 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details on creating the staticports.ini file.

11.9.2 Installing the Middle Tiers

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

Note the following when performing the installations:

- Use the same Oracle home paths for both installations.
- Specify the staticports.ini file that you created in Section 11.9.1.2, "Set up staticports.ini File" during the installation.
- Use the same instance name for both installations. This is not mandatory, but recommended.

To install J2EE and Web Cache middle tiers, see Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access".

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

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

11.9.3 Post-Installation Steps

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

- Section 11.9.3.1, "(optional) Configure the Middle-Tier Instances to Use SSL"
- Section 11.9.3.2, "Back up the Installations (Middle Tier and OracleAS Infrastructure)"
- Section 11.9.3.3, "Create a Group in Oracle Fail Safe"

- Section 11.9.3.4, "Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence"
- Section 11.9.3.5, "Stop All Oracle Application Server Processes Except OPMN"
- Section 11.9.3.6, "Update Component Configuration on Node1"
- Section 11.9.3.7, "Update Component Configuration on Node 2"
- Section 11.9.3.8, "Make OPMN Highly Available"
- Section 11.9.3.9, "Add the Shared Disk as a Dependency for OPMN"
- Section 11.9.3.10, "Make Application Server Control Highly Available"

11.9.3.1 (optional) Configure the Middle-Tier Instances to Use SSL

If you want the middle-tier instances to use SSL, follow the steps in the *Oracle Application Server Administrator's Guide*. You should perform this SSL configuration before you configure the middle tiers for OracleAS Cold Failover Cluster.

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

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

11.9.3.3 Create a Group in Oracle Fail Safe

On `node1`, create a group in Oracle Fail Safe, and add the virtual hostname and virtual IP to the group. You can do this by performing the steps in Section 11.2.7, "Create a Group in Oracle Fail Safe".

Note that you stop at step 5 because you do not need to add a shared disk to the group.

11.9.3.4 Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence

If you are using OracleAS JMS with file-based persistence, create a file system on the shared disk for the OracleAS JMS queues. Add this shared disk to the Oracle Fail Safe group using the Cluster Administrator.

11.9.3.5 Stop All Oracle Application Server Processes Except OPMN

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

```
C:\> ORACLE_HOME\bin\emctl stop iasconsole
C:\> ORACLE_HOME\opmn\bin\opmnctl stopall
C:\> ORACLE_HOME\opmn\bin\opmnctl start
```

11.9.3.6 Update Component Configuration on Node1

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

Table 11–13 shows the sample values used in the steps. Replace the sample values with your actual values.

Table 11–13 Sample Values Used in the Steps Below

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

Notes:

- You only need to perform the steps for the components that you installed and configured. For example, if you did not install OracleAS Portal, you can skip the OracleAS Portal sections. See Table 11–14.
- For the files that you need to modify, you should make a backup copy first, in case you need to revert to the original version.

Table 11–14 Update Configuration Steps

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

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

Step 1 Modify Oracle HTTP Server

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

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

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

   - *ORACLE_HOME*`\Apache\Apache\conf\httpd.conf`

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

2. Update the DCM repository with the changes.

```
C:\> ORACLE_HOME\dcm\bin\dcmctl updateConfig -ct ohs
```

3. Reregister mod_osso as a partner application.

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

   b. Set the PATH environment variable to include *ORACLE_HOME*\bin and *ORACLE_HOME*\lib.

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

   For **non-SSL** middle tiers:

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

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

   For **SSL** middle tiers:

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

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

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

Step 2 Modify OracleAS Web Cache

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

```
<CACHE  NAME="cfcwebcache.mydomain.com-WebCache"
```

```
ORACLEHOME="C:\OraJ2EE"  HOSTNAME="cfcwebcache.mydomain.com"
VOTES="1"  CAPACITY="30"  WCDEBUGON="NO"  CHRONOSONPERNODE="NO">
```

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

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

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

Step 3 Modify OracleAS Portal

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

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

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

2. In *ORACLE_HOME*`\portal\conf\iasconfig.xml`, make the following changes:

   – Add the following lines as the first directive in `IASConfig`:

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

   You can determine the port numbers by looking in the `ORACLE_HOME\install\portlist.ini` file, as shown in Table 11–15:

Table 11–15 Ports for the IASFarm Directive

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

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

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

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

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

   ```
   C:\> cd ORACLE_HOME\portal\conf
   C:\> ptlconfig -encrypt
   ```

3. Get the password for the PORTAL schema. You need this value for the next step.

   a. Start up Oracle Directory Manager.

Select **Start** > **Programs** > **Oracle** - *OracleHomeName* > **Integrated Management Tools** > **Oracle Directory Manager**.

b. Log in to Oracle Internet Directory as the `cn=orcladmin` superuser.

c. Expand the following entries:

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

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

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

4. Register the URL changes with OracleAS Portal:

```
C:\> cd ORACLE_HOME\portal\conf
C:\> ptlconfig -dad portal -pw portal_schema_password -wc -site
```

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

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

b. Set the PATH environment variable to include *ORACLE_HOME*`\bin` and *ORACLE_HOME*`\lib`.

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

For **non-SSL** middle tiers:

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

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

For **SSL** middle tiers:

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

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

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

6. Restart the components:

```
C:\> %ORACLE_HOME%\opmn\bin\opmnctl startall
C:\> %ORACLE_HOME%\bin\emctl start iasconsole
```

7. Update the OracleAS Wireless Portal Service URL Reference.

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

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

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

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

   c. Click the **Administrator** tab.

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

   e. Click the **Mobile** tab.

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

   g. Click **Apply**.

Step 4 Modify OracleAS Wireless

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

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

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

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

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

   For **non-SSL** middle tiers:

```
C:\> cd %ORACLE_HOME%\wireless\bin
C:\> reRegisterSSO.bat http://vhost_mt.mydomain.com:port/ptg/rm
          %ORACLE_HOME% "cn=orcladmin"
```

   For **SSL** middle tiers:

```
C:\> cd %ORACLE_HOME%\wireless\bin
C:\> reRegisterSSO.bat https://vhost_mt.mydomain.com:port/ptg/rm
          %ORACLE_HOME% "cn=orcladmin"
```

Step 5 Modify OracleBI Discoverer

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

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

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

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

Step 6 Verify the Changes

1. Log in to `http://`*vhost_mt.mydomain.com:port*`/pls/portal`. If you have enabled SSL on your middle tiers, use `https` instead of `http` in the URL.
2. Click **Login** and enter the administrator username and password.
3. Click the **Administrator** tab.
4. Click **Global Settings** under **Services**.
5. Click **Configuration**.
6. Verify that the host entry in **Default JPDK Instance** is based on the virtual hostname (example: *vhost_mt.mydomain.com*).
7. Click the **Cache** tab.
8. Verify that the **Host name** entry in **Web Cache Host Settings** is based on the virtual hostname (example: *vhost_mt.mydomain.com*).
9. Click the **Mobile** tab.
10. Verify that the **OracleAS 10g Wireless Portal Service URL** entry in the **OracleAS 10g Wireless Information** section is based on the virtual hostname (example: *vhost_mt.mydomain.com*).
11. Go back to the **Administrator** tab.
12. Click **Search Settings** under **Services**.
13. Verify that the host name in **Oracle Text Base URL** is based on the virtual hostname (example: *vhost_mt.mydomain.com*).

Step 7 Modify OracleAS JMS

1. In the `jms.xml` file for the OC4J instance that you plan to use, set the `host` attribute in `jms-server` to the virtual hostname (example: *vhost_mt.mydomain.com*).

   ```
   <jms-server host="vhost_mt.mydomain.com" port="9127">
   ...
   </jms-server>
   ```

2. If for a queue, file-based message persistence is being used, the location for the file should ideally be on a shared disk. In this case, the shared disk needs to fail over with the virtual IP. To configure this, the value of the `persistence-file` attribute for `queue` should be a file on the shared disk.

   ```
   <queue name="Demo Queue" location="jms/demoQueue"
      persistence-file="/path/to/shared_file_system/demoQueueFile">
      <description>A dummy queue</description>
   </queue>
   ```

3. Update the DCM repository and restart the components.

   ```
   C:\> ORACLE_HOME\dcm\bin\dcmctl updateConfig -ct oc4j
   ```

```
C:\> ORACLE_HOME\bin\emctl stop iasconsole
C:\> ORACLE_HOME\opmn\bin\opmnctl stopall
C:\> ORACLE_HOME\opmn\bin\opmnctl startall
C:\> ORACLE_HOME\bin\emctl start iasconsole
```

Step 8 Fail over the Virtual IP to Node 2

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

   ```
   C:\> ORACLE_HOME\bin\emctl stop iasconsole
   C:\> ORACLE_HOME\opmn\bin\opmnctl stopall
   ```

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

   Use Oracle Fail Safe to move the group that you created in Oracle Fail Safe.

   Start up Oracle Fail Safe.

   Right-click the group and select "Move to different node".

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

11.9.3.7 Update Component Configuration on Node 2

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

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

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

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

```
C:\> ORACLE_HOME\bin\emctl stop iasconsole
C:\> ORACLE_HOME\opmn\bin\opmnctl stopall
C:\> ORACLE_HOME\opmn\bin\opmnctl start
```

Step 2 Copy Configuration Files from node1 to node2

Oracle HTTP Server:

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

OracleAS Web Cache:

- *ORACLE_HOME*`\webcache\webcache.xml`

- *ORACLE_HOME*\webcache\docs\welcome.html

OracleAS Portal:

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

OracleAS Wireless

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

Step 3 Update the DCM Repository

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

```
C:\> ORACLE_HOME\dcm\bin\dcmctl updateConfig -ct ohs
```

Step 4 Modify OracleAS Portal

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

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

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

  These values should be the same as the ones on node1. See Step 3, "Modify OracleAS Portal" on page 11-57.

- Change the WebCacheDependency section in the PortalInstance directive to:

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

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

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

```
C:\> ORACLE_HOME\portal\conf\ptlconfig -encrypt
```

Step 5 Modify OracleBI Discoverer

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

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

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

Step 6 Modify OracleAS JMS

1. Fail over the *vhost_mt.mydomain.com* virtual IP and the shared disk from node1 to node2.
2. In the jms.xml file for the OC4J instance that you plan to use, set the host attribute in jms-server to the virtual hostname (example: *vhost_mt.mydomain.com*).

   ```
   <jms-server host="vhost_mt.mydomain.com" port="9127">
   ```

```
...
</jms-server>
```

3. If for a queue, file-based message persistence is being used, the location for the file should ideally be on a shared disk. In this case, the shared disk needs to fail over with the virtual IP. To configure this, the value of `persistence-file` for `queue` should be a file on the shared disk:

```
<queue name="Demo Queue" location="jms/demoQueue"
   persistence-file="/path/to/shared_file_system/demoQueueFile">
   <description>A dummy queue</description>
</queue>
```

4. Update the DCM repository.

```
C:\> ORACLE_HOME\dcm\bin\dcmctl updateConfig -ct oc4j
```

Step 7 Restart the Oracle Application Server Processes

Run the following commands to restart the components:

```
C:\> ORACLE_HOME\opmn\bin\opmnctl startall
C:\> ORACLE_HOME\bin\emctl start iasconsole
```

11.9.3.8 Make OPMN Highly Available

To make OPMN highly available, you add the `Oracle<OracleHomeName>ProcessManager` service as a resource to the Oracle Fail Safe group that you created in Section 11.9.3.3, "Create a Group in Oracle Fail Safe".

See Section 11.12.5, "Make OPMN Highly Available" for specific steps. Note the following:

- In the Generic Service Dependencies screen (step 5 of 6), you should have "IP Address" and "Network Name" under Available Resources. You should have nothing under Resource Dependencies.

11.9.3.9 Add the Shared Disk as a Dependency for OPMN

This step is required only if you are using OracleAS JMS with file-based persistence.

In Oracle Fail Safe, add the shared disk that you are using for OracleAS JMS as a dependency for OPMN. See Section 11.12.4, "Add the Shared Disk as a Dependency for OPMN" for details.

11.9.3.10 Make Application Server Control Highly Available

To make Application Server Control highly available, you add the `Oracle<OracleHomeName>ASControl` service as a resource to the Oracle Fail Safe group that you created in Section 11.9.3.3, "Create a Group in Oracle Fail Safe".

See Section 11.12.6, "Make Application Server Control Highly Available" for specific steps.

11.10 Installing OracleAS Cold Failover Cluster (Infrastructure) and OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes

This configuration is a combination of Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration" and Section 11.9, "Installing OracleAS Cold Failover Cluster (Middle-Tier)". This section describes how to install these configurations on the same nodes.

Figure 11–27 shows where you would install the components, and on which nodes they would be running.

In normal mode, OracleAS Infrastructure runs on node 1, while the middle tier runs on node 2. Unlike normal cold failover cluster configurations, both nodes are active in this case but running different components (either the OracleAS Infrastructure components or the middle-tier components).

Virtual Hostnames

You need two virtual hostnames: one virtual hostname (for example, vhost_infra) points to the node running OracleAS Infrastructure, and the other virtual hostname (for example, vhost_mt) points to the node running the middle tier.

Failover

If node 1 fails (Figure 11–28), the OracleAS Infrastructure processes fail over to node 2. The virtual hostname that was pointing to node 1 now points to node 2.

If node 2 fails (Figure 11–29), the middle-tier processes fail over to node 1. The virtual hostname that was pointing to node 2 now points to node 1. Note that you need to configure the middle tier after installation for it to fail over to the other node.

Location of Oracle Homes

You install the OracleAS Infrastructure on the shared storage, and the middle tier on the local storage of each node. You install the middle tier twice, once for each node.

To access the OracleAS Infrastructure or the middle tier, clients use the virtual hostname associated with the node running the OracleAS Infrastructure or middle-tier components.

You also use the virtual hostname in URLs. For example, if `vhost_infra.mydomain.com` is the name of the virtual host for the OracleAS Infrastructure, the URLs for the Oracle HTTP Server and the Application Server Control would look like the following:

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

Figure 11–27 OracleAS Cold Failover Cluster (Infrastructure) with OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes

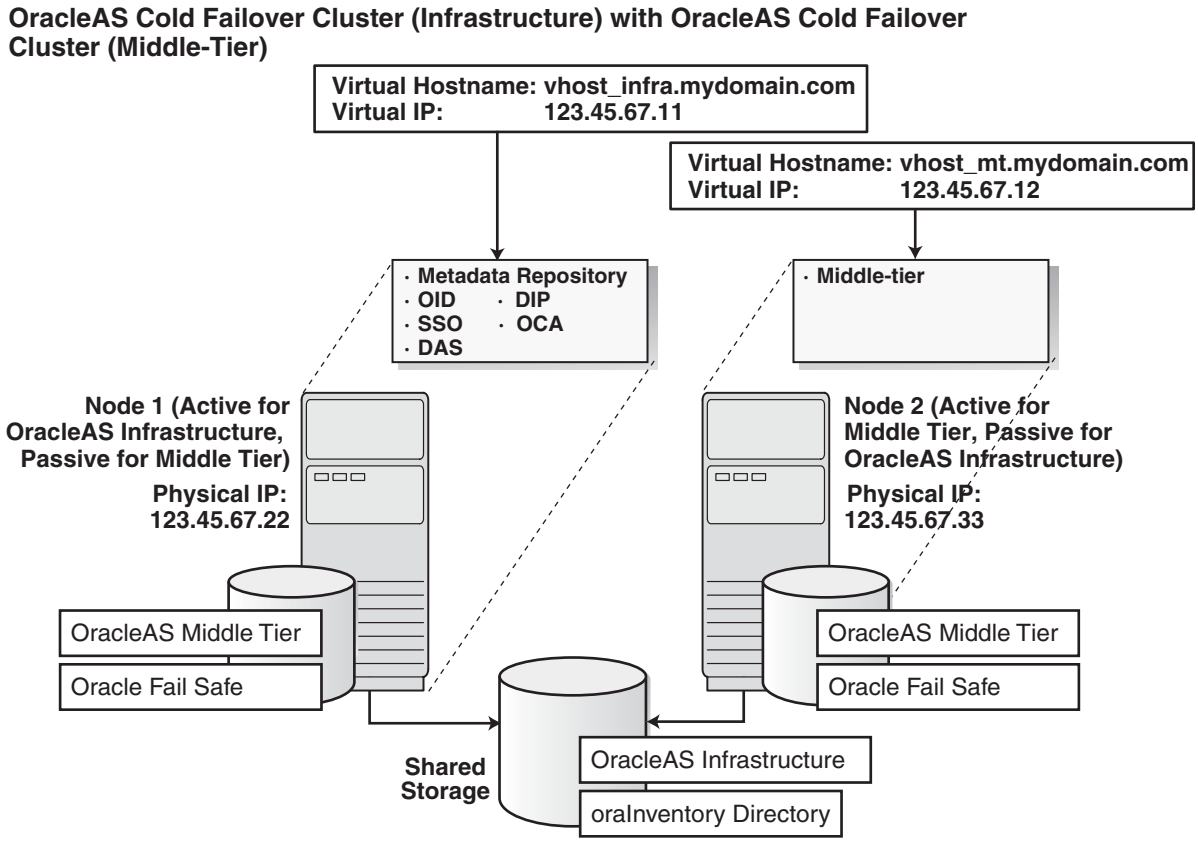


Figure 11–28 If Node 1 Fails

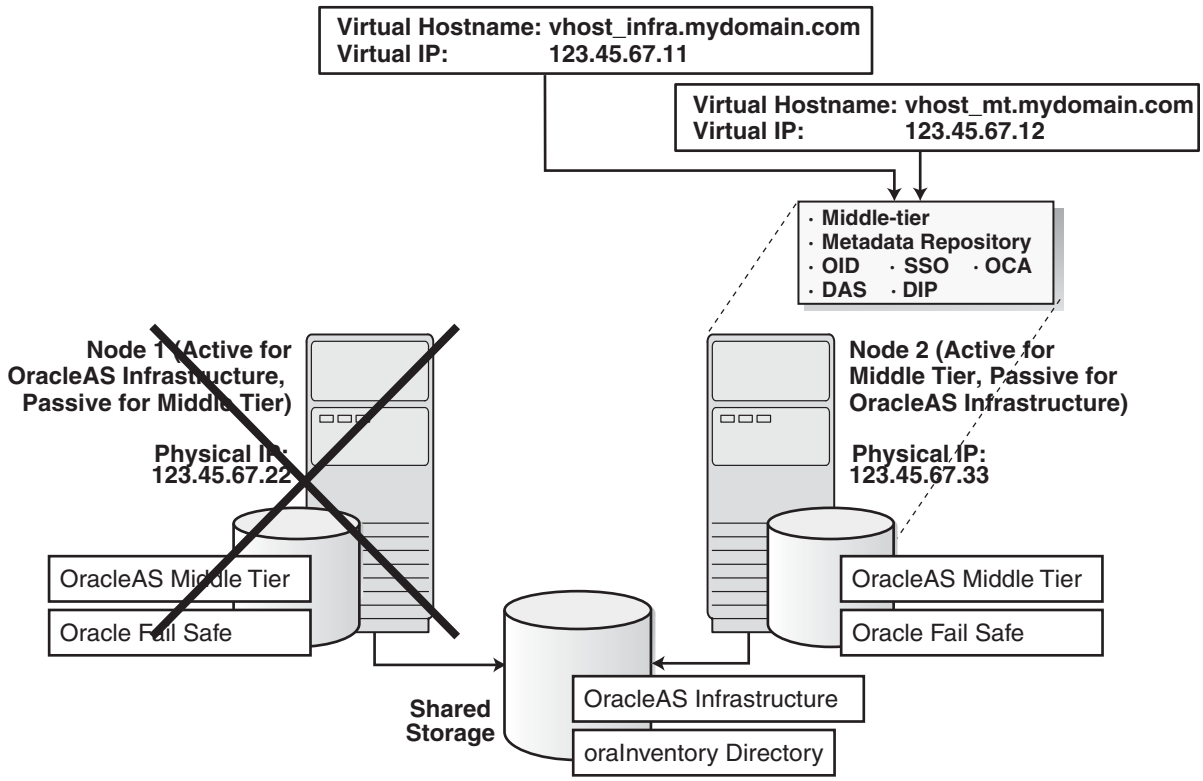
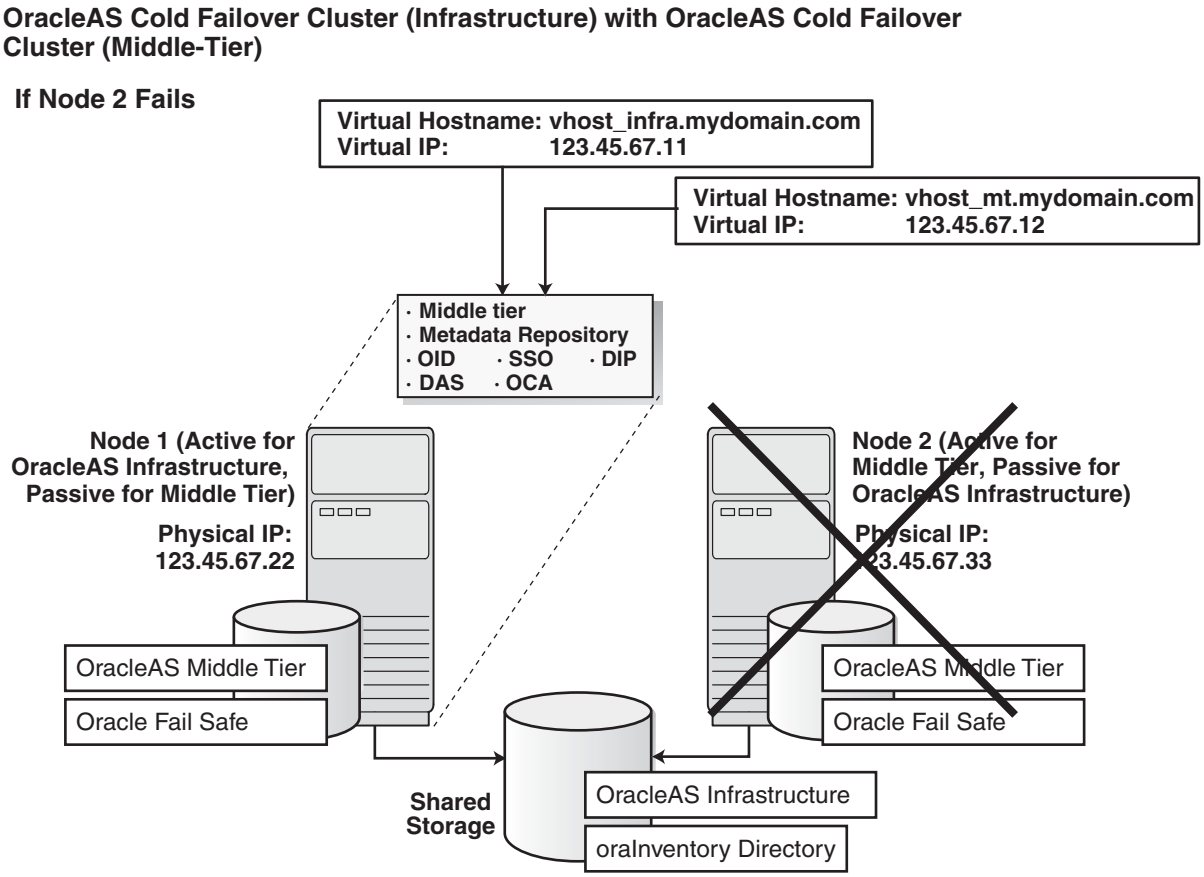


Figure 11–29 If Node 2 Fails



11.10.1 Installation Steps

To create this configuration:

1. Set up the environment.
   - Section 11.2.1, "Ensure that the Event Log Service Is Running"
   - Section 11.2.2, "Get a Virtual Address for the Cluster"
   - Section 11.2.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes"
   - Section 11.2.4, "Determine the Name of the Cluster"
   - Section 11.2.5, "Determine a Domain User to Administer Oracle Fail Safe"
   - Section 11.2.6, "Install Oracle Fail Safe on the Local Storage of Each Node"
   - Section 11.2.7, "Create a Group in Oracle Fail Safe"
2. Create an alias for the hostnames.

   You do this by adding a line to the `C:\%SystemRoot%\system32\drivers\etc\hosts` file on each node. *%SystemRoot%* is `Winnt` on Windows 2000, and `Windows` on Windows 2003 or XP.

   Lines in the `hosts` file use the following format. You can have one or more aliases.

   ip_address official_hostname aliases...

For example, if the nodes are called `node1` and `node2`, and you want the alias to be called `cfcwebcache`, then you would add these lines to the `hosts` file:

- In the `hosts` file on `node1`, add this line:

```
123.45.67.22  node1.mydomain.com  node1  cfcwebcache.mydomain.com
```

- In the `hosts` file on `node2`, add this line:

```
123.45.67.33  node2.mydomain.com  node2  cfcwebcache.mydomain.com
```

3. Install OracleAS Infrastructure on the shared storage. See Section 11.3.2, "OracleAS Cold Failover Cluster (Infrastructure): Details of Installation Steps".
4. Create a staticports.ini file for the middle tiers. This is to ensure that the middle tiers use the same ports, and that the ports are different from the ports used by the OracleAS Infrastructure.

   When either node fails, a failover event occurs and all the OracleAS Infrastructure and middle-tier components will run on the same node. For the components to continue working, there must not be any port conflicts.
5. Install the middle tier on the local storage of each node.

   Notes for installing the middle tiers:

   - You need to use the same Oracle home path for both nodes.
   - You need to use the same Oracle Application Server instance name.
   - When the installer prompts you to enter the hostname for the Oracle Internet Directory, enter the *virtual hostname* for the OracleAS Infrastructure.
   - To install a J2EE and Web Cache middle tier, see Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access".
   - To install a Portal and Wireless middle tier, see Section 7.13, "Installing Portal and Wireless".

11.10.2 Post-Installation Steps

Perform the post-installation steps for `node1` and `node2` listed in Section 11.9.3, "Post-Installation Steps".

11.11 Post-Installation Steps for OracleAS Cold Failover Cluster

- Section 11.11.1, "Edit the ORACLE_HOME\Apache\Apache\htdocs\index.html File"

11.11.1 Edit the ORACLE_HOME\Apache\Apache\htdocs\index.html File

In the `ORACLE_HOME\Apache\Apache\htdocs\index.html` file, change all occurrences of the physical hostname (example: `node1`) to the virtual hostname (example: `vhost`), where `node1` appears as a hostname.

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

11.12 Supporting Procedures

This section describes supporting procedures. The configuration sections earlier in this chapter reference these procedures. Perform only the procedures associated with your configuration.

- Section 11.12.1, "Create a pfile for the Database"
- Section 11.12.2, "Make OracleAS Metadata Repository Highly Available"
- Section 11.12.3, "Add the Shared Disk as a Dependency for the Listener"
- Section 11.12.4, "Add the Shared Disk as a Dependency for OPMN"
- Section 11.12.5, "Make OPMN Highly Available"
- Section 11.12.6, "Make Application Server Control Highly Available"
- Section 11.12.7, "Check that the Correct Listener Is Active"

11.12.1 Create a pfile for the Database

A pfile is a text file that contains the database initialization parameters. Oracle Fail Safe requires a "pfile" for your database. You enter the fullpath to the pfile in the **Parameter File** field when you add the database to the group (see Figure 11–32).

1. Create a file called `init<SID>.ora` in the `ORACLE_HOME\database` directory.
2. Populate the file with the following lines:

```
spfile=<ORACLE_HOME>\database\spfile<SID>.ora
remote_login_passwordfile=none
local_listener="(ADDRESS=(PROTOCOL=TCP)(HOST=<Virtual_IP>)(PORT=1521))"
```

   Replace <*ORACLE_HOME*> with the full path of your Oracle home directory.

   Replace <*SID*> with the SID of your database.

   Replace <*Virtual_IP*> with the virtual IP for the virtual hostname.

11.12.2 Make OracleAS Metadata Repository Highly Available

To make OracleAS Metadata Repository highly available, add it to the group.

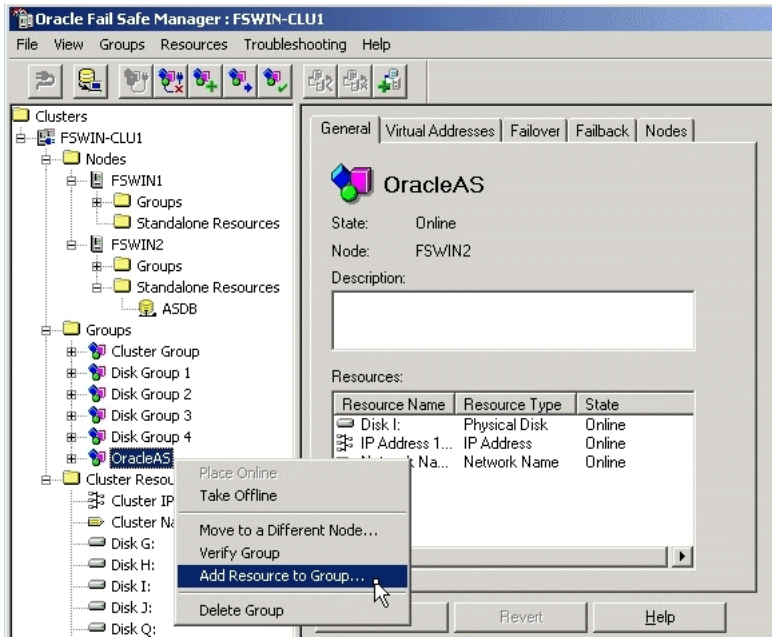
1. On node 2, start up Oracle Fail Safe Manager from the Start menu.

   Start > Programs > Oracle - *OracleHomeName* **> Oracle Fail Safe Manager**

   OracleHomeName refers to the name that you gave to the Oracle home directory where you installed Oracle Fail Safe.

2. On the left side, expand **Groups**, right-click the group that you created in Section 11.2.7, "Create a Group in Oracle Fail Safe", and select **Add Resource to Group**. This starts up the Add Resource to Group wizard.

Figure 11–30 Oracle Fail Safe Manager: Add Resource to Group

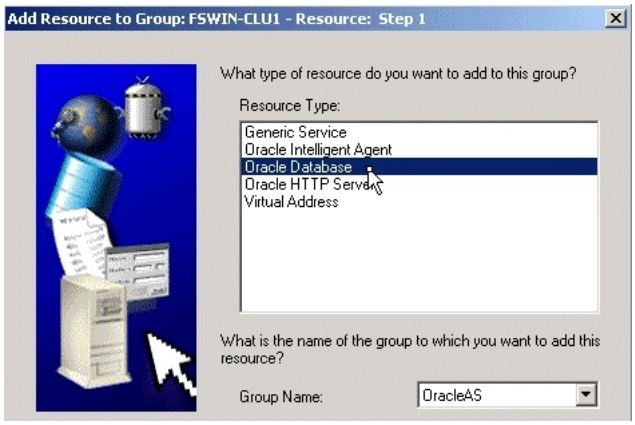


3. Perform these steps in the Add Resource to Group wizard:

   a. Resource, Step 1

   Select **Oracle Database**, select the group, and click **Next**.

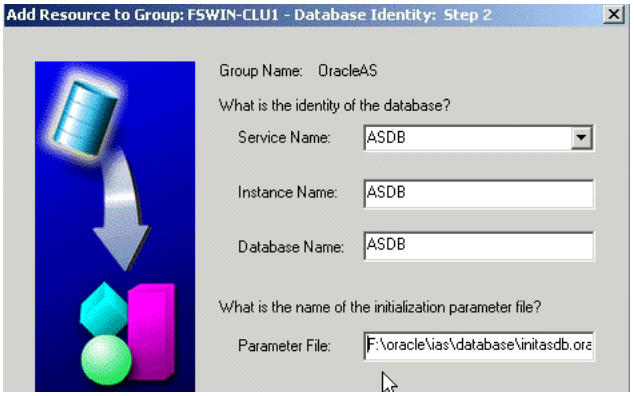
Figure 11–31 Add Resource to Group Wizard (Adding Database), Resource, Step 1 Screen



   b. Database Identity, Step 2

   Enter the service name, the instance name, and the database name, and click **Next**.

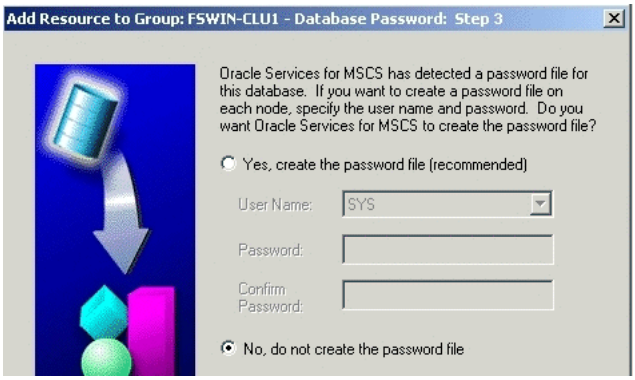
Figure 11–32 Add Resource to Group Wizard (Adding Database), Database Identity, Step 2 Screen



c. Database Password, Step 3

Select **No, do not create the password file**. and click **Finish**.

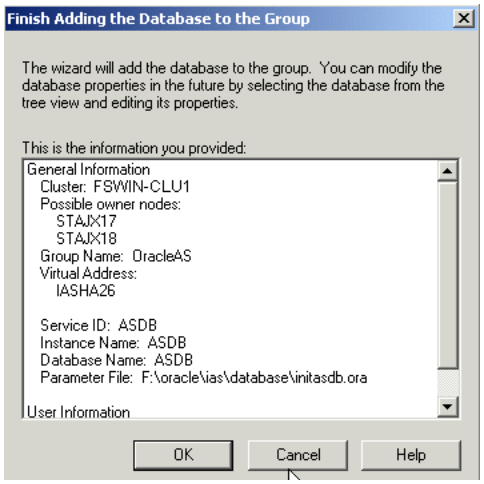
Figure 11–33 Add Resource to Group Wizard (Adding Database), Database Password, Step 3 Screen



d. Finish Adding the Database to the Group screen

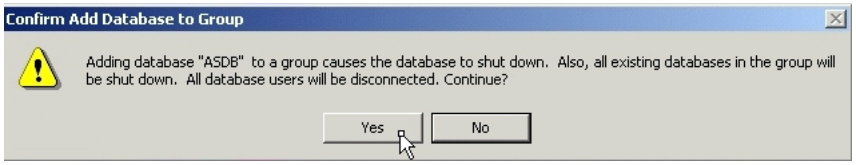
Review the information and click **OK**. In particular, check that both nodes in the cluster are listed under Possible Owner Nodes.

Figure 11–34 Add Resource to Group Wizard (Adding Database), Finish Adding the Database to the Group Screen



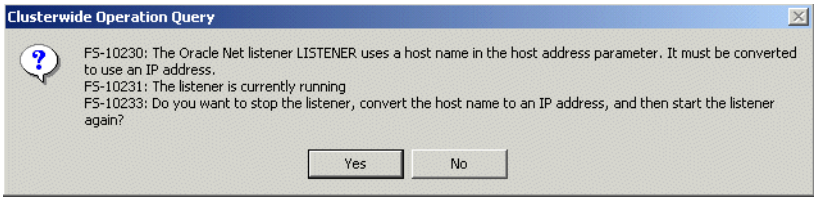
e. Confirm Add Database to Group screen: click **Yes**.

Figure 11–35 Add Resource to Group Wizard (Adding Database), Confirm Add Database to Group Screen



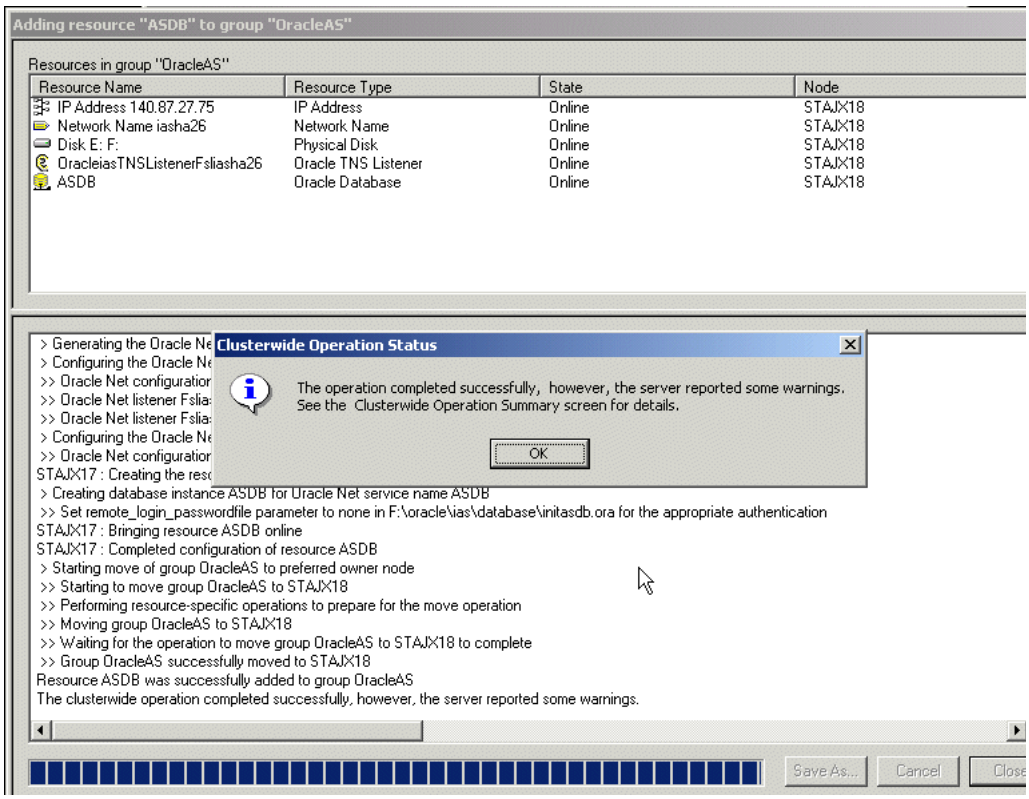
f. If you get this warning about the listener: "FS-10230: The Oracle Net Listener LISTENER uses a host name ...", click **Yes** for Oracle Fail Safe to correct the discrepancies. Oracle Fail Safe has to set up a listener service with the name `Oracle<`*`OracleHomeName`*`>TNSListenerFsl<`*`virtualHostName`*`>`. This is the only listener service that runs on the nodes in the cluster.

Figure 11–36 FS-10230 Warning



g. Oracle Fail Safe Manager configures the database so that both nodes in the cluster can run it. During the configuration, Oracle Fail Safe Manager fails over the database from node 2 to node 1, as you can see in the "Node" column in Figure 11–37 ("STAJX17" is node 1). When it is complete, you get a screen similar to Figure 11–37.

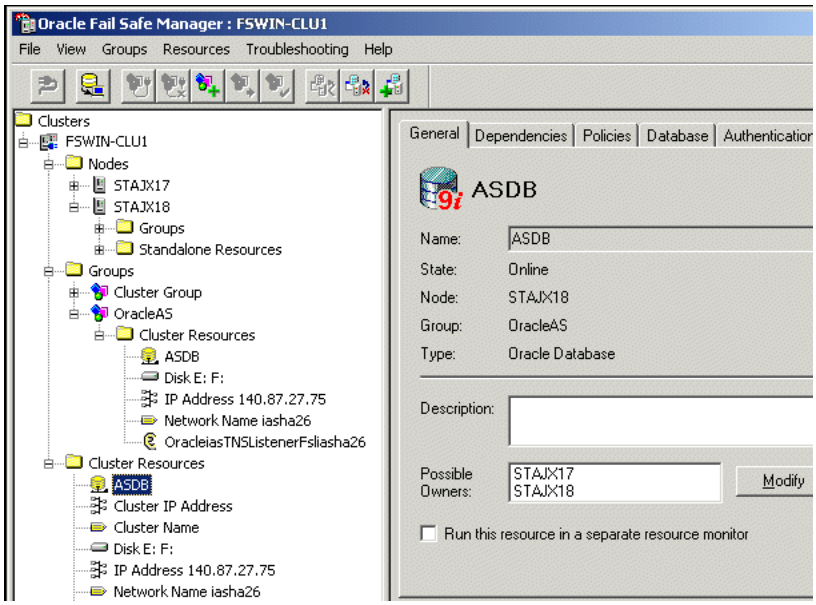
Figure 11–37 Add Resource to Group Wizard (Adding Database), Final Screen



You can ignore the warnings that are related to Oracle software, but you should investigate the warnings related to your system. Click **OK** in the status dialog.

h. In the Oracle Fail Safe Manager, you should see the database listed under the group (Figure 11–38). You should see both the database SID and the database listener. Note that the listener is `Oracle<`*OracleHomeName*`>TNSListenerFsl<`*virtualHostName*`>`, not `Oracle<`*OracleHomeName*`>TNSListener`. Later in Section 11.12.7, "Check that the Correct Listener Is Active", you will disable the `Oracle<`*OracleHomeName*`>TNSListener` listener.

Figure 11–38 Oracle Fail Safe Manager With the Database Added to the Group



11.12.3 Add the Shared Disk as a Dependency for the Listener

You need to set up the shared disk as a dependency for the listener (Disk X: in our example). You can do this by running commands or from the Cluster Administrator. Using the Cluster Administrator is recommended because it reduces the chances of making an error.

Using the Cluster Administrator

1. Start the Cluster Administrator from the Start menu:

   Windows 2000: **Start > Programs > Administrative Tools > Cluster Administrator**

   Windows 2003: **Start > Administrative Tools > Cluster Administrator**

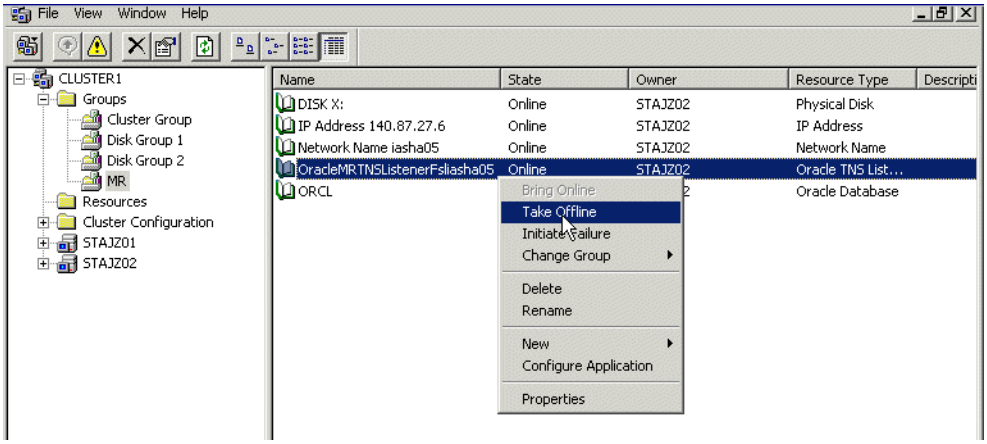
2. Take the listener offline. To do this:

   a. On the left side, expand **Groups**.

   b. On the left side, select the group that you created earlier.

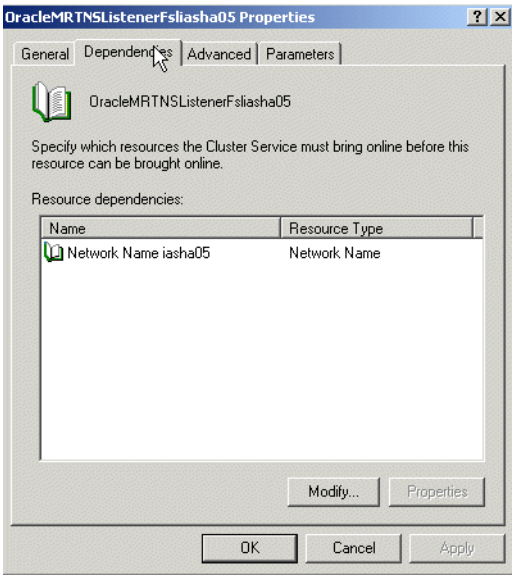
   c. On the right side, right-click the listener and select **Take Offline**.

Figure 11–39 Cluster Administrator - Take the Listener Offline



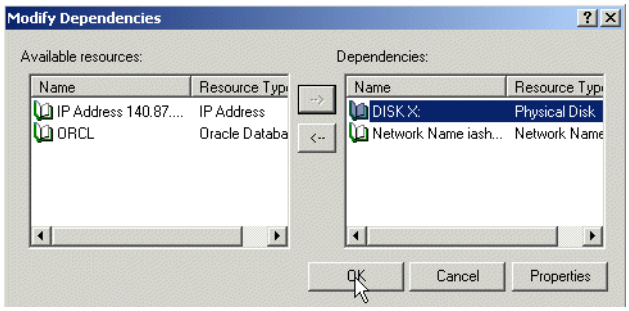
3. On the right side, right-click the listener, and select **Properties**.
4. Click the **Dependencies** tab, then click **Modify**.

Figure 11–40 Cluster Administrator - Properties screen showing Dependencies tab



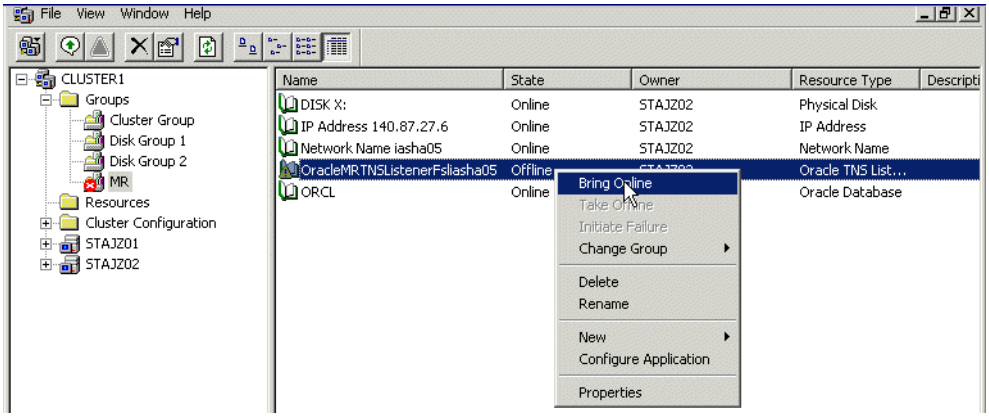
5. Move the disk to the Dependencies list, and click **OK**.

Figure 11–41 Cluster Administrator - Modify Dependencies screen



6. Click **Apply** in the properties dialog.
7. Bring the listener back online. To do this, right-click the listener on the right side, then select **Bring Online**.

Figure 11–42 Cluster Administrator - Bring the Listener Back Online



Using Commands

Instead of using the Cluster Administrator, you can run commands from a shell.

1. Take the listener offline. You can do this using Cluster Administrator. See the first two steps in the "Using the Cluster Administrator" section above.
2. Run the following commands:

```
C:\> cluster resource OracleiasTNSListenerFsliasha26 /offline
C:\> cluster resource OracleiasTNSListenerFsliasha26 /addDep:"Disk F:"
C:\> cluster resource OracleiasTNSListenerFsliasha26 /online
```

Replace *OracleiasTNSListenerFsliasha26* with the name of your listener. The listener name uses this format:
`Oracle`<*OracleHomeName*>`TNSListenerFsl`<*virtualHostName*>.

Replace *Disk F:* with the name of your shared disk.

11.12.4 Add the Shared Disk as a Dependency for OPMN

This procedure is very similar to Section 11.12.3, "Add the Shared Disk as a Dependency for the Listener". The only difference is that you select `Oracle<OracleHomeName>ProcessManager` instead of the listener in Cluster Administrator.

1. Start the Cluster Administrator from the Start menu:

   Windows 2000: **Start > Programs > Administrative Tools > Cluster Administrator**

   Windows 2003: **Start > Administrative Tools > Cluster Administrator**

2. Take OPMN offline. To do this:
   a. On the left side, expand **Groups**.
   b. On the left side, select the group that you created earlier.
   c. On the right side, right-click `Oracle<OracleHomeName>ProcessManager` and select **Take Offline**.

3. On the right side, right-click `Oracle<OracleHomeName>ProcessManager`, and select **Properties**.
4. Click the **Dependencies** tab, then click **Modify**.
5. Move the disk to the Dependencies list, and click **OK**.
6. Click **Apply** in the properties dialog.
7. Bring OPMN back online. To do this, right-click `Oracle<OracleHomeName>ProcessManager` on the right side, then select **Bring Online**.

11.12.5 Make OPMN Highly Available

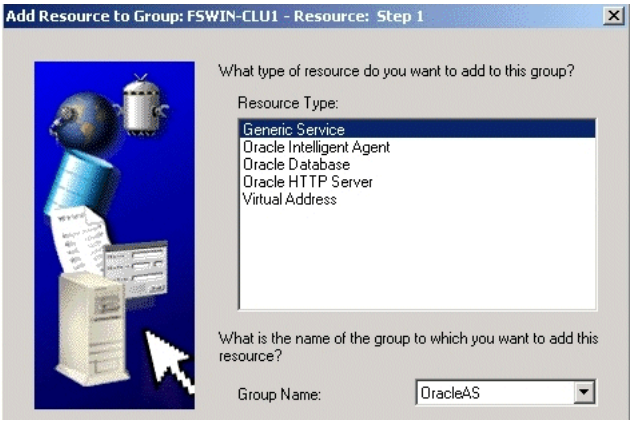
To make OPMN highly available, add it to the Oracle Fail Safe group that you created in Section 11.2.7, "Create a Group in Oracle Fail Safe". OPMN corresponds to the `Oracle<OracleHomeName>ProcessManager` service.

1. Start up Oracle Fail Safe Manager.
2. On the left side, expand **Groups**, right-click the group that you created in Section 11.2.7, "Create a Group in Oracle Fail Safe", and select **Add Resource to Group**. This starts up the Add Resource to Group wizard.

   This is the same group and same menu item that you selected when you added the database to the group (see Figure 11–30).
3. Perform these steps in the Add Resource to Group wizard:
   a. Resource, Step 1

      Select **Generic Service**, verify that the group is correct, and click **Next**.

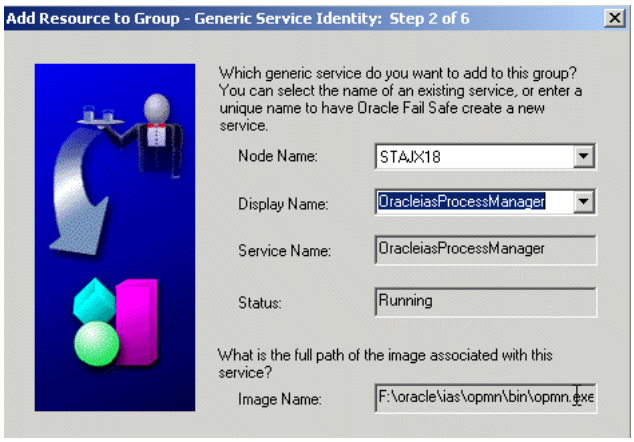
Figure 11–43 Add Resource to Group Wizard (Adding OPMN), Resource, Step 1 Screen



   b. Generic Service Identity, Step 2

      Select `Oracle<OracleHomeName>ProcessManager` from **Display Name**, and click **Next**.

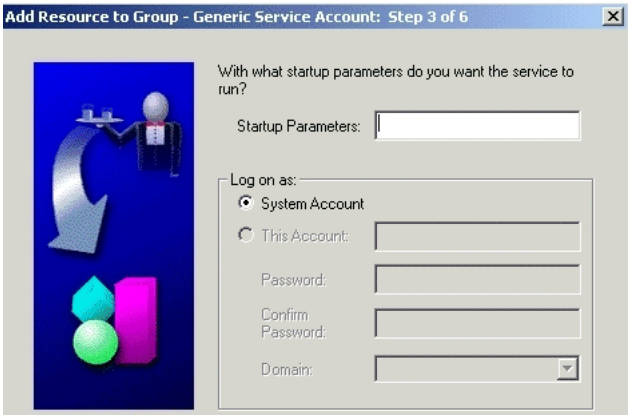
Figure 11–44 Add Resource to Group Wizard (Adding OPMN), Generic Service Identity, Step 2 Screen



c. Generic Service Account, Step 3

There are no startup parameters for OPMN. Click **Next**.

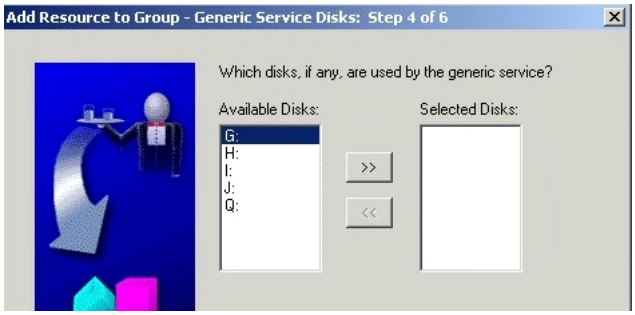
Figure 11–45 Add Resource to Group Wizard (Adding OPMN), Generic Service Account, Step 3 Screen



d. Generic Service Disks, Step 4

There should not be anything under **Selected Disks**. Click **Next**.

Figure 11–46 Add Resource to Group Wizard (Adding OPMN), Generic Service Disks, Step 4 Screen



e. Generic Service Dependencies, Step 5

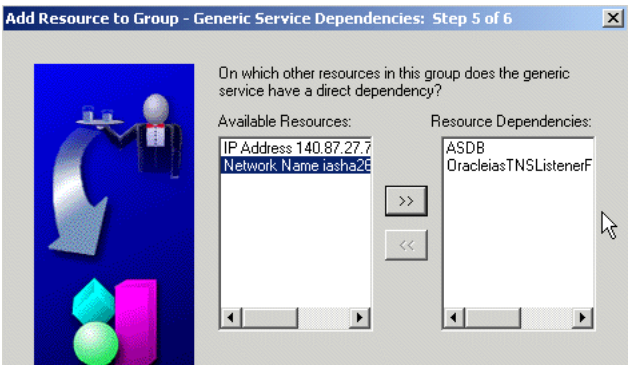
Available Resources list the resources in the group. The resources that you have to move to **Resource Dependencies** depend on the configuration that you are installing:

Table 11–16 Resource Dependencies

If you are installing this configuration:	Move these items to "Resource Dependencies"	Items Left in "Available Dependencies"
▪ OracleAS Cold Failover Cluster (Infrastructure) ▪ Distributed OracleAS Cold Failover Cluster (Infrastructure)	▪ Database SID ▪ Database TNS listener	▪ IP Address ▪ Network Name
▪ OracleAS Cold Failover Cluster (Identity Management) ▪ Distributed OracleAS Cold Failover Cluster (Identity Management) ▪ OracleAS Cold Failover Cluster (Middle-Tier)	none	▪ IP Address ▪ Network Name
For the OracleAS Metadata Repository and Oracle Internet Directory nodes in an Oracle Delegated Administration Services and OracleAS Single Sign-On in OracleAS Cold Failover Cluster	▪ Database SID ▪ Database TNS listener	▪ IP Address ▪ Network Name
For the Oracle Delegated Administration Services and OracleAS Single Sign-On nodes in an Oracle Delegated Administration Services and OracleAS Single Sign-On in OracleAS Cold Failover Cluster	none	▪ IP Address ▪ Network Name

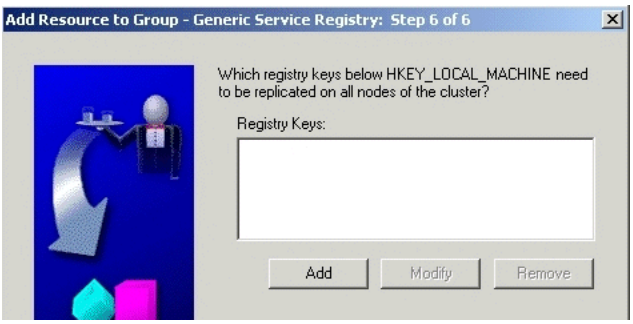
Click **Next**.

Figure 11–47 Add Resource to Group Wizard (Adding OPMN), Generic Service Dependencies, Step 5 Screen



f. Generic Service Registry, Step 6: Click **Finish**.

Figure 11–48 Add Resource to Group Wizard (Adding OPMN), Generic Service Registry, Step 6 Screen



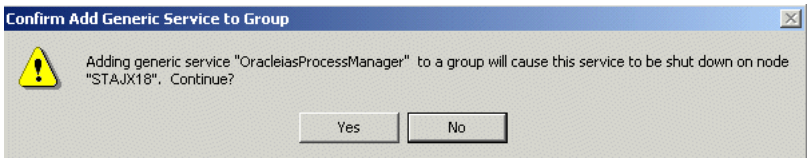
g. Finish Adding the Generic Service to the Group

Verify the information and click **OK**. In particular, check that both nodes in the cluster are listed under Possible Owner Nodes.

Figure 11–49 Add Resource to Group Wizard (Adding OPMN), Finish Adding the Generic Service to the Group Screen

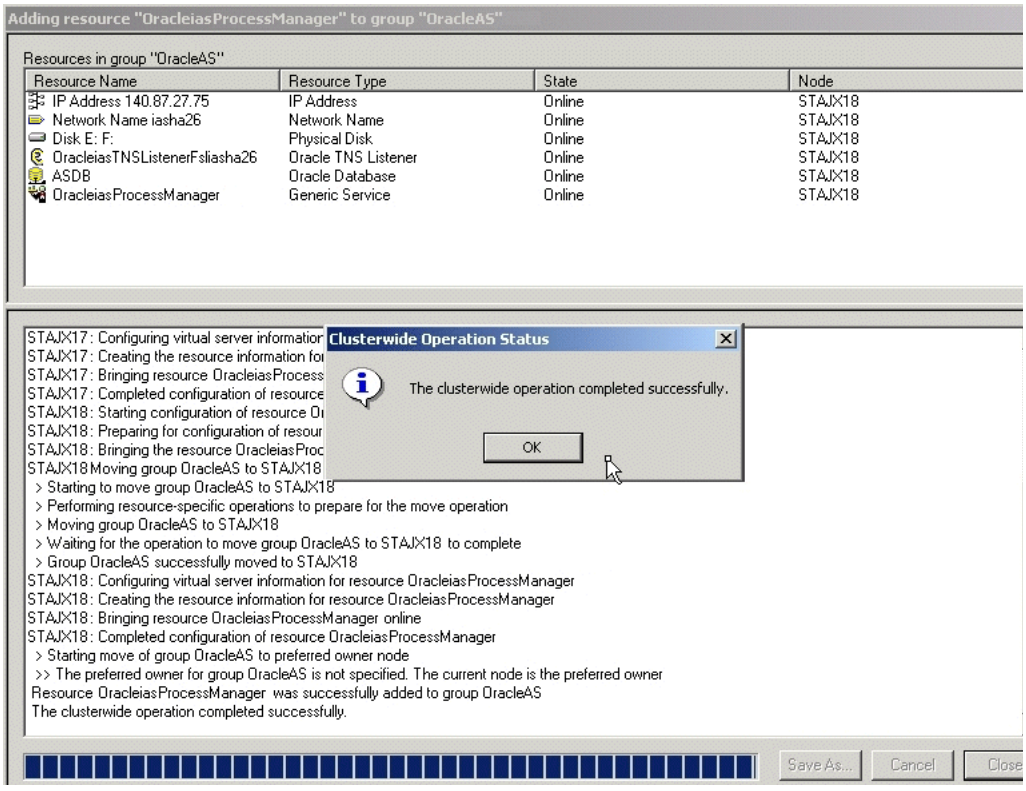
h. Confirm Add Generic Service to Group screen: Click **Yes**.

Figure 11–50 Add Resource to Group Wizard (Adding OPMN), Confirm Add Generic Service to Group Screen



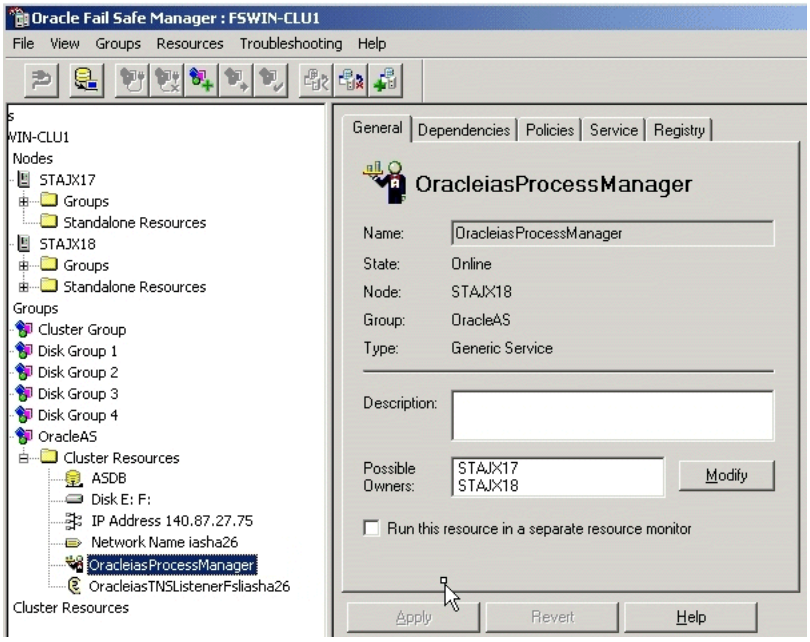
Oracle Fail Safe Manager now configures the Process Manager service so that both nodes in the cluster can run it. When it is done, it displays a screen similar to Figure 11–51. Click **OK** in the success dialog.

Figure 11–51 Add Resource to Group Wizard (Adding OPMN), Final Screen



i. In the Oracle Fail Safe Manager, you should see the Process Manager service listed under the group.

Figure 11–52 Oracle Fail Safe Manager With the Process Manager Service Added to the Group



11.12.6 Make Application Server Control Highly Available

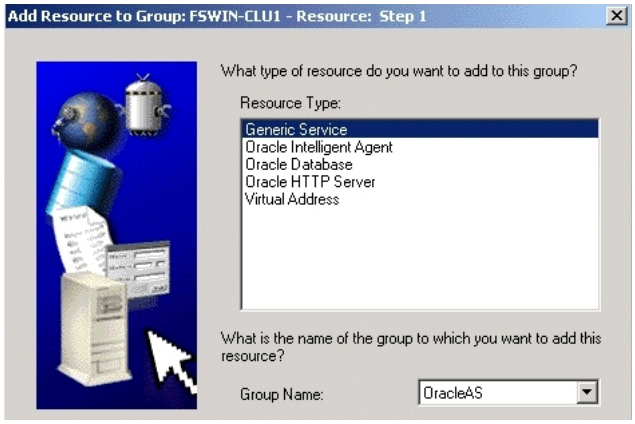
To make Application Server Control highly available, add it to the Oracle Fail Safe group that you created in Section 11.2.7, "Create a Group in Oracle Fail Safe". Application Server Control corresponds to the `Oracle<OracleHomeName>ASControl` service.

1. Start up Oracle Fail Safe Manager.
2. On the left side, expand **Groups**, right-click the group that you created in Section 11.2.7, "Create a Group in Oracle Fail Safe", and select **Add Resource to Group**. This starts up the Add Resource to Group wizard.

   This is the same group and same menu item that you selected when you added the database to the group (see Figure 11–30).
3. Perform these steps in the Add Resource to Group wizard:
   a. Resource, Step 1

      Select **Generic Service**, verify that the group is correct, and click **Next**.

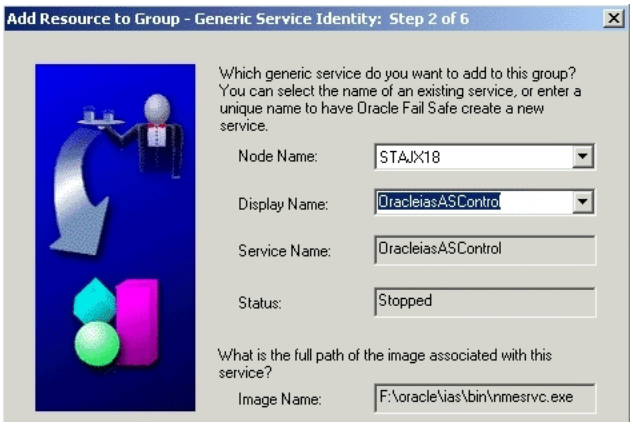
Figure 11–53 Add Resource to Group Wizard (Adding Application Server Control), Resource, Step 1 Screen



   b. Generic Service Identity, Step 2

      Select `Oracle<OracleHomeName>ASControl` from **Display Name**, and click **Next**.

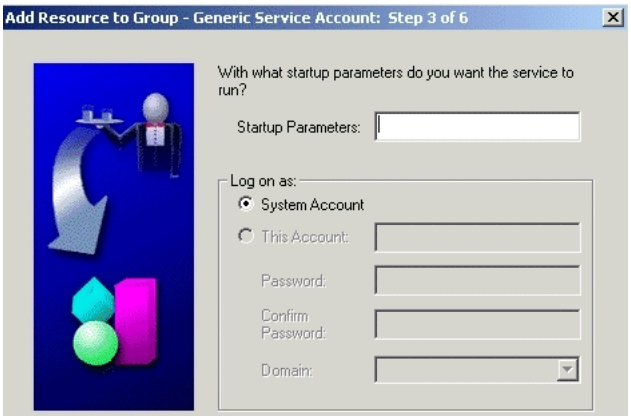
Figure 11–54 Add Resource to Group Wizard (Adding Application Server Control), Generic Service Identity, Step 2 Screen



c. Generic Service Account, Step 3

There are no startup parameters for Application Server Control. Click **Next**.

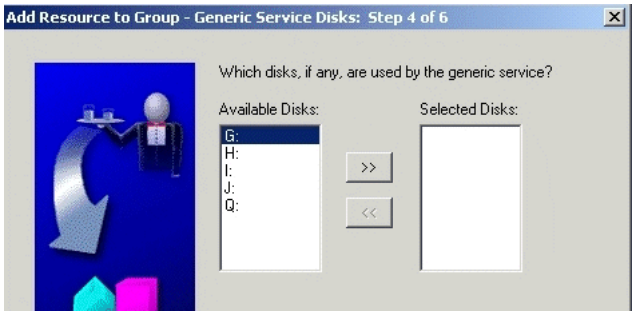
Figure 11–55 Add Resource to Group Wizard (Adding Application Server Control), Generic Service Account, Step 3 Screen



d. Generic Service Disks, Step 4

There should not be anything under **Selected Disks**. Click **Next**.

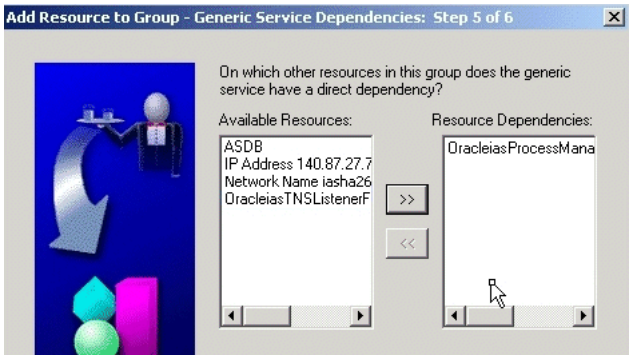
Figure 11–56 Add Resource to Group Wizard (Adding Application Server Control), Generic Service Disks, Step 4 Screen



e. Generic Service Dependencies, Step 5

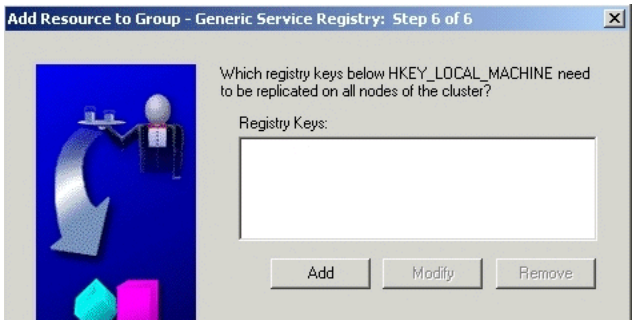
Move the Process Manager service to the **Resource Dependencies** column. Click **Next**.

Figure 11–57 Add Resource to Group Wizard (Adding Application Server Control), Generic Service Dependencies, Step 5 Screen



f. Generic Service Registry, Step 6: Click **Finish**.

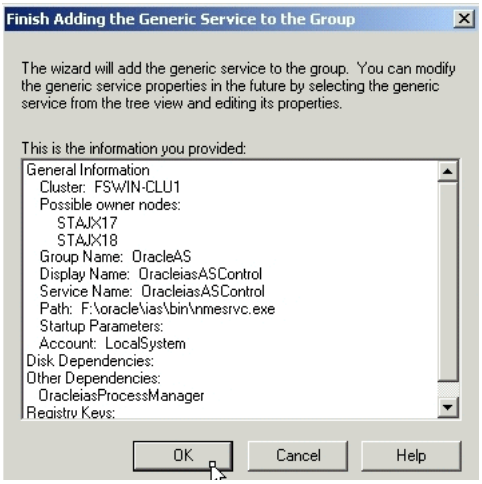
Figure 11–58 Add Resource to Group Wizard (Adding Application Server Control), Generic Service Registry, Step 6 Screen



g. Finish Adding the Generic Service to the Group

Verify the information and click **OK**. In particular, check that both nodes in the cluster are listed under Possible Owner Nodes.

Figure 11–59 Add Resource to Group Wizard (Adding Application Server Control), Finish Adding the Generic Service to the Group Screen



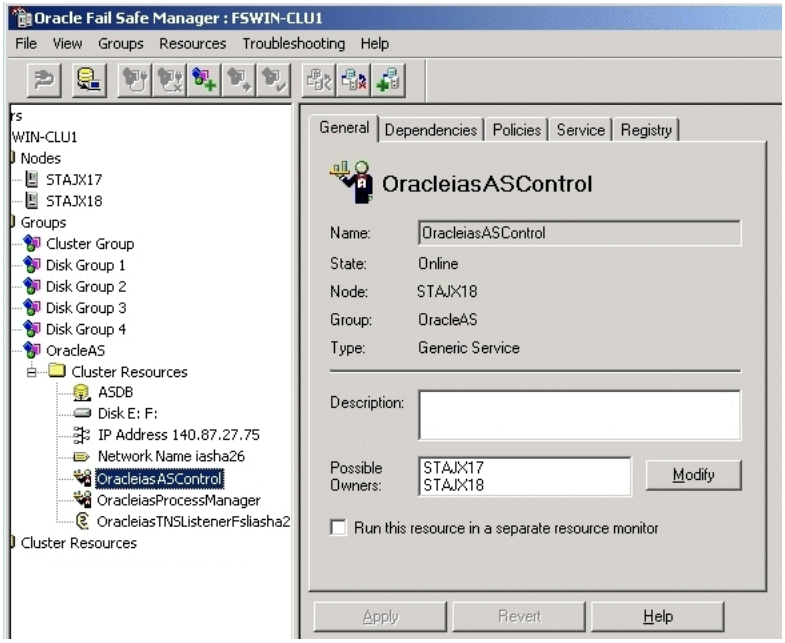
h. Confirm Add Generic Service to Group screen: Click **Yes**.

Figure 11–60 Add Resource to Group Wizard (Adding Application Server Control), Confirm Add Generic Service to Group Screen

Oracle Fail Safe Manager now configures the Application Server Control service so that both nodes in the cluster can run it. When it is done, click **OK** in the success dialog.

i. In the Oracle Fail Safe Manager, you should see the Application Server Control service listed under the group.

Figure 11–61 Oracle Fail Safe Manager With the Application Server Control Service Added to the Group



11.12.7 Check that the Correct Listener Is Active

When you added the database to the group (in Section 11.12.2, "Make OracleAS Metadata Repository Highly Available"), Oracle Fail Safe created a listener called `Oracle<OracleHomeName>TNSListenerFsl<virtualHostName>`. Make sure that this listener is active and running.

The other listener, `Oracle<OracleHomeName>TNSListener`, is no longer used. You should stop it (if it is running) and set its startup type to manual so that it is not started up automatically.

11.13 Installing Middle Tiers Against an OracleAS Cold Failover Cluster Infrastructure

This section describes how to install middle tiers that are not in a cold failover cluster configuration against an OracleAS Cold Failover Cluster infrastructure.

If you want to install middle tiers that can take advantage of cold failover cluster features, see Section 11.9, "Installing OracleAS Cold Failover Cluster (Middle-Tier)" or Section 11.10, "Installing OracleAS Cold Failover Cluster (Infrastructure) and OracleAS Cold Failover Cluster (Middle-Tier) on the Same Nodes".

For non-cold failover cluster middle tiers to work with OracleAS Infrastructure in an OracleAS Cold Failover Cluster, you can install the middle tiers on computers outside the cluster, or on nodes within the cluster.

Note: The preferred solution is to install and run the non-cold failover cluster middle tiers on nodes outside the OracleAS Cold Failover Cluster.

11.13.1 If You Plan to Install Middle Tiers on OracleAS Cold Failover Cluster Nodes

If you plan to install a non-cold failover cluster middle tier on an OracleAS Cold Failover Cluster node (primary or secondary), perform these tasks before installing the middle tier:

- Section 11.13.1.1, "Create a staticports.ini File for the Middle Tier"

11.13.1.1 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 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

To see which ports the infrastructure is using, view the `ORACLE_HOME\install\portlist.ini` file, where ORACLE_HOME refers to the directory where you installed the infrastructure.

11.13.2 Procedure for Installing Middle Tiers Against an OracleAS Cold Failover Cluster Infrastructure

To install middle tiers against OracleAS Infrastructure in an OracleAS Cold Failover Cluster, follow the procedures as documented in Chapter 7, "Installing Middle Tiers", but with these differences:

- In the Register with Oracle Internet Directory screen, enter the virtual hostname in the **Hostname** field.
- If you are installing the middle tier on an OracleAS Cold Failover Cluster node, you must follow these additional requirements:
  - Read Section 11.13.1, "If You Plan to Install Middle Tiers on OracleAS Cold Failover Cluster Nodes".
  - In the Specify Hardware Cluster Installation Node screen (if displayed), select **Local Installation**.

12

Installing in High Availability Environments: OracleAS Cluster (Identity Management)

This chapter describes how to install Oracle Application Server in OracleAS Cluster (Identity Management) configurations.

- Section 12.1, "OracleAS Cluster (Identity Management): Introduction"
- Section 12.2, "Pre-Installation Steps for OracleAS Cluster (Identity Management)"
- Section 12.3, "About Oracle Internet Directory Passwords"
- Section 12.4, "About Configuring SSL and Non-SSL Ports for Oracle HTTP Server"
- Section 12.5, "Installing an OracleAS Cluster (Identity Management) Configuration"
- Section 12.6, "Installing a Distributed OracleAS Cluster (Identity Management) Configuration"
- Section 12.7, "Post-Installation Steps"
- Section 12.8, "Installing Middle Tiers Against OracleAS Cluster (Identity Management) Configurations"

12.1 OracleAS Cluster (Identity Management): Introduction

In OracleAS Cluster (Identity Management) configurations, the Identity Management components and the OracleAS Metadata Repository run on separate nodes. All the nodes in an OracleAS Cluster (Identity Management) configuration are active. Requests from clients, such as middle tiers, are directed to a load balancer, which then directs the requests to one of the active nodes. See Figure 12–1.

These nodes can belong to a hardware cluster, but this is not required.

These configurations are called "OracleAS Cluster (Identity Management)" because the OracleAS Single Sign-On and Oracle Delegated Administration Services components are clustered. This means that these components are configured identically across nodes.

Database (OracleAS Metadata Repository) Requirement

You need an existing Real Application Clusters or cold failover cluster database. You will install the OracleAS Metadata Repository on this database using the OracleAS Metadata Repository Creation Assistant.

Note: For OracleAS Cluster (Identity Management) configurations, you never select the "**Identity Management and OracleAS Metadata Repository**" option in the installer. You always select the **Identity Management** option. This is why you need an existing database for the OracleAS Metadata Repository.

Always Select the Same Components

Because the installer clusters the components in an OracleAS Cluster (Identity Management) configuration, you need to select the same components in the Select Configuration Options screen for all the nodes in the cluster.

For example, if you select Oracle Internet Directory, OracleAS Single Sign-On, and Oracle Delegated Administration Services for the installation on node 1, then you have to select the same set of components in subsequent installations.

Clustering will fail if you select different components in each installation.

Configurations

You can install OracleAS Cluster (Identity Management) in these configurations:

- OracleAS Cluster (Identity Management). See Section 12.5.
- Distributed OracleAS Cluster (Identity Management). See Section 12.6.

12.2 Pre-Installation Steps for OracleAS Cluster (Identity Management)

Before installing an OracleAS Cluster (Identity Management) configuration, you need to set up the following items:

- Section 12.2.1, "Use the Same Path for the Oracle Home Directory (recommended)"
- Section 12.2.2, "Synchronize Clocks on All Nodes"
- Section 12.2.3, "Configure Virtual Server Names and Ports for the Load Balancer"
- Section 12.2.4, "Configure Your LDAP Virtual Server to Direct Requests to Node 1 Initially"
- Section 12.2.5, "Set up Cookie Persistence on the Load Balancer"

12.2.1 Use the Same Path for the Oracle Home Directory (recommended)

For all the nodes that will be running Identity Management components, use the same full path for the Oracle home. This practice is recommended, but not required.

12.2.2 Synchronize Clocks on All Nodes

Synchronize the system clocks on all nodes.

12.2.3 Configure Virtual Server Names and Ports for the Load Balancer

Configure your load balancer with two virtual server names and associated ports:

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

> **Note:** Ensure that the same ports that you configured for the LDAP virtual server are available on the nodes on which you will be installing Oracle Internet Directory.
>
> The installer will configure Oracle Internet Directory to use the same port numbers that are configured on the LDAP virtual server. In other words, Oracle Internet Directory on all the nodes and the LDAP virtual server will use the same port number.

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

> **Note:** The ports for the HTTP virtual server can be different from the Oracle HTTP Server `Listen` ports.

The installer will prompt you for the virtual server names and port numbers.

In addition, check the following:

- Check that the virtual server names are associated with IP addresses and are part of your DNS. The nodes that will be running Oracle Application Server must be able to access these virtual server names.

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

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

Before you start the installation, configure your LDAP virtual server to direct requests to node 1 only. After you complete an installation on a node, then you can add that node to the virtual server.

For example, if you have three nodes:

1. Configure the LDAP virtual server to direct requests to node 1 only.
2. Install Identity Management components on node 1.
3. Install Identity Management components on node 2.
4. Add node 2 to the LDAP virtual server.
5. Install Identity Management components on node 3.
6. Add node 3 to the LDAP virtual server.

12.2.5 Set up Cookie Persistence on the Load Balancer

On your load balancer, set up cookie persistence for HTTP traffic. Specifically, set up cookie persistence for URIs starting with `/oiddas/`. This is the URI for Oracle Delegated Administration Services. If your load balancer does not allow you to set cookie persistence at the URI level, then set the cookie persistence for all HTTP traffic. In either case, set the cookie to expire when the browser session expires. Refer to your load balancer documentation for details.

12.3 About Oracle Internet Directory Passwords

In OracleAS Cluster (Identity Management) configurations, you install Oracle Internet Directory on multiple nodes, and in each installation, you enter the instance password in the "Specify Instance Name and ias_admin Password" screen.

The password specified in the first installation is used as the password for the `cn=orcladmin` and `orcladmin` users not just in the first Oracle Internet Directory, but in all Oracle Internet Directory installations in the cluster.

This means that to access the Oracle Internet Directory on any node, you have to use the password that you entered in the first installation. You cannot use the passwords that you entered in subsequent installations.

Accessing the Oracle Internet Directory includes:

- logging into Oracle Delegated Administration Services (URL: `http://`*`hostname`*`:`*`port`*`/oiddas`)
- logging into OracleAS Single Sign-On (URL: `http://`*`hostname`*`:`*`port`*`/pls/orasso`)
- connecting to Oracle Internet Directory using the Oracle Directory Manager

You still need the passwords that you entered in subsequent installations for logging into Application Server Control.

12.4 About Configuring SSL and Non-SSL Ports for Oracle HTTP Server

When you are installing OracleAS Cluster (Identity Management) configurations, the installer displays the "Specify HTTP Load Balancer Host and Listen Ports" screen.

This screen has two sections:

- In the load balancer section, you specify the load balancer's HTTP virtual server name and port number. You also indicate whether the port is for SSL or non-SSL requests.
- In the Oracle HTTP Server section, you specify the port number that you want for the Oracle HTTP Server `Listen` port. You also indicate whether the port is for SSL or non-SSL requests.

  The virtual server and the Oracle HTTP Server `Listen` port can use different port numbers.

You use this screen to set up the type of communication (SSL or non-SSL) between client, load balancer, and Oracle HTTP Server. Three cases are possible:

- Case 1: Communications between clients and the load balancer use HTTP, and communications between the load balancer and Oracle HTTP Server also use HTTP. See Section 12.4.1, "Case 1: Client ---[HTTP]---> Load Balancer ---[HTTP]---> Oracle HTTP Server".
- Case 2: Communications between clients and the load balancer use HTTPS, and communications between the load balancer and Oracle HTTP Server also use HTTPS. See Section 12.4.2, "Case 2: Client ---[HTTPS]---> Load Balancer ---[HTTPS]---> Oracle HTTP Server".
- Case 3: Communications between clients and the load balancer use HTTPS, but communications between the load balancer and Oracle HTTP Server use HTTP. See Section 12.4.3, "Case 3: Client ---[HTTPS]---> Load Balancer ---[HTTP]---> Oracle HTTP Server".

Note: Because the values you specify in this dialog override the values specified in the staticports.ini file, you should not specify port numbers for the Oracle HTTP Server `Listen` port in the staticports.ini file.

12.4.1 Case 1: Client ---[HTTP]---> Load Balancer ---[HTTP]---> Oracle HTTP Server

HTTP Listener: Port: Enter the port number that you want to use as the Oracle HTTP Server `Listen` port. This will be the value of the `Listen` directive in the `httpd.conf` file.
Enable SSL: Do not select this option. The installer tries the default port number for the SSL port.

HTTP Load Balancer: Hostname: Enter the name of the virtual server on the load balancer configured to handle HTTP requests.

HTTP Load Balancer: Port: Enter the port number that the HTTP virtual server listens on. This will be the value of the `Port` directive in the `httpd.conf` file.
Enable SSL: Do not select this option.

Example

Table 12–1 Example for Case 1

Values in Screen	Resulting Values in Configuration Files

HTTP Listener: Port: 8000
Enable SSL: Unchecked
HTTP Load Balancer: Port: 80
Enable SSL: Unchecked
	In **`httpd.conf`**:
	`Port 80`
	`Listen 8000`
	
	In **`ssl.conf`**:
	`Port <default port number assigned by installer>`
	`Listen <default port number assigned by installer>`

12.4.2 Case 2: Client ---[HTTPS]---> Load Balancer ---[HTTPS]---> Oracle HTTP Server

HTTP Listener: Port: Enter the port number that you want Oracle HTTP Server to listen on. This will be the value of the `Listen` directive in the `ssl.conf` file.
Enable SSL: Select this option.

HTTP Load Balancer: Hostname: Enter the name of the virtual server on the load balancer configured to handle HTTPS requests.

HTTP Load Balancer: Port: Enter the port number that the HTTP virtual server listens on. This will be the value of the `Port` directive in the `ssl.conf` file.
Enable SSL: Select this option.

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

Example

Table 12–2 Example for Case 2

Values in Screen	Resulting Values in Configuration Files

HTTP Listener: Port: 90
Enable SSL: Checked
HTTP Load Balancer: Port: 443
Enable SSL: Checked
	In **`httpd.conf`**:
	`Port <default port number assigned by installer>`
	`Listen <default port number assigned by installer>`
	
	In **`ssl.conf`**:
	`Port 443`
	`Listen 90`

12.4.3 Case 3: Client ---[HTTPS]---> Load Balancer ---[HTTP]---> Oracle HTTP Server

HTTP Listener: Port: Enter the port number that you want Oracle HTTP Server to listen on. This will be the value of the `Listen` directive in the `httpd.conf` file.
Enable SSL: Do not select this option.

HTTP Load Balancer: Hostname: Enter the name of the virtual server on the load balancer configured to handle HTTPS requests.

HTTP Load Balancer: Port: Enter the port number that the HTTP virtual server listens on. This will be the value of the `Port` directive in the `httpd.conf` file.
Enable SSL: Select this option.

The installer will change the following lines:

- In `opmn.xml`, the installer sets the `ssl-enabled` line in the Oracle HTTP Server section to `true`.
- In `httpd.conf`, the installer adds the following lines:

```
LoadModule certheaders_module libexec/mod_certheaders.so
SimulateHttps on
```

Example

Table 12–3 Example for Case 3

Values in Screen	Resulting Values in Configuration Files

HTTP Listener: Port: 9000
Enable SSL: Unchecked
HTTP Load Balancer: Port: 443
Enable SSL: Checked
	In **`httpd.conf`**:
	`Port 443`
	`Listen 9000`
	
	In **`ssl.conf`**:
	`Port <default port number assigned by installer>`
	`Listen <default port number assigned by installer>`

12.5 Installing an OracleAS Cluster (Identity Management) Configuration

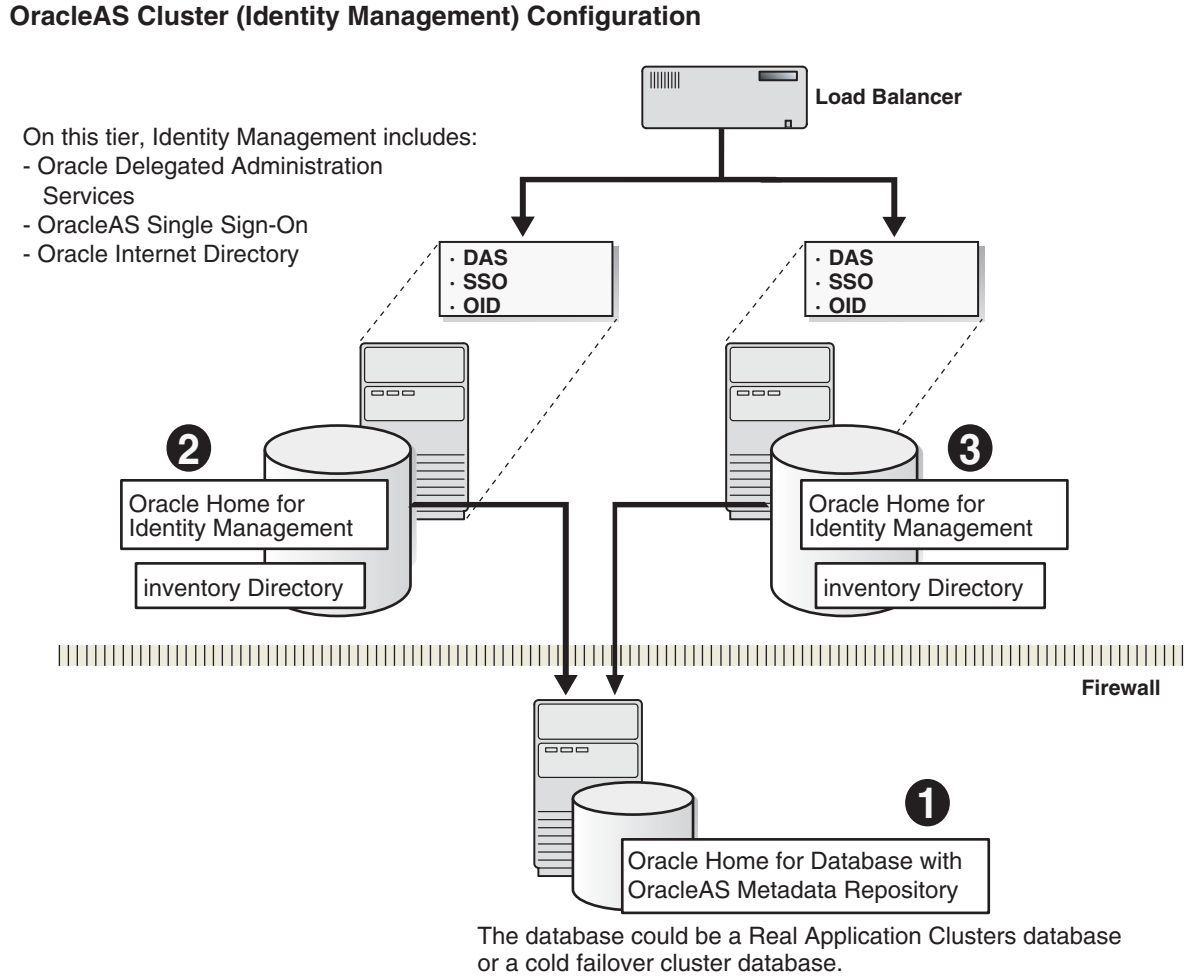
In this configuration, you need an existing database that is already running in a high availability environment, such as a Real Application Clusters database. You also need additional nodes (at least two nodes) to run Identity Management components. In this configuration, Oracle Internet Directory, OracleAS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

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

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

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

Figure 12–1 OracleAS Cluster (Identity Management) Configuration



Subsections:

- Section 12.5.1, "Installation Order"
- Section 12.5.2, "Installing OracleAS Metadata Repository"
- Section 12.5.3, "Installing OracleAS Cluster (Identity Management) on the First Node"
- Section 12.5.4, "Installing OracleAS Cluster (Identity Management) on Subsequent Nodes"
- Section 12.5.5, "If the Cluster Configuration Assistant Failed"

12.5.1 Installation Order

To create an OracleAS Cluster (Identity Management) configuration:

1. Install the OracleAS Metadata Repository in your existing database.
2. Install the Identity Management on each node. You run the installer on each node separately.
3. Install middle tiers.

12.5.2 Installing OracleAS Metadata Repository

To install the OracleAS Metadata Repository in your existing database, you use the OracleAS Metadata Repository Creation Assistant. See the *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

12.5.3 Installing OracleAS Cluster (Identity Management) on the First Node

Run the installer on each node where you want to install Identity Management components.

Note that the procedure for installing Identity Management components on the first node is different from installing the components on subsequent nodes. To install the components on subsequent nodes, see Section 12.5.4, "Installing OracleAS Cluster (Identity Management) on Subsequent Nodes".

Subsections:

- Section 12.5.3.1, "Create staticports.ini File"
- Section 12.5.3.2, "Ensure that the OracleAS Metadata Repository Is Not Registered with any Oracle Internet Directory"
- Section 12.5.3.3, "Select the Same Components for Each Node"
- Section 12.5.3.4, "Run the Installer"

12.5.3.1 Create staticports.ini File

If you want to use custom ports for components other than Oracle HTTP Server or Oracle Internet Directory, you need to create a staticports.ini file for this installation.

If you want custom ports for Oracle HTTP Server or Oracle Internet Directory, you specify them in the "Specify HTTP Load Balancer Host and Listen Ports" and the "Specify LDAP Virtual Host and Listen Ports" screens.

If you specify custom ports for Oracle HTTP Server and Oracle Internet Directory also in the staticports.ini file, and you also specify ports in the screens mentioned above, the ports specified in the screens take precedence.

To avoid specifying Oracle HTTP Server and Oracle Internet Directory ports in the staticports.ini file, the staticports.ini file **must not contain these lines**:

```
Oracle HTTP Server port = port_num
Oracle HTTP Server Listen port = port_num
Oracle HTTP Server SSL port = port_num
Oracle HTTP Server Listen (SSL) port = port_num
Oracle Internet Directory port = port_num
Oracle Internet Directory (SSL) port = port_num
```

If you have a staticports.ini file, you should also use the same file for installations on subsequent nodes.

12.5.3.2 Ensure that the OracleAS Metadata Repository Is Not Registered with any Oracle Internet Directory

When you perform the installation on the first node, you need to specify an OracleAS Metadata Repository that is not registered with any Oracle Internet Directory. The installer checks for this. If the installer finds that the OracleAS Metadata Repository is already registered with an Oracle Internet Directory, then it assumes that you are installing on subsequent nodes, and that you want to join the cluster that was created when you installed on the first node. It prompts you for the existing cluster name, and the connect information for the Oracle Internet Directory.

12.5.3.3 Select the Same Components for Each Node

You must select the same components in the Select Configuration Options screen when installing on each node. For example, if you select Oracle Internet Directory, OracleAS Single Sign-On, and Oracle Delegated Administration Services on the first node, you must select these same set of components on subsequent nodes.

12.5.3.4 Run the Installer

Follow the steps in Table 12–4.

Key Points for Installing on the First Node

- In the Select Configuration Options screen, select **High Availability and Replication**, in addition to selecting the components.
- In the Select High Availability or Replication Option screen, select **OracleAS Cluster (Identity Management)**.

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	Select **Manual** and enter the fullpath to your staticports.ini file in the provided field. You need to use staticports.ini file for OracleAS Cluster (Identity Management) configurations. See Section 12.5.3.1, "Create staticports.ini File". Click **Next**.

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

	Screen	Action
4.	Specify Repository	When you install on the first node, you need to specify an OracleAS Metadata Repository that is not registered with an Oracle Internet Directory. When you install on subsequent nodes, then the OracleAS Metadata Repository is registered with the Oracle Internet Directory on the first node. Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the names of all the nodes where the Real Application Clusters database is running, and the port numbers. Use the format: `host1.domain.com:port1, host2.domain.com:port2, ...` Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Select High Availability or Replication Option	Select **OracleAS Cluster (Identity Management)**, and click **Next**.
6.	Specify New OracleAS Cluster Name	Enter a name for the new OracleAS Cluster (Identity Management). Example: `cluster1` Click **Next**.
7.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
8.	Specify LDAP Virtual Host and Ports	The values you enter in this screen depend on your scenario. There are two possible scenarios: Scenario 1: You have configured a virtual server on your load balancer to handle LDAP traffic from Oracle Delegated Administration Services and OracleAS Single Sign-On to Oracle Internet Directory. Scenario 2: You do not have a load balancer. **Hostname**: In scenario 1, enter the name of the virtual server in this field. In scenario 2, enter the name of the computer running Oracle Internet Directory. Notes on the port values (see Section 12.2.3, "Configure Virtual Server Names and Ports for the Load Balancer" for details): ■ The port numbers specified on this screen take precedence over the Oracle Internet Directory port numbers specified in the staticports.ini file. ■ The same port numbers will be used for the Oracle Internet Directory on subsequent nodes and for the load balancer. **SSL Port**: In scenario 1, enter the port configured on the virtual server to handle SSL LDAP connections. In scenario 2, enter the port that you want Oracle Internet Directory to use for SSL connections. The standard port number for SSL LDAP connections is 636, but you can use any port that you want. **Non-SSL Port**: In scenario 1, enter the port configured on the virtual server to handle non-SSL LDAP connections. In scenario 2, enter the port that you want Oracle Internet Directory to use for non-SSL connections. The standard port number for non-SSL LDAP connections is 389, but you can use any port that you want. Click **Next**.

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

	Screen	Action
9.	Specify HTTP Load Balancer Host and Ports	See Section 12.4, "About Configuring SSL and Non-SSL Ports for Oracle HTTP Server" for details. **HTTP Listener: Port**: Enter the port number that you want Oracle HTTP Server to listen on. **Enable SSL**: Select this option if you want to configure Oracle HTTP Server for SSL on this port. **HTTP Load Balancer: Hostname**: Enter the name of the HTTP virtual server configured on your load balancer. **HTTP Load Balancer: Port**: Enter the port for the HTTP virtual server. **Enable SSL**: Select this option if this port is for SSL communications only. Click **Next**.
10.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
11.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

12.5.4 Installing OracleAS Cluster (Identity Management) on Subsequent Nodes

You run the installer on each node where you want to install Identity Management components. Use this procedure to install Identity Management components on nodes other than the first. For the first node, see Section 12.5.3, "Installing OracleAS Cluster (Identity Management) on the First Node".

Key Points for Installing on Subsequent Nodes

- Use the same staticports.ini file that you used for installing on the first node to ensure that the same component on all nodes uses the same port number.
- In the Specify HTTP Load Balancer Host and Ports screen, enter the name of the HTTP virtual server of the load balancer, and the associated port. You also enter the port number for Oracle HTTP Server on this screen.

Follow the steps in Table 12–5.

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning**. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	Select **Manual** and enter the fullpath to your staticports.ini file in the provided field. You need to use staticports.ini file for OracleAS Cluster (Identity Management) configurations. See Section 12.5.3.1, "Create staticports.ini File". Click **Next**.
4.	Specify Repository	When you install on the first node, you need to specify an OracleAS Metadata Repository that is not already registered with an Oracle Internet Directory. When you install on subsequent nodes, then the OracleAS Metadata Repository is registered with the Oracle Internet Directory on the first node. Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the names of all the nodes where the Real Application Clusters database is running, and the port numbers. Use the format: `host1.domain.com:port1, host2.domain.com:port2, ...` Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Warning	This warning reminds you that you are installing this instance as part of an OracleAS Cluster (Identity Management), and that you need to synchronize the clocks on the nodes in the cluster. See Section 12.2.2, "Synchronize Clocks on All Nodes". Click **OK**.
6.	Specify Existing OracleAS Cluster Name	Specify an existing OracleAS Cluster (Identity Management) for the current instance to join. The cluster was created during a previous identical installation. Example: `cluster1` Click **Next**.
7.	Specify ODS Password	Enter the password for the ODS schema in the OracleAS Metadata Repository. The ODS schema is the main schema used by Oracle Internet Directory. By default, the ODS password is the same as the ias_admin password (the password that you entered in the Specify Instance Name and ias_admin Password screen). Click **Next**.

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

	Screen	Action
8.	Specify OID Login	Username: Enter the username to log in to Oracle Internet Directory. You need to log in as the Oracle Internet Directory superuser (`cn=orcladmin`). Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.
9.	Specify HTTP Load Balancer Host and Ports	See Section 12.4, "About Configuring SSL and Non-SSL Ports for Oracle HTTP Server" for details. **HTTP Listener: Port**: Enter the port number that you want Oracle HTTP Server to listen on. **Enable SSL**: Select this option if you want to configure Oracle HTTP Server for SSL on this port. **HTTP Load Balancer: Hostname**: Enter the name of the HTTP virtual server configured on your load balancer. **HTTP Load Balancer: Port**: Enter the port for the HTTP virtual server. **Enable SSL**: Select this option if this port is for SSL communications only. Click **Next**.
10.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `idmgmt_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
11.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

12.5.5 If the Cluster Configuration Assistant Failed

If the Cluster Configuration Assistant failed, you can cluster the instance after installation. In this case, to cluster the instance, you must use the "`dcmctl joincluster`" command instead of Application Server Control. You cannot use Application Server Control in this case because Application Server Control cannot cluster instances that contain disabled components. In this case, the "home" OC4J instance is disabled.

12.6 Installing a Distributed OracleAS Cluster (Identity Management) Configuration

In this configuration, you need an existing database that is already running in a high availability environment, such as a Real Application Clusters database. This database will contain the OracleAS Metadata Repository.

You also need two nodes to run OracleAS Single Sign-On and Oracle Delegated Administration Services components, and two additional nodes to run Oracle Internet Directory. These nodes are accessed through load balancers. See Figure 12–2.

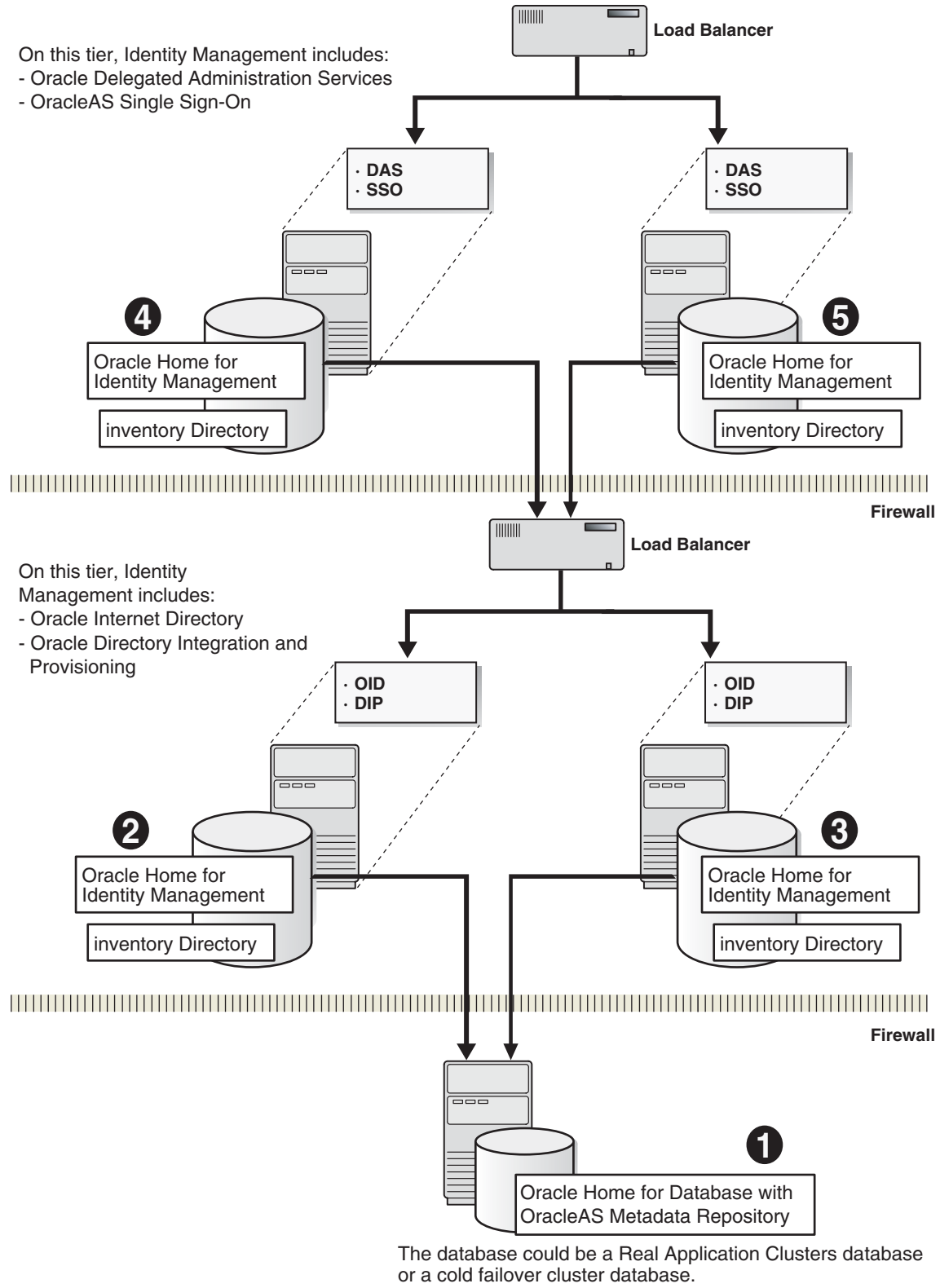
Oracle Directory Integration and Provisioning Is Started on the First Node Only

The installer starts Oracle Directory Integration and Provisioning only on the first node, even though you selected it on subsequent nodes as well. On subsequent nodes, the installer configures Oracle Directory Integration and Provisioning, but does not start it.

If You Want Oracle Internet Directory to Listen on SSL Ports Only

If you want Oracle Internet Directory to listen on SSL ports only, perform this configuration after you have installed OracleAS Single Sign-On and Oracle Delegated Administration Services. You need Oracle Internet Directory to be listening on both SSL and non-SSL ports when you install OracleAS Single Sign-On and Oracle Delegated Administration Services.

Figure 12–2 Distributed OracleAS Cluster (Identity Management) Configuration



Subsections:

- Section 12.6.1, "Installation Order"
- Section 12.6.2, "Installing OracleAS Metadata Repository"
- Section 12.6.3, "Installing Oracle Internet Directory on the First Node"
- Section 12.6.4, "Installing Oracle Internet Directory on Subsequent Nodes"
- Section 12.6.5, "Installing OracleAS Single Sign-On and Oracle Delegated Administration Services on Each Node"

12.6.1 Installation Order

To create a distributed OracleAS Cluster (Identity Management) configuration:

1. Install OracleAS Metadata Repository in your existing database.
2. Install Oracle Internet Directory on each node. You run the installer on each node separately.

> **Note:** If you want to configure Oracle Internet Directory to listen on SSL ports only, perform this configuration *after* you have installed OracleAS Single Sign-On and Oracle Delegated Administration Services. Oracle Internet Directory needs to be listening on both SSL and non-SSL ports when you install OracleAS Single Sign-On and Oracle Delegated Administration Services.

3. Install OracleAS Single Sign-On and Oracle Delegated Administration Services on each node. You run the installer on each node separately.
4. Install middle tiers.

12.6.2 Installing OracleAS Metadata Repository

To install the OracleAS Metadata Repository in your existing database, you use the OracleAS Metadata Repository Creation Assistant. See the *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for details.

12.6.3 Installing Oracle Internet Directory on the First Node

You run the installer on each node separately to install the Identity Management components.

12.6.3.1 Set up staticports.ini File

When installing Oracle Internet Directory on the first node, you do not need a load balancer. You can set up and configure the load balancer later. However you must ensure that the port numbers used by Oracle Internet Directory and by the load balancer are the same.

To do this, create a staticports.ini file to specify port numbers that you want Oracle Internet Directory to use. Your load balancer will use the same port numbers for LDAP communications. The staticports.ini file should contain these lines:

```
Oracle Internet Directory port = port_num
Oracle Internet Directory (SSL) port = port_num
```

12.6.3.2 Select the Same Components for Each Installation

If you are setting up the second node as a failover to the first node, then you must select the same set of components in the Select Configuration Options screen for each installation. For example, if you select Oracle Internet Directory and Oracle Directory Integration and Provisioning on the first node, you need to select them when installing on subsequent nodes.

12.6.3.3 Start the Installer

To install Oracle Internet Directory on the first node, follow the steps in Table 12–6.

To install Oracle Internet Directory on subsequent nodes, see Section 12.6.4, "Installing Oracle Internet Directory on Subsequent Nodes".

Key Points

- You must select the same components in the Select Configuration Options screen on all nodes. For example, if you select both Oracle Internet Directory and Oracle Directory Integration and Provisioning on the first node, you must select them on subsequent nodes in this tier.

Table 12–6 Steps for Installing Oracle Internet Directory in a Distributed OracleAS Cluster (Identity Management) on the First Node

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning** if you need this component. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	Select **Manual** and enter the fullpath to your staticports.ini file in the provided field. You need to use staticports.ini file for OracleAS Cluster (Identity Management) configurations. See Section 12.6.3.1, "Set up staticports.ini File". Click **Next**.

Table 12–6 (Cont.) Steps for Installing Oracle Internet Directory in a Distributed OracleAS Cluster (Identity Management) on the First Node

	Screen	Action
4.	Specify Repository	When you install on the first node, you need to specify an OracleAS Metadata Repository that is not already registered with an Oracle Internet Directory. When you install on subsequent nodes, then the OracleAS Metadata Repository is registered with the Oracle Internet Directory on the first node. Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Select High Availability or Replication Option	Select **OracleAS Cluster (Identity Management)**, and click **Next**.
6.	Specify Namespace in Internet Directory	Select the suggested namespace, or enter a custom namespace for the location of the default Identity Management realm. Ensure the value shown in Suggested Namespace meets your deployment needs. If not, enter the desired value in **Custom Namespace**. See Section 6.16, "What Do I Enter in the "Specify Namespace in Internet Directory" Screen?". Click **Next**.
7.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_das_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
8.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

12.6.4 Installing Oracle Internet Directory on Subsequent Nodes

Before performing the steps in this section, you must have installed Oracle Internet Directory on the first node as described in Section 12.6.3, "Installing Oracle Internet Directory on the First Node".

12.6.4.1 Staticports.ini File Not Needed

You do not need a staticports.ini file for this installation because the installer will configure this Oracle Internet Directory to use the same ports as the Oracle Internet Directory on the first node.

The Oracle Internet Directory on the first node must be up and running.

12.6.4.2 Select the Same Components for Each Installation

If you are setting up the second node as a failover to the first node, then you must select the same set of components in the Select Configuration Options screen for each installation. For example, if you select OracleAS Single Sign-On and Oracle Delegated Administration Services on the first node, you need to select them when installing on subsequent nodes.

12.6.4.3 Do Not Select the SSL Check box in the "Register with Oracle Internet Directory" Screen

Do not select the "**Use only SSL connections with this Oracle Internet Directory**" check box in the "Register with Oracle Internet Directory" screen.

12.6.4.4 Start the Installer

To install Oracle Internet Directory on subsequent nodes, follow these steps:

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

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Select **Oracle Internet Directory**. Do not select **OracleAS Single Sign-On**. Do not select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning** if you need this component. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	Select **Automatic**. The installer configures Oracle Internet Directory to use the same ports as the Oracle Internet Directory on the first node. Click **Next**.
4.	Specify Repository	Enter the same connect information that you entered for the first Oracle Internet Directory. Username: Enter the username to use to log in to the OracleAS Metadata Repository database. The user must have DBA privileges. Password: Enter the user's password. Hostname and Port: Enter the name of the computer where the database is running, and the port number at which it is listening. Use the format: *`host:port`*. Service Name: Enter the service name of the database. Note that the service name must include the database domain name. Example: `asdb.mydomain.com` Click Next.
5.	Warning	This warning reminds you that you are installing this instance as part of an OracleAS Cluster (Identity Management), and that you need to synchronize the clocks on the nodes in the cluster. See Section 12.2.2, "Synchronize Clocks on All Nodes". Click **OK**.

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

	Screen	Action
6.	Specify ODS Password	Enter the password for the ODS schema in the OracleAS Metadata Repository. The ODS schema is the main schema used by Oracle Internet Directory. By default, the ODS password is the same as the ias_admin password (the password that you entered in the Specify Instance Name and ias_admin Password screen). Click **Next**.
7.	Register with Oracle Internet Directory	Enter connect information for the first Oracle Internet Directory. Hostname: Enter the name of the computer where Oracle Internet Directory is running. Port: Enter the port on which Oracle Internet Directory is listening. See Section 6.17, "How to Determine Port Numbers Used by Components" if you do not know the port number. **Use Only SSL Connections with this Oracle Internet Directory**: Do not select this option. Click **Next**.
8.	Specify OID Login	Username: Enter the username to log in to the first Oracle Internet Directory. You must log in as the Oracle Internet Directory superuser (`cn=orcladmin`). Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.
9.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `oid_das_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.

12.6.5 Installing OracleAS Single Sign-On and Oracle Delegated Administration Services on Each Node

You run the installer on each node separately to install these Identity Management components.

12.6.5.1 Set up staticports.ini File

If you want to use custom ports for components other than Oracle HTTP Server, you need to create a staticports.ini file for this installation.

If you want custom ports for Oracle HTTP Server, you specify them in the "Specify HTTP Load Balancer Host and Listen Ports" screen.

If you specify custom ports for Oracle HTTP Server also in the staticports.ini file, and you also specify ports in the screen mentioned above, the ports specified in the screen take precedence.

To avoid specifying Oracle HTTP Server ports in the staticports.ini file, the staticports.ini file **must not contain these lines**:

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

If you have a staticports.ini file, you should also use the same file for installations on subsequent nodes.

12.6.5.2 Start the Installer

Key Points

- In the Specify OracleAS Cluster screen, for the first node, select **Create a New Cluster**. For the second node, select **Join an Existing Cluster** to join the cluster that you created when installing on the first node.
- In the Specify HTTP Load Balancer Host and Ports screen, enter the name of the HTTP virtual server of the load balancer, and the associated port. You also enter the port number for Oracle HTTP Server on this screen.
- Also in the Specify HTTP Load Balancer Host and Ports screen, you need to specify the same HTTP virtual server name and port number for all nodes. However, you can specify different port numbers for Oracle HTTP Server on each node, as long as your load balancer is configured to communicate with the specified port on that node.

Table 12–8 Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in a Distributed OracleAS Cluster (Identity Management) Configuration

	Screen	Action
1.	--	Start up the installer and complete the first few screens. See Section 6.26, "Install Fragment: The First Few Screens of the Installation" for details. Notes: In the Select Installation Type screen, select **Identity Management**.
2.	Select Configuration Options	Do not select **Oracle Internet Directory**. Select **OracleAS Single Sign-On**. Select **OracleAS Delegated Administration Services**. Select **OracleAS Directory Integration and Provisioning** if you need this component. Do not select **OracleAS Certificate Authority (OCA)**. Select **High Availability and Replication**. Click Next.
3.	Specify Port Configuration Options	Select **Manual** and enter the fullpath to your staticports.ini file in the provided field. You need to use staticports.ini file for OracleAS Cluster (Identity Management) configurations. See Section 12.6.5.1, "Set up staticports.ini File". Click **Next**.
4.	Select High Availability Option	Select **OracleAS Cluster (Identity Management)**, and click **Next**.

Table 12–8 (Cont.) Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in a Distributed OracleAS Cluster (Identity Management) Configuration

	Screen	Action
5.	Create or Join an OracleAS Cluster (Identity Management)	For the first node, select **Create a New OracleAS Cluster**. For subsequent nodes, select **Join an Existing Cluster**. Click **Next**.
6.	Specify New OracleAS Cluster Name - or - Specify Existing OracleAS Cluster Name	For the first node, enter a name for a new OracleAS Cluster (Identity Management). Example: `cluster1` For subsequent nodes, enter the name of the existing OracleAS Cluster (Identity Management). **Note:** Be very sure that the cluster name you enter is correct. The installer does not perform any checks on this name. **If the name is incorrect, the installation will fail.** Click **Next**.
7.	Specify LDAP Virtual Host and Ports	The installer will use the values on this screen to connect to Oracle Internet Directory. **Hostname**: Enter the LDAP virtual server name of the load balancer. **SSL Port**: Enter the port configured on this load balancer to handle LDAP SSL connections. **Non-SSL Port**: Enter the port configured on this load balancer to handle LDAP non-SSL connections. Click **Next**.
8.	Specify OID Login	Username: Enter the username to log in to Oracle Internet Directory, accessed through the load balancer host and port specified in the previous screen. Log in as the Oracle Internet Directory superuser (`cn=orcladmin`), or as a user who belongs to the necessary groups in Oracle Internet Directory. Which groups are necessary depends on which components you are installing. See Section 8.3, "Groups Required to Configure or Deinstall Components" for details. Password: Enter the password for the username. Realm: Enter the realm against which to validate the username. This field appears only if your Oracle Internet Directory has multiple realms. Click Next.
9.	Specify HTTP Load Balancer Host and Ports	See Section 12.4, "About Configuring SSL and Non-SSL Ports for Oracle HTTP Server" for details. **HTTP Listener: Port**: Enter the port number that you want Oracle HTTP Server to listen on. **Enable SSL**: Select this option if you want to configure Oracle HTTP Server for SSL on this port. **HTTP Load Balancer: Hostname**: Enter the name of the HTTP virtual server configured on your load balancer. **HTTP Load Balancer: Port**: Enter the port for the HTTP virtual server. **Enable SSL**: Select this option if this port is for SSL communications only. Click **Next**.

Table 12–8 (Cont.) Steps for Installing Oracle Delegated Administration Services and OracleAS Single Sign-On in a Distributed OracleAS Cluster (Identity Management) Configuration

	Screen	Action
10.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this infrastructure instance. Instance names can contain alphanumeric characters and the _ (underscore) character. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `das_sso_10_1_2` ias_admin Password and Confirm Password: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
11.	--	Finish the installation. See Section 6.27, "Install Fragment: The Last Few Screens of the Installation" for details.

12.6.5.3 If the Cluster Configuration Assistant Failed

You can cluster the instance after installation. See Section 12.5.5, "If the Cluster Configuration Assistant Failed" for details.

12.7 Post-Installation Steps

After installing Identity Management components on all nodes, reconfigure your load balancer to direct requests to all nodes. Before you started the installation, you had configured the load balancer to direct requests to node 1 only. See Section 12.2.4, "Configure Your LDAP Virtual Server to Direct Requests to Node 1 Initially".

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

Pre-Installation

Before starting the middle-tier installation, configure the LDAP load balancer that you are using for Oracle Internet Directory so that it points to only one Oracle Internet Directory node.

Installation

When installing middle tiers against OracleAS Cluster (Identity Management) configurations, follow the steps described in Chapter 7, "Installing Middle Tiers".

When the installer prompts for the Oracle Internet Directory host and port, enter the LDAP virtual host name configured on the load balancer and the associated port.

Post-Installation

After installing the middle tiers, you can reconfigure the LDAP load balancer to point to all the Oracle Internet Directory nodes.

13

Installing in High Availability Environments: OracleAS Disaster Recovery

This chapter describes how to install Oracle Application Server in OracleAS Disaster Recovery configurations. OracleAS Disaster Recovery is one of the high availability environments supported by Oracle Application Server.

Contents of this chapter:

- Section 13.1, "OracleAS Disaster Recovery: Introduction"
- Section 13.2, "Setting up the OracleAS Disaster Recovery Environment"
- Section 13.3, "Installing Oracle Application Server in an OracleAS Disaster Recovery Environment"
- Section 13.4, "What to Read Next"

13.1 OracleAS Disaster Recovery: Introduction

Use the OracleAS Disaster Recovery environment when you want to have two physically separate sites in your environment. One site is the production site, and the other site is the standby site. The production site is active, while the standby site is passive; the standby site becomes active when the production site goes down.

Generally, the standby site mirrors the production site: each node in the standby site corresponds to a node in the production site. This includes the nodes running both OracleAS Infrastructure and middle tiers. As a small variation to this environment, you can set up the OracleAS Infrastructure on the production site in an OracleAS Cold Failover Cluster environment. See Section 13.2.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site" for details.

Figure 13–1 shows an example OracleAS Disaster Recovery environment. Each site has two nodes running middle tiers and a node running OracleAS Infrastructure.

Data Synchronization

For OracleAS Disaster Recovery to work, data between the production and standby sites must be synchronized so that failover can happen very quickly. Configuration changes done at the production site must be synchronized with the standby site.

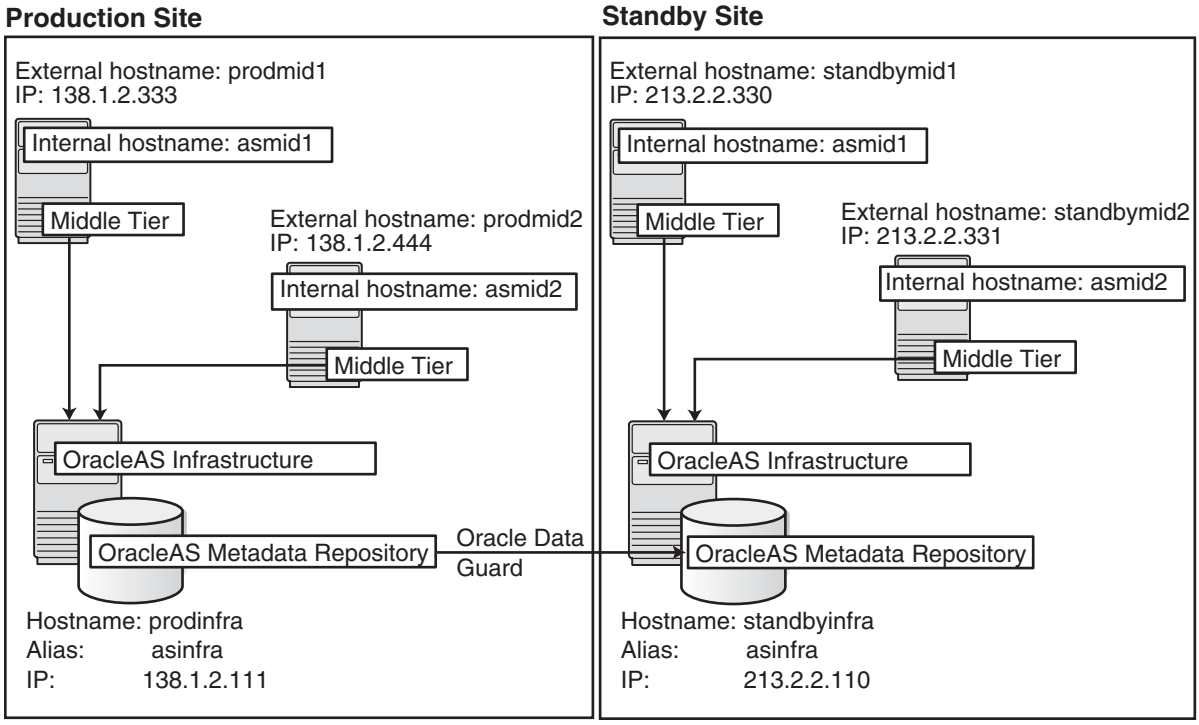
You need to synchronize two types of data. The synchronization method depends on the type of data:

- Use Oracle Data Guard to synchronize data in the OracleAS Metadata Repository databases on the production and standby sites. You can configure Oracle Data Guard to perform the synchronization.

- Use the backup and recovery scripts to synchronize data outside of the database (such as data stored in configuration files).

See the *Oracle Application Server High Availability Guide* for details on how to use Oracle Data Guard and the backup and recovery scripts.

Figure 13–1 OracleAS Disaster Recovery Environment



13.2 Setting up the OracleAS Disaster Recovery Environment

Before you can install Oracle Application Server in an OracleAS Disaster Recovery environment, you have to perform these steps:

- Section 13.2.1, "Ensure Nodes Are Identical at the Operating System Level"
- Section 13.2.2, "Set Up staticports.ini File"
- Section 13.2.3, "Set Up Identical Hostnames on Both Production and Standby Sites"
- Section 13.2.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site"

13.2.1 Ensure Nodes Are Identical at the Operating System Level

Ensure that the nodes are identical with respect to the following items:

- The nodes are running the same version of the operating system.
- The nodes have the same operating system patches and packages.
- You can install Oracle Application Server in the same directory path on all nodes.

13.2.2 Set Up staticports.ini File

The same component must use the same port number on the production and standby sites. For example, if Oracle HTTP Server is using port 80 on the production site, it must also use port 80 on the standby site. To ensure this is the case, create a `staticports.ini` file for use during installation. This file enables you to specify port numbers for each component. See Section 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

13.2.3 Set Up Identical Hostnames on Both Production and Standby Sites

The names of the corresponding nodes on the production and standby sites must be identical, so that when you synchronize data between the sites, you do not have to edit the data to fix the hostnames.

For the Infrastructure Nodes

For the node running the infrastructure, set up a virtual name. To do this, specify an alias for the node in the `C:\Windows\system32\drivers\etc\hosts` file.

For example, on the infrastructure node on the production site, the following line in the `hosts` file sets the alias to `asinfra`:

```
138.1.2.111   prodinfra   asinfra
```

On the standby site, the following line sets the node's alias to `asinfra`.

```
213.2.2.110   standbyinfra   asinfra
```

When you install OracleAS Infrastructure on the production and standby sites, you specify this alias (`asinfra`) in the Specify Virtual Hostname screen. The configuration data will then contain this alias for the infrastructure nodes.

For the Middle-tier Nodes

For the nodes running the middle tiers, you cannot set up aliases like you did for the infrastructure nodes because the installer does not display the Specify Virtual Hostname screen for middle-tier installations. When installing middle tiers, the installer determines the hostname automatically by calling the gethostname() function. You want to be sure that for each middle-tier node on the production site, the corresponding node on the standby site returns the same hostname.

To do this, set up a local, or internal, hostname, which could be different from the public, or external, hostname. You can change the names of the nodes on the standby site to match the names of the corresponding nodes on the production site, or you can change the names of the nodes on both production and standby sites to be the same. This depends on other applications that you might be running on the nodes, and whether changing the node name will affect those applications.

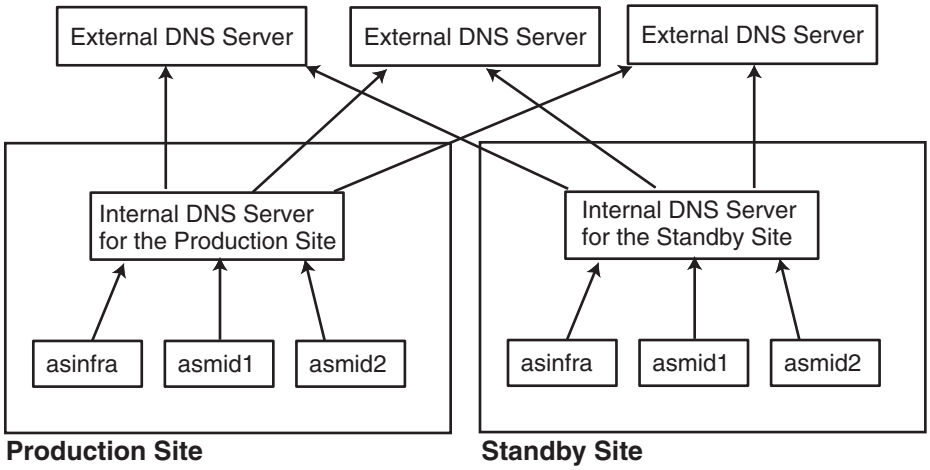
1. On the nodes whose local names you want to change, set the `_CLUSTER_NETWORK_NAME_` environment variable to specify the new local fully qualified name (for example, `asmid1.oracle.com`).

> **Note:** You must set the `_CLUSTER_NETWORK_NAME_` environment variable as a "user" environment variable, not as a "system" environment variable.

2. Enable the other nodes in the OracleAS Disaster Recovery environment to be able to resolve the node using the new local hostname. You can do this in one of two ways:

   Method 1: Set up separate internal DNS servers for the production and standby sites. This configuration allows nodes on each site (production or standby) to resolve hostnames within the site. Above the internal DNS servers are the corporate, or external, DNS servers. The internal DNS servers forward non-authoritative requests to the external DNS servers. The external DNS servers do not know about the existence of the internal DNS servers. See Figure 13–2.

Figure 13–2 Method 1: Using DNS Servers



Method 1 Details

a. Make sure the external DNS names are defined in the external DNS zone. Example:

```
prodmid1.us.oracle.com     IN  A  138.1.2.333
prodmid2.us.oracle.com     IN  A  138.1.2.444
prodinf.us.oracle.com      IN  A  138.1.2.111
standbymid1.us.oracle.com  IN  A  213.2.2.330
standbymid2.us.oracle.com  IN  A  213.2.2.331
standbyinf.us.oracle.com   IN  A  213.2.2.110
```

b. At the production site, create a new zone at the production site using a domain name different from your external domain name. To do this, populate the zone data files with entries for each node in the OracleAS Disaster Recovery environment.

   For the infrastructure node, use the virtual name or alias.

   For the middle-tier nodes, use the node name (the value in the `_CLUSTER_NETWORK_NAME_` environment variable).

   The following example uses "asha" as the domain name for the new zone.

```
asmid1.asha    IN  A  138.1.2.333
asmid2.asha    IN  A  138.1.2.444
asinfra.asha   IN  A  138.1.2.111
```

   Do the same for the standby site. Use the same domain name that you used for the production site.

```
asmid1.asha    IN  A  213.2.2.330
asmid1.asha    IN  A  213.2.2.331
asinfra.asha   IN  A  213.2.2.110
```

c. For each node on the production site, configure the DNS resolver to point to the internal DNS servers instead of the external DNS server.

Table 13–1 Configure the DNS Resolver to Point to Internal DNS Servers

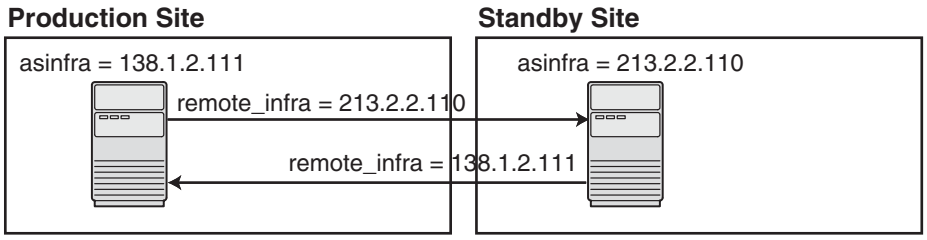
Windows 2000 or Windows 2003
1. Display the Local Area Connection Status dialog. In Windows 2000, select **Start > Settings > Control Panel**. Double-click **Network and Dial-up Connections**. Then double-click **Local Area Connection**. In Windows 2003, select **Start > Control Panel > Network Connections > Local Area Connection**.
2. Click **Properties** to display the Local Area Connection Properties dialog.
3. With the General tab selected, select **Internet Protocol (TCP/IP)** from the list box and click **Properties**. This displays the Internet Protocol (TCP/IP) Properties dialog.
4. Replace the existing name server IP address with the IP address of the internal DNS server for the production site.
5. Click **Advanced**. This displays the Advanced TCP/IP Settings dialog.
6. Select the DNS tab, and update the DNS server addresses.

Do the same for the nodes on the standby site, but use the IP address of the internal DNS server for the standby site.

d. Create a separate entry for Oracle Data Guard in the internal DNS servers. This entry is used by Oracle Data Guard to ship redo data to the database on the standby site.

In the next example, the "remote_infra" entry points to the infrastructure node on the standby site. This name is used by the TNS entries on both the production and standby sites so that if a switchover occurs, the entry does not have to be changed.

Figure 13–3 Entry for Oracle Data Guard in the Internal DNS Servers



On the production site, the DNS entries look like this:

```
asmid1.asha        IN  A  138.1.2.333
asmid2.asha        IN  A  138.1.2.444
asinfra.asha       IN  A  138.1.2.111
remote_infra.asha  IN  A  213.2.2.110
```

On the standby site, the DNS entries look like this:

```
asmid1.asha        IN  A  213.2.2.330
asmid2.asha        IN  A  213.2.2.331
```

```
asinfra.asha       IN  A  213.2.2.110
remote_infra.asha  IN  A  138.1.2.111
```

Method 2: Edit the `C:\Windows\system32\drivers\etc\hosts` file on each node on both sites. This method does not involve configuring DNS servers, but you have to maintain the `hosts` file on each node in the OracleAS Disaster Recovery environment. For example, if an IP address changes, you have to update the files on all the nodes, and restart the nodes.

Method 2 Details

a. On each node on the production site, include these lines in the `C:\Windows\system32\drivers\etc\hosts` file. The IP addresses resolve to nodes on the production site.

Note: In the `hosts` file, be sure that the line that identifies the current node comes *immediately* after the localhost definition (the line with the 127.0.0.1 address).

```
127.0.0.1    localhost
138.1.2.333  asmid1.oracle.com   asmid1
138.1.2.444  asmid2.oracle.com   asmid2
138.1.2.111  asinfra.oracle.com  asinfra
```

b. On each node on the standby site, include these lines in the `hosts` file. The IP addresses resolve to nodes on the standby site.

Note: In the `hosts` file, be sure that the line that identifies the current node comes *immediately* after the localhost definition (the line with the 127.0.0.1 address).

```
127.0.0.1    localhost
213.2.2.330  asmid1.oracle.com   asmid1
213.2.2.331  asmid2.oracle.com   asmid2
213.2.2.110  asinfra.oracle.com  asinfra
```

c. Set the order of hostname resolution so that the node resolves hostnames by reading the `hosts` file first. If the `hosts` file does not contain an entry for the desired hostname, then the node will resolve the hostname through DNS.

You can do this by adding the entries to the `hosts` file, then running the "`nbtstat -R`" command to purge cached information and reload the name table. See your system administrator for details.

Verifying that the Nodes Resolve the Hostnames Correctly

After making the changes and restarting the nodes, check that the nodes resolve the hostnames properly by running the following commands:

- On the middle-tier nodes on both sites, run the `hostname` command. This should return the internal hostname. For example, the command should return "asmid1" if you run it on prodmid1 and standbymid1.

```
C:\> hostname
asmid1
```

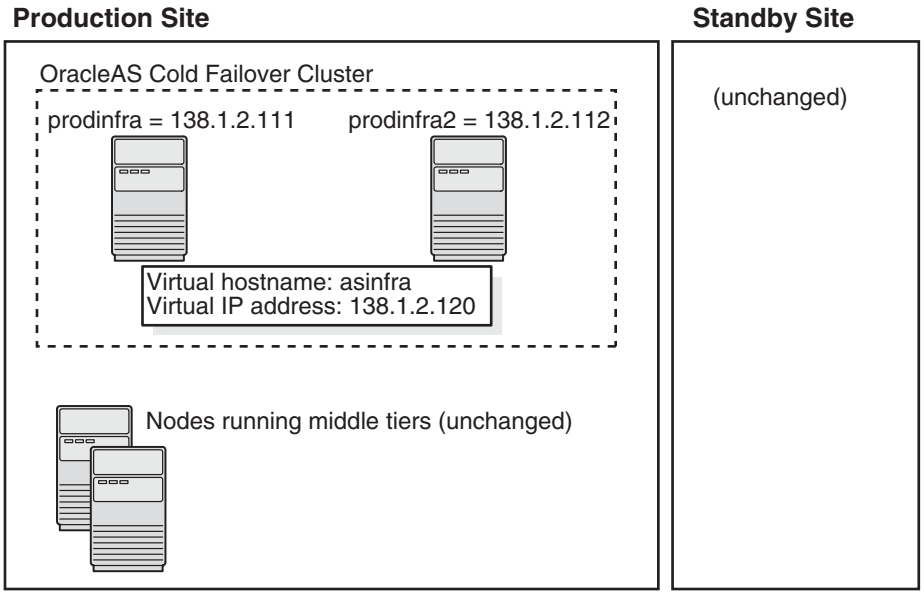
- On each node, ping the other nodes in the environment using the internal hostname as well as the external hostname. The command should be successful. For example, from the first midtier node, prodmid1, run the following commands:

```
C:> ping prodinfra          ping the production infrastructure node
Pinging prodinfra [138.1.2.111] with 32 bytes of data:
Reply from 138.1.2.111: bytes=32 time<1ms TTL=128

C:> ping asinfra            ping the production infrastructure node
Pinging prodinfra [138.1.2.111] with 32 bytes of data:
Reply from 138.1.2.111: bytes=32 time<1ms TTL=128

C:> ping asmid2             ping the second production midtier node
Pinging asmid2 [138.1.2.444] with 32 bytes of data:
Reply from 138.1.2.444: bytes=32 time<1ms TTL=128

C:> ping prodmid2           ping the second production midtier node
Pinging asmid2 [138.1.2.444] with 32 bytes of data:
Reply from 138.1.2.444: bytes=32 time<1ms TTL=128

C:> ping standbymid1        ping the first standby midtier node
Pinging asmid2 [213.2.2.330] with 32 bytes of data:
Reply from 213.2.2.330: bytes=32 time<1ms TTL=128
```

13.2.4 If You Want to Use OracleAS Cold Failover Cluster on the Production Site

On the production site of a OracleAS Disaster Recovery system, you can set up the OracleAS Infrastructure to run in a OracleAS Cold Failover Cluster configuration. In this case, you have two nodes in a hardware cluster, and you install the OracleAS Infrastructure on a shared disk. See Chapter 11, "Installing in High Availability Environments: OracleAS Cold Failover Cluster" for details.

Figure 13–4 Infrastructure in an OracleAS Cold Failover Cluster Configuration



To set up OracleAS Cold Failover Cluster in this environment, use the virtual IP address (instead of the physical IP address) for asinfra.asha on the production site. The following example assumes 138.1.2.120 is the virtual IP address.

```
asmid1.asha          IN  A  138.1.2.333
asmid2.asha          IN  A  138.1.2.444
asinfra.asha         IN  A  138.1.2.120        this is a virtual IP address
remote_infra.asha    IN  A  213.2.2.110
```

On the standby site, you still use the physical IP address for asinfra.asha, but the remote_infra.asha uses the virtual IP address.

```
asmid1.asha          IN  A  213.2.2.330
asmid2.asha          IN  A  213.2.2.331
asinfra.asha         IN  A  213.2.2.110        physical IP address
remote_infra.asha    IN  A  138.1.2.120        virtual IP address
```

Need to Create the Password File in Oracle Fail Safe

When you are setting up OracleAS Cold Failover Cluster in an OracleAS Disaster Recovery environment, you need to create the password file when you are adding the OracleAS Metadata Repository to the Oracle Fail Safe group.

In Section 11.12.2, "Make OracleAS Metadata Repository Highly Available", in step c, select **Yes, create the password file**.

In **User Name**, enter `SYS`.

In **Password** and **Confirm Password**, enter and confirm the password that you want to set for the SYS user.

13.3 Installing Oracle Application Server in an OracleAS Disaster Recovery Environment

Install Oracle Application Server as follows:

> **Note:** For all of the installations, be sure to use staticports.ini to specify port numbers for the components. See Section 13.2.2, "Set Up staticports.ini File".

1. Install OracleAS Infrastructure on the production site.
2. Install OracleAS Infrastructure on the standby site.
3. Install middle tiers on the production site.
4. Install middle tiers on the standby site.

13.3.1 Installing the OracleAS Infrastructure

You must install the Identity Management and the OracleAS Metadata Repository components of OracleAS Infrastructure on the same node. You cannot distribute the components over multiple nodes.

The installation steps are similar to that for OracleAS Cold Failover Cluster. See Section 11.3, "Installing an OracleAS Cold Failover Cluster (Infrastructure) Configuration" for the screen sequence. Note the following points:

- Select Configuration Options screen: be sure you select **High Availability and Replication**. See Table 11–4, step 7.
- In the Specify Virtual Hostname screen, enter the fully qualified local hostname as the virtual address (for example, asinfra.oracle.com). See Table 11–4, step 12.

13.3.2 Installing Middle Tiers

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

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

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

Note the following points:

- When the installer prompts you to register with Oracle Internet Directory, and asks you for the Oracle Internet Directory hostname, enter the alias of the node running OracleAS Infrastructure (for example, asinfra.oracle.com).

13.4 What to Read Next

For information on how to manage your OracleAS Disaster Recovery environment, such as setting up Oracle Data Guard and configuring the OracleAS Metadata Repository database, see the *Oracle Application Server High Availability Guide*.

14

Installing the OracleAS Metadata Repository in an Existing Database

Please see the *Oracle Application Server Metadata Repository Creation Assistant User's Guide* for information on how to install the OracleAS Metadata Repository in an existing database.

15

Recommended Topologies

This chapter describes how to install and configure the infrastructure and the middle tier in different topologies. The topologies illustrate the flexibility of Oracle Application Server.

Each section in this chapter describes a topology. For each topology, the section shows a diagram of the topology, and lists the assumptions, special requirements, and installation steps.

Table 15–1 lists the recommended topologies:

Table 15–1 Recommended Topologies Summary

Topology	Environment	Requires Infrastructure?
Section 15.1, "Java Developer Topology"	Development	No
Section 15.2, "Portal and Wireless Developer Topology"	Development	Yes
Section 15.3, "Integration Business-to-Business (B2B) Topology"	Development	Yes
Section 15.4, "Departmental Topology with Separate OracleAS Metadata Repository for OracleAS Portal"	Deployment	Yes
Section 15.5, "Development Life Cycle Support Topology"	Development and Deployment	n/a
Section 15.6, "OracleAS Certificate Authority Topology"	Deployment	Yes

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

15.1 Java Developer Topology

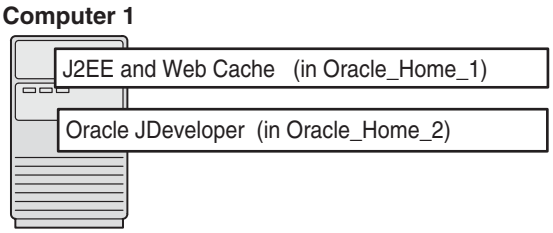
This is a single-computer development topology on which you can build, run, and test J2EE applications. It does not require an OracleAS Infrastructure.

Target Users

J2EE application developers

Figure 15–1 shows a diagram of this topology.

Figure 15–1 J2EE and Web Cache with Oracle JDeveloper



15.1.1 Description

This topology includes the components in the J2EE and Web Cache middle tier:

- Oracle HTTP Server
- Oracle Application Server Containers for J2EE
- OracleAS Web Cache

For a development tool, you can install the Oracle JDeveloper IDE, available as part of the Oracle Developer Suite.

Notes

- You can configure this J2EE and Web Cache instance to use an OracleAS Infrastructure anytime after installation.
- This instance cannot use OracleAS Single Sign-On, unless you configure it with an Oracle Internet Directory. You can install an Oracle Internet Directory if you install the OracleAS Infrastructure.

15.1.2 Requirements

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

15.1.3 Installation Sequence

You need to perform two installations:

- Install J2EE and Web Cache, as described in Section 7.8, "Installing a J2EE and Web Cache Without an Infrastructure".
- Install Oracle JDeveloper. See the *Oracle Developer Suite Installation Guide* for details.

You install these products in separate Oracle homes. The Oracle homes must be new directories (that is, they are not Oracle homes for other Oracle products).

You can install J2EE and Web Cache middle tier and Oracle JDeveloper in any order.

15.2 Portal and Wireless Developer Topology

This is a single-computer development topology containing an OracleAS Infrastructure and a Portal and Wireless middle tier. The OracleAS Infrastructure installation creates a new Oracle database and Oracle Internet Directory.

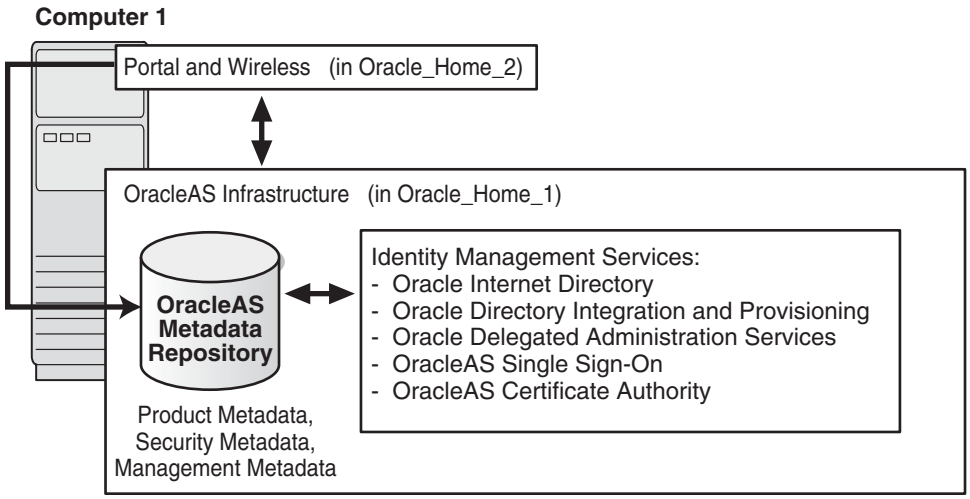
Target Users

Application developers, who can run and test their applications that access features provided by the included components

15.2.1 Description

This topology enables application developers to develop and test their Portal and Wireless applications. This topology requires a more powerful computer than the topology described in Section 15.1, "Java Developer Topology" because this topology runs an OracleAS Infrastructure and a Portal and Wireless middle tier on the same computer. The infrastructure and the middle tier are installed in different Oracle homes.

Figure 15–2 Portal and Wireless Developer Topology



15.2.2 Requirements

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

15.2.3 Installation Sequence

Create this topology in the following order:

1. Install OracleAS Infrastructure.

   Follow the steps in Section 6.19, "Installing OracleAS Infrastructure" to install an infrastructure with a new Oracle database to contain the OracleAS Metadata Repository. The procedure also installs a new Oracle Internet Directory.

2. Install the Portal and Wireless middle tier.

   Follow the steps in Section 7.13, "Installing Portal and Wireless".

You install them in different Oracle homes.

15.3 Integration Business-to-Business (B2B) Topology

This development topology enables you to design, deploy, monitor, and manage integrations between enterprises (also known as business-to-business (B2B)

integrations). OracleAS Integration B2B enables trading partners to conduct business using RosettaNet, Electronic Data Interchange (EDI), or a custom business protocol.

Target Audience

- Users who design, deploy, monitor, and administer B2B integrations

15.3.1 Description

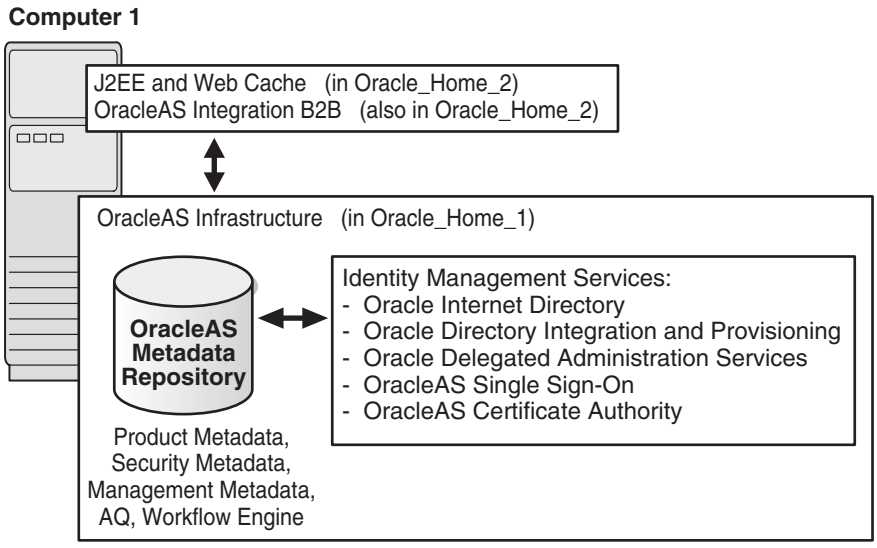
This development topology includes:

- OracleAS Infrastructure
- J2EE and Web Cache middle tier
- OracleAS Integration B2B, which provides an environment for the B2B exchange of services, information, and products. See the *Oracle Application Server Integration B2B User's Guide* for details.

You can find OracleAS Integration B2B on its own CD-ROM in the Oracle Application Server distribution. The OracleAS Integration B2B CD-ROM also contains the *Oracle Application Server Integration B2B Installation Guide*.

If you have the Oracle Application Server DVD-ROM, you can find OracleAS Integration B2B in the `b2b` directory.

Figure 15–3 Integration B2B Topology



15.3.2 Requirements

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

For OracleAS Integration B2B requirements, see the *Oracle Application Server Integration B2B Installation Guide*, which is on the OracleAS Integration B2B CD-ROM or in the `b2b` directory on the Oracle Application Server DVD.

15.3.3 Assumptions

This topology makes the following assumptions:

- When you install OracleAS Infrastructure, you create a new Oracle Internet Directory.
- When you install OracleAS Infrastructure, you create a new database for the OracleAS Metadata Repository. This OracleAS Metadata Repository is also used by OracleAS Integration B2B.

15.3.4 Installation Sequence

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

1. In Oracle_Home_1, install an OracleAS Infrastructure with Identity Management services and OracleAS Metadata Repository. See Section 6.19, "Installing OracleAS Infrastructure" for specific steps.

   This creates a database to contain the OracleAS Metadata Repository. It also creates an Oracle Internet Directory.

2. In Oracle_Home_2, install a J2EE and Web Cache middle tier. See Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access".

   When the installer prompts for Oracle Internet Directory, enter the connect information for the Oracle Internet Directory created in step 1.

   When the installer prompts for the OracleAS Metadata Repository, select the OracleAS Metadata Repository installed in step 1.

3. Install OracleAS Integration B2B in the Oracle home where you installed the J2EE and Web Cache middle tier. See the *Oracle Application Server Integration B2B Installation Guide* (on the OracleAS Integration B2B CD-ROM or in the `b2b` directory on the Oracle Application Server DVD) for details on how to install OracleAS Integration B2B.

15.4 Departmental Topology with Separate OracleAS Metadata Repository for OracleAS Portal

This topology is smaller scale version of the topology described in the *Oracle Application Server Enterprise Deployment Guide*. It consists of an OracleAS Infrastructure with two metadata repositories, and multiple middle tiers.

It uses two metadata repositories in the following way:

- One OracleAS Metadata Repository is used by Identity Management components, such as Oracle Internet Directory and OracleAS Single Sign-On.
- The second OracleAS Metadata Repository is used by the Portal and Wireless middle tier. Components in this middle tier, such as OracleAS Portal and OracleAS Wireless, use this OracleAS Metadata Repository.

Target Users

This topology can be used by individual departments within an organization. Users who access this topology are internal to the organization. As such, this topology does not consider security requirements that involve external users.

15.4.1 Description

This topology (Figure 15–4) consists of an OracleAS Infrastructure, plus several middle tiers, including at least one Portal and Wireless middle tier. This topology uses two metadata repositories:

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

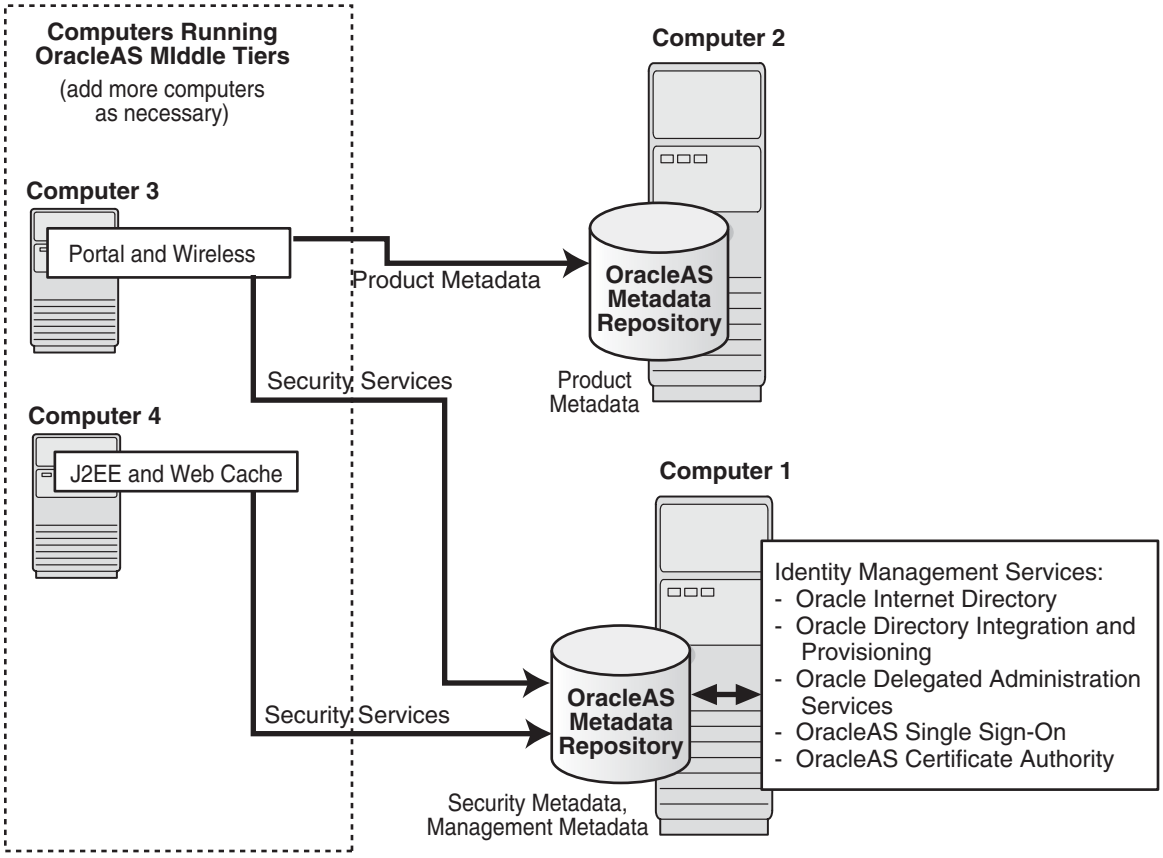
Expanding the Topology

You can install Oracle Application Server middle tiers on additional computers, as needed. Set these middle tiers to use either metadata repository.

Adding High Availability Features

You can install OracleAS Infrastructure in any of the high availability environments described in Chapter 10, "Installing in High Availability Environments: Overview".

Figure 15–4 Departmental Topology



15.4.2 Requirements

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

15.4.3 Assumptions

This topology makes the following assumptions:

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

15.4.4 Installation Sequence

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

1. Computer 1: Install OracleAS Infrastructure with Identity Management services and OracleAS Metadata Repository. See Section 6.19, "Installing OracleAS Infrastructure" for specific steps.

   This creates a database to contain the OracleAS Metadata Repository. It also creates an Oracle Internet Directory.

2. Computer 2: Install a second OracleAS Metadata Repository. See Section 6.21, "Installing OracleAS Metadata Repository in a New Database" for steps.

   When the installer prompts you to register the OracleAS Metadata Repository, enter the connect information for the Oracle Internet Directory created in step 1.

   The Portal and Wireless middle tier will use this second metadata repository for its product metadata. See Section 6.12, "Can I Use Multiple Metadata Repositories?"

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

   When the installer prompts for Oracle Internet Directory, enter the connect information for the Oracle Internet Directory created in step 1. This Oracle Internet Directory contains the registration for the OracleAS Metadata Repository installed in steps 1 and 2.

   When the installer prompts for the OracleAS Metadata Repository, select the OracleAS Metadata Repository installed in step 2.

4. Computer 4: Install a J2EE and Web Cache middle tier. See Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access".

   When the installer prompts for Oracle Internet Directory, enter the connect information for the Oracle Internet Directory created in step 1.

   When the installer prompts for the OracleAS Metadata Repository, select the OracleAS Metadata Repository installed in step 1.

15.5 Development Life Cycle Support Topology

This topology is a combination of other topologies to support moving applications from test to stage to production environments.

- Test environment: Application developers test their applications in their own environments. Examples of testing environments:
  - Section 15.1, "Java Developer Topology"
  - Section 15.2, "Portal and Wireless Developer Topology"
- Stage environment: QA personnel test all applications before deploying them to the production environment. In this environment, you can use the topology described in Section 15.4, "Departmental Topology with Separate OracleAS

Metadata Repository for OracleAS Portal". This topology in a stage environment runs applications from all departments, not just from a single department.

- Production environment: Applications are ready for use by users internal and external to the enterprise.

15.5.1 Moving Applications from Test to Stage

To move applications from a test to a stage environment, you deploy them on middle tiers in the stage environment. The applications use the Identity Management and OracleAS Metadata Repository of the stage environment.

If an application uses custom data in a database, you need to move that data from that database to a database in the stage environment.

15.5.2 Moving Applications from Stage to Production

You can move applications from a stage environment to a production by deploying the applications and moving any application-specific data from the stage environment to the production environment.

Another method is to configure the middle tier in the stage environment to use a different infrastructure (that is, point the middle tier to use the infrastructure in the production environment). You can use this feature to move middle tiers (and their applications) from stage to production.

You still need to move application-specific data stored in a stage database to a database in the production environment.

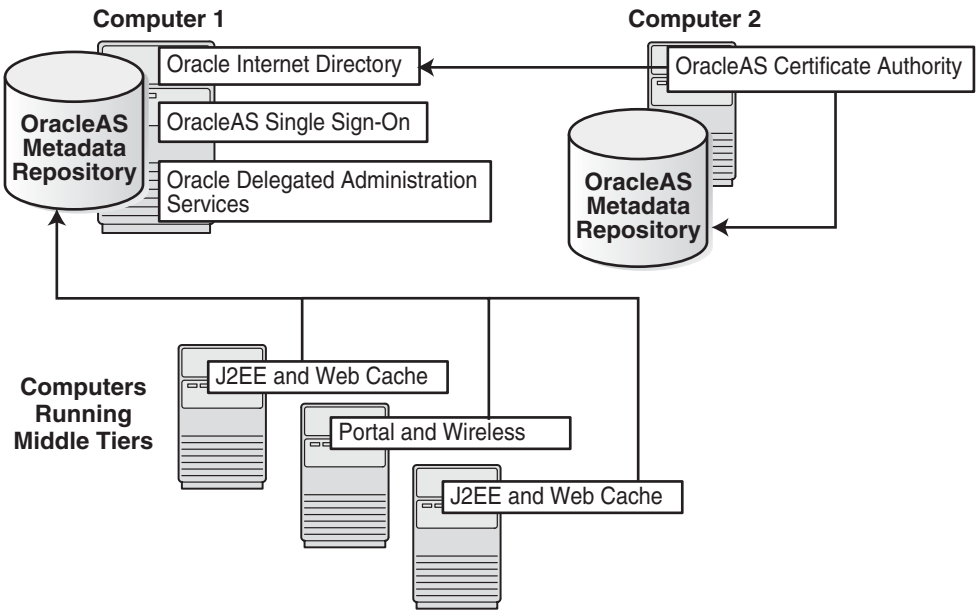
This method is convenient if you need additional computers for the production environment. In one step, you add a computer that already has a middle tier and deployed applications.

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

15.6 OracleAS Certificate Authority Topology

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

Figure 15–5 Topology for OracleAS Certificate Authority



15.6.1 Description

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

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

15.6.2 Requirements

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

15.6.3 Installation Sequence

Install the items in the following order:

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

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

2. Computer 2: Install OracleAS Certificate Authority and a second OracleAS Metadata Repository. See Section 6.25, "Installing OracleAS Certificate Authority and OracleAS Metadata Repository Only" for details.

During this installation, you register the OracleAS Metadata Repository on Computer 2 with the Oracle Internet Directory installed on Computer 1.

3. Install middle tiers. Ensure the middle tiers use the OracleAS Metadata Repository installed on Computer 1. Procedures for installing middle tiers are:
   - Section 7.9, "Installing J2EE and Web Cache in a Database-Based Farm Repository and with Identity Management Access"
   - Section 7.13, "Installing Portal and Wireless"

16

Post-Installation Tasks

Contents:

- Section 16.1, "State of Oracle Application Server Instances After Installation"
- Section 16.2, "If You Restart the Computer After Installation"
- Section 16.3, "Passwords for Oracle Application Server Components"
- Section 16.4, "OracleAS File-Based Clustering"
- Section 16.5, "Application Server Control Service Not Needed for OracleAS Metadata Repository Only Installations"
- Section 16.6, "Service Dependencies"
- Section 16.7, "Backup and Recovery"
- Section 16.8, "SSL"
- Section 16.9, "Regional and Language Option Settings and the NLS_LANG Parameter"
- Section 16.10, "Component Configuration After Installation"
- Section 16.11, "Components that Require Post-Installation Tasks"
- Section 16.12, "What to Do Next"

16.1 State of Oracle Application Server Instances After Installation

After installation, the components that you have configured are started up.

You can view the Welcome page and the Application Server Control page in a browser. The URLs for these pages are shown in the last screen of the installer. You can view the contents of the last screen in the file `ORACLE_HOME\install\setupinfo.txt`.

Some of the Oracle Application Server components run as Windows services. You can see them in the Services dialog. To display the Services dialog:

Windows 2000: Select **Start > Programs > Administrative Tools > Services**.

Windows 2003: Select **Start > Administrative Tools > Services**.

Windows XP: Select **Start > All Programs > Administrative Tools > Services**.

You can use scripts or you can use the Oracle Enterprise Manager Application Server Control to start and stop Oracle Application Server instances. See the *Oracle Application Server Administrator's Guide* for details.

16.2 If You Restart the Computer After Installation

If you restart the computer after installation, be aware that not all components will be started up automatically upon restart. Only services are started up automatically. Components that do not use services, such as OracleAS Portal or Oracle Internet Directory, will remain down until you start them up manually. For instructions on how to start up processes and the start-up order, see the *Oracle Application Server Administrator's Guide*.

Also, for the services to start up correctly, you may need to configure them. See Section 16.6, "Service Dependencies".

16.3 Passwords for Oracle Application Server Components

By default, all passwords for Oracle Application Server components, with the exception of the OracleAS Metadata Repository schema passwords, are set to be the same as the Oracle Application Server instance password. For security reasons, you should change the passwords of the various components to have different values.

See the *Oracle Application Server Administrator's Guide* and the component guides in the Oracle Application Server Documentation Library for details on how to alter the passwords for the components you have installed.

16.4 OracleAS File-Based Clustering

If you want to set up OracleAS Cluster managed using file-based repository, you need to perform the steps listed in the *Oracle Application Server High Availability Guide*.

Note that when you run the "`dcmctl joinFarm`" command, it invokes "`opmnctl stopall`", which stops all components. After the "`dcmctl joinFarm`" command completes, you have to run "`opmnctl startall`" to restart the components.

16.5 Application Server Control Service Not Needed for OracleAS Metadata Repository Only Installations

If you install only the OracleAS Metadata Repository, you do not need the Application Server Control (`Oracle<`*`OracleHomeName`*`>ASControl`) service. However, the installer installs the service with its startup type set to automatic and starts it up. After installation, you should stop the service and change its startup type to manual so that it is not started up automatically each time you restart your computer.

16.6 Service Dependencies

This section is applicable only if you installed OracleAS Infrastructure and middle tier on the same computer.

Ensure that Windows starts up the ProcessManager service of the OracleAS Infrastructure before it starts up the ProcessManager service of the middle tier. Windows starts up services in alphabetical order. If the Oracle home name you gave to OracleAS Infrastructure comes later alphabetically than the middle-tier Oracle home name, then you have to set up a service dependency using the Registry Editor.

1. Start up the Registry Editor: select **Start > Run**, enter **regedt32**, and click **OK**.

> **Note:** For this procedure, you have to run `regedt32`, not `regedit`.

2. In the Registry Editor, select the HKEY_LOCAL_MACHINE window, and navigate to **HKEY_LOCAL_MACHINE / SYSTEM / CurrentControlSet / Services**, and locate the ProcessManager service for the middle tier. The name of the service is:
   - `Oracle`*`MiddleTierOracleHomeName`*`ProcessManager`
3. For the ProcessManager service on the middle tier:
   a. Select the service in the left frame.
   b. Select **Edit > Add Value**. This displays the Add Value dialog.
   c. In the Add Value dialog:

      Value Name: enter `DependOnService`.

      Data Type: select **REG_MULTI_SZ**.

      Click **OK**. This displays the Multi-String Editor.
   d. In the Multi-String Editor, enter the name of the ProcessManager service for the OracleAS Infrastructure.

      Example: if the Oracle home name for your OracleAS Infrastructure is "Infra", then enter the following line in the Multi-String Editor:

      ```
      OracleInfraProcessManager
      ```
   e. Click **OK**.

For more information, see Microsoft Knowledge Base article 193888, "How to Delay Loading of Specific Services," at the Microsoft site (http://www.microsoft.com).

16.7 Backup and Recovery

After installation would be a good time to start backing up the files, and to set up your backup and recovery strategy. See the *Oracle Application Server Administrator's Guide* for details.

16.8 SSL

By default, most components are not configured for SSL. To enable SSL, see the SSL section in the *Oracle Application Server Administrator's Guide*.

16.9 Regional and Language Option Settings and the NLS_LANG Parameter

Make sure the language setting of your account is consistent with the system default language. Based on the language setting, the NLS_LANG parameter is automatically defined in the Windows registry.

After installation, do not change the system default language. Otherwise, the NLS_LANG parameter and the language setting will be inconsistent.

16.10 Component Configuration After Installation

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

complete before you can configure the component. Section 16.10.1, "Configuring mod_osso (Required for Oracle Delegated Administration Services)" describes how to configure mod_osso, which has to be configured before you can configure Oracle Delegated Administration Services.

16.10.1 Configuring mod_osso (Required for Oracle Delegated Administration Services)

If you did not configure Oracle Delegated Administration Services during installation, you can do it after installation using Oracle Enterprise Manager Application Server Control.

Oracle Delegated Administration Services requires OracleAS Single Sign-On and mod_osso. mod_osso is an Oracle HTTP Server module that communicates with the Single Sign-On server. If mod_osso is not configured, you have to configure it before you can configure Oracle Delegated Administration Services. Here are the steps:

1. Ensure that OracleAS Single Sign-On is configured against Oracle Internet Directory. This is done for you if you have installed and configured these two components from the installer.
2. Check if mod_osso is configured in the ORACLE_HOME where you want to configure Oracle Delegated Administration Services.

   Examine the following line in the `ORACLE_HOME\Apache\Apache\conf\httpd.conf` file. ORACLE_HOME refers to the directory where you want to configure Oracle Delegated Administration Services.

   ```
   include "ORACLE_HOME\Apache\Apache\conf\mod_osso.conf"
   ```

   If the line starts with `#`, then it is commented out and mod_osso is not configured in this installation. Perform step 3 to configure mod_osso.

   If the line is not commented out, mod_osso is already configured. You can go ahead and configure Oracle Delegated Administration Services using Application Server Control. Go to step 5.
3. To configure mod_osso manually, perform these steps:
   a. Set the ORACLE_HOME environment variable to the full path of the directory where you want to configure Oracle Delegated Administration Services.
   b. Set the PATH environment variable to contain `%ORACLE_HOME%\lib`.
   c. Run the following command (all on one line). **Note:** for the `-classpath` parameter, do not type any space characters after the semicolon (`;`) 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;<no spaces>
    %ORACLE_HOME%\jdk\lib\dt.jar;<no spaces>
    %ORACLE_HOME%\jdk\lib\tools.jar;%ORACLE_HOME%\jlib\infratool.jar
    oracle.ias.configtool.UseInfrastructure i
    -f %ORACLE_HOME%\config\infratool_mod_osso.properties
    -h OIDhost -p OIDport -u OIDadminName -w OIDclearTextPassword
    -o ORACLE_HOME -m ASinstanceName
    -infra infraGlobalDBName -mh host -sso true
    -sslp sslPort -sslf false
   ```

Table 16–1 describes the parameters where you have to supply values:

Table 16–1 Parameters for Configuring mod_osso

Parameter	Description
`-h` *`OIDhost`*	Specifies the name of the computer where Oracle Internet Directory is running. You can determine this value from the `OIDhost` parameter in the `ORACLE_HOME\config\ias.properties` file.
`-p` *`OIDport`*	Specifies the port number on which Oracle Internet Directory is listening. You can determine this value from the `OIDport` parameter in the `ORACLE_HOME\config\ias.properties` file.
`-u` *`OIDadminName`*	Specifies the login name for Oracle Internet Directory. Use the superuser: `cn=orcladmin`.
`-w` *`OIDclearTextPassword`*	Specifies the password for the Oracle Internet Directory user.
`-o` *`ORACLE_HOME`*	Specifies the full path to the directory where you installed OracleAS Infrastructure.
`-m` *`ASinstanceName`*	Specifies the name of the OracleAS Infrastructure instance where you want to configure mod_osso. You can determine this value from the `IASname` parameter in the `ORACLE_HOME\config\ias.properties` file.
`-infra` *`infraGlobalDBname`*	Specifies the name of the OracleAS Metadata Repository database. You can determine this value from the `InfrastructureDBCommonName` parameter in the `ORACLE_HOME\config\ias.properties` file.
`-mh` *`host`*	Specifies the full hostname (including the domain name) of the computer where you want to configure Oracle Delegated Administration Services.
`-sslp` *`sslPort`*	Specifies the SSL port for Oracle Internet Directory. You can determine this value from the `OIDsslport` parameter in the `ORACLE_HOME\config\ias.properties` file.

4. Restart OC4J and Oracle HTTP Server. You can do this using the `opmnctl` command.

```
C:\> %ORACLE_HOME%\opmn\bin\opmnctl restartproc ias-component=OC4J
C:\> %ORACLE_HOME%\opmn\bin\opmnctl restartproc ias-component=HTTP_Server
```

5. Once mod_osso is configured, you can configure Oracle Delegated Administration Services using the Application Server Control. See the *Oracle Internet Directory Administrator's Guide* for details.

16.11 Components that Require Post-Installation Tasks

If you plan to use any of the components listed in Table 16–2, you need to perform some steps specific to the component after installation before you can use the component. Table 16–2 lists the component guides that describe the steps.

Table 16–2 Components Requiring Post-Installation Steps

Component	Guide That Describes the Post-Installation Steps
OracleAS Portal	*Oracle Application Server Portal Configuration Guide*

Table 16–2 (Cont.) Components Requiring Post-Installation Steps

Component	Guide That Describes the Post-Installation Steps
OracleAS Wireless	*Oracle Application Server Wireless Administrator's Guide*
Oracle Ultra Search	*Oracle Ultra Search User's Guide*
OracleAS Certificate Authority	Oracle Application Server Certificate Authority Administrator's Guide

16.12 What to Do Next

After installing Oracle Application Server, you should read the *Oracle Application Server Administrator's Guide*. Specifically, you should read the "Getting Started After Installing Oracle Application Server" chapter.

You should also perform a complete Oracle Application Server environment backup after installing Oracle Application Server. This enables you to restore a working environment in case something goes wrong. For details on how to perform a complete Oracle Application Server environment backup, see the *Oracle Application Server Administrator's Guide*.

You should also perform a complete Oracle Application Server environment backup after each successful patchset upgrade and after each successful configuration change.

A

Installing OracleAS Developer Kits

OracleAS Developer Kits provide APIs that enable you to develop OracleAS Portal, OracleAS Wireless, XML, and LDAP applications. You use Developer Kits in development environments, not in staging or production environments. Note that the OracleAS Developer Kits do not provide a complete IDE (integrated development environment). If you need an IDE, you can install Oracle JDeveloper, available with Oracle Developer Suite or with Oracle Application Server Java Edition.

Perform the following procedure to install OracleAS Developer Kits.

Table A–1 Steps for Installing the OracleAS Developer Kits

	Screen	Action
1.	--	Start up the installer. See Section 5.13, "Starting the Oracle Universal Installer" for details.
2.	Welcome	Click Next.
3.	Specify File Locations	Name: Enter a name to identify this Oracle home. This is not the name of the directory. Example: `OH_DEVKIT_10_1_2` Path (under Destination): Enter the full path to the destination directory. This is the Oracle home. You must specify a directory on the local computer (where you are running the installer). You cannot install on a drive that is mapped to another computer. Example: `C:\oracle\OraDevKit_10_1_2` Click Next.
4.	Select a Product to Install	Select **OracleAS Developer Kits**. If you need to install additional languages, click **Product Languages**. See Section 5.6, "Installing Additional Languages" for details. Click **Next**.
5.	Specify Port Configuration Options	If you want to use default ports for the components, select **Automatic**. If you do not want to use the default ports, and you have created a staticports.ini file, select **Manual** and enter the fullpath to your staticports.ini file in the provided field. Click **Next**.

Table A–1 (Cont.) Steps for Installing the OracleAS Developer Kits

	Screen	Action
6.	Specify Instance Name and ias_admin Password	Instance Name: Enter a name for this instance. Instance names can contain alphanumeric and underscore characters only. If you have more than one Oracle Application Server instance on a computer, the instance names must be unique. See Section 5.7, "Oracle Application Server Instances and Instance Names" for instance name details. Example: `devkits_10_1_2` **ias_admin Password** and **Confirm Password**: Set the password for the ias_admin user. This is the administrative user for the instance. See Section 5.8, "The ias_admin User and Restrictions on its Password" for restrictions on the password. Example: `welcome99` Click Next.
7.	Summary	Verify your selections and click Install.
8.	Install Progress	This screen shows the progress of the installation.
9.	Configuration Assistants	This screen shows the progress of the configuration assistants. Configuration assistants configure components.
10.	End of Installation	Click Exit to quit the installer.

B

Silent and Non-Interactive Installation

This appendix describes how to install Oracle Application Server in silent mode. This appendix contains the following topics:

- Section B.1, "Silent Installation"
- Section B.2, "Non-Interactive Installation"
- Section B.3, "Pre-Installation"
- Section B.4, "Notes for Silent and Non-Interactive Installations"
- Section B.5, "Create the Response File"
- Section B.6, "Start the Installation"
- Section B.7, "Post-Installation"
- Section B.8, "Security Tips for Silent and Non-Interactive Installations"
- Section B.9, "Deinstallation"

B.1 Silent Installation

Silent installation eliminates the need to monitor the Oracle Application Server installation because there is no graphical output and no input by the user.

Silent installation of Oracle Application Server is accomplished by supplying the Oracle Universal Installer with a response file and specifying the `-silent` flag on the command line. The response file is a text file containing variables and parameter values which provide answers to the installer prompts.

If this is a first time installation of Oracle Application Server, you must create the registry keys before starting. Registry key creation is described in Section B.3, "Pre-Installation"

Use silent installation of Oracle Application Server when there are similar installations on more than one computer. Additionally, use silent install when performing the Oracle Application Server installation from a remote location using the command line.

B.2 Non-Interactive Installation

Non-interactive installations also use a response file to automate the Oracle Application Server installation. In non-interactive installations, there is graphical output and users may enter input.

Non-interactive installation of Oracle Application Server is also accomplished by supplying the Oracle Universal Installer with a response file but without specifying

the `-silent` flag on the command line. The response file is a text file containing variables and parameter values which provide answers to the installer prompts. If you have not provided responses to all of the installer prompts, you need to enter information during the installation.

If this is a first time installation of Oracle Application Server, you must create the registry keys before starting. Registry key creation is described in Section B.3, "Pre-Installation"

Use non-interactive installation of Oracle Application Server when there are specific screens you want to observe during installation.

B.3 Pre-Installation

If you have not installed Oracle Application Server on your computer, then you need to create the following Registry key and value:

- `HKEY_LOCAL_MACHINE / SOFTWARE / Oracle / inst_loc = Inventory_Directory`

The *`Inventory_Directory`* is the full path to your installer files. For example:

```
C:\Program Files\Oracle\Inventory
```

B.4 Notes for Silent and Non-Interactive Installations

This section describes special cases that are applicable when you are performing silent or non-interactive installations.

- Section B.4.1, "Installing OracleAS Certificate Authority"
- Section B.4.2, "Expanding a Middle Tier"

B.4.1 Installing OracleAS Certificate Authority

If you are installing OracleAS Certificate Authority, check the following:

- If you are installing OracleAS Certificate Authority against an existing Oracle Internet Directory, make sure the Oracle Internet Directory has OracleAS Single Sign-On configured. If not, the OracleAS Certificate Authority Configuration Assistant will fail.
- If you are installing OracleAS Certificate Authority with a new Oracle Internet Directory, make sure you are also configuring OracleAS Single Sign-On. If not, the OracleAS Certificate Authority Configuration Assistant will fail.

In interactive mode, the installer performs the checks for you and displays a warning if the requirements are not met. However, in silent or non-interactive mode, the installer is not able to display a warning.

B.4.2 Expanding a Middle Tier

If you are expanding a middle tier, check the following:

- Stop all processes associated with the middle tier that you want to expand. See Section 7.14, "Expanding a Middle Tier".
- Start the expansion installation in a new shell window, that is, a shell window that is started up **after** the first installation has completed.

B.5 Create the Response File

Before doing a silent or non-interactive installation, you must provide information specific to your installation in a response file. The installer will fail if you attempt an installation using a response file that is not configured correctly. Response files are text files that you can create or edit in a text editor.

B.5.1 Creating Response Files from Templates

Templates for response files are available in the `stage\Response` directory on Disk 1 of the Oracle Application Server CD-ROM. Response file templates are available for the following installation types:

Table B–1 Response File Templates in the stage/Response Directory

Installation Type	Filename
J2EE and Web Cache	`oracle.iappserver.iapptop.Core.rsp`
Portal and Wireless	`oracle.iappserver.iapptop.Portals.rsp`
OracleAS Infrastructure: Identity Management and OracleAS Metadata Repository	`oracle.iappserver.infrastructure.Infrastructure.rsp`
OracleAS Infrastructure: Identity Management only	`oracle.iappserver.infrastructure.Infrastructure_ID.rsp`
OracleAS Infrastructure: OracleAS Metadata Repository only	`oracle.iappserver.infrastructure.Infrastructure_Meta.rsp`
OracleAS Developer Kits	`oracle.iappserver.devcorner.DevKit.rsp`

See the template files for descriptions of the parameters in the file.

Note: For Boolean parameters, specify either "true" or "false".

B.5.2 Creating Response Files by Using the Record Mode in the Installer

You can run the installer in record mode to save your inputs to a file that you can use later as a response file. This feature is useful if you need to perform the same installation on different computers.

To run the installer in record mode:

1. Start up the installer with the `-record` and `-destinationFile` parameters.

   ```
   E:\> setup.exe -record -destinationFile newResponseFile
   ```

   Replace *newResponseFile* with the full path to the response file that you want the installer to create. Example: `C:\myPortalResponse.rsp`.

2. Enter your values in the installer screens. The installer will write these values to the file specified in the `-destinationFile` parameter.

   When you get to the Summary screen, the installer automatically writes all your values to the specified file. At this point, you can complete the installation on this computer, or you can exit without performing the installation.

Secure information, such as passwords, is not written to the file, so you must modify the response file before you can use it.

For all installations, modify these parameters:

```
ACCEPT_LICENSE_AGREEMENT=true
oracle.iappserver.instance:szl_InstanceInformation={"instancename",
"instancepassword", "instancepassword"}
PreReqConfigSelections=""
nValidationRepositoryHost=0
nValidationRepository=0
nValidationStartProcPortals=0
nValidationStartProcBusiness=0
nValidationClusterSupport=0
nValidationStartProcCore=0
nValidationClusterRepository=0
oracle.iappserver.instance:nValidationInstanceInfo=0
silent=true
```

For middle-tier installations, modify these parameters:

```
oracle.iappserver.iapptop:startupProcesses=""
oracle.iappserver.iapptop:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
oracle.iappserver.iapptop:n_ValidationPreReqConfigSelections=0
oracle.iappserver.iapptop:nValidationPortListSelect=0
oracle.iappserver.iapptop:nValidationOID2=0
oracle.iappserver.iapptop:nValidationInstanceInfo=0
oracle.iappserver.iapptop:nValidationOID=0
```

For infrastructure installations, modify these parameters:

```
oracle.iappserver.infrastructure:startupProcesses=""
oracle.iappserver.infrastructure:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
oracle.iappserver.infrastructure:n_ValidationPreReqConfigSelections=0
oracle.iappserver.infrastructure:nValidationPortListSelect=0
oracle.iappserver.infrastructure:nValidationInstanceInfo=0
```

See the generated response file for descriptions of the parameters in the file.

B.5.3 Example Response Files

The following sections shows example response files for the following Oracle Application Server installation types:

- Section B.5.3.1, "Example Response File for Standalone J2EE and Web Cache"
- Section B.5.3.2, "Example Response File for OracleAS Infrastructure"
- Section B.5.3.3, "Example Response File for Portal and Wireless"

> **Note:** Be sure that you read the description of each *parameter=value* in the provided sample files, and edit *value* accordingly for your environment.

B.5.3.1 Example Response File for Standalone J2EE and Web Cache

The following shows an example of a response file for a **silent** installation of standalone instance of J2EE and Web Cache as described in Section 7.8, "Installing a J2EE and Web Cache Without an Infrastructure".

Note that if you do not copy the CD-ROMs to the hard drive, the installer will prompt you to switch CD-ROMs during installation. To complete the installation without any prompting, you must copy the contents of the CD-ROMs to the hard drive and specify the `LOCATION_FOR_DISK`*n* parameters.

```
RESPONSEFILE_VERSION=2.2.1.0.0
```

```
UNIX_GROUP_NAME=" "
FROM_LOCATION="E:\Disk1\stage\products.xml"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
LOCATION_FOR_DISK2="C:\path\to\disk2\files"
LOCATION_FOR_DISK3="C:\path\to\disk3\files"
ORACLE_HOME="C:\oracle\ora_j2ee"
ORACLE_HOME_NAME="oracle_j2eehome_name"
TOPLEVEL_COMPONENT={"oracle.iappserver.iapptop","10.1.2.0.0"}
SHOW_SPLASH_SCREEN=false
SHOW_WELCOME_PAGE=false
SHOW_CUSTOM_TREE_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_SUMMARY_PAGE=false
SHOW_INSTALL_PROGRESS_PAGE=false
SHOW_REQUIRED_CONFIG_TOOL_PAGE=false
SHOW_CONFIG_TOOL_PAGE=false
SHOW_RELEASE_NOTES=true
SHOW_ROOTSH_CONFIRMATION=false
SHOW_END_SESSION_PAGE=false
SHOW_EXIT_CONFIRMATION=false
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
DEINSTALL_LIST={"oracle.iappserver.iapptop","10.1.2.0.0"}
SHOW_DEINSTALL_CONFIRMATION=false
SHOW_DEINSTALL_PROGRESS=true
CLUSTER_NODES={}
ACCEPT_LICENSE_AGREEMENT=true
SELECTED_LANGUAGES={"en"}
INSTALL_TYPE="J2EE and Web Cache"
oracle.iappserver.iapptop:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.infrastructure:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.devcorner:OPTIONAL_CONFIG_TOOLS="{}"
oracle.sysman.server:OPTIONAL_CONFIG_TOOLS="{}"
oracle.rdbms.sqlplus.isqlplus:OPTIONAL_CONFIG_TOOLS="{}"
oracle.options.ops.csscommon:OPTIONAL_CONFIG_TOOLS="{}"
oracle.networking.netca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.options.ops.vipca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.iapptop:szl_PortListSelect={"YES","C:\oracle\mystaticports.ini"}
oracle.iappserver.instance:szl_InstanceInformation={"j2ee_10_1_2", "password1",
"password1"}
oracle.iappserver.iapptop:szOIDwithSSLStatus="N"
oracle.iappserver.iapptop:startupProcesses=""
n_farmRepository=0
mailServerName=""
b_securityAccess=false
b_reportsStartup=false
b_formsStartup=false
b_configureWireless=false
b_configurePortal=false
b_configurePersonalization=false
b_configureJazn=true
b_configureDisco=false
b_configureCalypso=true
b_clusterSupport=false
b_FileBasedClustering=false
b_FarmRepository=false
oracle.iappserver.iapptop:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
PreReqConfigSelections=""
oracle.iappserver.iapptop:OIDport="389"
oracle.iappserver.iapptop:OIDhost=""
```

```
nValidationRepositoryHost=0
oracle.iappserver.iapptop:n_ValidationPreReqConfigSelections=0
nValidationStartProcPortals=0
nValidationStartProcBusiness=0
nValidationStartProcCore=0
oracle.iappserver.iapptop:nValidationPortListSelect=1
oracle.iappserver.iapptop:nValidationOID2=0
oracle.iappserver.iappdialog:nValidationOID2=0
oracle.iappserver.instance:nValidationInstanceInfo=0
oracle.java.jdbc.thin12:PROD_HOME="C:\oracle\ora_j2ee\oracle_java_jdbc_thin12"
oracle.options.ano.ssl.owm:PROD_HOME="C:\oracle\ora_j2ee\oracle_options_ano_ssl_
owm"
oracle.networking.netclt:PROD_HOME="C:\oracle\ora_j2ee\oracle.networking.netclt"
oracle.java.javavm.javatools:PROD_HOME="C:\oracle\ora_
j2ee\oracle.java.javavm.javatools"
oracle.xml.xsql:PROD_HOME="C:\oracle\ora_j2ee\oracle_xml_xsql"
oracle.options.ano.ssl:PROD_HOME="C:\oracle\ora_j2ee\oracle_options_ano_ssl"
oracle.networking.netmgr:PROD_HOME="C:\oracle\ora_j2ee\oracle.networking.netmgr"
oracle.networking.netca:PROD_HOME="C:\oracle\ora_j2ee\oracle_networking_netca"
oracle.assistants.acf:PROD_HOME="C:\oracle\ora_j2ee\oracle.assistants.acf"
oracle.assistants.emcf:PROD_HOME="C:\oracle\ora_j2ee\oracle.assistants.emcf"
oracle.install.instcommon:PROD_HOME="C:\oracle\ora_j2ee\oracle_install_instcommon"
oracle.rdbms.sqlplus:PROD_HOME="C:\oracle\ora_j2ee\oracle.rdbms.sqlplus"
oracle.rsf.net_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_net_rsf"
oracle.rdbms.aqapi:PROD_HOME="C:\oracle\ora_j2ee\oracle_rdbms_aqapi"
oracle.rdbms.xml.xsu:PROD_HOME="C:\oracle\ora_j2ee\oracle_rdbms_xml_xsu"
oracle.java.jdbc.thin14:PROD_HOME="C:\oracle\ora_j2ee\oracle_java_jdbc_thin14"
oracle.java.jdbc.oci_common:PROD_HOME="C:\oracle\ora_j2ee\oracle_java_jdbc_oci_
common"
oracle.rsf.ssl_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_ssl_rsf"
oracle.rsf.nlsrtl_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_nlsrtl_rsf"
oracle.rsf.nlsrtl_rsf.lbuilder:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_nlsrtl_
rsf"
oracle.rsf.ssl_rsf.sslrsf_ic:PROD_HOME="C:\oracle\ora_j2ee\oracle.rsf.ssl_
rsf.sslrsf_ic"
oracle.xml.classgen.java:PROD_HOME="C:\oracle\ora_j2ee\oracle_xml_classgen_java"
oracle.options.ops.opscf:PROD_HOME="C:\oracle\ora_j2ee\oracle.options.ops.opscf"
oracle.java.jdbc.jdbc_common:PROD_HOME="C:\oracle\ora_j2ee\oracle_java_jdbc_jdbc_
common"
oracle.rsf.plsql_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_plsql_rsf"
oracle.rsf.precomp_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_precomp_rsf"
oracle.rsf.slax_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_slax_rsf"
oracle.rsf.agent_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_agent_rsf_agent_rsf_
cmp"
oracle.rsf.clntsh_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_clntsh_rsf_clntsh_
rsf_cmp"
oracle.rsf.rdbms_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_rdbms_rsf"
oracle.rsf.has_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_has_rsf"
oracle.java.jdbc.thin14.thin14_ic:PROD_HOME="C:\oracle\ora_j2ee\oracle_java_jdbc_
thin14"
oracle.rsf.rdbms_rsf.rdbms_rsf_ic:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_rdbms_
rsf_rdbms_rsf_ic"
oracle.rsf.xdk_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_rdbms_rsf"
oracle.rsf.dbjava_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_dbjava_rsf"
oracle.rsf.ops_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_net_rsf"
oracle.xml.parser.java:PROD_HOME="C:\oracle\ora_j2ee\oracle.xml.parser.java"
oracle.java.jdbc.oci_common.ocicommon_ic:PROD_HOME="C:\oracle\ora_
j2ee\oracle.java.jdbc.oci_common.ocicommon_ic"
oracle.rsf.oracore_rsf:PROD_HOME="C:\oracle\ora_j2ee\oracle_rsf_oracore_rsf"
silent=true
```

B.5.3.2 Example Response File for OracleAS Infrastructure

The following shows an example of a response file for a **silent** installation of OracleAS Infrastructure as described in Section 6.19, "Installing OracleAS Infrastructure".

Note that if you do not copy the CD-ROMs to the hard drive, the installer will prompt you to switch CD-ROMs during installation. To complete the installation without any prompting, you must copy the contents of the CD-ROMs to the hard drive and specify the LOCATION_FOR_DISK*n* parameters.

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME=" "
FROM_LOCATION="E:\Disk1\stage\products.xml"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
LOCATION_FOR_DISK2="C:\path\to\disk2\files"
LOCATION_FOR_DISK3="C:\path\to\disk3\files"
ORACLE_HOME="C:\oracle\ora_infra"
ORACLE_HOME_NAME="oracle_infrahome_name"
TOPLEVEL_COMPONENT={"oracle.iappserver.infrastructure","10.1.2.0.0"}
SHOW_SPLASH_SCREEN=false
SHOW_WELCOME_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_SUMMARY_PAGE=false
SHOW_INSTALL_PROGRESS_PAGE=false
SHOW_REQUIRED_CONFIG_TOOL_PAGE=false
SHOW_CONFIG_TOOL_PAGE=false
SHOW_RELEASE_NOTES=true
SHOW_ROOTSH_CONFIRMATION=false
SHOW_END_SESSION_PAGE=false
SHOW_EXIT_CONFIRMATION=false
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
DEINSTALL_LIST={"oracle.iappserver.infrastructure","10.1.2.0.0"}
SHOW_DEINSTALL_CONFIRMATION=false
SHOW_DEINSTALL_PROGRESS=true
CLUSTER_NODES={}
ACCEPT_LICENSE_AGREEMENT=true
oracle.iappserver.iapptop:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.infrastructure:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.devcorner:OPTIONAL_CONFIG_TOOLS="{}"
oracle.rdbms.sqlplus.isqlplus:OPTIONAL_CONFIG_TOOLS="{}"
oracle.sysman.server:OPTIONAL_CONFIG_TOOLS="{}"
oracle.networking.netca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.infrastructure:szl_
PortListSelect={"YES","C:\oracle\mystaticports.ini"}
oracle.iappserver.instance:szl_InstanceInformation={"instancename",
"instancepassword", "instancepassword"}
oracle.iappserver.iappdialog:szOIDwithSSLStatus="N"
oracle.iappserver.infrastructure:startupProcesses=""
oracle.iappserver.infrastructure:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
PreReqConfigSelections=""
oracle.iappserver.iappdialog:OIDport="389"
oracle.iappserver.iappdialog:OIDhost="OIDhostname.us.oracle.com"
nValidationRepositoryHost=0
nValidationRepository=0
oracle.iappserver.infrastructure:n_ValidationPreReqConfigSelections=0
nValidationStartProcPortals=0
nValidationStartProcBusiness=0
nValidationClusterSupport=0
nValidationStartProcCore=0
oracle.iappserver.infrastructure:nValidationPortListSelect=0
```

```
nValidationClusterRepository=0
oracle.iappserver.iappdialog:nValidationOID2=0
oracle.iappserver.infrastructure:nValidationInstanceInfo=0
oracle.iappserver.instance:nValidationInstanceInfo=0
oracle.iappserver.iappdialog:nValidationOID=0
SELECTED_LANGUAGES={"en"}
INSTALL_TYPE="Identity Management and Metadata Repository"
szInstallUpgradeChoice=""
nValidationCompConfigInfraMeta=-1
b_launchOHS=true
b_launchEMCA=false
b_infrastructureUpgrade=false
b_configureSSO=true
b_configureOID=true
b_configureOCA=false
b_configureMETA=true
b_configureHA=false
b_configureDIP=true
b_configureDAS=true
b_configureCentralMon=false
HAhostName="HAhostname.us.oracle.com"
nValidationCompConfigInfraID=0
nValidationCompConfigInfra=2
infra902ORACLE_HOME=""
oracle.options.partitioning:PROD_HOME="C:\oracle\ora_
infra\oracle.options.partitioning"
oracle.cartridges.spatial:PROD_HOME="C:\oracle\ora_
infra\oracle.cartridges.spatial"
oracle.options.olap:PROD_HOME="C:\oracle\ora_infra\olap"
oracle.rdbms:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms"
oracle.rdbms.xml:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_xml"
oracle.sysman.console.db:PROD_HOME="C:\oracle\ora_infra\oracle_sysman_console_db"
oracle.java.jdbc.thin12:PROD_HOME="C:\oracle\ora_infraoracle_java_jdbc_thin12"
oracle.isearch.server:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_ldap_rsf_cmp"
oracle.cartridges.context:PROD_HOME="C:\oracle\ora_
infra\oracle.cartridges.context"
oracle.java.javavm:PROD_HOME="C:\oracle\ora_infra\oracle_java_javavm_cmp"
oracle.utilities.util:PROD_HOME="C:\oracle\ora_infra\oracle_utilities_util"
oracle.options.ano.ssl.owm:PROD_HOME="C:\oracle\ora_infra\oracle_options_ano_ssl_
owm"
oracle.rdbms.csmig:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_expimp"
oracle.networking.netsrv:PROD_HOME="C:\oracle\ora_infra\oracle.networking.netsrv"
oracle.assistants.dbma:PROD_HOME="C:\oracle\ora_infra\oracle.assistants.dbma"
oracle.sysman.repository:PROD_HOME="C:\oracle\ora_infra\sysman"
oracle.assistants.dbca:PROD_HOME="C:\oracle\ora_infra\oracle.assistants.dbca"
oracle.java.javavm.javatools:PROD_HOME="C:\oracle\ora_
infra\oracle.java.javavm.javatools"
oracle.rdbms.aqapi:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_aqapi"
oracle.rdbms.plsql:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_plsql"
oracle.rdbms.sqlldr:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_sqlldr"
oracle.rdbms.dbv:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_dbv"
oracle.rdbms.expimp:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_expimp"
oracle.rdbms.oci:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_oci"
oracle.p2k.ott:PROD_HOME="C:\oracle\ora_infra\oracle.p2k.ott"
oracle.cartridges.locator:PROD_HOME="C:\oracle\ora_infra\oracle_cartridges_
locator"
oracle.rdbms.hs_odbc:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_hs_odbc"
oracle.rdbms.hs_common:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_hs_common"
oracle.rdbms.sqlplus:PROD_HOME="C:\oracle\ora_infra\oracle.rdbms.sqlplus"
oracle.options.ano.nis:PROD_HOME="C:\oracle\ora_infra\oracle_options_ano_nis"
```

```
oracle.networking.netclt:PROD_HOME="C:\oracle\ora_infra\oracle.networking.netclt"
oracle.rdbms.rman:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_rman"
oracle.utilities.util_common:PROD_HOME="C:\oracle\ora_infra\oracle_utilities_util_
common"
oracle.options.ops.csscommon:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_rdbms_rsf"
oracle.networking.netmgr:PROD_HOME="C:\oracle\ora_infra\oracle.networking.netmgr"
oracle.networking.netca:PROD_HOME="C:\oracle\ora_infra\oracle_networking_netca"
oracle.assistants.acf:PROD_HOME="C:\oracle\ora_infra\oracle.assistants.acf"
oracle.assistants.emcf:PROD_HOME="C:\oracle\ora_infra\oracle.assistants.emcf"
oracle.install.instcommon:PROD_HOME="C:\oracle\ora_infra\oracle_install_
instcommon"
oracle.isearch.client:PROD_HOME="C:\oracle\ora_infra"
oracle.isearch.is_common:PROD_HOME="C:\oracle\ora_infra"
oracle.options.ano.ssl:PROD_HOME="C:\oracle\ora_infra\oracle_options_ano_ssl"
oracle.xml.xsql:PROD_HOME="C:\oracle\ora_infra\oracle_xml_xsql"
oracle.rsf.net_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_net_rsf"
oracle.rdbms.xml.xsu:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_xml_xsu"
oracle.java.jdbc.thin14:PROD_HOME="C:\oracle\ora_infra\oracle_java_jdbc_thin14"
oracle.java.jdbc.jdbc_common:PROD_HOME="C:\oracle\ora_infra\oracle_java_jdbc_jdbc_
common"
oracle.rsf.ssl_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_ssl_rsf"
oracle.rdbms.dbscripts:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_dbscripts"
oracle.rdbms.nid:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_nid"
oracle.rsf.oracore_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_oracore_rsf"
oracle.rsf.nlsrtl_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_nlsrtl_rsf"
oracle.rsf.plsql_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_plsql_rsf"
oracle.xml.classgen.java:PROD_HOME="C:\oracle\ora_infra\oracle_xml_classgen_java"
oracle.p2k.precomp_common:PROD_HOME="C:\oracle\ora_infra\oracle.p2k.precomp_
common"
oracle.rsf.slax_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_slax_rsf"
oracle.rsf.ssl_rsf.sslrsf_ic:PROD_HOME="C:\oracle\ora_infra\oracle.rsf.ssl_
rsf.sslrsf_ic"
oracle.rsf.precomp_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_precomp_rsf"
oracle.rdbms.gateways.plsql:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms"
oracle.java.javavm.containers:PROD_HOME="C:\oracle\ora_infra\oracle_java_j2ee_
core"
oracle.rdbms.ovm:PROD_HOME="C:\oracle\ora_infra\oracle.rdbms.ovm"
oracle.cartridges.ordimg:PROD_HOME="C:\oracle\ora_infra\oracle.cartridges.ordimg"
oracle.cartridges.ordcom:PROD_HOME="C:\oracle\ora_infra\oracle.cartridges.ordcom"
oracle.options.intermedia.imcom:PROD_HOME="C:\oracle\ora_
infra\oracle.options.intermedia.imcom"
oracle.rsf.agent_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_agent_rsf_agent_
rsf_cmp"
oracle.options.intermedia.annotator:PROD_HOME="C:\oracle\ora_infra\oracle_prod"
oracle.options.intermedia.imclient.imclisamples:PROD_HOME="C:\oracle\ora_
infra\oracle.interMedia.imclient"
oracle.options.intermedia.jai:PROD_HOME="C:\oracle\ora_
infra\oracle.options.intermedia.jai"
oracle.rsf.nlsrtl_rsf.lbuilder:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_nlsrtl_
rsf"
oracle.rsf.clntsh_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_clntsh_rsf_clntsh_
rsf_cmp"
oracle.java.jdbc.thin14.thin14_ic:PROD_HOME="C:\oracle\ora_infra\oracle_java_jdbc_
thin14"
oracle.xml.transview:PROD_HOME="C:\oracle\ora_infra\oracle_xml_transview"
oracle.xml.transx:PROD_HOME="C:\oracle\ora_infra\oracle_xml_transx"
oracle.rdbms.advrep:PROD_HOME="C:\oracle\ora_infra\oracle_rdbms_advrep"
oracle.rsf.rdbms_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_rdbms_rsf"
oracle.options.odm:PROD_HOME="C:\oracle\ora_infra\dmt"
oracle.options.ops.opscf:PROD_HOME="C:\oracle\ora_infra\oracle.options.ops.opscf"
```

```
oracle.rsf.xdk_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_rdbms_rsf"
oracle.rsf.dbjava_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_dbjava_rsf"
oracle.options.ano.sns.hybrid:PROD_HOME="C:\oracle\ora_infra\oracle_options_ano_
sns_hybrid"
oracle.rsf.sqlplus_rsf:PROD_HOME="C:\oracle\ora_infra\oracle.rsf.sqlplus_rsf"
oracle.rsf.has_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_has_rsf"
oracle.rsf.ops_rsf:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_net_rsf"
oracle.options.olap.cwmlite:PROD_HOME="C:\oracle\ora_infra"
oracle.options.olap.api:PROD_HOME="C:\oracle\ora_infra\oracle_options_olap_api"
oracle.xml.parser.java:PROD_HOME="C:\oracle\ora_infra\oracle.xml.parser.java"
oracle.cartridges.context.knowbase:PROD_HOME="C:\oracle\ora_infra\oracle_
cartridges_context_knowbase"
oracle.rsf.hybrid:PROD_HOME="C:\oracle\ora_infra\oracle_rsf_hybrid"
oracle.java.jdbc.oci_common:PROD_HOME="C:\oracle\ora_infra\oracle_java_jdbc_oci_
common"
oracle.java.jdbc.oci_common.ocicommon_ic:PROD_HOME="C:\oracle\ora_
infra\oracle.java.jdbc.oci_common.ocicommon_ic"
szl_OCARepositoryUserInput={}
szl_LDAP_LoadBalancerInfo={}
szl_HighAvailabilityHost={}
szlDCMClusterName={}
szRegisterMetaStatus=""
s_ssoPort="7777"
s_masterOIDport="389"
s_masterOIDhost="OIDhostname.us.oracle.com"
s_masterOIDSSLPort=""
n_replication=0
n_cluster=0
b_RegisterRepositoryOID_IMMR=false
b_RegisterRepositoryOID=false
b_HTTPListenSSLMode=true
b_HTTPLBRSSLMode=true
SSOselectStatus=""
SSOport="7777"
SSOhost="SSOhostname.us.oracle.com"
SSLPort=""
SSLOnly="False"
OIDpassword="infra12345"
OIDadminName="cn=orcladmin"
OIDRealm=""
DefaultLocation=""
DBhostPort={"DBhostname.us.oracle.com:1521"}
DBUsername=""
DBServiceName=""
DBSID=""
DBPort=""
DBPassword="infra12345"
DBHostname=""
szIdentityAdminContext=="dc=us,dc=oracle,dc=com"
nValidationSelectOCARepository=0
nValidationDCMClusterName=0
s_HTTPLBRPort=""
s_HTTPLBRHostname=""
n_multiBoxOrVirtualAddressingInstall=0
s_HTTPListenPort=""
nValidationODSPassword=0
nValidationOID_replication=0
nValidationRegisterMeta=0
nValidationOIDlogin_replication=0
nValidationHA=0
```

```
nValidationLDAPLoadBalancer=0
nValidationSpecifyRepository=0
silent=true
sl_keylengthInfo={""}
s_dnSelection=""
s_dnOrgval=""
s_dnOUval=""
s_dnCntval=""
s_dnCNval=""
s_dncustom=""
sl_dlgASMCfgSelectableDisks={}
s_superAdminPasswdType="S"
s_dlgStarterDBConfigCreateStarterDB="Create a starter database"
s_dlgASMCfgRedundancyValue="2 (Norm)"
s_dlgASMCfgRedundancySelected="Normal"
s_dlgASMCfgNewDisksSize="0"
s_dlgASMCfgExistingFreeSpace="0"
s_dlgASMCfgDiskGroupName="DATA"
s_dlgASMCfgDiskDiscoveryString=""
s_dlgASMCfgAdditionalSpaceNeeded=" MB"
s_dbRetChar="West European WE8MSWIN1252"
sl_dlgASMDskGrpSelectedGroup={}
s_dlgStarterDBConfigOptionSelected="General Purpose"
s_DataorASMret=""
s_rawDeviceMapFileLocation=""
sl_dlgASMCfgDiskSelections={}
s_dbSid="asdb"
s_globalDBName="asdb.domain.com"
s_mountPoint="C:\oracle\oradata"
s_silentinstallflag="1"
n_numentriesSelection=0
n_crypto=0
b_userpwdencryption=true
b_dbinstance_exist=false
s_existingSID=""
s_nameForOPERGrp=" "
s_nameForDBAGrp=" "
s_group=" "
b_createDBRet=true
```

B.5.3.3 Example Response File for Portal and Wireless

The following shows an example of a response file for a **silent** installation of Portal and Wireless as described in Section 7.13, "Installing Portal and Wireless".

Note that if you do not copy the CD-ROMs to the hard drive, the installer will prompt you to switch CD-ROMs during installation. To complete the installation without any prompting, you must copy the contents of the CD-ROMs to the hard drive and specify the `LOCATION_FOR_DISK`*n* parameters.

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME=" "
FROM_LOCATION="E:\Disk1\stage\products.xml"
FROM_LOCATION_CD_LABEL="Oracle Application Server 10G"
LOCATION_FOR_DISK2="C:\path\to\disk2\files"
LOCATION_FOR_DISK3="C:\path\to\disk3\files"
ORACLE_HOME="C:\oracle\ora_portal"
ORACLE_HOME_NAME="oracle_home_name"
TOPLEVEL_COMPONENT={"oracle.iappserver.iapptop","10.1.2.0.0"}
SHOW_SPLASH_SCREEN=false
SHOW_WELCOME_PAGE=false
```

```
SHOW_CUSTOM_TREE_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_SUMMARY_PAGE=false
SHOW_INSTALL_PROGRESS_PAGE=false
SHOW_REQUIRED_CONFIG_TOOL_PAGE=false
SHOW_CONFIG_TOOL_PAGE=false
SHOW_RELEASE_NOTES=true
SHOW_ROOTSH_CONFIRMATION=false
SHOW_END_SESSION_PAGE=false
SHOW_EXIT_CONFIRMATION=false
NEXT_SESSION=false
NEXT_SESSION_ON_FAIL=false
DEINSTALL_LIST={"oracle.iappserver.iapptop","10.1.2.0.0"}
SHOW_DEINSTALL_CONFIRMATION=false
SHOW_DEINSTALL_PROGRESS=true
CLUSTER_NODES={}
ACCEPT_LICENSE_AGREEMENT=true
SELECTED_LANGUAGES={"en"}
INSTALL_TYPE="Portal and Wireless"
oracle.iappserver.iapptop:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.infrastructure:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.devcorner:OPTIONAL_CONFIG_TOOLS="{}"
oracle.sysman.server:OPTIONAL_CONFIG_TOOLS="{}"
oracle.rdbms.sqlplus.isqlplus:OPTIONAL_CONFIG_TOOLS="{}"
oracle.options.ops.csscommon:OPTIONAL_CONFIG_TOOLS="{}"
oracle.networking.netca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.options.ops.vipca:OPTIONAL_CONFIG_TOOLS="{}"
oracle.iappserver.iapptop:szl_
RepositoryUserInput={"hostname.domain:1521:asdb:asdb.domain"}
oracle.iappserver.iapptop:szl_PortListSelect={"NO",""}
oracle.iappserver.instance:szl_InstanceInformation={"instancename",
"instancepassword", "instancepassword"}
szl_ClusterRepository={}
szlSpecifyRepositoryID={}
oracle.iappserver.iapptop:szlSpecifyOIDLogin={"orcladmin", "password", "realm"}
oracle.iappserver.iapptop:szOIDwithSSLStatus="N"
oracle.iappserver.iapptop:startupProcesses=""
n_farmRepository=0
mailServerName=""
b_securityAccess=true
b_reportsStartup=false
b_formsStartup=false
b_configureWireless=false
b_configurePortal=true
b_configurePersonalization=false
b_configureJazn=true
b_configureDisco=false
b_configureCalypso=true
b_clusterSupport=false
b_FileBasedClustering=false
b_FarmRepository=false
oracle.iappserver.iapptop:SHOW_IAS_COMPONENT_CONFIG_PAGE=false
PreReqConfigSelections=""
oracle.iappserver.iapptop:OIDport="389"
oracle.iappserver.iapptop:OIDhost="oidhost.us.oracle.com"
nValidationRepositoryHost=0
oracle.iappserver.iapptop:n_ValidationPreReqConfigSelections=0
nValidationStartProcPortals=2
nValidationStartProcBusiness=0
nValidationStartProcCore=0
```

```
oracle.iappserver.iapptop:nValidationPortListSelect=1
oracle.iappserver.iapptop:nValidationOID2=0
oracle.iappserver.iappdialog:nValidationOID2=0
oracle.iappserver.instance:nValidationInstanceInfo=0
oracle.java.jdbc.thin12:PROD_HOME="C:\oracle\ora_portal\oracle_java_jdbc_thin12"
oracle.options.ano.ssl.owm:PROD_HOME="C:\oracle\ora_portal\oracle_options_ano_ssl_
owm"
oracle.utilities.util:PROD_HOME="C:\oracle\ora_portal\oracle_utilities_util"
oracle.rdbms.csmig:PROD_HOME="C:\oracle\ora_portal\oracle_rdbms_expimp"
oracle.rdbms.plsql:PROD_HOME="C:\oracle\ora_portal\oracle_rdbms_plsql"
oracle.networking.netclt:PROD_HOME="C:\oracle\ora_portal\oracle.networking.netclt"
oracle.java.javavm.javatools:PROD_HOME="C:\oracle\ora_
portal\oracle.java.javavm.javatools"
oracle.rdbms.sqlldr:PROD_HOME="C:\oracle\ora_portal\oracel_rdbms_sqlldr"
oracle.xml.xsql:PROD_HOME="C:\oracle\ora_portal\oracle_xml_xsql"
oracle.options.ano.ssl:PROD_HOME="C:\oracle\ora_portal\oracle_options_ano_ssl"
oracle.networking.netmgr:PROD_HOME="C:\oracle\ora_portal\oracle.networking.netmgr"
oracle.rdbms.expimp:PROD_HOME="C:\oracle\ora_portal\oracle_rdbms_expimp"
oracle.networking.netca:PROD_HOME="C:\oracle\ora_portal\oracle_networking_netca"
oracle.rdbms.rman:PROD_HOME="C:\oracle\ora_portal\oracle_rdbms_rman"
oracle.utilities.util_common:PROD_HOME="C:\oracle\ora_portal\oracle_utilities_
util_common"
oracle.assistants.acf:PROD_HOME="C:\oracle\ora_portal\oracle.assistants.acf"
oracle.assistants.emcf:PROD_HOME="C:\oracle\ora_portal\oracle.assistants.emcf"
oracle.install.instcommon:PROD_HOME="C:\oracle\ora_portal\oracle_install_
instcommon"
oracle.rdbms.sqlplus:PROD_HOME="C:\oracle\ora_portal\oracle.rdbms.sqlplus"
oracle.rsf.net_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_net_rsf"
oracle.rdbms.aqapi:PROD_HOME="C:\oracle\ora_portal\oracle_rdbms_aqapi"
oracle.rdbms.xml.xsu:PROD_HOME="C:\oracle\ora_portal\oracle_rdbms_xml_xsu"
oracle.java.jdbc.thin14:PROD_HOME="C:\oracle\ora_portal\oracle_java_jdbc_thin14"
oracle.java.jdbc.oci_common:PROD_HOME="C:\oracle\ora_portal\oracle_java_jdbc_oci_
common"
oracle.rsf.ssl_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_ssl_rsf"
oracle.rdbms.dbscripts:PROD_HOME="C:\oracle\ora_portal\oracle_rdbms_dbscripts"
oracle.rdbms.nid:PROD_HOME="C:\oracle\ora_portal\oracle_rdbms_nid"
oracle.rsf.nlsrtl_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_nlsrtl_rsf"
oracle.rsf.nlsrtl_rsf.lbuilder:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_nlsrtl_
rsf"
oracle.rsf.ssl_rsf.sslrsf_ic:PROD_HOME="C:\oracle\ora_portal\oracle.rsf.ssl_
rsf.sslrsf_ic"
oracle.xml.classgen.java:PROD_HOME="C:\oracle\ora_portal\oracle_xml_classgen_java"
oracle.options.ops.opscf:PROD_HOME="C:\oracle\ora_portal\oracle.options.ops.opscf"
oracle.java.jdbc.jdbc_common:PROD_HOME="C:\oracle\ora_portal\oracle_java_jdbc_
jdbc_common"
oracle.rsf.plsql_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_plsql_rsf"
oracle.rsf.precomp_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_precomp_rsf"
oracle.rsf.slax_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_slax_rsf"
oracle.rsf.agent_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_agent_rsf_agent_
rsf_cmp"
oracle.rsf.clntsh_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_clntsh_rsf_
clntsh_rsf_cmp"
oracle.rsf.rdbms_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_rdbms_rsf"
oracle.rsf.has_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_has_rsf"
oracle.java.jdbc.thin14.thin14_ic:PROD_HOME="C:\oracle\ora_portal\oracle_java_
jdbc_thin14"
oracle.rsf.rdbms_rsf.rdbms_rsf_ic:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_
rdbms_rsf_rdbms_rsf_ic"
oracle.rsf.xdk_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_rdbms_rsf"
oracle.rsf.dbjava_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_dbjava_rsf"
```

```
oracle.rsf.ops_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_net_rsf"
oracle.isearch.client:PROD_HOME="C:\oracle\ora_portal"
oracle.isearch.is_common:PROD_HOME="C:\oracle\ora_portal"
oracle.xml.parser.java:PROD_HOME="C:\oracle\ora_portal\oracle.xml.parser.java"
oracle.java.jdbc.oci_common.ocicommon_ic:PROD_HOME="C:\oracle\ora_
portal\oracle.java.jdbc.oci_common.ocicommon_ic"
oracle.rsf.oracore_rsf:PROD_HOME="C:\oracle\ora_portal\oracle_rsf_oracore_rsf"
silent=true
s_groupid="nobody"
s_group="get_group_error"
```

Note: The OracleAS Infrastructure *ORACLE_HOME*\install\portlist.ini and *ORACLE_HOME*\config\ias.properties files show port assignments.

B.6 Start the Installation

To make the installer use the response file, specify the location of the response file that you want to use as a parameter when starting the installer.

To perform a non-interactive installation:

```
E:\> setup.exe -responseFile absolute_path_and_filename
```

To perform a silent installation, use the `-silent` parameter:

```
E:\> setup.exe -silent -responseFile absolute_path_and_filename
```

B.7 Post-Installation

The success or failure of the non-interactive and silent installations is logged in the `installActions.log` file. Additionally, the silent installation creates the `silentInstall.log` file. The log files are created in the `C:\Program Files\Oracle\Inventory\oui_inventory\Logs` directory.

The `silentInstall.log` file contains the following line if the installation was successful:

```
The installation of OracleAS <Installation Type> was successful.
```

The `installActions.log` file contains specific information for each Oracle Application Server installation type.

See Also: Appendix G, "Configuration Assistants"

Note: Application Server Control Configuration Assistant and DCM Repository Backup Assistant success messages appear for first time installation of Oracle Application Server.

B.8 Security Tips for Silent and Non-Interactive Installations

One of the pieces of information in the response file is the installation password. The password information is in clear text.

To minimize security issues regarding the password in the response file, follow these guidelines:

- Set the permissions on the response files so that they are readable only by the operating system user who will be performing the silent or non-interactive installation.
- If possible, remove the response files from the system after the silent or non-interactive installation is completed.

If you are installing the OracleAS Metadata Repository in silent or non-interactive mode, the installer creates these log files:

- `ORACLE_HOME\admin\<ORACLE_SID>\create\<ORACLE_SID>.log`
- `ORACLE_HOME\cfgtoollogs\<ORACLE_SID>.log`

where `<ORACLE_SID>` is the value of your database SID.

These log files contain database password information. If possible, you should remove these files from the system after reviewing their contents. These log files are not required for the operation of OracleAS Metadata Repository.

B.9 Deinstallation

You can perform a silent deinstallation of Oracle Application Server by supplying a silent deinstallation parameter to the response file you used for installation.

Add the following parameter to your installation response file:

```
REMOVE_HOMES={"<ORACLE_HOME to be removed>"}
```

For example:

```
REMOVE_HOME="C:\oracle\ora_j2ee"
```

> **Note:** You still need to follow the deinstallation steps described in Appendix F, "Deinstallation and Reinstallation". One of the key steps is to run the deconfig tool before running the silent deinstallation command. The silent deinstallation command only replaces the step where you run the installer interactively to deinstall the instance.

To perform a silent deinstallation, use the `-deinstall` parameter when entering the command:

```
E:\> setup.exe -silent -deinstall -responseFile absolute_path_and_filename
```

C

Default Port Numbers

By default, the installer assigns port numbers to components from a set of default port numbers. This appendix contains a list of these port numbers.

If you want to use a different set of port numbers, you have to create a file called staticports.ini, in which you list the port numbers that you want to use. See Section 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

C.1 Method of Assigning Default Port Numbers

The installer assigns default port numbers to each component using the following method:

1. The installer checks if the default port number is in use. If it is not in use, the installer assigns it to the component.
2. If the default port number is already in use by an Oracle product or by any running application, the installer tries the lowest number in the port number range. It keeps trying the port numbers in the range until it finds one that is available.

C.2 Default Port Numbers

Table C–1 lists the default port numbers for components. The last column, Name in staticports.ini, specifies the component name as it appears in the `staticports.ini` file, which enables you to override the default port numbers. See Section 4.3.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

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

Component	Default Port	Port Number Range	Name in staticports.ini
Oracle Process Management and Notification (OPMN)			
Oracle Notification Server Request Port	6003	6003 - 6099	`Oracle Notification Server Request port`
Oracle Notification Server Local Port	6100	6100 - 6199	`Oracle Notification Server Local port`
Oracle Notification Server Remote Port	6200	6200 - 6299	`Oracle Notification Server Remote port`
Oracle Application Server Containers for J2EE (OC4J)			

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

Component	Default Port	Port Number Range	Name in staticports.ini
OC4J AJP	3301	3301 - 3400	Not settable through staticports.ini
OC4J RMI	3201	3201 - 3300	Not settable through staticports.ini
JMS	3701	3701 - 3800	Not settable through staticports.ini
IIOP	3401	3401 - 3500	Not settable through staticports.ini
IIOPS1	3501	3501 - 3600	Not settable through staticports.ini
IIOPS2	3601	3601 - 3700	Not settable through staticports.ini
Oracle HTTP Server			
Oracle HTTP Server Listener (OracleAS Web Cache **not** configured)	Middle tier: 80 Infrastructure: 7777	7777 - 7877	`Oracle HTTP Server Listen port`
Oracle HTTP Server Listener (SSL)	Middle tier: 443 Infrastructure: 4443	4443 - 4543	`Oracle HTTP Server Listen (SSL) port`
Oracle HTTP Server Listener (non-SSL, OracleAS Web Cache configured)	Middle tier: 80 Infrastructure: 7777	7777 - 7877	`Oracle HTTP Server port`
Oracle HTTP Server Listener (SSL, OracleAS Web Cache configured)	Middle tier: 443 Infrastructure: 4443	4443 - 4543	`Oracle HTTP Server SSL port`
Java Object Cache	7000	7000 - 7099	`Java Object Cache port`
DCM Java Object Cache	7100	7100 - 7199	`DCM Java Object Cache port`
SOAP server	9998	9998 - 9999	Not settable through staticports.ini
Port Tunneling	7501	7501 - 7599	Not settable through staticports.ini
Oracle HTTP Server Diagnostic port	7200	7200 - 7299	`Oracle HTTP Server Diagnostic port`
OracleAS Portal			
OracleAS Portal	--	--	Uses the same port as Oracle HTTP Server.
OracleAS Single Sign-On			
OracleAS Single Sign-On	--	--	Uses the same port as Oracle HTTP Server.
OracleAS Web Cache			
OracleAS Web Cache - HTTP Listener	80	7777 - 7877	`Web Cache HTTP Listen port`
OracleAS Web Cache - HTTP Listener (SSL)	443	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 C–1 (Cont.) 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`
Oracle Management Agent	1830	1830 - 1849	Not settable through staticports.ini
Application Server Control - RMI	1850	1850 - 1869	`Application Server Control RMI port`
Application Server Control - SSL	1810	1810 - 1829	This port number is assigned after installation, when you configure Application Server Control for SSL. See the *Oracle Application Server Administrator's Guide* for details.
Enterprise Manager Console HTTP port (orcl)	5500		Not settable through staticports.ini
Enterprise Manager Agent port (orcl)	1831		Not settable through staticports.ini
Log Loader	44000	44000 - 44099	`Log Loader port`
Oracle Internet Directory			
Oracle Internet Directory	389	3060 - 3129	`Oracle Internet Directory port`
Oracle Internet Directory (SSL)	636	3130 - 3199	`Oracle Internet Directory (SSL) port`
OracleAS Certificate Authority (OCA)			
Server Authentication Virtual Host	4400	4400 - 4419	`Oracle Certificate Authority SSL Server Authentication port`
Mutual Authentication Virtual Host	4401	4400 - 4419	`Oracle Certificate Authority SSL Mutual Authentication port`

D

Ports to Open in Firewalls

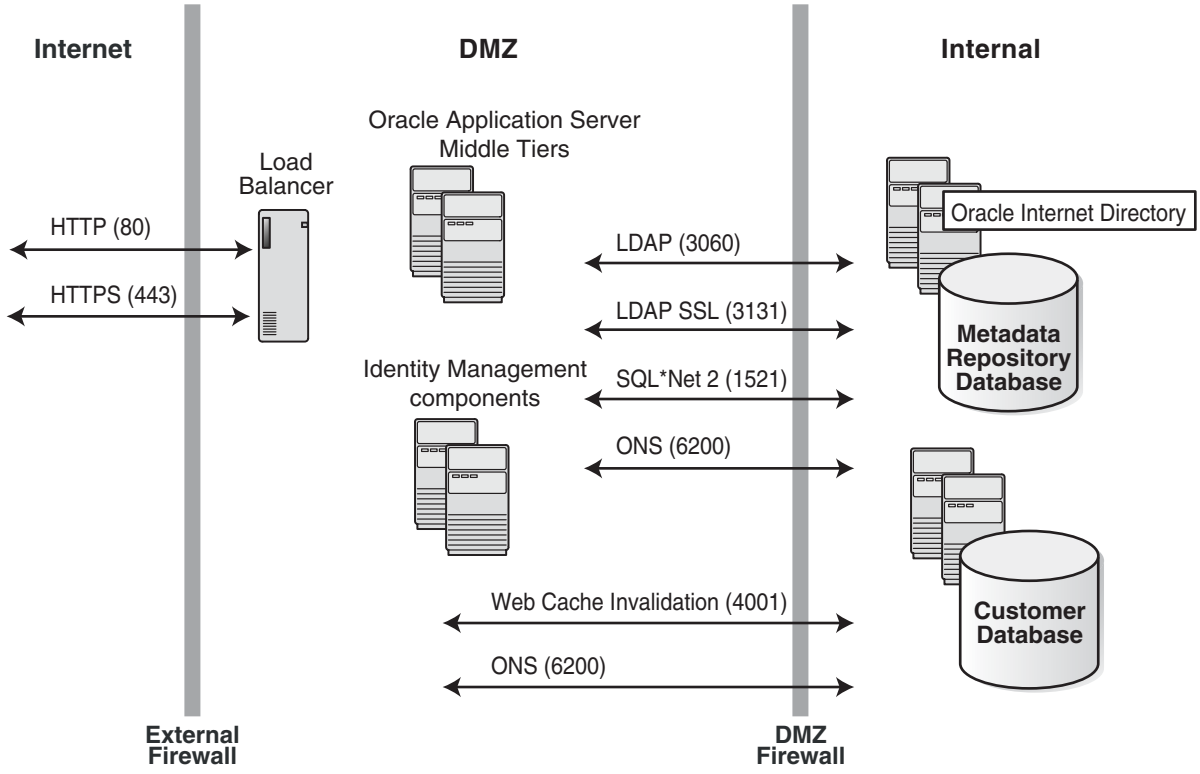
If you plan to install Oracle Application Server behind firewalls, you need to open certain ports in the firewall during installation (and also during runtime).

When you are installing middle-tiers or Identity Management components, you need access to the Oracle Internet Directory, OracleAS Metadata Repository, Oracle Notification Server, and OracleAS Web Cache (the invalidation port). You need to open ports used by these components in the firewall, as shown in Figure D–1:

- LDAP: port 3060
- LDAP SSL: port 3131
- SQL*Net 2: port 1521
- Oracle Notification Server: port 6200
- Web Cache Invalidation: port 4001

> **Note:** The port numbers listed here are the default ports for the components. You may have different ports in your environment.

Figure D–1 Ports Needed to Be Opened in the Firewall When Installing Oracle Application Server Behind Firewalls



E

Installing Java Access Bridge

This appendix describes how to install Java Access Bridge. Java Access Bridge enables use of a screen reader with Oracle components.

This appendix contains these topics:

- Section E.1, "Introduction"
- Section E.2, "Setup for JRE 1.4.2"
- Section E.3, "Setup for Oracle Installed Components"

E.1 Introduction

Java Access Bridge enables assistive technologies, such as JAWS screen reader, to read Java applications running on the Windows platform. Assistive technologies can read Java-based interfaces, such as Oracle Universal Installer and Oracle Enterprise Manager Application Server Control.

Your Oracle Application Server installation media contain the Java Runtime Environment (JRE) 1.4.2, which Oracle Universal Installer uses during installation. The JRE enables use of Java Access Bridge during installation. To install and configure Java Access Bridge after you install Oracle components, see Section E.3, "Setup for Oracle Installed Components" on page E-1.

E.2 Setup for JRE 1.4.2

To set up Java Access Bridge with JRE 1.4.2, run the following batch file on Oracle installation media.

```
DRIVE_LETTER:\install\access_setup.bat
```

After the batch file has run, restart your assistive technology program.

E.3 Setup for Oracle Installed Components

This section describes how to install and configure Java Access Bridge for Windows after installing Oracle components. This section contains the following topics:

- Section E.3.1, "Installing Java Access Bridge"
- Section E.3.2, "Configuring Oracle Components to Use Java Access Bridge"

E.3.1 Installing Java Access Bridge

To install Java Access Bridge, follow these steps:

1. On the Oracle installation media, go to the `AccessBridge` directory.
2. Select the `accessbridge-1_0_4.zip` file and extract its files to the system where you plan to install Access Bridge. For example:

   ```
   C:\AccessBridge-1.0.4
   ```

3. Copy the Java Access Bridge files listed in Table E–1 into the JRE 1.4.2 directory used by Oracle components. By default, the JRE used by Oracle components is installed in:

   *ORACLE_BASE**ORACLE_HOME*\jre\1.4.2

   Table E–1 lists the files you need to copy from the Java Access Bridge location on your hard drive to the JRE directory used by Oracle components:

Table E–1 Copy Files to JRE Directory

Copy this file	To this directory
AccessBridge-1_0_4\installer\installerFiles\jaccess-1_4.jar	*ORACLE_BASE**ORACLE_HOME*\jre\1.4.2\lib\ext
AccessBridge-1_0_4\installer\installerFiles\access-bridge.jar	*ORACLE_BASE**ORACLE_HOME*\jre\1.4.2\lib\ext
AccessBridge-1_0_4\installer\installerFiles\JavaAccessBridge.dll	*windows_directory*\system32
AccessBridge-1_0_4\installer\installerFiles\WindowsAccessBridge.dll	*windows_directory*\system32
AccessBridge-1_0_4\installer\installerFiles\JAWTAccessBridge.dll	*windows_directory*\system32
AccessBridge-1_0_4\installer\installerFiles\accessibility.properties	*ORACLE_BASE**ORACLE_HOME*\jre\1.4.2\lib

4. Rename `jaccess-1_4.jar` (now located in *ORACLE_BASE**ORACLE_HOME*\`jre\1.4.2\lib\ext`) to `jaccess.jar`.
5. Following a successful installation, you can access Java Access Bridge documentation located at:

   ```
   C:\AccessBridge-1.0.4\doc
   ```

E.3.2 Configuring Oracle Components to Use Java Access Bridge

You can configure Oracle components to use the Access Bridge after you complete the installation. To do so, you need to set the system variable `ORACLE_OEM_CLASSPATH` to point to the installed Java Access Bridge files.

E.3.2.1 Configuring for Windows 2000, Windows XP, or Windows Server 2003

To configure Oracle components to use Access Bridge on Windows 2000, Windows XP, or Windows Server 2003, follow these steps:

1. Select **Start > Settings > Control Panel > System** to display the Windows System Control Panel.
2. Select the Advanced tab.

3. Click the **Environment Variables** button.
4. Click the **New** button under the System Variables list. The New System Variable dialog appears.
5. In the **Variable Name** field, enter `ORACLE_OEM_CLASSPATH`.
6. In the **Variable Value** field, enter the full path to `jaccess.jar` and `access-bridge.jar`.

   Use a semicolon to separate the two paths. Do not use quotes or spaces. For example, if JRE 1.4.2 is installed in the default location, the setting would be:

   ```
   C:\oracle\product\10.1.0\Db_1\jre\1.4.2\lib\ext\jaccess.jar;C:\oracle\product\
   10.1.0\Db_1\jre\1.4.2\lib\ext\access-bridge.jar
   ```

7. Click **OK**.

F

Deinstallation and Reinstallation

This appendix guides you through the deinstallation and reinstallation process for Oracle Application Server.

- Section F.1, "New Tool: Deconfig Tool"
- Section F.2, "Deinstallation Procedure: Overview"
- Section F.3, "Deinstalling OracleAS Cold Failover Cluster Installations"
- Section F.4, "Deinstalling Middle Tiers"
- Section F.5, "Deinstalling OracleAS Infrastructure"
- Section F.6, "Deinstalling OracleAS Developer Kits"
- Section F.7, "Harmless Errors in the Log File"
- Section F.8, "Deinstalling All Oracle Products Manually"
- Section F.9, "Reinstallation"
- Section F.10, "Troubleshooting"

F.1 New Tool: Deconfig Tool

In this release, there is a new tool called the Deconfig tool that you need to run as part of the deinstallation procedure. This tool removes entries in OracleAS Metadata Repository and Oracle Internet Directory for the Oracle Application Server instance that you want to deinstall.

To run the Deconfig tool, run the Perl interpreter on the `ORACLE_HOME\bin\deconfig.pl` script. Use the Perl interpreter provided with Oracle Application Server.

```
C:\> cd ORACLE_HOME\bin
C:\> ORACLE_HOME\perl\5.6.1\bin\MSWin32-x86\perl.exe deconfig.pl [-u oid_user]
        [-w password] [-r realm] [-dbp sys_db_password]
```

If you run it without any parameters, the tool prompts you for the necessary information.

F.1.1 Parameters

-u *oid_user*

Specify the Oracle Internet Directory user.

You can specify the Oracle Internet Directory user using the user's simple name or the user's distinguished name (DN). For example, the user's simple name can be `jdoe@mycompany.com`, which corresponds to the DN `cn=jdoe,l=us,dc=mycompany,dc=com`.

The Oracle Internet Directory user needs to have privileges for deinstalling the components that are configured in the Oracle Application Server instance that you want to deinstall. These privileges are the same as for installing and configuring the component.

For example, if you are deinstalling an OracleAS Infrastructure instance that is running Oracle Delegated Administration Services and OracleAS Single Sign-On, make sure the user has privileges to configure these components. For a list of components and groups that grant the privileges, see Section 8.3, "Groups Required to Configure or Deinstall Components".

If you want to run the tool as the Oracle Internet Directory superuser, be sure to use `cn=orcladmin`, and not just `orcladmin`. These are two different users. If you want more details about these users, see Section 8.1, "Default Users in Oracle Internet Directory".

-w *password*

Specify the password for the Oracle Internet Directory user.

-r *realm*

Specify the realm in which to authenticate the user. This value is required only if your Oracle Internet Directory has more than one realm.

-dbp *sys_db_password*

Specify the password for the SYS user in the database. This is the OracleAS Metadata Repository database used by Oracle Internet Directory.

This value is required only if you are deinstalling an Identity Management-only instance that has Oracle Internet Directory configured.

If you specify this parameter and it is not needed, the password value is simply not used.

-help or -h

You can also run the Deconfig tool with the `-h` or `-help` parameter to display help:

```
C:\> ORACLE_HOME\perl\5.6.1\bin\MSWin32-x86\perl.exe deconfig.pl -h
 - or -
C:\> ORACLE_HOME\perl\5.6.1\bin\MSWin32-x86\perl.exe deconfig.pl -help
```

F.1.2 Log Files Generated by the Deconfig Tool

The Deconfig tool writes its log file to the `ORACLE_HOME\cfgtoollogs\DeconfigureWrapper.log` file.

F.2 Deinstallation Procedure: Overview

Follow these high-level steps to deinstall Oracle Application Server (the details are provided in later sections):

1. Deinstall middle-tier instances first.

a. Run the Deconfig tool on the instance.

b. Run the installer and click the **Deinstall Products** button.

c. Clean up any remaining files.

2. Then deinstall OracleAS Infrastructure instances.

a. Run the Deconfig tool on the instance.

b. Run the installer and click the **Deinstall Products** button.

c. Clean up any remaining files.

Notes:

- If you used OracleAS Metadata Repository Creation Assistant to install the OracleAS Metadata Repository on an existing database, and you want to remove the OracleAS Metadata Repository, select the "Remove" option in OracleAS Metadata Repository Creation Assistant. You can also use OracleAS Metadata Repository Creation Assistant to remove the registration from Oracle Internet Directory.
- If you remove an infrastructure instance, all middle-tier instances that depend on that infrastructure will no longer work.

  If you want to keep the middle-tier instances, you can configure them to use services from another infrastructure. See the *Oracle Application Server Administrator's Guide* for details.

Items to Remove or Clean Up

To deinstall Oracle Application Server 10*g* Release 2 (10.1.2) instances, you have to clean up the items listed in Table F–1. The procedures for doing so are described later in this appendix.

Table F–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 `del` command.
Entries for the deleted instance in the Inventory directory	Installer
Instance name from Farm page	Installer
Entries for the deleted instance in the Windows registry	Deconfig tool What we had in 9.0.4: You have to remove the entries manually. See Section F.8, "Deinstalling All Oracle Products Manually". **Note:** You can remove the entries only if the computer is not running other Oracle Application Server instances or other Oracle products, because the procedure described in the section removes entries for ***all*** Oracle products.
Entries for the deleted instance in Oracle Internet Directory	Deconfig tool

The installer does not permit custom deinstallation of individual components.

F.3 Deinstalling OracleAS Cold Failover Cluster Installations

If you are deinstalling an OracleAS Cold Failover Cluster installation:

1. Take all the resources in the Oracle Fail Safe group offline.
2. Then perform the steps described in this appendix.

If you do not take the resources offline, the installer will hang during the deinstallation because Oracle Fail Safe is trying to fail over the resources.

F.4 Deinstalling Middle Tiers

1. Log in as the operating system user who installed the instance you want to deinstall.
2. Stop all processes associated with the instance you want to deinstall.

   See the *Oracle Application Server Administrator's Guide* for details on how to stop the processes.
3. Run the Deconfig tool.

   ```
   C:\> cd ORACLE_HOME\bin
   C:\> ORACLE_HOME\perl\5.6.1\bin\MSWin32-x86\perl.exe deconfig.pl [parameters]
   ```

   See Section F.1, "New Tool: Deconfig Tool" for parameter details.
4. Start the installer.

   Select **Start > Programs > Oracle -** *OracleHomeName* **> Oracle Installation Products > Universal Installer**.
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. Restart your computer to stop any remaining processes associated with the deinstallation.
7. Delete any remaining files in the deleted instance's Oracle home directory.

   ```
   C:\> del %ORACLE_HOME%
   ```
8. The installer does not remove all entries from the Windows registry. If you want to remove all registry entries, see Section F.8, "Deinstalling All Oracle Products Manually".

Note: The procedure in Section F.8, "Deinstalling All Oracle Products Manually" removes registry entries for ***all*** Oracle products from your computer. Do not perform this procedure if you have other Oracle Application Server instances or other Oracle products (such as Oracle database or Oracle Developer Suite) on your computer and you want to keep them.

---

9. Note that OracleAS Portal entries in Oracle Internet Directory are not removed by the Deconfig tool or the installer.

F.5 Deinstalling OracleAS Infrastructure

This section describes how to deinstall OracleAS Infrastructure instances.

F.5.1 Deinstallation Order

The OracleAS Infrastructure instance could contain all the OracleAS Infrastructure components, or it could contain only a subset of the components, because you have a distributed OracleAS Infrastructure installation. Here are some common scenarios and their deinstallation order:

If you have an Identity Management + OracleAS Metadata Repository instance, you have only one instance to deinstall.

If you installed Identity Management and OracleAS Metadata Repository separately:

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

If you have a distributed Identity Management:

1. Deinstall the instance(s) that are running OracleAS Single Sign-On, Oracle Delegated Administration Services, Oracle Directory Integration and Provisioning, and/or OracleAS Certificate Authority.
2. Deinstall the instance running Oracle Internet Directory.
3. Deinstall the OracleAS Metadata Repository.

F.5.2 Deinstallation Steps

1. Log in as the operating system user who installed the instance you want to deinstall.
2. If OracleAS Certificate Authority is configured on the instance you want to deinstall, run the following commands:

   ```
   C:\> %ORACLE_HOME%\oca\bin\ocactl stop
   C:\> %ORACLE_HOME%\oca\bin\cmdeinst ocaAdminPassword oidAdminPassword
   ```

   Replace *ocaAdminPassword* with the password of the OracleAS Certificate Authority administrator.

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

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

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

   - removes OracleAS Certificate Authority entries from Oracle Internet Directory

- removes data from tables in the `oca` schema
- removes OracleAS Certificate Authority files created by the OracleAS Certificate Authority Configuration Assistant during installation

3. If Oracle Directory Integration and Provisioning is configured and running in the instance you want to deinstall, stop the Oracle Directory Integration and Provisioning server.

   Ensure that Oracle Internet Directory is running.

   You can stop Oracle Directory Integration and Provisioning by running the following command:

   ```
   C:\> cd ORACLE_HOME\bin
   C:\> oidctl connect=db_connect_string server=odisrv instance=1 stop
   ```

   db_connect_string is the service name as listed in the file `ORACLE_HOME\network\admin\tnsnames.ora`.

   For any additional Oracle Directory Integration and Provisioning servers that you started, you must stop them too. See the instructions in the *Oracle Identity Management Integration Guide*.

4. If Oracle Internet Directory is configured as a replica, you need to delete this node from the directory replication group (DRG). See Chapter 25, "Oracle Internet Directory Replication Administration", in the *Oracle Internet Directory Administrator's Guide* for steps.

5. Run the Deconfig tool.

   ```
   C:\> cd ORACLE_HOME\bin
   C:\> ORACLE_HOME\perl\5.6.1\bin\MSWin32-x86\perl.exe deconfig.pl [parameters]
   ```

   See Section F.1, "New Tool: Deconfig Tool" for parameter details. **Note:** If you are deinstalling an instance that includes the Oracle Internet Directory or OracleAS Single Sign-On components, you need to run the Deconfig tool as the Oracle Internet Directory superuser (`cn=orcladmin`). If the instance does not include Oracle Internet Directory or OracleAS Single Sign-On, then you need to run the tool as a user with the proper privileges, as shown in Table 8–4.

6. Start the installer.

   Select **Start > Programs > Oracle -** *OracleHomeName* **> Oracle Installation Products > Universal Installer**.

7. Follow these steps in the installer.

   a. Welcome screen: Click **Deinstall Products**.

   b. Inventory screen: Select the instance you want to deinstall, and click **Remove**.

   c. Confirmation screen: Verify the components selected for deinstallation. Click **Yes** to continue.

   d. Deinstallation Progress screen: Monitor the progress of the deinstallation.

   e. Exit the installer when the deinstallation is complete.

8. Restart your computer to stop any remaining processes associated with the deinstallation.

9. Delete any remaining files in the deleted instance's Oracle home directory.

   ```
   C:\> del %ORACLE_HOME%
   ```

10. The installer does not remove all entries from the Windows registry. If you want to remove all registry entries, see Section F.8, "Deinstalling All Oracle Products Manually".

> **Note:** The procedure in Section F.8, "Deinstalling All Oracle Products Manually" removes registry entries for ***all*** Oracle products from your computer. Do not perform this procedure if you have other Oracle Application Server instances or other Oracle products (such as Oracle database or Oracle Developer Suite) on your computer and you want to keep them.

F.6 Deinstalling OracleAS Developer Kits

1. Log in as the operating system user who installed OracleAS Developer Kits.
2. Stop all processes associated with the instance you want to deinstall.

   See the *Oracle Application Server Administrator's Guide* for details on how to stop the processes.
3. Start the installer.

   Select **Start > Programs > Oracle -** *OracleHomeName* **> Oracle Installation Products > Universal Installer**.
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. Restart your computer to stop any remaining processes associated with the deinstallation.
6. Delete any remaining files in the deleted instance's Oracle home directory.

   ```
   C:\> del %ORACLE_HOME%
   ```
7. The installer does not remove all entries from the Windows registry. If you want to remove all registry entries, see Section F.8, "Deinstalling All Oracle Products Manually".

> **Note:** The procedure in Section F.8, "Deinstalling All Oracle Products Manually" removes registry entries for ***all*** Oracle products from your computer. Do not perform this procedure if you have other Oracle Application Server instances or other Oracle products (such as Oracle database or Oracle Developer Suite) on your computer and you want to keep them.

F.7 Harmless Errors in the Log File

If you get the following "unable to delete file" and "unable to find make file" errors in the `oraInstall`*`timestamp`*`.err` file after you deinstall J2EE and Web Cache or Portal and Wireless instances, these are harmless error messages.

```
Ignoring Exception during de-install
oracle.sysman.oii.oiil.OiilDeinstallException:
An error occurred during runtime. oracle.sysman.oii.oiil.OiilDeinstallException:
An error occurred during runtime.
...
Ignoring Exception during de-install
oracle.sysman.oii.oiil.OiilDeinstallException:
Unable to delete file
/home/j2ee/sysman/emd/targets.xml
oracle.sysman.oii.oiil.OiilDeinstallException: Unable to delete file
/home/j2ee/sysman/emd/targets.xml
at instantiateFileEx.deinstallAction(instantiateFileEx.java:935)
...
Ignoring Exception during de-installoracle.sysman.oii.oiil.OiilDeinstallException:
Unable to find make file:
/home/j2ee/network/lib/ins_net_client.mk
oracle.sysman.oii.oiil.OiilDeinstallException: Unable to find make file:
/home/j2ee/network/lib/ins_net_client.mk
at ssmakeux.deinstallAction(ssmakeux.java:246)
...
```

F.8 Deinstalling All Oracle Products Manually

The following procedure removes all Oracle products from your computer.

> **Caution:** These instructions remove *all* Oracle components, services, and registry entries from your computer. Exercise extreme care when removing registry entries. Removing incorrect entries can cause your computer to stop working.

1. Delete Registry keys.
   a. Select **Start > Run**, type in **regedit**, and click **OK**. This displays the Registry Editor.
   b. Delete the following folders from the Registry. To delete a folder, select it and select **Edit > Delete** from the menu.

      In some of the entries below, *OracleHomeName* indicates the name of the Oracle home, which you entered in the Specify File Locations screen, and *Number* indicates a random number added to the Oracle home name.

      * **HKEY_LOCAL_MACHINE** / **SOFTWARE / ORACLE**
      * **HKEY_LOCAL_MACHINE** / **SYSTEM** / **CurrentControlSet** / **Services** / *OracleHomeName Number*
      * **HKEY_LOCAL_MACHINE** / **SYSTEM** / **ControlSet** *X* / **Services** / *OracleHomeName Number*

        X is a number, for example, 001.
      * **HKEY_CURRENT_USER** / **Software** / *OracleHomeName Number*

* **HKEY_CLASSES_ROOT / ORACLE**

c. Exit the Registry Editor.

2. Edit/delete environment variables.

To display environment variables:

- Right-click **My Computer** (on Windows 2003, the icon is labeled with the name of your computer) on the desktop and select **Properties**. Select the **Advanced** tab, then click **Environment Variables**.

a. Delete the following system variables if they exist:

- `DISCO_JRE`
- `DISCO_VBROKER`
- `VBROKER_JAVAVM`
- `VBROKER_TAG -D`
- `WV_GATEWAY_CFG`

b. Modify the Path system variable to remove all references to any previous Oracle home paths:

Highlight the Path system variable. Click the **Edit** button and modify the path in the **Variable Value** field.

For example, the following shows an Oracle-modified Path system variable:

```
C:\OraHome\jdk\jre\bin\classic;C:\OraHome\jdk\jre\bin;C:\OraHome\bin;
C:\OraHome\jlib;C:\OraHome\jre\1.1.8\bin;C:\WINNT\system32;C:\WINNT;
C:\WINNT\System32\Wbem
```

The following shows the Path system variable after removal of the Oracle home references:

```
C:\WINNT\system32;C:\WINNT;C:\WINNT\System32\Wbem
```

3. Click **OK**

4. Remove Oracle program folders.

Click **Start > Programs** (Windows 2000) or **Start > All Programs** (Windows 2003 or Windows XP). Remove Oracle folders by right-clicking on the folder and selecting Delete.

5. Delete the Oracle user.

a. Right-click **My Computer** (on Windows 2003, the icon is labeled with the name of your computer) and select **Manage**.

b. Expand **Local Users and Groups**.

c. Select **Users**.

d. Delete the user that installed Oracle products.

e. Double click **My Computer** on your desktop. Inspect the Documents and Settings directory on your hard drive and delete any Oracle user entries.

6. Restart your computer.

7. Remove remaining Oracle home directories from your hard drive.

For example:

```
C:\Oracle\*, C:\Program Files\Oracle\*
```

8. Restart your computer.

F.9 Reinstallation

The installer does not allow reinstallation of an Oracle Application Server instance in a directory that already contains an Oracle Application Server instance. To reinstall Oracle Application Server in the same directory, you have to deinstall and then install it.

F.10 Troubleshooting

See Section H.4, "Deinstallation Problems and Solutions" for help with common deinstallation problems.

G

Configuration Assistants

This appendix lists the configuration assistants and the location of their log files.

- Section G.1, "Troubleshooting Configuration Assistants"
- Section G.2, "Description of Oracle Application Server Configuration Assistants"

G.1 Troubleshooting Configuration Assistants

Contents:

- Section G.1.1, "General Tips"
- Section G.1.2, "Configuration Assistant Result Codes"

G.1.1 General Tips

If a configuration assistant fails, try the following steps to correct the problem:

1. Review the installation log files listed in Section H.1, "Log Files".
2. Review the log files for the failed configuration assistant. Configuration assistant log files are listed in Section G.2, "Description of Oracle Application Server Configuration Assistants". Try to fix the issue that caused the error.
3. If the failed configuration assistant has any dependencies, then run the dependencies again. You must do this even if the dependency completed successfully.
4. Run the failed configuration assistant again by selecting the configuration assistant in the installer and clicking **Retry**.

   If the configuration assistant fails again after you click **Retry**, remove the `C:\temp\EM_CONFIG_INSTALL.lk` file and re-run the configuration assistant again.

   If the configuration assistant fails again after you click **Retry**, remove the component entry from the `ORACLE_HOME\sysman\emd\targets.xml` file. For example, the following lines show the OracleAS Web Cache entry in the `targets.xml` file:

```
<Target TYPE="oracle_webcache" NAME="instance2.domain.com_Web Cache"
DISPLAY_NAME="Web Cache">
   <Property NAME="HTTPPort" VALUE="7777" />
   <Property NAME="logFileName" VALUE="webcache.log" />
   <Property NAME="authrealm" VALUE="Oracle Web Cache Administrator" />
   <Property NAME="AdminPort" VALUE="4000" />
   <Property NAME="HTTPProtocol" VALUE="http" />
   <Property NAME="logFileDir" VALUE="/sysman/log" />
```

```
   <Property NAME="HTTPMachine" VALUE="domain.com" />
   <Property NAME="HTTPQuery" VALUE="" />
   <Property NAME="controlFile" VALUE="/ORACLE_HOME/webcache/bin/webcachectl" /
>
   <Property NAME="MonitorPort" VALUE="4002" />
   <Property NAME="HTTPPath" VALUE="/" />
   <Property NAME="authpwd" VALUE="administrator" />
   <Property NAME="authuser" VALUE="administrator" />
   <CompositeMembership>
      <MemberOf TYPE="oracle_ias" NAME="domain.com" ASSOCIATION="null" />
   </CompositeMembership>
</Target>
```

5. If an optional configuration assistant fails, and it does not have any dependencies, run the remaining configuration assistants. Uncheck the cancelled optional configuration assistant, highlight and check the next listed configuration assistant, and click **Retry**.
6. If configuration assistant failure occurs when running configuration assistant execution commands on the command line, then re-run the configuration assistant execution command again.

   You can use the generated script file named `configtoolcmds.pl` located in the `ORACLE_HOME\bin` directory to execute the failed configuration assistant again. The `configtoolcmds.pl` script is generated after you exit the installer. During silent or non-interactive installation, the `configtoolcmds.pl` script is generated immediately after configuration assistant failure.
7. If you see a "Fatal Error. Reinstall" message, find the cause of the problem by analyzing the log files. You cannot recover from a fatal error by correcting the problem and continuing. You must remove the current installation and reinstall Oracle Application Server. The following tasks describe the recovery procedure:
   a. Deinstall the failed installation using the procedure described in Appendix F, "Deinstallation and Reinstallation".
   b. Correct the cause of the fatal error.
   c. Reinstall Oracle Application Server.
   d. If the fatal error reoccurs, then you must remove all Oracle installations from your computer using the procedure in Section F.8, "Deinstalling All Oracle Products Manually".

G.1.2 Configuration Assistant Result Codes

If a configuration assistant fails, the bottom half of the installation screen displays the error message, and the configuration assistant writes its result code (Table G–1) to the following log file:

`C:\Program Files\Oracle\Inventory\logs\installActions`*`timestamp`*`.log`

Table G–1 Result Codes for Configuration Assistants

Result Code	Description
`0`	Configuration assistant succeeded
`1`	Configuration assistant failed
`-1`	Configuration assistant cancelled

G.2 Description of Oracle Application Server Configuration Assistants

Table G–2 lists the Oracle Application Server configuration assistants in alphabetical order. Different installations use different configuration assistants depending on installation type and configuration options you selected.

Note that the paths below use "/" as the directory delimiter. You might need to change it for your system. For example, use "\" if you are on a Windows system.

Table G–2 Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location
ADF Configuration Assistant	Integrates Oracle Application Development Framework Runtime Libraries with Oracle Enterprise Manager Application Server Control. This configuration assistant requires the `ORACLE_HOME/jlib/emConfigInstall.jar` file.	`ORACLE_HOME/oraInventory/logs/installActions`*`timestamp`*`.log`
Application Server Control Configuration Assistant	Starts the Oracle Management Agent and the Application Server Control to deploy applications through the Oracle Enterprise Manager Application Server Control.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`
Database Configuration Assistant	Configures the OracleAS Metadata Repository for OracleAS Infrastructure.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`
Database Migration Assistant	Migrates the 9.0.2 infrastructure database to a 10*g* Release 2 (10.1.2) infrastructure database. Before running this migration assistant, make sure the database is up and running.	`ORACLE_HOME/assistants/dbma/logs`
Database-managed OracleAS Cluster Assistant	Enables cluster configuration for selected databases.	`ORACLE_HOME/config/infratool_dcm_repository.log` `ORACLE_HOME/cfgtoollogs/infratool_dcm_repository.log`
DCM Repository Backup Assistant	Enables you to back up your DCM repository.	`ORACLE_HOME/dcm/logs`
Delegated Administration Service Configuration Assistant	Sets up the Oracle Delegated Administration Services URL in Oracle Internet Directory and adds the necessary access control privileges to the DAS entity. Before running this configuration assistant, make sure the Infrastructure Instance Configuration Assistant was run successfully.	`ORACLE_HOME/cfgtoollogs/dasca.log`
Directory Integration Platform Configuration Assistant	Registers and starts the directory integration server when configured with Oracle Internet Directory. Before running this configuration assistant, make sure Oracle Internet Directory is properly configured.	`ORACLE_HOME/cfgtoollogs/dipca.log`
File-Based Farm Repository Configuration Assistant	Configures a file-based repository for Oracle Application Server components.	`ORACLE_HOME/config/infratool_filebased_repository.log` `ORACLE_HOME/cfgtoollogs/infratool_filebased_repository.log`

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

Configuration Assistant	Description	Log File Location

HTTP Server Configuration Assistant	Configures Oracle HTTP Server, registers it with Oracle Enterprise Manager Application Server Control, and adds an entry to the `ORACLE_HOME/sysman/emd/targets.xml` file.	`ORACLE_HOME/Apache/Apache/logs`
		
		`ORACLE_HOME/Apache/Apache/httpd.log`
		
		`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`

Infrastructure Database Registration Assistant	Registers the OracleAS Metadata Repository with Oracle Internet Directory.	`ORACLE_HOME/cfgtoollogs/infratool_ldaporacfg.log`

Infrastructure Instance Configuration Assistant	Updates the `ORACLE_HOME/config/ias.properties` file, registers the instance with Oracle Internet Directory, and creates the `ldap.ora` file with Oracle Internet Directory credentials in the `ORACLE_HOME/network/admin` file.
	
	Before running this configuration assistant, check that the PATH environment variable includes the `ORACLE_HOME\lib` directory.
		`ORACLE_HOME/config/infratool_instance_jazn.log`
		
		`ORACLE_HOME/cfgtoollogs/infratool_instance_jazn.log`

Infrastructure mod_osso Configuration Assistant.	Registers mod_osso, plugs mod_osso into Oracle HTTP Server, and provides integration with OracleAS Single Sign-On to authenticate users.
	
	The registration enables Oracle HTTP Server installed with OracleAS Infrastructure to act as a partner application to OracleAS Single Sign-On. Applications that run under Oracle HTTP Server can register and protect their URL with mod_osso. When the URL is requested, mod_osso authenticates the user with OracleAS Single Sign-On to allow access to the URL.
		`ORACLE_HOME/config/infratool_mod_osso.log`
		
		`ORACLE_HOME/cfgtoollogs/infratool_mod_osso.log`

Infrastructure Schema Configuration Assistant	Registers the Infrastructure schemas with Oracle Internet Directory.
	
	Before running this configuration assistant, check that:
	■ the PATH environment variable includes the `ORACLE_HOME\lib` directory
	■ the Internet Directory Configuration Assistant and the Database Configuration Assistant were run successfully
		`ORACLE_HOME/config/schemaload.log`
		
		`ORACLE_HOME/cfgtoollogs/schemaload.log`

Infrastructure Upgrade Instance Configuration Assistant	Removes ACL entries on the `SSO` schema. Before running this configuration assistant, check that the PATH environment variable includes the `ORACLE_HOME\lib` directory.	`ORACLE_HOME/config/infratool_infra_upgrade.log`
Internet Directory Configuration Assistant	Starts up Oracle Internet Directory, loads the LDAP schemas, and sets up the Identity Management realm. Before running this configuration assistant, check that the database was created successfully, the listener is up and running, and the `tnsnames.ora` file is configured.	`ORACLE_HOME/cfgtoollogs/oidca.log`
Java Security Configuration Assistant	Changes the default password, and sets or reassigns new passwords for JAAS security.	`ORACLE_HOME/cfgtoollogs/jaznca.log`

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

Configuration Assistant	Description	Log File Location
OC4J Configuration Assistant	Integrates OC4J with Application Server Control. It performs the following steps: ■ Add entries to the `targets.xml` file. ■ Add entries to the `iasadmin.properties` file. This configuration assistant requires the `deploy.ini` file.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`
OC4J Instance Configuration Assistant	Configures OC4J instances for deployed Oracle Application Server applications.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`

OPMN Configuration Assistant	Starts OPMN and OPMN-managed processes.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`
		`ORACLE_HOME/cfgtoollogs/ipm.log`
		`ORACLE_HOME/cfgtoollogs/ons.log`

OPMN Configuration Assistant - start DAS instance	Starts Oracle Delegated Administration Services instance through OPMN.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`
		`ORACLE_HOME/cfgtoollogs/ipm.log`
		`ORACLE_HOME/cfgtoollogs/ons.log`

OPMN Configuration Assistant - start OCA	Starts OracleAS Certificate Authority through OPMN.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`
		`ORACLE_HOME/cfgtoollogs/ipm.log`
		`ORACLE_HOME/cfgtoollogs/ons.log`

OPMN Configuration Assistant - start Oracle HTTP Server	Starts Oracle HTTP Server through OPMN.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log` `ORACLE_HOME/cfgtoollogs/HTTP_Server~1`
OracleAS Certificate Authority Configuration Assistant	Configures a self-signed certificate authority, integrated with OracleAS Single Sign-On for authentication. Before running this configuration assistant, check that Oracle Internet Directory, OracleAS Metadata Repository, OracleAS Single Sign-On, and the Repository API are configured.	`ORACLE_HOME/cfgtoollogs/oca_install.log`
OracleAS File-Based Farm Repository Configuration Assistant	Configures a file-based farm repository.	`ORACLE_HOME/config/infratool_filebased_repository.log` `ORACLE_HOME/cfgtoollogs/infratool_filebased_repository.log`
OracleAS Instance Configuration Assistant	Adds an entry for the instance to the `ORACLE_HOME/config/target2add.xml` file.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log`

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

Configuration Assistant	Description	Log File Location
OracleAS Randomize Password Configuration Assistant	Changes the default password of all schemas.	None
Oracle mod_osso Configuration Assistant	Registers mod_osso during installation, plugs mod_osso into Oracle HTTP Server, and provides integration with OracleAS Single Sign-On to authenticate users. The registration enables Oracle HTTP Server installed with the Oracle Application Server middle tier to act as a partner application to OracleAS Single Sign-On. Applications running under Oracle HTTP Server can register and protect their URL with mod_osso. When the URL is requested, mod_osso authenticates the user with OracleAS Single Sign-On to allow access to the URL.	`ORACLE_HOME/config/j2ee_mod_osso.log` `ORACLE_HOME/cfgtoollogs/j2ee_mod_osso.log`
Oracle Net Configuration Assistant	Configures the database listener and the middle tiers to use LDAP naming by default.	`ORACLE_HOME/cfgtoollogs/installActions`*`timestamp`*`.log`
Portal Configuration Assistant	Configures OracleAS Portal. Before running this configuration assistant, check that the OracleAS Infrastructure is up and running.	`ORACLE_HOME/cfgtoollogs/install.log`
Register DCM Plug-Ins With Oracle Enterprise Manager Configuration Assistant	Registers DCM plug-ins with Oracle Enterprise Manager.	`ORACLE_HOME/cfgtoollogs/configtools`*`timestamp`*`.log` `ORACLE_HOME/dcm/logs/dcmctl_logs`
Replication Configuration Assistant	For ASR replica installations, it writes the new Oracle Internet Directory metadata to the master Oracle Internet Directory. For LDAP replica installations, it configures LDAP-based replication between the master Oracle Internet Directory and the new Oracle Internet Directory replica with default configuration. It then starts the Oracle Internet Directory replication server and helps configure Oracle Internet Directory replication. Before running this configuration assistant, check that the Oracle Internet Directory servers for the master and the new replica are up and running.	`ORACLE_HOME/ldap/log/remtool.log`
Single Sign-On Configuration Assistant	Configures OracleAS Single Sign-On. Before running this configuration assistant, check that Oracle Internet Directory, OracleAS Metadata Repository, and the Repository API are configured.	`ORACLE_HOME/sso/log/ssoca.log` `ORACLE_HOME/sso/log/ssoreg.log`

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

Configuration Assistant	Description	Log File Location
Ultra Search Configuration Assistant	Performs the following tasks: ■ Deploys and configures Oracle Ultra Search within the Oracle Application Server middle tier. ■ Creates Oracle Ultra Search back-end application entities and Oracle Ultra Search administration privilege groups. ■ Creates application entities for the Oracle Ultra Search middle tier. ■ Upgrades and cleans up Oracle Ultra Search metadata in the OracleAS Metadata Repository.	`ORACLE_HOME/cfgtoollogs/ultrasearch_config.log`
Unlock Metadata Repository Schemas Configuration Assistant	Unlocks the schemas in the OracleAS Metadata Repository. This configuration assistant is run for Identity Management installations.	`ORACLE_HOME/config/infratool_unlock_schema.log`
Use Infrastructure Configuration Assistant	Updates the `ORACLE_HOME/config/ias.properties` file, registers the instance with Oracle Internet Directory, and creates the `ldap.ora` file with Oracle Internet Directory credentials in the `ORACLE_HOME/network/admin` directory. Before running this configuration assistant, check that the PATH environment variable includes the `ORACLE_HOME/lib` and ORACLE_HOME directories.	`ORACLE_HOME/config/j2ee_instance_jazn.log` `ORACLE_HOME/cfgtoollogs/j2ee_instance_jazn.log`
Use Metadata Repository Configuration Assistant	Configures OracleAS Metadata Repository for the Oracle Application Server middle tier. This includes the ability to expand J2EE and Web Cache middle tiers to a larger installation type. Before running this configuration assistant, check that the PATH environment variable includes the `ORACLE_HOME\lib` directory.	`ORACLE_HOME/config/infratool_midtier_upgrade.log`
Web Cache Configuration Assistant	Configures OracleAS Web Cache and registers it with Oracle Enterprise Manager Application Server Control.	`ORACLE_HOME/cfgtoollogs/configtools`*timestamp*`.log`
Wireless Configuration Assistant	Configures OracleAS Wireless.	`ORACLE_HOME/wireless/logs/wireless_CA.out` `ORACLE_HOME/cfgtoollogs/wireless_CA.out`
OracleAS Wireless SDK Configuration Assistant	Configures the Wireless Development Kit.	`ORACLE_HOME/wireless/logs/wdk_ca.out` `ORACLE_HOME/cfgtoollogs/wdk_ca.out`

H

Troubleshooting

This appendix describes solutions to common problems that you might encounter when installing Oracle Application Server. It contains the following sections:

- Section H.1, "Log Files"
- Section H.2, "General Troubleshooting Tips"
- Section H.3, "Installation Problems and Solutions"
- Section H.4, "Deinstallation Problems and Solutions"
- Section H.5, "Need More Help?"

H.1 Log Files

The installer writes the following log files:

- *inventory_location*\logs\installActions*timestamp*.log
- *inventory_location*\logs\oraInstall*timestamp*.err
- *inventory_location*\logs\oraInstall*timestamp*.out

The default *inventory_location* is:

```
C:\Program Files\Oracle\Inventory
```

H.2 General Troubleshooting Tips

If you encounter an error during installation:

- Read the *Oracle Application Server Release Notes* for the latest updates. The release notes are available with the platform-specific documentation. The most current version of the release notes is available on Oracle Technology Network (http://www.oracle.com/technology/documentation).
- Verify that your computer meets the requirements specified in Chapter 4, "Requirements".
- If you are installing a middle tier, check that the OracleAS Infrastructure with which you want to associate the middle tier is running during installation.
- If you entered incorrect information on one of the installation screens, return to that screen by clicking **Back** until you see the screen.
- If a configuration assistant failed, check the log file for that configuration assistant. Section G.2, "Description of Oracle Application Server Configuration Assistants" lists the configuration assistants and the location of their log files. If you do not see

log files from some configuration assistants in the `ORACLE_HOME\cfgtoollogs` directory, exit the installer. This causes the installer to copy the log files to that directory.

- If an error occurred while the installer is copying or linking files:
  1. Note the error and review the installation log files.
  2. Remove the failed installation by following the steps in Appendix F, "Deinstallation and Reinstallation".
  3. Correct the issue that caused the error.
  4. Restart the installation.

H.3 Installation Problems and Solutions

This section describes common installation problems and solutions:

- Section H.3.1, "Location of Log Files"
- Section H.3.2, "Message About Installing in a Non-Empty Directory"
- Section H.3.3, "Installer Does Not Appear"
- Section H.3.4, "Unable to Clean Up a Failed Installation"
- Section H.3.5, "Forgot the Password for the cn=orcladmin Account"
- Section H.3.6, "cn=orcladmin Account Becomes Locked"
- Section H.3.7, "User Interface Does Not Display in the Desired Language, or Does Not Display Properly"
- Section H.3.8, "Installer Does Not Display Correct Database Name for OracleAS Metadata Repository"
- Section H.3.9, "Unable to Run Oracle Application Server On-Network as Well as Off-Network"
- Section H.3.10, "Configuration Assistant Failures - General"
- Section H.3.11, "OracleAS Randomize Password Configuration Assistant Failures"
- Section H.3.12, "Database Configuration Assistant (DBCA) Failures"
- Section H.3.13, "Harmless Error Message from Database Configuration Assistant (DBCA)"
- Section H.3.14, "Application Server Control Configuration Assistant Failure"
- Section H.3.15, "OPMN Configuration Assistant - Start HTTP Server Failures"
- Section H.3.16, "OPMN Configuration Assistant - Start DAS Instance Failures"
- Section H.3.17, "OPMN Configuration Assistant - Start OracleAS Certificate Authority Failures"

H.3.1 Location of Log Files

There are two sets of log files:

- The installer writes the following log files:
  - *inventory_location*`\logs\installActions`*timestamp*`.log`
  - *inventory_location*`\logs\oraInstall`*timestamp*`.err`

  - *inventory_location*\logs\oraInstall*timestamp*.out

    The default *inventory_location* is:

    ```
    C:\Program Files\Oracle\Inventory
    ```

- The configuration assistants write log files in the ORACLE_HOME\cfgtoollogs directory.

  Note that if you want to access the log files created by the configuration assistants, you need to exit the installer first. The log files are inaccessible if the installer is still in use.

H.3.2 Message About Installing in a Non-Empty Directory

Problem

The installer displays a message that you are installing into a non-empty directory.

Solution

If you started an installation and went beyond the Specify File Locations screen, but did not complete the installation, the installer has already created the Oracle home directory that you specified. If you later try to install again in the same directory, which contains some files created by the installer, the installer gives a warning that the directory is not empty.

Steps to take:

1. In the warning dialog, click **No** to return to the Specify File Locations screen.
2. In the Specify File Locations screen, click **Installed Products**. This displays the Inventory screen.

   If your Oracle home is listed in the Inventory screen, then you have to deinstall the Oracle home. See Appendix F, "Deinstallation and Reinstallation" for details.

   If your Oracle home is not listed in the Inventory screen, then you can just delete the files from the Oracle home and continue with the installation.

H.3.3 Installer Does Not Appear

Problem

The installer does not appear when you run setup.exe.

Solution

If you are installing Oracle Application Server on a computer that is already running Oracle Database 10*g*, then you have to start up the installer with the following option:

```
E:\> setup.exe -J-Dsun.java2d.noddraw=true
```

H.3.4 Unable to Clean Up a Failed Installation

If your installation was not successful, you have to deinstall it first before you can install Oracle Application Server again. Refer to Appendix F, "Deinstallation and Reinstallation" for instructions.

H.3.5 Forgot the Password for the cn=orcladmin Account

Problem

You forgot the password for the cn=orcladmin account.

Solution

You can reset the password in the database. The DSE root attribute name is `orclsupassword`.

Note that after a certain number of failed attempts to connect, the cn=orcladmin account becomes locked. In this case, you have to unlock the account. See the next section, Section H.3.6, "cn=orcladmin Account Becomes Locked", for instructions on how to unlock the account.

H.3.6 cn=orcladmin Account Becomes Locked

Problem

The cn=orcladmin account becomes locked after ten failed attempts to connect. This is controlled by the password policy. Ten failed attempts is the default value.

Solution

If you know the cn=orcladmin password, you can unlock the account by running the following command:

```
C:\> ORACLE_HOME\bin\oidpasswd connect=dbsid unlock_su_acct=true
```

where *dbsid* is the SID for the database. For example:

```
C:\> ORACLE_HOME\bin\oidpasswd connect=asdb unlock_su_acct=true
OID DB user password: enter_ODS_password
OID superuser account unlocked successfully.
```

The command prompts for the password of the ODS schema. By default, the ODS password is the same as for the cn=orcladmin and ias_admin accounts, which you entered during installation.

To change the password policy, see the *Oracle Internet Directory Administrator's Guide*.

H.3.7 User Interface Does Not Display in the Desired Language, or Does Not Display Properly

Problem

Messages do not appear in the desired language, or messages are not displayed correctly

Solution

Currently Oracle Application Server does not support adding or removing languages after installation.

If you are serving non-English content, be sure you add all the languages that you need during installation. To add languages during installation, click the **Product Languages** button in the "Select a Product to Install" screen. To see which languages are installed by default, see Section 5.6, "Installing Additional Languages".

If you are serving non-English content and forgot to click the Product Languages in the installation, the user interface might not display properly because the required fonts were not installed. You can fix this by installing the fonts from the "OracleAS Metadata Repository Upgrade Assistant and Utilities" CD-ROM or from the Oracle Application Server DVD-ROM.

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

   DVD-ROM: Copy the contents of the `repca_utilities\utilities\fonts` directory on the DVD-ROM to the `ORACLE_HOME\jdk\jre\lib\fonts` directory.

H.3.8 Installer Does Not Display Correct Database Name for OracleAS Metadata Repository

Problem

During middle-tier installation, in the Select OracleAS Metadata Repository screen, which is the screen where you select the OracleAS Metadata Repository that you want to use for the middle tier, the installer does not display correctly the names of the available OracleAS Metadata Repository databases.

Solution

Check the log file `C:\Program Files\Oracle\Inventory\logs\installActions`*`timestamp`*`.log`. If you see these lines:

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

it means that your OracleAS Metadata Repository database name contains `PORT` or `HOST` in uppercase characters. To fix the problem, change the name of the database so that it does not contain `PORT` or `HOST` in uppercase characters.

H.3.9 Unable to Run Oracle Application Server On-Network as Well as Off-Network

Problem

You installed Oracle Application Server when the computer was connected to the network, and now you want to run it off-network

Solution

If you want to run Oracle Application Server on-network as well as off-network, you need to install a loopback adapter. On computers with static IP address, when you go off-network, your Ethernet adapter will be down (`ipconfig` shows cable disconnected) and `ipconfig` cannot resolve that IP.

For details on loopback adapters, see Section 4.7.6, "Installing a Loopback Adapter".

H.3.10 Configuration Assistant Failures - General

This section describes general tips for troubleshooting configuration assistant failures. See the next sections for specific configuration assistant failures. See also Appendix G, "Configuration Assistants".

Problem

Configuration assistant failed

Solution

Configuration assistants fail from a variety of causes. Some things you can check are:

- Check that the listener, database, and Oracle Internet Directory associated with the OracleAS Infrastructure are up and running. If not, start them up and click the **Retry** button to rerun the configuration assistant that failed.
- Check the log files for the failed configuration assistant to determine the problem. The log files are located in the `ORACLE_HOME\cfgtoollogs` directory.

  Fix the problem indicated in the log file, and click **Retry** to rerun the failed configuration assistant.

H.3.11 OracleAS Randomize Password Configuration Assistant Failures

Before rerunning OracleAS Randomize Password Configuration Assistant, you need to perform these steps:

1. Start Oracle Directory Manager.
2. Enter the Oracle Internet Directory hostname, port, user name, and password.
3. Expand **Entry Management** > **cn=OracleContext** > **cn=Products** > **cn=IAS** > **cn=IAS Infrastructure Databases**.
4. Select **orclreferencename=***your_globaldb_name*.
5. For each schema under the *your_globaldb_name* tree, there is an `orclreferencename` entry. For the `orclreferencename` entry:
   - Change the value of the `orclpassword` attribute to the schema name. For example, if `wireless` is the schema name, change the `orclpassword` attribute value to `wireless`.
   - Change `orclflexattribute1` to **false**.

   Click **Apply**.

   Perform these steps for all the schemas except `ODS` and `OEM_REPOSITORY`.
6. Using SQL*Plus, log in to the database where the OracleAS Randomize Password Configuration Assistant failure is occurring, and run the following script.

   ```
   C:\> sqlplus "sys/password as sysdba"
   SQL> @ORACLE_HOME\assistants\dbca\admin\unlock.sql
   ```

   password specifies the password for the SYS user.
7. Rerun the OracleAS Randomize Password Configuration Assistant.

H.3.12 Database Configuration Assistant (DBCA) Failures

Problem

DBCA fails with the following error:

```
Open wallet failedoracle.net.config.ServiceAliasException
at oracle.net.config.ServiceAlias.<init>(Compiled Code)
at oracle.net.config.Service.<init>(Compiled Code)
at oracle.net.config.DatabaseService.<init>(Compiled Code)
at oracle.sysman.assistants.util.NetworkUtils.registerDBWithDirSrvc(NetworkUtils.j
ava:1137)
at oracle.sysman.assistants.dbca.backend.DirServiceStep.executePreReqImpl(Compiled
Code)
at oracle.sysman.assistants.dbca.backend.PrerequisiteStep.executeImpl(Prerequisite
Step.java:149)
at oracle.sysman.assistants.dbca.backend.Step.execute(Compiled Code)
at oracle.sysman.assistants.dbca.backend.PostDBCreationStep.executeImpl(Compiled
Code)
at oracle.sysman.assistants.dbca.backend.Step.execute(Compiled Code)
at oracle.sysman.assistants.dbca.backend.Host$ModeRunner.run(Compiled Code)
at java.lang.Thread.run(Thread.java:466)
ERROR :oracle.sysman.assistants.util.NetAPIException
```

Solution

This error occurs if the TNS_ADMIN environment variable is set. The TNS_ADMIN environment variable should not be set (see Section 4.5.4, "TNS_ADMIN"). If it is set, unset it and rerun DBCA by clicking the **Retry** button in the Configuration Assistants screen.

H.3.13 Harmless Error Message from Database Configuration Assistant (DBCA)

If you see the following "error copying OC4J config files" message in your log file, the message is harmless and can be ignored.

```
Nov 25, 2004 9:07:30 PM oracle.sysman.emcp.EMConfig updateReposVars
INFO: Updating file
/AS1012Installs/AS1012Infra/sysman/emdrep/config/repository.variables ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig addPortEntries
INFO: Updating file /AS1012Installs/AS1012Infra/install/portlist.ini ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateEmdProps
INFO: Updating file /AS1012Installs/AS1012Infra/sysman/config/emd.properties ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateConfigFiles
INFO: targets.xml file is updated successfully
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateEmomsProps
INFO: Updating file
/AS1012Installs/AS1012Infra/sysman/config/emoms.properties ...
Nov 25, 2004 9:07:35 PM oracle.sysman.emcp.EMConfig updateConfigFiles
INFO: emoms.properties file is updated successfully
Nov 25, 2004 9:07:40 PM oracle.sysman.emcp.EMConfig copyOC4JDir
WARNING: Error copying OC4J config files from
/AS1012Installs/AS1012Infra/oc4j/j2ee/OC4J_DBConsole to
/AS1012Installs/AS1012Infra/oc4j/j2ee/OC4J_DBConsole_hostname.domain_portaldb
Nov 25, 2004 9:07:40 PM oracle.sysman.emcp.EMConfig startOMS
INFO: Starting the DBConsole ...
Nov 25, 2004 9:08:26 PM oracle.sysman.emcp.EMConfig perform
INFO: DBConsole is started successfully
```

H.3.14 Application Server Control Configuration Assistant Failure

Problem

Application Server Control Configuration Assistant fails with the following error message:

```
Launched configuration assistant 'Application Server Control Configuration
Assistant'
------------------------------------------------
Tool type is: Recommended.
The command being spawned is:
'C:\Product\OracleAS\Infra/bin/emctlins.bat'
Oracle 10g Application Server Control 10.1.2.0.0
Copyright (c) 1996, 2004 Oracle Corporation. All rights reserved.
http://mypc.mydomain.com:1810/emd/console/aboutApplication
Starting Oracle 10g Application Server Control ...The OracleOH_INFRA_1012ASControl
service is starting
.................................................................
.................................................................
.................................................................
The OracleOH_INFRA_1012ASControl service could not be started.
A service specific error occurred: 1.
More help is available by typing NET HELPMSG 3547.
Invalid Exit Code. The following result code will be used for configuration
assistants: 1
Configuration assistant "Application Server Control Configuration Assistant"
failed
```

Solution

If you get the error message above, it means that the Application Server Control Configuration Assistant failed because it tried to configure Application Server Control components using ports that are already in use by other processes.

To fix this, determine the ports that the configuration assistant tried to use, check which ports are already in use, and then reconfigure Application Server Control to use different ports. The steps in detail are:

1. In the `%ORACLE_HOME%\sysman\config\emd.properties` file, get the port number specified on the `EMD_URL` line. This is the port number used by the emagent process.
2. In the `%ORACLE_HOME%\sysman\j2ee\config\emd-web-site.xml` file, get the port number listed in the `web-site` element. This is the HTTP connection port for Application Server Control.
3. In the `%ORACLE_HOME%\sysman\j2ee\config\rmi.xml` file, get the port number listed in the `rmi-server` element. This is the port number used for RMI communication with the Application Server Control OC4J instance.
4. Run "`netstat -a`" to check which of the ports determined from the steps above are already in use.

   For example, to check if port 1851 is already in use by an existing process, you can run the following command:

   ```
   C:\> netstat -a | find "1851"
   ```

5. For the ports that are already in use, configure Application Server Control to use different ports that are not currently in use.

If the emagent process port is already in use, reconfigure it with the following command:

```
C:\> emctl config agent port new_emagent_port
```

If the HTTP connection port is already in use, reconfigure it with the following command:

```
C:\> emctl config iasconsole port new_AS_Control_HTTP_port
```

If the RMI port is already in use, reconfigure it with the following command:

```
C:\> emctl config iasconsole rmiport new_RMI_port
```

6. Click **Retry** in the Configuration Assistants screen to rerun the Application Server Control Configuration Assistant, or start Application Server Control from the Services control panel. The service name is `Oracle<OracleHomeName>ASControl`.

H.3.15 OPMN Configuration Assistant - Start HTTP Server Failures

Problem

The OPMN Configuration Assistant - Start HTTP Server fails when you re-run it.

Solution

The problem is that Oracle HTTP Server is already running. Before re-running the configuration assistant, stop Oracle HTTP Server with the following command:

```
C:\> ORACLE_HOME\opmn\bin\opmnctl stopproc ias-component=HTTP_Server
```

Then re-run the OPMN Configuration Assistant - Start HTTP Server.

H.3.16 OPMN Configuration Assistant - Start DAS Instance Failures

Problem

The OPMN Configuration Assistant - Start DAS Instance fails when you re-run it.

Solution

The problem is that the Oracle Delegated Administration Services instance is already running. Before re-running the configuration assistant, stop the Oracle Delegated Administration Services instance with the following command:

```
C:\> ORACLE_HOME\opmn\bin\opmnctl stopproc ias-component=OC4J
```

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

H.3.17 OPMN Configuration Assistant - Start OracleAS Certificate Authority Failures

Problem

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

Solution

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

```
C:\> ORACLE_HOME\opmn\bin\opmnctl stopproc ias-component=OC4J instancename=oca
```

Then re-run the OPMN Configuration Assistant - Start OracleAS Certificate Authority.

H.4 Deinstallation Problems and Solutions

This section describes common problems related to deinstallation:

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

H.4.1 Obsolete Partner URLs Still Remain on the OracleAS Single Sign-On Administration Screen

Problem

After deinstallation, some partner application entries that are obsolete remain on the OracleAS Single Sign-On Administration screen.

Solution

Run the command to de-register the entries for the obsolete partner applications. The command is similar to the command for registration, except that the `-update_mode` parameter is set to `DELETE`.

Make sure your PATH environment variable contains `%ORACLE_HOME%\lib`. Then run the command (all on one line):

```
C:\> %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*.

H.4.2 Unable to Reuse Instance Name of a Deleted Instance

Problem

You get an error when you try to name a new Oracle Application Server instance using the name of an instance that you deleted.

Solution

The name of the deleted instance must be removed from Oracle Internet Directory before you can reuse it. To remove entries for a deleted instance from Oracle Internet Directory, perform these steps:

1. Start up Oracle Directory Manager. Oracle home refers to the home where you installed Oracle Internet Directory.

   Select **Start** > **Programs** > **Oracle** - *OracleHomeName* > **Integrated Management Tools** > **Oracle Directory Manager**.

2. In the Connect screen, enter the Oracle Internet Directory connect information. Log in as the Oracle Internet Directory superuser (`cn=orcladmin`).

3. Expand **Entry Management** > **cn=OracleContext** > **cn=Products** > **cn=IAS** > **cn=IAS Instances**.

4. Under **cn=IAS Instances**, select the instance that you want to delete.

5. From the menu, select **Edit > Delete**.

6. Expand **Entry Management** > **cn=OracleContext** > **cn=Groups**.

7. Select **cn=IASAdmins**.

8. In the Properties tab, remove the instance from the `uniquemember` field by editing the field. Do **not** select **Edit > Delete** from the menu.

9. Click **Apply**.

H.4.3 Unable to Reuse Database Name

Problem

You get an error when you try to use the same global database name or SID as the one that you deleted.

Solution

You might see this problem if you deinstall OracleAS Metadata Repository but not Oracle Internet Directory, and you want to reuse the Oracle Internet Directory and the same database name or SID when you install another OracleAS Metadata Repository. The Oracle Internet Directory still contains the name of the deleted OracleAS Metadata Repository. You need to remove this name before you can reuse it.

Note: Do **not** perform this procedure if you are deinstalling a middle tier.

---

1. Start up Oracle Directory Manager. Oracle home refers to the home where you installed Oracle Internet Directory.

   Select **Start** > **Programs** > **Oracle** - *OracleHomeName* > **Integrated Management Tools** > **Oracle Directory Manager**.

2. In the Connect screen, enter the Oracle Internet Directory connect information. Log in as the Oracle Internet Directory superuser (`cn=orcladmin`).
3. Expand **Entry Management** > **cn=OracleContext** > **cn=Products** > **cn=Portal** > **cn=UltraSearch** > **cn=Database Instances** > **orclApplicationCommonName=***infrastructure_database_name*.
4. Delete all the child entries under **orclApplicationCommonName=***infrastructure_database_name*, starting with the inner-most child entry. To delete an entry, right-click each child entry and select **Delete** from the pop-up menu. Click **Yes** in the Confirmation dialog. When deleting child entries, you may get some error messages. You can ignore these error messages.
5. After you have deleted all the entries under **orclApplicationCommonName=***infrastructure_database_name*, right-click this entry and delete it.
6. Expand **Entry Management**.

   Expand the Default Subscriber entry. You need to expand each term separately. For example: if your default subscriber is "dc=us,dc=oracle,dc=com", you need to expand "dc=com", then expand "dc=oracle", then expand "dc=us".

   Then expand **cn=OracleContext** > **cn=Products** > **cn=Portal** > **cn=UltraSearch** > **cn=Database Instances** > **cn=***infrastructure_database_name*.
7. Delete all the child entries under **cn=***infrastructure_database_name*, starting with the inner-most child entry. To delete an entry, right-click each child entry and select **Delete** from the pop-up menu. Click **Yes** in the Confirmation dialog. When deleting child entries, you may get some error messages. You can ignore these error messages.
8. After you have deleted all the entries under **cn=***infrastructure_database_name*, right-click this entry and delete it.
9. Click **Apply**.

H.5 Need More Help?

If this appendix does not solve the problem you encountered, try these other sources:

- *Oracle Application Server Release Notes*, available on the Oracle Technology Network (`http://www.oracle.com/technology/documentation`)
- Oracle*MetaLink* (`http://metalink.oracle.com`)

If you do not find a solution for your problem, open a service request.

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