Oracle® Application Server

Installation Guide

10*g* Release 3 (10.1.3) for Microsoft Windows (64-Bit) on Intel Itanium

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Oracle Application Server Installation Guide, 10*g* Release 3 (10.1.3) for Microsoft Windows (64-Bit) on Intel Itanium

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Contents

Preface ix

Intended Audience ix
Documentation Accessibility ix
Related Documents x
Conventions x

1 Product and Installation Overview

1.1 Product Overview 1-1
1.2 Basic and Advanced Installation 1-1
1.3 Recommended Topologies 1-2
1.3.1 Installing an Integrated Web Server and OC4J Middle Tier 1-4
1.3.2 Installing Multiple Integrated Web Server and OC4J Middle Tiers 1-5
1.3.3 Installing a Web Server Middle Tier and OC4J Middle Tier on Separate Hosts 1-9
1.3.4 Installing a Web Server Middle Tier and Multiple OC4J Middle Tiers 1-10

2 Requirements

2.1 Using Oracle*MetaLink* to Obtain the Latest Oracle Application Server Hardware and Software Requirements 2-1
2.2 System Requirements 2-2
2.3 Windows System Files (wsf.exe) 2-4
2.4 Ports 2-5
2.4.1 About Ephemeral Ports 2-5
2.4.2 Checking If a Port Is in Use 2-7
2.4.3 Using Default Port Numbers 2-7
2.4.4 Using Custom Port Numbers (the "Static Ports" Feature) 2-8
2.4.4.1 Format of the staticports.ini File 2-8
2.4.4.2 Error Conditions that Will Cause the Installer to Use Default Ports Instead of Specified Ports 2-9
2.4.4.3 Ports for Oracle HTTP Server 2-10
2.5 Operating System User 2-10
2.6 Environment Variables 2-11
2.6.1 How to Set Environment Variables 2-11
2.6.2 ORACLE_HOME and ORACLE_SID 2-11
2.6.3 PATH 2-11
2.6.4 TNS_ADMIN 2-11

2.6.5 TEMP ... 2-12
2.7 Network Topics ... 2-12
2.7.1 Installing on DHCP Computers ... 2-12
2.7.2 Installing on Multihomed (Multi-IP) Computers ... 2-13
2.7.3 Installing on Computers with Multiple Aliases ... 2-14
2.7.4 Installing on Non-Networked Computers ... 2-14
2.7.5 Installing on Static IP Computers that You Want to Disconnect from the Network Later ... 2-15
2.7.6 Installing a Loopback Adapter ... 2-15
2.7.6.1 Checking If a Loopback Adapter Is Installed on Your Computer ... 2-16
2.7.6.2 Installing a Loopback Adapter on Windows 2003 ... 2-16
2.7.6.3 Checking the Hostname ... 2-18
2.7.6.4 Removing a Loopback Adapter on Windows 2003 ... 2-18
2.7.7 Copying CD-ROMs or DVD-ROM to Hard Drive, and Installing from the Hard Drive ... 2-18
2.7.8 Installing from a Remote CD-ROM or DVD-ROM Drive ... 2-20
2.7.9 Installing on Remote Computers Through Remote Control Software ... 2-22
2.8 Prerequisite Checks Performed by the Installer ... 2-23

3 Things You Should Know Before Starting the Installation

3.1 Oracle Home Directory ... 3-1
3.1.1 Naming Your Oracle Home ... 3-1
3.1.2 Installing in an Existing Oracle Home ... 3-1
3.1.3 Installing in a Non-Empty Oracle Home ... 3-1
3.2 Installing Additional Languages ... 3-2
3.3 Oracle Application Server Instances and Instance Names ... 3-2
3.4 The oc4jadmin User and Restrictions on its Password ... 3-3
3.5 Where Does the Installer Write Files? ... 3-4
3.6 Obtaining Software from Oracle E-Delivery ... 3-5
3.6.1 Finding and Downloading the Oracle Application Server 10*g* Release 3 (10.1.3) E-Pack ... 3-5
3.6.2 Finding Required and Optional Downloads ... 3-5
3.6.3 Disk Space Requirements ... 3-5
3.6.4 Software Requirements for Unzipping Files ... 3-5
3.6.5 Extracting Software from the Zip Files ... 3-6
3.7 Starting the Oracle Universal Installer ... 3-6

4 Basic Installation

4.1 What Components Are Installed? ... 4-1
4.2 Basic Installation Steps ... 4-1
4.2.1 Before You Begin ... 4-1
4.2.2 Installation Steps ... 4-2
4.3 What Should I Do Next? ... 4-4

5 Advanced Installation

5.1 What Components Are Installed? ... 5-1
5.2 Advanced Installation Steps ... 5-2

5.2.1 Before You Begin ... 5-2
5.2.2 Installing J2EE Server and Process Management ... 5-2
5.2.3 Installing Web Server and Process Management ... 5-3
5.2.4 Installing Integrated Web Server, J2EE Server and Process Management ... 5-4
5.2.5 Installing Oracle TopLink ... 5-5
5.3 Installation Screens ... 5-6
5.3.1 Oracle Application Server 10g 10.1.3.0.0 Installation Screen ... 5-7
5.3.2 Select Installation Type Screen ... 5-8
5.3.3 Specify Port Configuration Options Screen ... 5-8
5.3.4 Administration Instance Settings ... 5-9
5.3.5 Administration Settings Screen ... 5-10
5.3.6 Specify Instance Name Screen ... 5-12
5.3.7 Cluster Topology Configuration Screen - J2EE Server and Process Management Install Type ... 5-12
5.3.8 Cluster Topology Configuration Screen: Web Server and Process Management Install Type ... 5-14
5.3.9 Cluster Topology Configuration Screen: Integrated Web Server, J2EE Server and Process Management Install Type ... 5-15
5.3.10 Summary Screen ... 5-17
5.3.11 Install Screen ... 5-17
5.3.12 Configuration Assistants Screen ... 5-18
5.3.13 End of Installation Screen ... 5-20
5.4 Troubleshooting Information ... 5-20
5.5 What Should I Do Next? ... 5-21

6 Installing in High Availability Environments

6.1 Overview of High Availability Configurations ... 6-1
6.1.1 Active-Active Topologies: OracleAS Clusters ... 6-1
6.1.2 Active-Passive Topologies: OracleAS Cold Failover Clusters ... 6-2
6.1.3 OracleAS Disaster Recovery ... 6-3
6.1.4 Summary of Differences ... 6-3
6.2 Creating the Active-Active Topology ... 6-4
6.2.1 Active-Active Topologies: Introduction ... 6-4
6.2.2 OracleAS Clusters in Active-Active Topologies ... 6-5
6.2.3 Properties of Oracle Application Server Instances in Active-Active Topologies ... 6-6
6.2.4 Installation Steps for Active-Active Topologies ... 6-6
6.2.5 Supporting Procedures for Creating the Active-Active Topology ... 6-11
6.2.5.1 Setting up Clusters with the Discovery Server Method ... 6-11
6.2.5.2 Setting up Multicast Replication ... 6-12
6.2.5.3 Setting up Peer-to-Peer Replication ... 6-12
6.2.5.4 Setting up Replication to a Database ... 6-14
6.2.5.5 Setting the Replication Policy ... 6-14
6.2.5.6 Specifying the Number of Nodes to Replicate To ... 6-16
6.3 Creating the Active-Passive Topology ... 6-16
6.3.1 Active-Passive Topologies: Introduction ... 6-16
6.3.2 Overview of Installation Steps for OracleAS Cold Failover Cluster ... 6-18
6.3.3 Preinstallation Steps for OracleAS Cold Failover Cluster ... 6-19

6.3.3.1 Ensure that the Event Log Service Is Running ... 6-19
6.3.3.2 Get a Virtual Address for the Cluster ... 6-19
6.3.3.3 Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes ... 6-20
6.3.3.4 Determine the Name of the Cluster ... 6-20
6.3.3.5 Determine a Domain User to Administer Oracle Fail Safe ... 6-20
6.3.3.6 Install Oracle Fail Safe on the Local Storage of Each Node ... 6-20
6.3.3.7 Create a Group in Oracle Fail Safe ... 6-22
6.3.3.8 Set up staticports.ini File ... 6-27
6.3.4 OracleAS Cold Failover Cluster: Details of Installation Steps ... 6-27
6.3.5 Postinstallation Steps: Make OPMN Highly Available ... 6-29
6.4 Creating an OracleAS Disaster Recovery Configuration ... 6-35
6.4.1 OracleAS Disaster Recovery: Introduction ... 6-35
6.4.2 Setting up the OracleAS Disaster Recovery Environment ... 6-37
6.4.2.1 Ensure Nodes Are Identical at the Operating System Level ... 6-37
6.4.2.2 Set Up staticports.ini File ... 6-37
6.4.2.3 Set Up Identical Hostnames on Both Production and Standby Sites ... 6-38
6.4.2.4 If You Want to Use OracleAS Cold Failover Cluster on the Production Site (OracleAS 10.1.2.n.n only) ... 6-42
6.4.3 Installing Oracle Application Server in an OracleAS Disaster Recovery Environment ... 6-43
6.4.3.1 Installing the OracleAS Infrastructure (OracleAS Release 10.1.2.n.n Only) ... 6-44
6.4.3.2 Installing Middle Tiers (OracleAS Release 10.1.3 and 10.1.2.n.n) ... 6-44
6.4.4 Installing the OracleAS 10g (10.1.3) Standalone Install of OracleAS Guard into Oracle Homes ... 6-45
6.4.5 Patching OracleAS Guard Release 10.1.2.n.n with Release 10.1.3.0.0 ... 6-45
6.4.6 What to Read Next? ... 6-46

7 Postinstallation Tasks

7.1 Deploying Oracle Business Rules Rule Author ... 7-1
7.2 State of Oracle Application Server Instances After Installation ... 7-2
7.3 Passwords for Oracle Application Server Components ... 7-3
7.4 Configuring OracleAS Clusters ... 7-3
7.5 Backup and Recovery ... 7-3
7.6 SSL ... 7-3
7.7 Regional and Language Option Settings and the NLS_LANG Parameter ... 7-3
7.8 What to Do Next ... 7-3

A Silent and Non-Interactive Installation

A.1 Silent Installation ... A-1
A.2 Non-Interactive Installation ... A-1
A.3 Preinstallation ... A-2
A.4 Create the Response File ... A-2
A.4.1 Creating Response Files from Templates ... A-2
A.4.2 Creating Response Files by Using the Record Mode in the Installer ... A-2
A.4.3 Variables to Modify in the Response Files ... A-3
A.4.4 Example Response Files ... A-3
A.4.4.1 Example Response File for Standalone J2EE Server and Process Management A-4

A.4.4.2 Example Response File for Web Server and Process Management A-5
A.4.4.3 Example Response File for Integrated Web Server, J2EE Server and Process Management A-6
A.4.4.4 Example Response File for Oracle TopLink A-7
A.5 Start the Installation A-8
A.6 Postinstallation A-8
A.7 Security Tips for Silent and Non-Interactive Installations A-8
A.8 Deinstallation A-8

B Default Port Numbers

B.1 Method of Assigning Default Port Numbers B-1
B.2 Default Port Numbers B-1
B.3 Ports to Open in Firewalls B-2

C Deinstallation and Reinstallation

C.1 Deinstallation Procedure: Overview C-1
C.2 Deinstalling Procedure C-2
C.3 Deinstalling All Oracle Products Manually C-2
C.4 Reinstallation C-3

D Configuration Assistants

D.1 Troubleshooting Configuration Assistants D-1
D.1.1 General Tips D-1
D.1.2 Configuration Assistant Result Codes D-2
D.2 Description of Oracle Application Server Configuration Assistants D-2

E Troubleshooting

E.1 Log Files E-1
E.2 General Troubleshooting Tips E-1
E.3 Installation Problems and Solutions E-2
E.3.1 Location of Log Files E-2
E.3.2 Installer Does Not Appear E-2
E.3.3 Unable to Clean Up a Failed Installation E-3
E.3.4 User Interface Does Not Display in the Desired Language, or Does Not Display Properly E-3
E.3.5 Unable to Run Oracle Application Server On-Network as Well as Off-Network E-3
E.3.6 Configuration Assistant Failures - General E-3
E.4 Need More Help? E-4

Index

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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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

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1 Product and Installation Overview

This chapter describes what is contained in Oracle Application Server and recommended topologies. It contains the following sections:

- Section 1.1, "Product Overview"
- Section 1.2, "Basic and Advanced Installation"
- Section 1.3, "Recommended Topologies"

1.1 Product Overview

Oracle Application Server is made up of a middle tier and OracleAS Infrastructure. You deploy and run your applications on the middle tiers. The infrastructure provides services that are used by middle tiers. These services can be shared by one or more middle tiers.

Oracle Application Server 10*g* Release 3 (10.1.3) provides a complete Java 2, Enterprise Edition (J2EE) 1.4-compliant environment. Specifically, this release provides a new version of Oracle Containers for J2EE (OC4J). OC4J provides all the containers, APIs, and services mandated by the J2EE specification. This release is designed for administrators who are using OC4J to deploy and manage J2EE applications.

In addition to OC4J, this release also includes new releases of Oracle HTTP Server, Oracle Process Manager and Notification Server (OPMN), and Oracle Enterprise Manager 10*g* Application Server Control Console.

You can integrate Oracle Application Server 10*g* Release 3 (10.1.3) with an existing Oracle Application Server environment that includes 10*g* Release 2 (10.1.2) OracleAS Infrastructure, 10*g* Release 2 (10.1.2) Oracle HTTP Server, or 10*g* Release 2 (10.1.2) OracleAS Web Cache components.

> **See Also:** *Oracle Application Server Upgrade and Compatibility Guide* for more information about which specific versions are compatible with 10*g* Release 3 (10.1.3)

1.2 Basic and Advanced Installation

Table 1–1 summarizes the groups of services available with each installation type.

Table 1–1 Oracle Application Server 10g Release 3 (10.1.3) Install Types

Install Mode	Available Installation Types
Basic	■ Integrated Web Server, J2EE Server, and Process Management
Advanced	■ J2EE Server and Process Management This option installs OC4J, the main runtime component of the Oracle Application Server. It also installs Application Server Control Console for management and deployment operations and OPMN for process control. ■ Web Server and Process Management This option installs Oracle HTTP Server with SSL Support for deploying applications. It also installs OPMN for process control. ■ Integrated Web Server, J2EE Server, and Process Management This option installs both OC4J and Oracle HTTP Server and their associated components. It also installs Application Server Control Console for management and deployment operations and OPMN for process control. ■ Oracle TopLink This option installs TopLink Foundation Library and Oracle TopLink Workbench for use by J2EE applications.

See Also: Oracle TopLink documentation for further information about the Oracle TopLink advanced installation option

The basic (one-click) installation prompts you with questions on the initial installation screen, and then it proceeds to install the product without any further user interaction. The default values for all the components are used.

The advanced installation provides you with a great degree of customization and flexibility, which enables installation of additional languages, port configuration options, and cluster configuration.

Table 1–2 summarizes the differences in the customization options between basic and advanced installation.

Table 1–2 Basic and Advanced Installation Features

Action or Option	Basic	Advanced
Specify an Oracle Home	Yes	Yes
Specify an instance name and `oc4jadmin` password	Yes	Yes
Select additional languages	No	Yes
Specify automatic or manual port configuration	No	Yes
Configure Application Server Control	No	Yes
Specify default OC4J instance name	No	Yes
Configure instance to be part of a cluster	No	Yes
Configuration assistants	Yes	Yes

1.3 Recommended Topologies

Table 1–3 provides a road map of where to find information about the supported 10*g* Release 3 (10.1.3) topologies.

Table 1–3 Basic and Advanced Installation Features

Topology	See This Documentation for Details
10.1.3 Middle-Tier Topologies	
A middle tier containing an integrated OC4J instance with Oracle HTTP Server in one Oracle home	Section 1.3.1, "Installing an Integrated Web Server and OC4J Middle Tier"
Two middle tiers containing an integrated OC4J instance with Oracle HTTP Server in two separate Oracle homes. You establish an OracleAS Clusters configuration for these middle tiers and designate one of the OC4J instances as the Administration OC4J instance for running the Application Server Control Console. You then manage both OC4J instances from this instance of Application Server Control Console.	Section 1.3.2, "Installing Multiple Integrated Web Server and OC4J Middle Tiers"
Two middle tiers, one containing Oracle HTTP Server and the second containing an OC4J instance	Section 1.3.3, "Installing a Web Server Middle Tier and OC4J Middle Tier on Separate Hosts"
Three middle tiers, one containing Oracle HTTP Server and two containing OC4J instances. You establish an OracleAS Clusters configuration for the OC4J instances and designate one of the OC4J instances as the Administration OC4J instance for running the Application Server Control Console. You then manage both OC4J instances from this instance of Application Server Control Console.	Section 1.3.4, "Installing a Web Server Middle Tier and Multiple OC4J Middle Tiers"
An enterprise data center for J2EE applications that use Oracle Application Server Java Authentication and Authorization Service (JAAS) Provider LDAP for user authentication. This topology contains four middle tiers, two containing Oracle HTTP Servers and two containing OC4J instances. In this configuration, Application Server Control Console is available on its own OC4J Web site. A firewall separates the Oracle HTTP Servers from the OC4J instances.	"myJ2EE," in the *Oracle Application Server Enterprise Deployment Guide*
High-Availability Topologies	
An OracleAS Clusters configuration in which two or more middle-tier instances serve the same content. A load balancer distributes requests equally among the active instances.	Section 6.2, "Creating the Active-Active Topology"
An Oracle Application Server Cold Failover Clusters configuration in which two or more middle-tier instances serve the same content, but only instance is active at any one time.	Section 6.3, "Creating the Active-Passive Topology"
An OracleAS Disaster Recovery configuration in which a standby site mirrors a production site. During normal operation, the production site handles all the requests. If the production site goes down, the standby site takes over and handles all the requests.	Section 6.4, "Creating an OracleAS Disaster Recovery Configuration"
10.1.3 Middle Tiers with Existing 10.1.2 Environments	
10.1.2 Oracle HTTP Server: Two middle tiers, one containing 10*g* Release 2 (10.1.2) Oracle HTTP Server and OracleAS Web Cache components and the second containing a 10*g* Release 3 (10.1.3) OC4J instance. Oracle HTTP Server and OracleAS Web Cache are installed as a part of a J2EE and Web Cache middle-tier installation.	"Configuring Oracle Application Server 10.1.2 with Oracle Application Server 10.1.3" in the *Oracle Application Server Administrator's Guide*

Table 1–3 (Cont.) Basic and Advanced Installation Features

Topology	See This Documentation for Details
10.1.2 OracleAS Infrastructure: A 10*g* Release 3 (10.1.3) middle-tier instance using a 10*g* Release 2 (10.1.2) Oracle Identity Management. This topology also supports associating a 10*g* Release 3 (10.1.3) middle-tier instance with a new 10*g* Release 2 (10.1.2) Oracle Identity Management for the following scenarios: ■ Moving to a new host ■ Creating a failover environment ■ Moving applications from a test environment to a new production environment	"Configuring Instances to Use a 10.1.2 Oracle Identity Management" in the *Oracle Application Server Administrator's Guide* "Moving 10.1.2 Identity Management to a New Host" in the *Oracle Application Server Administrator's Guide* "Changing from a Test to a Production Environment" in the *Oracle Application Server Administrator's Guide*
10.1.2 OracleAS Web Cache Instance: A single 10*g* Release 2 (10.1.2) OracleAS Web Cache acting as a reverse proxy for a 10*g* Release 2 (10.1.3) middle-tier. The middle tier contains an integrated OC4J instance with Oracle HTTP Server.	"Configuring 10.1.2 OracleAS Web Cache as a Reverse Proxy" in the *Oracle Application Server Administrator's Guide*
10.1.2 OracleAS Web Cache Cluster: Two or more 10*g* Release 2 (10.1.2) OracleAS Web Cache servers configured as a cluster to reverse proxy a 10*g* Release 2 (10.1.3) middle-tier. The middle tier contains an integrated OC4J instance with Oracle HTTP Server.	"Configuring 10.1.2 OracleAS Web Cache as a Reverse Proxy" in the *Oracle Application Server Administrator's Guide*

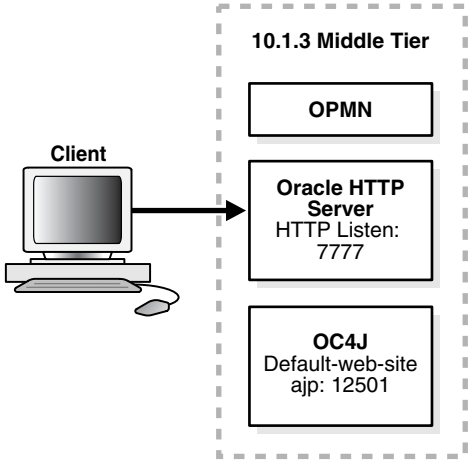
The remainder of this section addresses the recommended topologies for installing Oracle HTTP Server and OC4J instances. It contains the following topics:

- Section 1.3.1, "Installing an Integrated Web Server and OC4J Middle Tier"
- Section 1.3.2, "Installing Multiple Integrated Web Server and OC4J Middle Tiers"
- Section 1.3.3, "Installing a Web Server Middle Tier and OC4J Middle Tier on Separate Hosts"
- Section 1.3.4, "Installing a Web Server Middle Tier and Multiple OC4J Middle Tiers"

1.3.1 Installing an Integrated Web Server and OC4J Middle Tier

The Basic Installation Mode combines an Oracle HTTP Server and OC4J middle-tier instance in the same Oracle home, as depicted in Figure 1–1. This topology enables you to use OPMN to manage a standalone OC4J instance.

Figure 1–1 Integrated Web Server and OC4J Middle Tier



Requirements

The requirements are the same as those listed in Chapter 2, "Requirements".

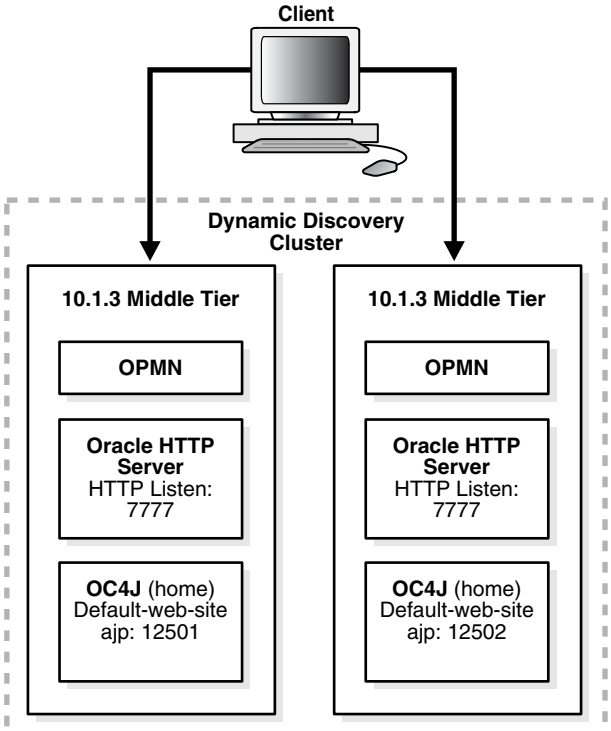
Installation Sequence

Perform a basic installation, as described in Section 4.2.2, "Installation Steps".

1.3.2 Installing Multiple Integrated Web Server and OC4J Middle Tiers

This topology builds upon the example in the previous section, Section 1.3.1. It adds an additional combined Oracle HTTP Server and OC4J middle-tier instance, as shown in Figure 1–2. When you install this cluster topology, you install two middle-tier instances in two different Oracle homes. During installation of the two instances, you cluster the instances using dynamic node discovery. You designate one of the OC4J instances as the Administration OC4J instance for running the Application Server Control Console. You manage both OC4J instances from this instance of Application Server Control Console. This topology provides a highly available environment for testing and production purposes.

Figure 1–2 Cluster with Integrated Web Server and OC4J Middle Tiers



Requirements

The requirements are the same as those listed in Chapter 2, "Requirements".

Installation Sequence

To install this topology:

1. For the first middle tier, install an Administration OC4J instance.

   Perform an Integrated Web Server, J2EE Server and Process Management advanced installation, as described in Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management". During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, select **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter a password for the `oc4jadmin` account in the **Administrator Account Password** fields. Enter a name for the default OC4J instance, such as `home`, in the **OC4J Instance Name** field.

     Make a note of the OC4J instance name and the password you enter here; you will need them later.
   - In the Cluster Topology Configuration screen, select **Configure this instance to be part of an Oracle Application Server cluster topology** and specify a cluster discovery address for the cluster. The multicast address you enter must be within the valid address range, which is `224.0.0.1` to `239.255.255.255`.

     Make a note of the address and port that you enter on this page; you will need them later.

2. For the second middle tier, perform an Integrated Web Server, J2EE Server and Process Management advanced installation, as described in Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, deselect **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter a password for the `oc4jadmin` account in the **Administrator Account Password** fields. Enter a name for the OC4J instance, such as `home`, in the **OC4J Instance Name** field.

     If you want this OC4J instance to be part of the same group, specify the same name for the OC4J that you specified in Step 1 of this procedure. Similarly, enter the same password for the **Administrator Account Password** that you entered in Step 1 of this procedure.

     Assigning multiple OC4J instances the same instance name during installation forms a group, making it easy to deploy applications to more than one OC4J instance at time. You can simultaneously execute specific configuration operations on all OC4J instances in a group.

     In order to use a group, each OC4J instance in a group must also have the same `oc4jadmin` password. If they do not, then you will have to reset the password after the installation.
   - In the Cluster Topology Configuration screen, select **Configure this instance to be part of an Oracle Application Server cluster topology** and specify the same cluster discovery address as you specified in Step 1 of this procedure.

     See Also:

     - "Configuring Multiple OC4J Middle Tiers in a Cluster," in the *Oracle Application Server Administrator's Guide* for further information about configuring this topology
     - "How Groups Are Formed" in the *Oracle Application Server Administrator's Guide* for more information about groups

For larger application deployments spanning three or more nodes, consider your performance and security needs. One strategy is to install and dedicate one node to exclusively run Application Server Control Console and install the other nodes to support applications. To install for this strategy:

1. For the first middle tier, install an Administration OC4J instance.

   Perform an Integrated Web Server, J2EE Server and Process Management advanced installation, as described in Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, select **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter a password for the `oc4jadmin` account in the **Administrator Account Password** fields. Enter a unique name for this OC4J instance, such as `AdminOC4J`, in the **OC4J Instance Name** field.

- In the Cluster Topology Configuration screen, select **Configure this instance to be part of an Oracle Application Server cluster topology** and specify a cluster discovery address for the cluster. The multicast address you enter must be within the valid address range, which is `224.0.0.1` to `239.255.255.255`.

  Make a note of the address and port that you enter on this page; you will need them later.

2. For the second middle tier, perform an Integrated Web Server, J2EE Server and Process Management advanced installation, as described in Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, deselect **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter a password for the `oc4jadmin` account in the **Administrator Account Password** fields. Enter a name for the default OC4J instance, such as `home`, in the **OC4J Instance Name** field that is different than the one you specified in Step 1 of this procedure.

     Make a note of the OC4J instance name and the password you enter here; you will need them later.
   - In the Cluster Topology Configuration screen, select **Configure this instance to be part of an Oracle Application Server cluster topology** and specify the same cluster discovery address as you specified in Step 1 of this procedure.

3. For the additional middle tiers, perform an Integrated Web Server, J2EE Server and Process Management advanced installation, as described in Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, deselect **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter the same password for the `oc4jadmin` account in the **Administrator Account Password** field and instance name in the **OC4J Instance Name** fields as you specified in Step 2 of this procedure.

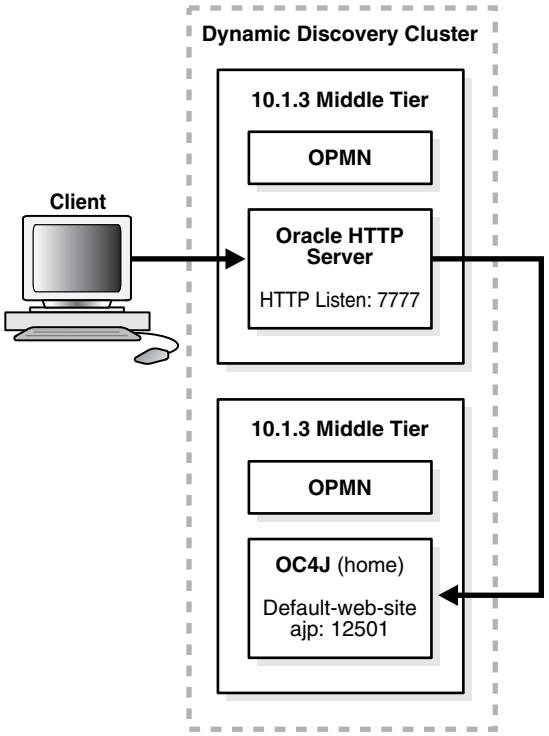
     Assigning multiple OC4J instances the same instance name during installation forms a group, making it easy to deploy applications to more than one OC4J instance at time. You can simultaneously execute specific configuration operations on all OC4J instances in a group.

     In order to use a group, each OC4J instance in a group must also have the same `oc4jadmin` password. If they do not, then you will have to reset the password after the installation.
   - In the Cluster Topology Configuration screen, select **Configure this instance to be part of an Oracle Application Server cluster topology** and specify the same cluster discovery address as you specified in Step 1 of this procedure.

1.3.3 Installing a Web Server Middle Tier and OC4J Middle Tier on Separate Hosts

Figure 1–3 shows a topology in which you install Oracle HTTP Server on one computer, and install the OC4J instance on another computer. Then, you cluster the instances using dynamic node discovery. This topology enables Oracle HTTP Server to route requests to OC4J, and OC4J to dynamically notify Oracle HTTP Server of new application bindings when an application is deployed.

Figure 1–3 Cluster with a Web Server Middle Tier and OC4J Middle Tier on Separate Hosts



Requirements

The requirements are the same as those listed in Chapter 2, "Requirements".

Installation Sequence

To install this topology:

1. For the first middle tier, perform a Web Server and Process Management advanced installation, as described in Section 5.2.3, "Installing Web Server and Process Management".

   During the installation procedure, follow the prompts. In the Cluster Topology Configuration screen, select **Configure this HTTP Server instance to be part of an Oracle Application Server cluster topology** and specify a cluster discovery address for the cluster.

2. For the second middle tier, perform a J2EE Server and Process Management advanced installation, as described in Section 5.2.2, "Installing J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

- In the Administration Instance Settings page, select **Configure this as an Administration OC4J Instance**.
- In the Administration Settings page, enter a name for the OC4J instance, such as `home`, in the **OC4J Instance Name** field.
- In the Cluster Topology Configuration screen, select **Configure this OC4J Server instance to be part of an Oracle Application Server cluster topology** and specify the same cluster discovery address as you specified in Step 1 of this procedure.

See Also: "Configuring a Web Server and J2EE on Separate Hosts," in the *Oracle Application Server Administrator's Guide* for further information about configuring this topology

1.3.4 Installing a Web Server Middle Tier and Multiple OC4J Middle Tiers

This topology builds upon the example in the previous section, Section 1.3.3. It adds an additional OC4J middle-tier instance, as shown in Figure 1–4. When you install this cluster topology, you install Oracle HTTP Server on one computer, install OC4J instances on two separate computers, and specify cluster settings. You designate one of the OC4J instances as the Administration OC4J instance for running the Application Server Control Console. You manage both OC4J instances from this instance of Application Server Control Console. This topology provides a highly available environment for testing and production purposes.

This topology also supports using a firewall to separate Oracle HTTP Server from the OC4J instances, as shown in Figure 1–5.

Figure 1–4 Cluster with a Web Server Middle Tier and Multiple OC4J Middle Tiers

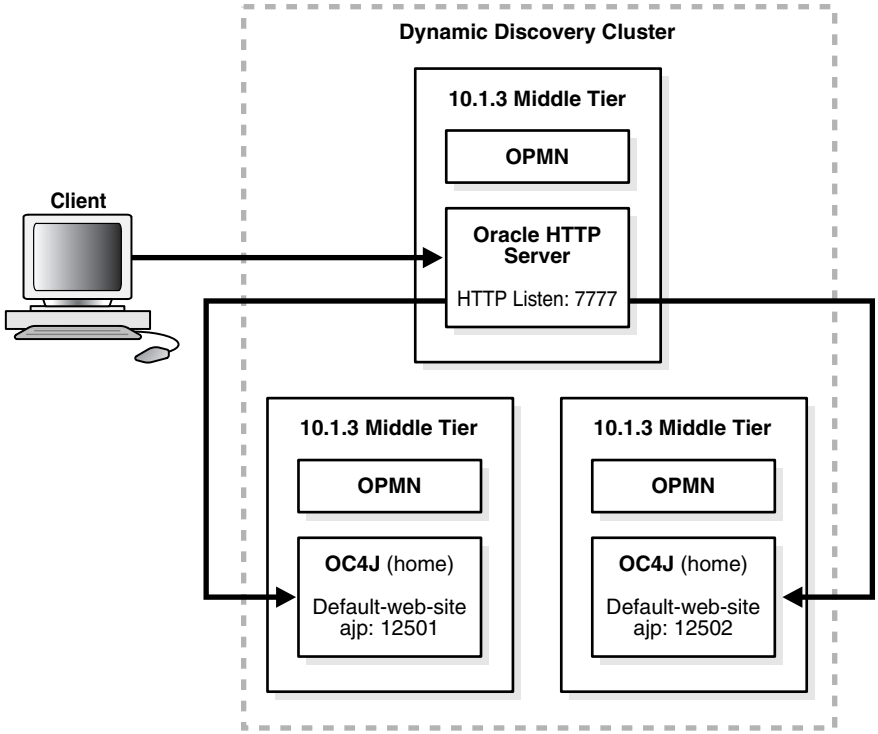
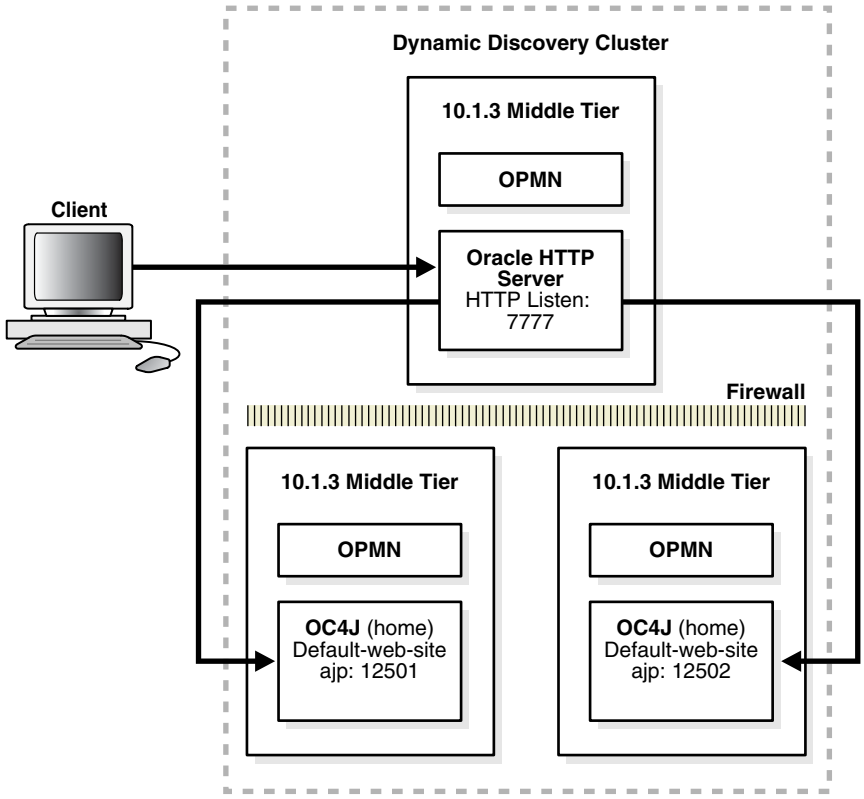


Figure 1–5 Cluster with a Web Server Middle Tier and Multiple OC4J Middle Tiers Separated by a Firewall



Requirements

The requirements are the same as those listed in Chapter 2, "Requirements".

Installation Sequence

To install this topology:

1. For the Oracle HTTP Server middle tier, perform a Web Server and Process Management advanced installation, as described in Section 5.2.3, "Installing Web Server and Process Management".

   During the installation procedure, follow the prompts. In the Cluster Topology Configuration screen, select **Configure this HTTP Server instance to be part of an Oracle Application Server cluster topology** and specify a cluster discovery address for the cluster. The multicast address you enter must be within the valid address range, which is `224.0.0.1` to `239.255.255.255`.

   Make a note of the address and port that you enter on this page; you will need them later.

2. For the first OC4J middle tier, install an Administration OC4J instance.

   Perform a J2EE Server and Process Management advanced installation, as described in Section 5.2.2, "Installing J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, select **Configure this as an Administration OC4J Instance**.

- In the Administration Settings page, enter a name for the default OC4J instance, such as `home`, in the **OC4J Instance Name** field.

  Make a note of the OC4J instance name and the password you enter here; you will need them later

- In the Cluster Topology Configuration screen, select **Configure this OC4J instance to be part of an Oracle Application Server cluster topology** and specify the same cluster discovery address as you specified in Step 1 of this procedure.

3. For the second OC4J middle tier, perform a J2EE Server and Process Management advanced installation, as described in Section 5.2.2, "Installing J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, deselect **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter the same OC4J instance name in the **OC4J Instance Name** field as you specified in Step 2 of this procedure.
   - In the Administration Settings page, enter a password for the `oc4jadmin` account in the **Administrator Account Password** fields. Enter a name for the OC4J instance, such as `home`, in the **OC4J Instance Name** field.

     If you want this OC4J instance to be part of the same group, specify the same name for the OC4J that you specified in Step 2 of this procedure. Similarly, enter the same password for the **Administrator Account Password** that you entered in Step 2 of this procedure.

     Assigning multiple OC4J instances the same instance name during installation forms a group, making it easy to deploy applications to more than one OC4J instance at time. You can simultaneously execute specific configuration operations on all OC4J instances in a group.

     In order to use a group, each OC4J instance in a group must also have the same `oc4jadmin` password. If they do not, then you will have to reset the password after the installation.

   - In the Cluster Topology Configuration screen, select **Configure this OC4J instance to be part of an Oracle Application Server cluster topology**, specify the same cluster discovery address as you specified in Step 2 of this procedure.

     See Also:

     - "Configuring Multiple OC4J Middle Tiers in a Cluster," in the *Oracle Application Server Administrator's Guide* for further information about configuring this topology
     - "How Groups Are Formed" in the *Oracle Application Server Administrator's Guide* for more information about creating groups
     - "myJ2EE" in the *Oracle Application Server Enterprise Deployment Guide* for further information about using a firewall in this topology

For larger application deployments spanning three or more nodes, consider your performance and security needs. One strategy is to install and dedicate one node to

exclusively run Application Server Control Console and install the other nodes to support applications. To install for this strategy:

1. For the Oracle HTTP Server middle tier, perform a Web Server and Process Management advanced installation, as described in Section 5.2.3, "Installing Web Server and Process Management".

   During the installation procedure, follow the prompts. In the Cluster Topology Configuration screen, deselect **Configure this HTTP Server instance to be part of an Oracle Application Server cluster topology** and specify a cluster discovery address for the cluster. The multicast address you enter must be within the valid address range, which is `224.0.0.1` to `239.255.255.255`.

   Make a note of the address and port that you enter on this page; you will need them later.

2. For the first OC4J middle tier, install an Administration OC4J instance.

   Perform a J2EE Server and Process Management advanced installation, as described in Section 5.2.2, "Installing J2EE Server and Process Management". During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, select **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter a password for the `oc4jadmin` account in the **Administrator Account Password** fields. Enter a unique name for this OC4J instance, such as `AdminOC4J`, in the **OC4J Instance Name** field.
   - In the Cluster Topology Configuration screen, select **Configure this OC4J instance to be part of an Oracle Application Server cluster topology** and specify the same cluster discovery address as you specified in Step 1 of this procedure.

     See Also: "Publishing Application Server Control Console to a Separate Web Site" in the *Oracle Application Server Administrator's Guide* for instructions on making Application Server Control Console accessible on a separate Web site

3. For the second OC4J middle tier, perform a J2EE Server and Process Management advanced installation, as described in Section 5.2.2, "Installing J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, deselect **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter a password for the `oc4jadmin` account in the **Administrator Account Password** fields. Enter a name for the default OC4J instance, such as `home`, in the **OC4J Instance Name** field that is different than the one you specified in Step 2 of this procedure.

     Make a note of the OC4J instance name and the password you enter here; you will need them later.

   - In the Cluster Topology Configuration screen, select **Configure this OC4J instance to be part of an Oracle Application Server cluster topology**, specify the same cluster discovery address as you specified in Step 1 of this procedure.

4. For the additional OC4J middle tiers, perform a J2EE Server and Process Management advanced installation, as described in Section 5.2.2, "Installing J2EE Server and Process Management".

   During the installation procedure, follow the prompts, ensuring you perform the following:

   - In the Administration Instance Settings page, deselect **Configure this as an Administration OC4J Instance**.
   - In the Administration Settings page, enter the same password for the `oc4jadmin` account in the **Administrator Account Password** field and instance name in the **OC4J Instance Name** fields as you specified in Step 3 of this procedure.

     Assigning multiple OC4J instances the same instance name during installation forms a group, making it easy to deploy applications to more than one OC4J instance at time. You can simultaneously execute specific configuration operations on all OC4J instances in a group.

     In order to use a group, each OC4J instance in a group must also have the same `oc4jadmin` password. If they do not, then you will have to reset the password after the installation.
   - In the Cluster Topology Configuration screen, select **Configure this OC4J instance to be part of an Oracle Application Server cluster topology**, specify the same cluster discovery address as you specified in Step 1 of this procedure.

2

Requirements

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

Table 2–1 Sections in This Chapter

Section	Highlights
Section 2.1, "Using OracleMetaLink to Obtain the Latest Oracle Application Server Hardware and Software Requirements"	Describes how to find the most current requirements for Oracle Application Server 10*g* Release 3 (10.1.3).
Section 2.2, "System Requirements"	Lists requirements such as supported processor speed, memory, disk space, and swap space.
Section 2.3, "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 2.4, "Ports"	Describes how to configure components to use ports other than the default ports.
Section 2.5, "Operating System User"	Describes why you should create an operating system user to install Oracle Application Server.
Section 2.6, "Environment Variables"	Describes how to set or unset environment variables required for installation.
Section 2.7, "Network Topics"	Describes network issues such as installing Oracle Application Server on a remote computer, using a remote CD-ROM/DVD drive, or installing from a hard disk.
Section 2.8, "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.

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

The Oracle Application Server 10g (10.1.3) hardware and software requirements included in this guide were accurate at the time this manual was released to manufacturing. For the most up-to-date information about hardware and software requirements, refer to Oracle*MetaLink*:

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

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

2.2 System Requirements

Table 2–2 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 2–2 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 CD-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 2.8, "Prerequisite Checks Performed by the Installer".

Table 2–2 System Requirements

Item	Requirement
Operating system	Microsoft Windows Server 2003 (64-bit) with Service Pack 1 or above **Checked by Installer:** Yes **Note:** Oracle Application Server can be installed on Windows operating systems that include Terminal Services. However, Oracle Application Server cannot be installed or controlled by the Terminal Services remote client.
Network	You can install Oracle Application Server on a computer that is connected to a network, or on a "standalone" computer (not connected to the network). If you are installing Oracle Application Server on a standalone computer, you can connect the computer to a network after installation. You have to perform some configuration tasks when you connect it to the network. Refer to *Oracle Application Server Administrator's Guide* for details. **Checked by Installer:** No
IP	You can install Oracle Application Server on a computer that uses static IP or DHCP-based IP. **Note:** ▪ If you are installing on DHCP computers, see Section 2.7.1, "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 2.7.5, "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. **Checked by Installer:** No

Table 2–2 (Cont.) System Requirements

Item	Requirement

Processor Speed	300 MHz or faster
	To determine the processor speed, run the following command:
	`prompt> cat /proc/cpuinfo | grep MHz`
	`cpu MHz : 2992.553`
	Checked by Installer: Yes

Memory	512 MB **Note:** ■ The installer checks the amount of memory on your computer and will warn you if your computer does not meet the minimum memory requirements. ■ This is the minimum value that is 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	■ J2EE Server and Process Management: 614 MB ■ Web Server and Process Management: 525 MB ■ Integrated Web Server, J2EE Server and Process Management: 645 MB ■ Oracle TopLink: 205 MB **Checked by Installer:** No
Space in TEMP directory	55 MB to run the installer, but you need 150 MB to install Oracle Application Server. If the TEMP directory does not have enough free space, you can specify a different directory by setting the TEMP environment variable. See Section 2.6.5, "TEMP" for details. **Checked by Installer:** Yes

Table 2–2 (Cont.) System Requirements

Item	Requirement
Total Pagefile size (Virtual Memory)	512 MB of virtual memory 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 2003:** 1. Display the System control panel. 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 10*g* is supported on the following browsers: ■ Microsoft Internet Explorer 6.0 SP2 (supported on Microsoft Windows only) ■ Netscape 7.2 ■ Mozilla 1.7. You can download Mozilla from `http://www.mozilla.org`. ■ Firefox 1.0.4. You can download Firefox from `http://www.mozilla.org`. ■ Safari 1.2, 2.0 (on Apple Macintosh computers) For the most current list of supported browsers, check the Oracle*MetaLink* site (`https://metalink.oracle.com`). **Checked by Installer:** No. However, if you access Oracle Enterprise Manager 10*g* using a non-supported browser, you will get a warning message.

2.3 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 2–3 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.

2.4 Ports

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

- Section 2.4.1, "About Ephemeral Ports"
- Section 2.4.2, "Checking If a Port Is in Use"
- Section 2.4.3, "Using Default Port Numbers"
- Section 2.4.4, "Using Custom Port Numbers (the "Static Ports" Feature)"

2.4.1 About Ephemeral Ports

An ephemeral port is a port number that an operating system can temporarily assign to a service or process. Some services or processes have conventionally assigned permanent port numbers. In other cases, an ephemeral port number is assigned temporarily (for the duration of the request and its completion) from a range of assigned port numbers.

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.

One Application Server process, Oracle HTTP Server SSL, uses ports in the ephemeral port range. This process cannot start up if the port that it needs is already in use by clients.

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.

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 2.4.4, "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 postinstallation.) 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.

2.4.2 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.

2.4.3 Using Default Port Numbers

If you want to use the default port numbers for components, you do not have to do anything. See Appendix B, "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 is port 80. If this port is in use by another application, the installer assigns a port in the 7777 - 7877 range.

- 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 `windows` on Windows 2003.

2.4.4 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 2.4.4.1, "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.

2.4.4.1 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.

```
Oracle HTTP Server port = port_num
Oracle HTTP Server SSL port = port_num
Oracle Notification Server Request port = port_num
Oracle Notification Server Local port = port_num
Oracle Notification Server Remote port = port_num
```

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

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

Table 2–4 Location of the staticports.ini File on CD-ROM and DVD-ROM

Media	Location of staticports.ini File
CD-ROM	Disk 1: `E:\stage\Response\staticports.ini`
DVD	`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.

   The following example sets the Oracle HTTP Server ports and some Oracle Process Manager and Notification Server ports. For components not specified, the installer will assign the default port numbers.

   ```
   Oracle HTTP Server port = 2000
   Oracle HTTP Server SSL port = 2001
   Oracle Notification Server Request port = 2002
   ```

```
Oracle Notification Server Local port = 2003
```

When installation is complete, you can run the following commands to see the assigned ports:

```
C:\> ORACLE_HOME\opmn\bin\opmnctl startall
C:\> ORACLE_HOME\opmn\bin\opmnctl status -l
```

Notes on Choosing Port Numbers:

- Port numbers cannot be greater than 65535.
- If you plan to set port numbers for Oracle HTTP Server, be sure you read Section 2.4.4.3, "Ports for Oracle HTTP Server".

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.

2.4.4.2 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 specify different ports for one component on multiple lines, the installer assigns the default port for the component. The installer does not warn you if you have specified different ports for one component.
- If you specify the same port for one component on multiple lines, the installer assigns the default port for the component. The installer does not warn you if you have specified the same port on multiple lines.
- If you have syntax errors in the `staticports.ini` file (for example, if you omitted the = character for a line), the installer ignores the line. For the components specified on such lines, the installer assigns the default ports. The installer does not display a warning for lines with syntax errors.
- If you misspell a component name, the installer assigns the default port for the component. Names of components in the file are case sensitive. The installer does not display a warning for lines with unrecognized names.

- If you specify a non-numeric value for the port number, the installer ignores the line and assigns the default port number for the component. It does this without displaying any warning.
- If you specify a relative path to the staticports.ini file (for example, ".\staticports.ini" or just "staticports.ini"), the installer will not find the file. The installer continues without displaying a warning and it will assign default ports to all components. You must specify a full path to the staticports.ini file.

2.4.4.3 Ports for Oracle HTTP Server

Be sure you understand the following when setting ports for this component.

In the httpd.conf file for Oracle HTTP Server, the Port and the Listen directives specify the ports used by Oracle HTTP Server (Figure 2–1). You must set both directives to use the same port number.

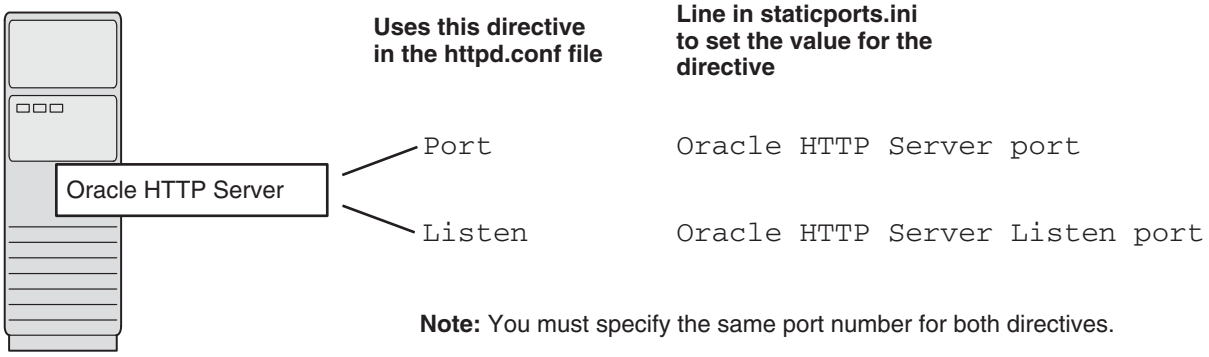
To set these ports, use the "Oracle HTTP Server port" and "Oracle HTTP Server Listen port" lines in the staticports.ini file. For example:

```
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
```

Figure 2–1 Configuring Oracle HTTP Server



2.5 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 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.

2.6 Environment Variables

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

Table 2–5 summarizes whether you set or unset an environment variable.

Table 2–5 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.
TEMP	Optional. If unset, defaults to `C:\temp`.
TNS_ADMIN	Must not be set.

2.6.1 How to Set Environment Variables

This section describes how to set environment variables in Windows:

1. To display the System control panel select **Start > Control Panel > System**.
2. Select the **Advanced** tab.
3. Click **Environment Variables**.
4. To change the value of a variable, select the variable and click **Edit**.

2.6.2 ORACLE_HOME and ORACLE_SID

These environment variables must not be set.

2.6.3 PATH

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

2.6.4 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.

2.6.5 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 2–2.

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.

2.7 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 2.7.1, "Installing on DHCP Computers"
- Section 2.7.2, "Installing on Multihomed (Multi-IP) Computers"
- Section 2.7.3, "Installing on Computers with Multiple Aliases"
- Section 2.7.4, "Installing on Non-Networked Computers"
- Section 2.7.5, "Installing on Static IP Computers that You Want to Disconnect from the Network Later"
- Section 2.7.6, "Installing a Loopback Adapter"
- Section 2.7.7, "Copying CD-ROMs or DVD-ROM to Hard Drive, and Installing from the Hard Drive"
- Section 2.7.8, "Installing from a Remote CD-ROM or DVD-ROM Drive"
- Section 2.7.9, "Installing on Remote Computers Through Remote Control Software"

2.7.1 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 2.7.6, "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.

2.7.2 Installing on Multihomed (Multi-IP) Computers

You can install Oracle Application Server on a multihomed computer. A multihomed computer is associated with multiple IP addresses. This is typically achieved by having multiple network cards on the computer. Each IP address is associated with a hostname; additionally, you can set up aliases for the hostname. By default, Oracle Universal Installer uses the `ORACLE_HOSTNAME` environment variable setting to find the hostname. If `ORACLE_HOSTNAME` is not set and you are installing on a computer

that has multiple network cards, Oracle Universal Installer determines the hostname by using the first name in the hosts file (typically located in *DRIVE_LETTER*:\WINDOWS\system32\drivers\etc).

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

For information on setting environment variables, see Section 2.6.1, "How to Set Environment Variables".

2.7.3 Installing on Computers with Multiple Aliases

A computer with multiple aliases is 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 a computer, set the ORACLE_HOSTNAME environment variable to the computer whose hostname you want to use.

For information on setting environment variables, see Section 2.6.1, "How to Set Environment Variables".

2.7.4 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.

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 2.7.6, "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.

2.7.5 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 2.7.6, "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 2-13. 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 2.7.1, "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.

2.7.6 Installing a Loopback Adapter

A loopback adapter is required in any of these scenarios:

- you are installing on a DHCP computer (see Section 2.7.1, "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 2.7.4, "Installing on Non-Networked Computers"), or
- you are installing on a computer with multiple aliases (see Section 2.7.3, "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 2.7.6.1, "Checking If a Loopback Adapter Is Installed on Your Computer"
- Section 2.7.6.2, "Installing a Loopback Adapter on Windows 2003"
- Section 2.7.6.3, "Checking the Hostname"
- Section 2.7.6.4, "Removing a Loopback Adapter on Windows 2003"

2.7.6.1 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
```

2.7.6.2 Installing a Loopback Adapter on Windows 2003

To install a loopback adapter on Windows 2003:

1. Open the Windows Control Panel.

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

2. Double-click **Add Hardware** to start the Add Hardware wizard.
3. In the Welcome window, click **Next**.
4. In the Is the hardware connected? window, select **Yes, I have already connected the hardware**, and click **Next**.
5. In the The following hardware is already installed on your computer window, in the list of installed hardware, select **Add a new hardware device**, and click **Next**.
6. In the The wizard can help you install other hardware window, select **Install the hardware that I manually select from a list**, and click **Next**.
7. In the From the list of hardware types, select the type of hardware you are installing window, select **Network adapters**, and click **Next**.
8. In the Select Network Adapter window, make the following selections:

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

9. Click **Next**.
10. In the The wizard is ready to install your hardware window, click **Next**.
11. In the Completing the Add Hardware Wizard window, click **Finish**.
12. If you are using Windows 2003, restart your computer.
13. Right-click **My Network Places** on the desktop and choose **Properties**. This displays the Network Connections Control Panel.
14. Right-click the connection that was just created. This is usually named "Local Area Connection 2". Choose **Properties**.
15. On the **General** tab, select **Internet Protocol (TCP/IP)**, and click **Properties**.
16. In the Properties dialog box, click **Use the following IP address** and do the following:
    a. **IP Address**: Enter a non-routable IP for the loopback adapter. Oracle recommends the following non-routable addresses:
       – `192.168.`*`x.x`* (*`x`* is any value between 1 and 255)
       – `10.10.10.10`
    b. **Subnet mask**: Enter `255.255.255.0`.
    c. Record the values you entered, which you will need later in this procedure.
    d. Leave all other fields empty.
    e. Click **OK**.
17. Click **OK** in the Local Area Connection 2 Properties dialog.
18. Close **Network Connections**.
19. Restart the computer.
20. Add a line to the `C:\winnt\system32\drivers\etc\hosts` file with the following format, right after the `localhost` line:

    ```
    IP_address   hostname.domainname   hostname
    ```

    where:

    - *`IP_address`* is the non-routable IP address you entered in step 14.
    - *`hostname`* is the name of the computer.
    - *`domainname`* is the name of the domain.

    For example:

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

21. Check the network configuration:
    a. Open **System** in the Control Panel, and select the **Computer Name** tab. In **Full computer name**, make sure you see the host name and the domain name, for example, `sales.us.mycompany.com`.
    b. Click **Change**. In **Computer name**, you should see the host name, and in **Full computer name**, you should see the host name and domain name. Using the

previous example, the host name would be `sales` and the domain name would be `us.mycompany.com`.

c. Click **More**. In **Primary DNS suffix of this computer**, you should see the domain name, for example, `us.mycompany.com`.

2.7.6.3 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*.

2.7.6.4 Removing a Loopback Adapter on Windows 2003

To remove a loopback adapter on Windows 2003:

1. Display the System control panel.

   Windows 2003: Select **Start > Control Panel > 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**.
5. Click **OK**.

2.7.7 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 2.7.8, "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 2–2).

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.

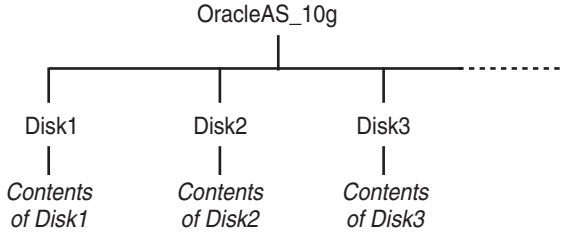
This space is in addition to the space required for installing Oracle Application Server (listed in Table 2–2).

To Copy the CD-ROMs:

1. Create a directory structure on your hard drive as shown in Figure 2–2.

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

Figure 2–2 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\Disk`*N* are the directories that you want to copy the CD-ROMs to.

```
E:\> xcopy /e /i  E:\1013disk1  C:\OracleAS_10g\Disk1
E:\> xcopy /e /i  E:\1013disk2  C:\OracleAS_10g\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\Disk1
C:\OracleAS_10g\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 executable from the computer that will be running Oracle Application Server:

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

2.7.8 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 and Security** (Windows 2003.
4. In the **Sharing** tab (Figure 2–3):

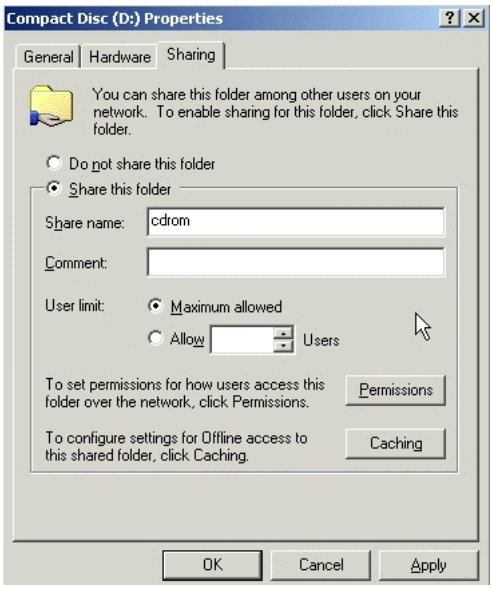
   Select **Share this folder**.

   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 2-21.

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 2–3 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 2-20.

      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.

2.7.9 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 2.7.8, "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 2.7.8, "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.

2.8 Prerequisite Checks Performed by the Installer

Table 2–6 lists the checks performed by the installer:

Table 2–6 Prerequisite Checks Performed by the Installer

Item	Description
Processor	See Table 2–2 for recommended values.
Memory	See Table 2–2 for recommended values.
Swap space	See Table 2–2 for recommended values.
TMP space	See Table 2–2 for recommended values.
Instance name	The installer checks that the computer on which you are installing Oracle Application Server does not already have an instance of the same name.
Oracle home directory name	The installer checks that the Oracle home directory name does not contain any spaces.
Path to Oracle home directory	The installer checks that the path to the Oracle home directory is not longer than 127 characters.
Oracle home directory contents	The installer checks that the Oracle home directory does not contain any files that might interfere with the installation.
Oracle home directory	You should install Oracle Application Server in a new directory. Here are some examples of installations that are **not allowed**: ■ Oracle Application Server into an 8.0, 8*i*, 9.0.1, 9.2, or 10*g* database Oracle home ■ Oracle Application Server into an Oracle Management Service Oracle home ■ Oracle Application Server into an Oracle Collaboration Suite Oracle home ■ Oracle Application Server into an Oracle HTTP Server standalone Oracle home ■ Oracle Application Server into an OracleAS Web Cache standalone Oracle home ■ Oracle Application Server into an Oracle9*i* Developer Suite 9.0.2 or Oracle Developer Suite 10*g* Release 2 (10.1.2) Oracle home ■ Oracle Application Server into an Oracle Containers for J2EE standalone Oracle home ■ Oracle Application Server into an Oracle9*i*AS 1.0.2.2 Oracle home ■ Oracle Application Server into an infrastructure 9.0.2, 9.0.4, or 10*g* Release 2 (10.1.2) Oracle home ■ Oracle Application Server into an Oracle9*i*AS 9.0.2, 9.0.3, 9.0.4, or 10*g* Release 2 (10.1.2) middle tier Oracle home ■ Oracle Application Server into an Oracle home installed from the Oracle Business Intelligence 10*g* (10.1.2.0.2) CD-ROM.
Static port conflicts	The installer checks the ports listed in the `staticports.ini` file, if specified. See Section 2.4, "Ports".

Table 2–6 (Cont.) Prerequisite Checks Performed by the Installer

Item	Description
Monitor	The installer checks that the monitor is configured to display at least 256 colors.
Display permission	The installer checks that the user has permissions to display on the monitor specified by the DISPLAY environment variable.
DISPLAY environment variable	The installer checks that the DISPLAY environment variable is set.
TNS_ADMIN environment variable	The TNS_ADMIN environment variable must not be set. There must not be a `tnsnames.ora` file in the `/etc` or `/var/opt/oracle` directories.
Cluster file system	The installer checks that you are not installing Oracle Application Server in a cluster file system (CFS).

3

Things You Should Know Before Starting the Installation

Contents:

- Section 3.1, "Oracle Home Directory"
- Section 3.2, "Installing Additional Languages"
- Section 3.3, "Oracle Application Server Instances and Instance Names"
- Section 3.4, "The oc4jadmin User and Restrictions on its Password"
- Section 3.5, "Where Does the Installer Write Files?"
- Section 3.6, "Obtaining Software from Oracle E-Delivery"
- Section 3.7, "Starting the Oracle Universal Installer"

3.1 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.

For example, you can install Oracle Containers for J2EE in `C:\oracle\OraHome_oc4j`.

3.1.1 Naming Your Oracle Home

Each Oracle home directory is automatically given a name. The Oracle home name is `oracleas`*x*, where *x* is a number that depends on how many Oracle Application Server installations are on the system.

For example, if you are performing your first installation of Oracle Application Server on this system, then your Oracle home is named `oracleas1`.

3.1.2 Installing in an Existing Oracle Home

Generally, you cannot install Oracle Application Server in an existing Oracle home. See "Oracle home directory" on page 2-23 for a list of combinations that are not allowed.

3.1.3 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 3.1.2, "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.

3.2 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 Installation Type" 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 E.3.4, "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.

3.3 Oracle Application Server Instances and Instance Names

When you install the 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 "J2EE". This name can be different from the Oracle home name.

You cannot change this name after installation.

Oracle Application Server appends the hostname and domain name to the given instance name to form a complete instance name. For example, if you are installing an instance on a computer named `c1`, and you name the instance `Oc4j1`, then the full name of the instance is `Oc4j1.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, you must give them different names.

When you administer Oracle Application Server using Oracle Enterprise Manager 10*g* Application Server Control (or Application Server Control for short), the instance name appears on the screens. You can click the instance name to see details about the instance, such as the components that are installed in that instance, if the components are running or stopped, and the log files for the components. The Application Server Control is a browser-based administration tool for Oracle Application Server. See the *Oracle Application Server Administrator's Guide* for details about this administration tool.

The Oracle home name is used in the following ways:

- OPMN runs as a Windows service. When naming this service, the installer inserts the Oracle home name in the service name using the following format:

  `Oracle-<`*`InstanceName`*`>ProcessManager`

  For example: if you use the instance name "Oc4j", the process management service will be called `Oracle-Oc4jProcessManager`.

- The instance name also appears in menu items in the **Start** menu for starting and stopping components in the associated instance:
  - **Start > Programs > Oracle -** *instanceName* **> Oracle Process Manager > Start Oracle Process Manager**
  - **Start > Programs > Oracle -** *instanceName* **> Oracle Process Manager > Stop Oracle Process Manager**

3.4 The oc4jadmin User and Restrictions on its Password

If you select one of the following installation types, the installer prompts you to specify the password for the `oc4jadmin` user:

- Basic Installation
- Advanced Installation: J2EE Server and Process Management
- Advanced Installation: Integrated Web Server, J2EE Server and Process Management

The `oc4jadmin` user is the administrative user for Oracle Application Server instances. To manage Oracle Application Server instances using Application Server Control, you log in as `oc4jadmin`.

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 `oc4jadmin` for all instances. The password for the `oc4jadmin` user can be different for each instance.

Password for the oc4jadmin User

The password for the `oc4jadmin` user has these restrictions:

- The minimum length is 5 characters.
- The maximum length is 30 characters.
- At least one of the characters must be a number.
- 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 task:

- When you log on to Application Server Control to manage Oracle Application Server, you log on as the `oc4jadmin` user.

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

> **Note:** If you intend to register your installation with Oracle Internet Directory after you finish installing, the password for the `oc4jadmin` user must conform to Oracle Internet Directory's password policy. Check with your Oracle Internet Directory administrator to verify the password policy.

3.5 Where Does the Installer Write Files?

The installer writes files to the following directories:

Table 3–1 Directories Where the Installer Writes Files

Directory	Description
Oracle home directory	This directory contains Oracle Application Server files. You specify this directory when you install Oracle Application Server.
Inventory directory	When you install the first Oracle product on a computer, you specify this directory, which the installer uses to keep track of which Oracle products are installed on the computer. In subsequent installations, the installer uses the same inventory directory.
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.

Table 3–1 (Cont.) Directories Where the Installer Writes Files

Directory	Description
`/tmp` directory	The installer writes files needed only during installation to a "temporary" directory. By default, the "temporary" directory is `/tmp`. To specify a different directory, set the TMP and TMPDIR environment variables. See Section 2.6.5, "TEMP" for details.

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

3.6 Obtaining Software from Oracle E-Delivery

You can obtain Oracle products from Oracle E-Delivery at `http://edelivery.oracle.com/`. Oracle products are distributed as "E-Packs". An E-Pack is an electronic version of the software that is also available to Oracle Customers on CD-ROM or DVD-ROM.

3.6.1 Finding and Downloading the Oracle Application Server 10*g* Release 3 (10.1.3) E-Pack

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

3.6.2 Finding Required and Optional Downloads

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

3.6.3 Disk Space Requirements

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

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

3.6.4 Software Requirements for Unzipping Files

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

3.6.5 Extracting Software from the Zip Files

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

```
c:\oraAS10g
```

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

```
c:\oraAS10g\Disk1
c:\oraAS10g\Disk2
```

etc.

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

To install from CD-ROM or from your hard drive, see Section 3.7, "Starting the Oracle Universal Installer".

3.7 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:

   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.

4

Basic Installation

This chapter describes how to perform a basic installation of Oracle Application Server. The following topics are covered:

- Section 4.1, "What Components Are Installed?"
- Section 4.2, "Basic Installation Steps"
- Section 4.3, "What Should I Do Next?"

4.1 What Components Are Installed?

During the Basic Installation, you must install all of the components. If you do not want to install all the components, see Chapter 5, "Advanced Installation".

The following components are installed during the Basic Installation:

- Oracle HTTP Server

  This is the Web server component of Oracle Application Server.

- Oracle Containers for J2EE

  This component provides a complete Java 2 Enterprise Edition (J2EE) environment for developing Java applications.

- Oracle Enterprise Manager 10*g* Application Server Control

  This component is used for Web-based management of Oracle Application Server.

- Oracle Process Manager and Notification Server

4.2 Basic Installation Steps

This section describes the procedure for the basic installation of Oracle Application Server. It contains the following topics:

- Section 4.2.1, "Before You Begin"
- Section 4.2.2, "Installation Steps"

4.2.1 Before You Begin

Before you begin installing Oracle Application Server, ensure that you have read both Chapter 2, "Requirements" and Chapter 3, "Things You Should Know Before Starting the Installation". These chapters contain important information with which you must be familiar before you begin the installation so you can avoid potential problems during the installation.

4.2.2 Installation Steps

To install Oracle Application Server with a basic installation, perform the following steps:

1. Start Oracle Universal Installer.

   For more information, refer to Section 3.7, "Starting the Oracle Universal Installer".

2. Oracle Application Server 10g 10.1.3.0.0 Installation Screen

   Installation Directory: Enter the directory where you want install Oracle Application Server.

   Select **Basic Installation Mode**.

   Installation Type: You cannot change the installation type in a basic installation.

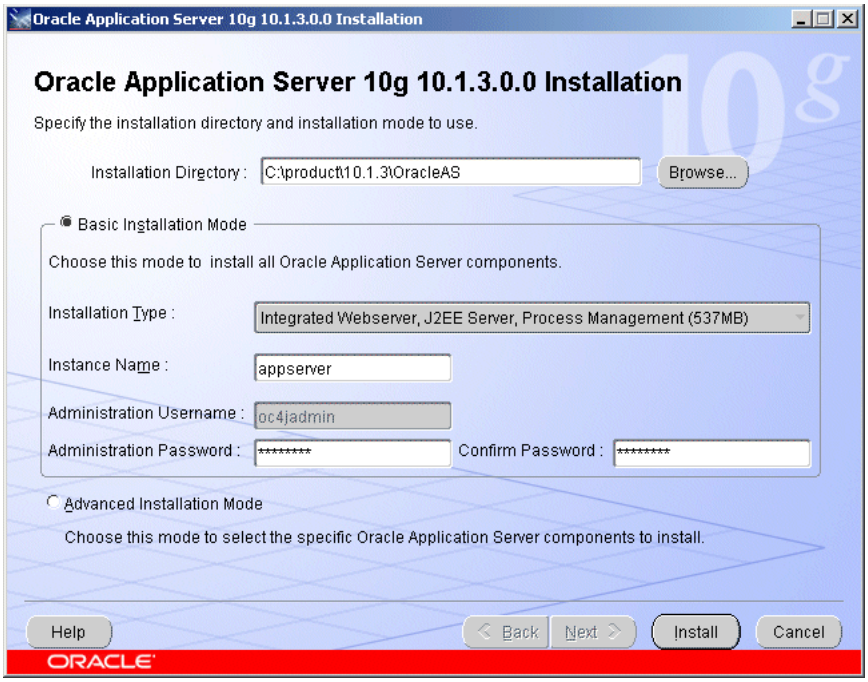
   Instance Name: The instance name identifies this Oracle Application Server instance. If you have more than one Oracle Application Server instance on the same host, the instances must have unique names.

   Administration Username: The administration username for Oracle Application Server instances is set to `oc4jadmin` and cannot be changed. To manage Oracle Application Server instances using Oracle Enterprise Manager 10*g*, log in as the `oc4jadmin` user.

   Administration Password and **Confirm Password**: Enter the password for the `oc4jadmin` user.

   Click **Install**.

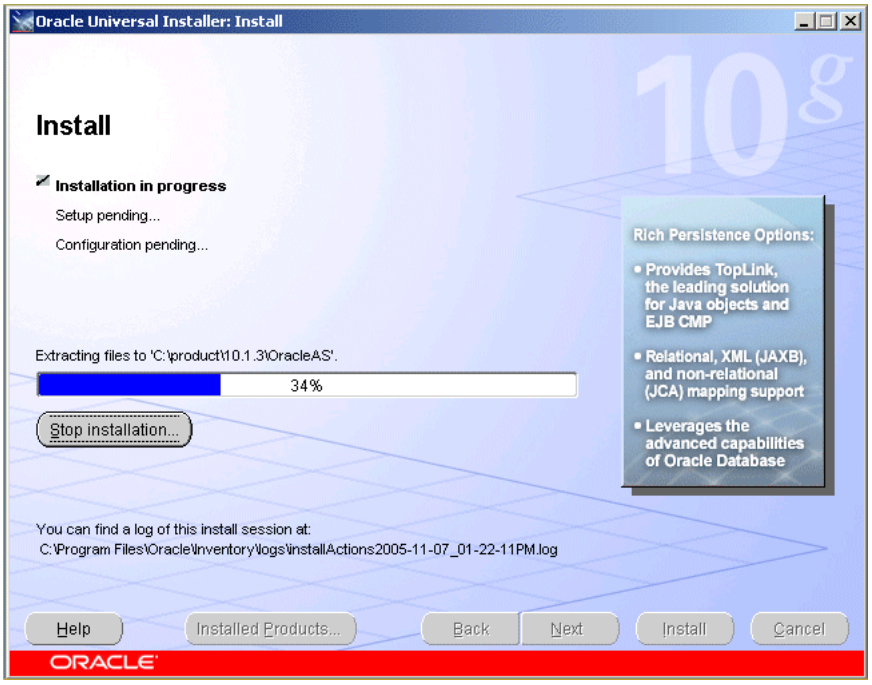
Figure 4–1 Oracle Application Server 10g 10.1.3.0.0 Installation Screen



3. Oracle Universal Installer: Install Screen

   This screen shows the progress of installation.

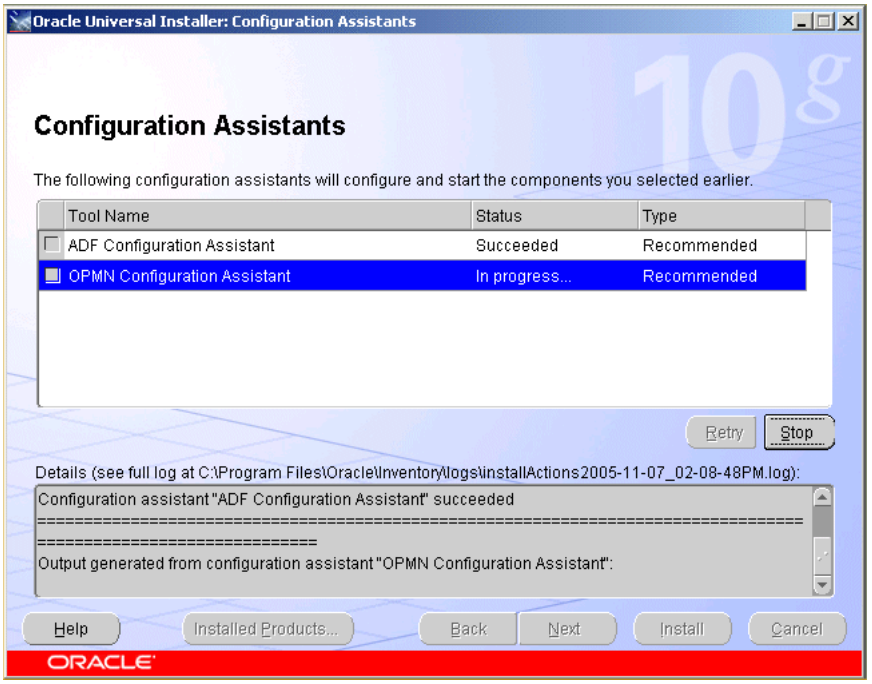
Figure 4–2 Oracle Universal Installer: Install Screen



4. Oracle Universal Installer: Configuration Assistants Screen

   This screen shows the progress of the configuration assistants.

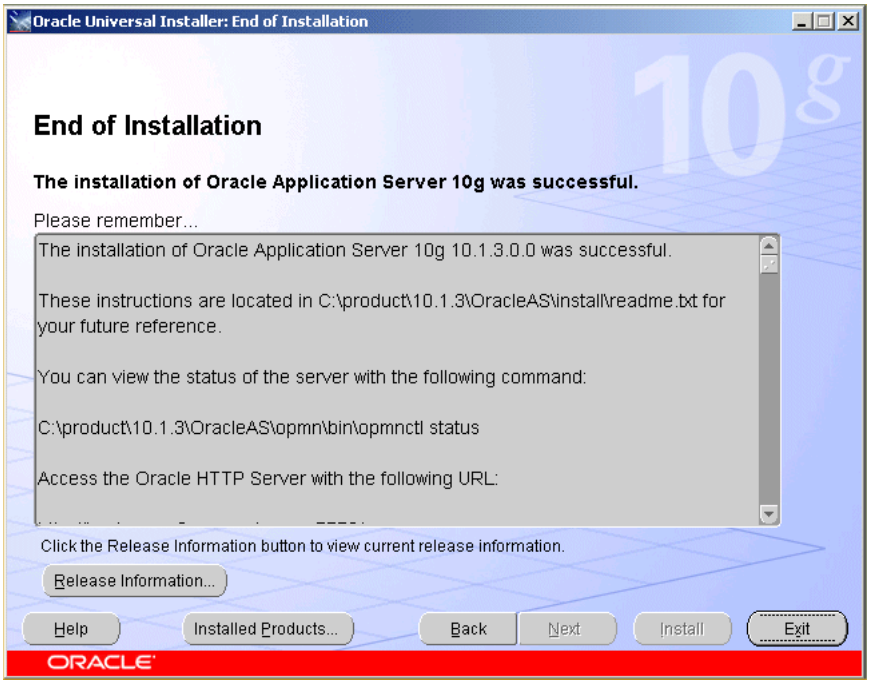
Figure 4–3 Oracle Universal Installer: Configuration Assistants Screen



5. Oracle Universal Installer: End of Installation Screen

   This screen tells you whether or not your installation was successful, and provides a link to the product release notes.

Figure 4–4 Oracle Universal Installer: End of Installation Screen



4.3 What Should I Do Next?

After the installation is complete, you should:

- Refer to Chapter 7 for instructions and information about postinstallation tasks you should perform.
- Refer to the *Oracle Application Server Administrator's Guide* for information about how to configure, administer, and manage Oracle Application Server after it has been successfully installed.

5

Advanced Installation

This chapter describes how to perform an advanced installation of Oracle Application Server. The following topics are covered:

- Section 5.1, "What Components Are Installed?"
- Section 5.2, "Advanced Installation Steps"
- Section 5.3, "Installation Screens"
- Section 5.4, "Troubleshooting Information"
- Section 5.5, "What Should I Do Next?"

5.1 What Components Are Installed?

During the Advanced Installation, you have four installation choices: J2EE Server and Process Management, Web Server and Process Management, Integrated Web Server, J2EE Server and Process Management, and Oracle TopLink.

The following components are installed in a J2EE Server and Process Management installation:

- Oracle Containers for J2EE

  This component provides a complete Java 2 Enterprise Edition (J2EE) environment for developing Java applications.

- Oracle Enterprise Manager 10*g* Application Server Control

  This component is used for Web-based management of Oracle Application Server.

- Oracle Process Manager and Notification Server

The following components are installed in a Web Server and Process Management installation:

- Oracle HTTP Server

  This is the Web server component of Oracle Application Server.

- Oracle Process Manager and Notification Server

An Integrated Web Server, J2EE Server and Process Management installation contains the components from both the J2EE Server and Process Management and Web Server and Process Management installations.

In an Oracle TopLink installation, only Oracle TopLink Foundation Library is installed.

5.2 Advanced Installation Steps

This section describes the procedure for the advanced installation of Oracle Application Server. It contains the following topics:

- Section 5.2.1, "Before You Begin"
- Section 5.2.2, "Installing J2EE Server and Process Management"
- Section 5.2.3, "Installing Web Server and Process Management"
- Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management"
- Section 5.2.5, "Installing Oracle TopLink"

5.2.1 Before You Begin

Before you begin installing Oracle Application Server, ensure that you have read both Chapter 2, "Requirements" and Chapter 3, "Things You Should Know Before Starting the Installation". These chapters contain important information with which you must be familiar before you begin the installation so you can avoid potential problems during the installation.

5.2.2 Installing J2EE Server and Process Management

Table 5–1 provides a brief summary of the steps necessary to install J2EE Server and Process Management with an advanced installation.

Table 5–1 Steps for Installing J2EE Server and Process Management

	Screen	Action
1.	--	Start Oracle Universal Installer. For more information, refer to Section 3.7, "Starting the Oracle Universal Installer".
2.	Oracle Application Server 10g 10.1.3.0.0 Installation	Specify the Oracle Home in the **Installation Directory** field. Select **Advanced Installation Mode**. Click **Next**. For more information, refer to Section 5.3.1, "Oracle Application Server 10g 10.1.3.0.0 Installation Screen".
3.	Select Installation Type	Select **J2EE Server and Process Management**. Click **Next**. For more information, refer to Section 5.3.2, "Select Installation Type Screen".
4.	Specify Port Configuration Options	Select whether you want to configure ports automatically or manually by specifying the location of a port configuration file. Click **Next**. For more information, refer to Section 5.3.3, "Specify Port Configuration Options Screen".
5.	Administration Instance Settings	Select **Configure this as an Administration OC4J instance** if you would like to run Application Server Control on this instance. Click **Next**. For more information, refer to Section 5.3.4, "Administration Instance Settings".

Table 5–1 (Cont.) Steps for Installing J2EE Server and Process Management

	Screen	Action
6.	Administration Settings	Specify the Oracle Application Server instance name and `oc4jadmin` password. Specify the default Oracle Containers for J2EE instance name. Click **Next**. For more information, refer to Section 5.3.5, "Administration Settings Screen".
7.	Cluster Topology Configuration	Select if you would like to configure this instance to be part of an Oracle Application Server cluster topology. If you select **Configure this OC4J instance to be part of an Oracle Application Server cluster topology**, specify the **IP Address** and **Port**, and select **Access this OC4J Instance from a separate Oracle HTTP Server** if you want the default web site to run in AJP protocol mode. Click **Next**. For more information, refer to Section 5.3.7, "Cluster Topology Configuration Screen - J2EE Server and Process Management Install Type".
8.	Summary	Verify that the installation parameters shown on the screen are correct. Click **Install**. For more information, refer to Section 5.3.10, "Summary Screen".
9.	Install	None. This screen shows the progress of the installation. For more information, refer to Section 5.3.11, "Install Screen".
10.	Configuration Assistants	None, unless you want to stop the installation of a particular configuration assistant. For more information, refer to Section 5.3.12, "Configuration Assistants Screen".
11.	End of Installation	None. This screen tells you whether or not your installation was successful, and provides a link to the product release notes. For more information, refer to Section 5.3.13, "End of Installation Screen".

5.2.3 Installing Web Server and Process Management

Table 5–2 provides a brief summary of the steps necessary to install Web Server and Process Management with an advanced installation.

Table 5–2 Steps for Installing Web Server and Process Management

	Screen	Action
1.	--	Start Oracle Universal Installer. For more information, refer to Section 3.7, "Starting the Oracle Universal Installer".
2.	Oracle Application Server 10g 10.1.3.0.0 Installation	Specify the Oracle Home in the **Installation Directory** field. Select **Advanced Installation Mode**. Click **Next**. For more information, refer to Section 5.3.1, "Oracle Application Server 10g 10.1.3.0.0 Installation Screen".
3.	Select Installation Type	Select **Web Server and Process Management**. Click **Next**. For more information, refer to Section 5.3.2, "Select Installation Type Screen".

Table 5–2 (Cont.) Steps for Installing Web Server and Process Management

	Screen	Action
4.	Specify Port Configuration Options	Select whether you want to configure ports automatically or manually by specifying the location of a port configuration file. Click **Next**. For more information, refer to Section 5.3.3, "Specify Port Configuration Options Screen".
5.	Specify Instance Name	Specify the Oracle Application Server instance name. Click **Next**. For more information, refer to Section 5.3.6, "Specify Instance Name Screen".
6.	Cluster Topology Configuration	Select if you would like to configure this instance to be part of an Oracle Application Server cluster topology. If you select **Configure this HTTP Server instance to be part of an Oracle Application Server cluster**, specify the **IP Address** and **Port**. Click **Next**. For more information, refer to Section 5.3.8, "Cluster Topology Configuration Screen: Web Server and Process Management Install Type".
7.	Summary	Verify that the installation parameters shown on the screen are correct. Click **Install**. For more information, refer to Section 5.3.10, "Summary Screen".
8.	Install	None. This screen shows the progress of the installation. For more information, refer to Section 5.3.11, "Install Screen".
9.	Configuration Assistants	None, unless you want to stop the installation of a particular configuration assistant. For more information, refer to Section 5.3.12, "Configuration Assistants Screen".
10.	End of Installation	None. This screen tells you whether or not your installation was successful, and provides a link to the product release notes. For more information, refer to Section 5.3.13, "End of Installation Screen".

5.2.4 Installing Integrated Web Server, J2EE Server and Process Management

Table 5–3 provides a brief summary of the steps necessary to install Integrated Web Server, J2EE Server and Process Management with an advanced installation.

Table 5–3 Steps for Installing Integrated Web Server, J2EE Server and Process Management

	Screen	Action
1.	--	Start Oracle Universal Installer. For more information, refer to Section 3.7, "Starting the Oracle Universal Installer".
2.	Oracle Application Server 10g 10.1.3.0.0 Installation	Specify the Oracle Home in the **Installation Directory** field. Select **Advanced Installation Mode**. Click **Next**. For more information, refer to Section 5.3.1, "Oracle Application Server 10g 10.1.3.0.0 Installation Screen".
3.	Select Installation Type	Select **Integrated Web Server, J2EE Server and Process Management**. Click **Next**. For more information, refer to Section 5.3.2, "Select Installation Type Screen".

Table 5–3 (Cont.) Steps for Installing Integrated Web Server, J2EE Server and Process Management

	Screen	Action
4.	Specify Port Configuration Options	Select whether you want to configure ports automatically or manually by specifying the location of a port configuration file. Click **Next**. For more information, refer to Section 5.3.3, "Specify Port Configuration Options Screen".
5.	Administration Instance Settings	Select **Configure this as an Administration OC4J instance** if you would like to run Application Server Control on this instance. Click **Next**. For more information, refer to Section 5.3.4, "Administration Instance Settings".
6.	Administration Settings	Specify the Oracle Application Server instance name and `oc4jadmin` password. Specify the default Oracle Containers for J2EE instance name. Click **Next**. For more information, refer to Section 5.3.5, "Administration Settings Screen".
7.	Cluster Topology Configuration	Select if you would like to configure this instance to be part of an Oracle Application Server cluster topology. If you select **Configure this instance to be part of an Oracle Application Server cluster topology**, specify the **IP Address** and **Port**. Click **Next**. For more information, refer to Section 5.3.9, "Cluster Topology Configuration Screen: Integrated Web Server, J2EE Server and Process Management Install Type".
8.	Summary	Verify that the installation parameters shown on the screen are correct. Click **Install**. For more information, refer to Section 5.3.10, "Summary Screen".
9.	Install	None. This screen shows the progress of the installation. For more information, refer to Section 5.3.11, "Install Screen".
10	Configuration Assistants	None, unless you want to stop the installation of a particular configuration assistant. For more information, refer to Section 5.3.12, "Configuration Assistants Screen".
11.	End of Installation	None. This screen tells you whether or not your installation was successful, and provides a link to the product release notes. For more information, refer to Section 5.3.13, "End of Installation Screen".

5.2.5 Installing Oracle TopLink

Table 5–4 provides a brief summary of the steps necessary to install Oracle TopLink with an advanced installation.

Table 5–4 Steps for Installing Oracle TopLink

	Screen	Action
1.	--	Start Oracle Universal Installer. For more information, refer to Section 3.7, "Starting the Oracle Universal Installer".
2.	Oracle Application Server 10g 10.1.3.0.0 Installation	Specify the Oracle Home in the **Installation Directory** field. Select **Advanced Installation Mode**. Click **Next**. For more information, refer to Section 5.3.1, "Oracle Application Server 10g 10.1.3.0.0 Installation Screen".
3.	Select Installation Type	Select **Oracle TopLink**. Click **Next**. For more information, refer to Section 5.3.2, "Select Installation Type Screen".
4.	Summary	Verify that the installation parameters shown on the screen are correct. Click **Install**. For more information, refer to Section 5.3.10, "Summary Screen".
5.	Install	None. This screen shows the progress of the installation. For more information, refer to Section 5.3.11, "Install Screen".
6.	End of Installation	None. This screen tells you whether or not your installation was successful, and provides a link to the product release notes. For more information, refer to Section 5.3.13, "End of Installation Screen".

5.3 Installation Screens

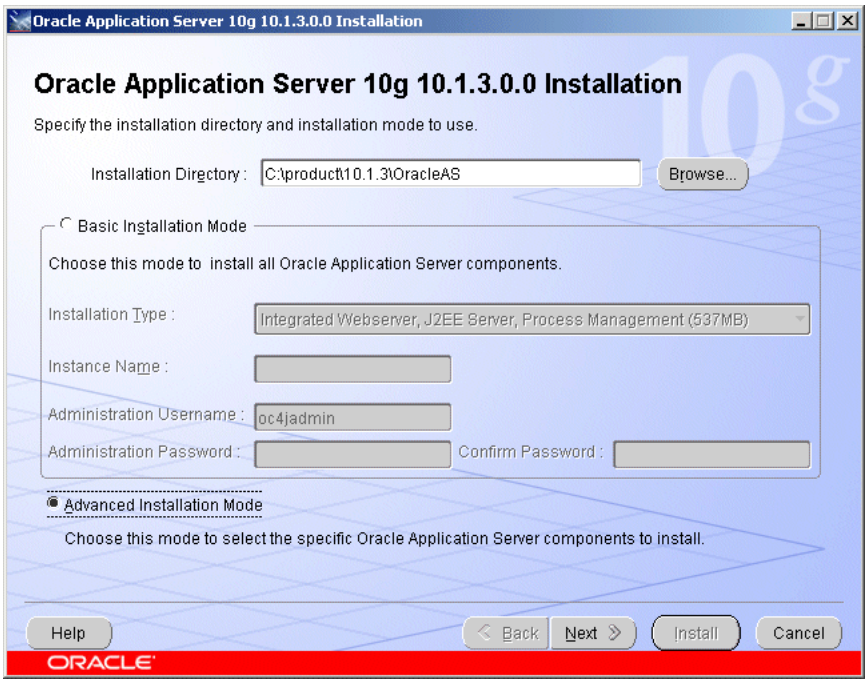
This section describes the various Oracle Universal Installer (OUI) installation screens for Oracle Application Server 10*g* Release 3 (10.1.3). It contains the following sections:

- Section 5.3.1, "Oracle Application Server 10g 10.1.3.0.0 Installation Screen"
- Section 5.3.2, "Select Installation Type Screen"
- Section 5.3.3, "Specify Port Configuration Options Screen"
- Section 5.3.4, "Administration Instance Settings"
- Section 5.3.5, "Administration Settings Screen"
- Section 5.3.6, "Specify Instance Name Screen"
- Section 5.3.7, "Cluster Topology Configuration Screen - J2EE Server and Process Management Install Type"
- Section 5.3.8, "Cluster Topology Configuration Screen: Web Server and Process Management Install Type"
- Section 5.3.9, "Cluster Topology Configuration Screen: Integrated Web Server, J2EE Server and Process Management Install Type"
- Section 5.3.10, "Summary Screen"
- Section 5.3.11, "Install Screen"
- Section 5.3.12, "Configuration Assistants Screen"
- Section 5.3.13, "End of Installation Screen"

5.3.1 Oracle Application Server 10g 10.1.3.0.0 Installation Screen

This is the first screen in the installation process. You need to specify the installation directory (or Oracle home) and whether you want to perform a basic or advanced installation.

Figure 5–1 Oracle Application Server 10g 10.1.3.0.0 Installation Screen



Installation Directory

Specify the full path of the installation directory or Oracle home. This is the directory where you want to install the software. For more information about the Oracle home, refer to Section 3.1, "Oracle Home Directory".

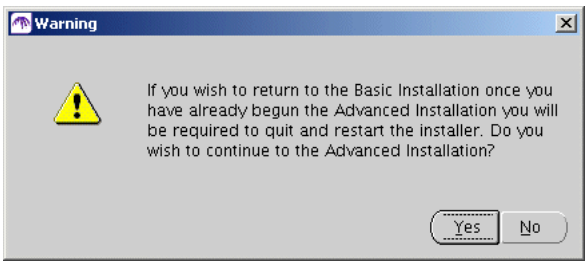
Select Basic or Advanced Installation Mode

In this chapter you are performing an advanced installation of Oracle Application Server, so select **Advanced Installation Mode** and click **Next**.

If you want to perform a basic installation, see Chapter 4, "Basic Installation".

After you click the **Next** button, the following warning appears:

Figure 5–2 Warning Screen

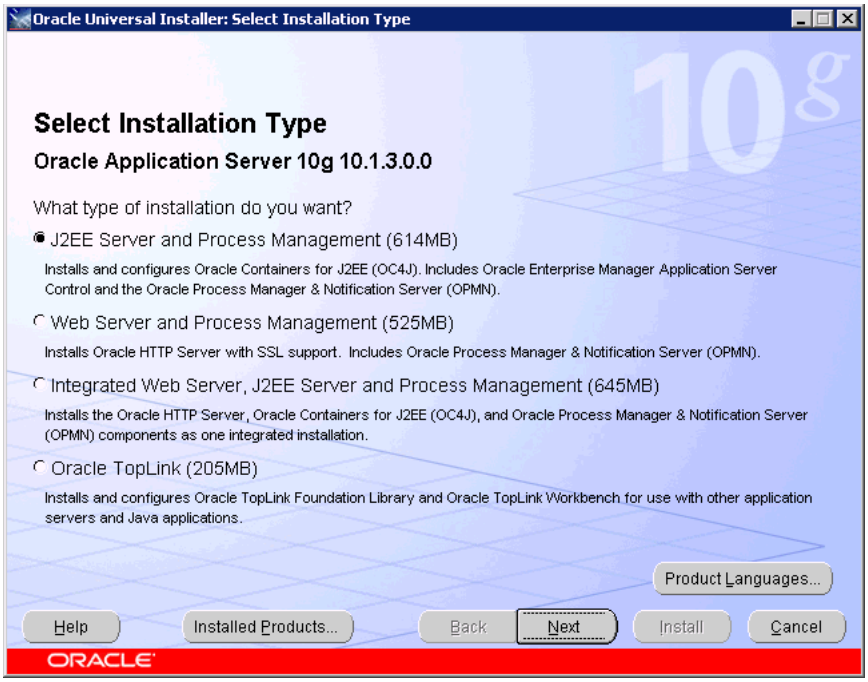


Click **Yes** to continue with the advanced installation.

5.3.2 Select Installation Type Screen

Select the product you want to install, then click **Next**.

Figure 5–3 Oracle Universal Installer: Select Installation Type Screen

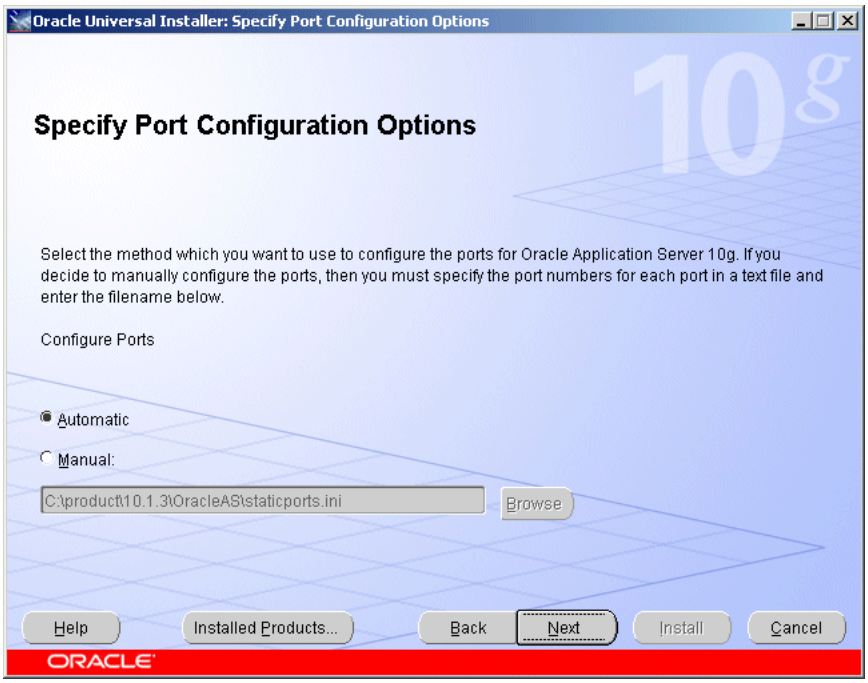


To learn what components are installed with the different installation types, see Section 5.1, "What Components Are Installed?".

5.3.3 Specify Port Configuration Options Screen

Select the method in which you want to configure ports.

Figure 5–4 Oracle Universal Installer: Specify Port Configuration Options Screen



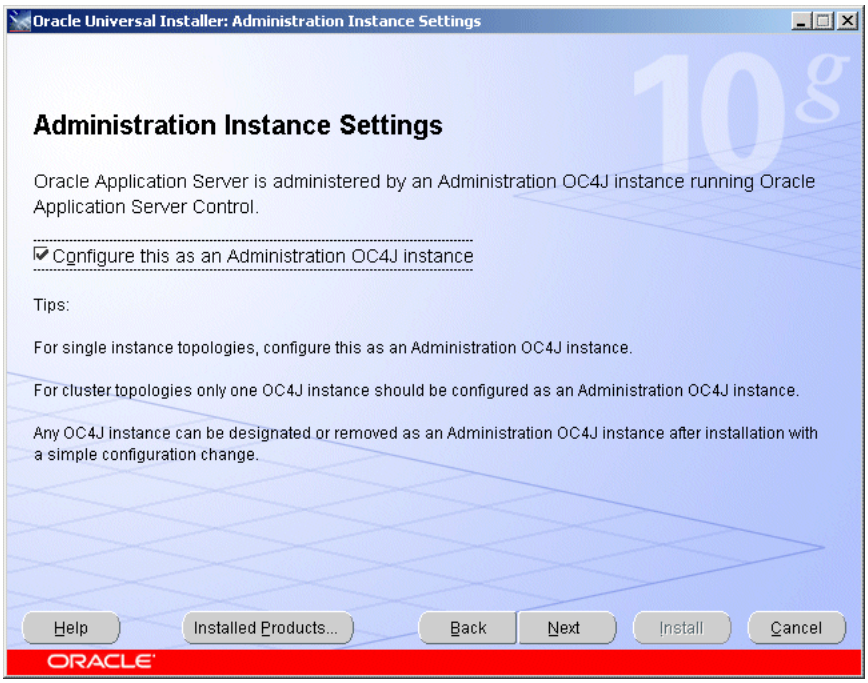
Click **Automatic** if you want to use all default port numbers. Refer to Appendix B for a list of all the default port numbers and ranges.

Click **Manual** if you want to customize your port numbers. You must supply the full path and file name to an existing port configuration file containing the port numbers you want to use for each component. Typically, this port configuration file is called `staticports.ini`, although any name is valid as long as the format of the file is correct. Refer to Section 2.4.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for more information about the staticports.ini file that is shipped with the product.

5.3.4 Administration Instance Settings

Select whether you would like to run Application Server Control on this instance.

Figure 5–5 Oracle Universal Installer: Administration Instance Settings Screen



Configure this as an Administration OC4J instance

Select this option if you want to run Application Server Control on this system to provide management capabilities.

If you are using a single instance topology, you should select this option to be able to manage the instance.

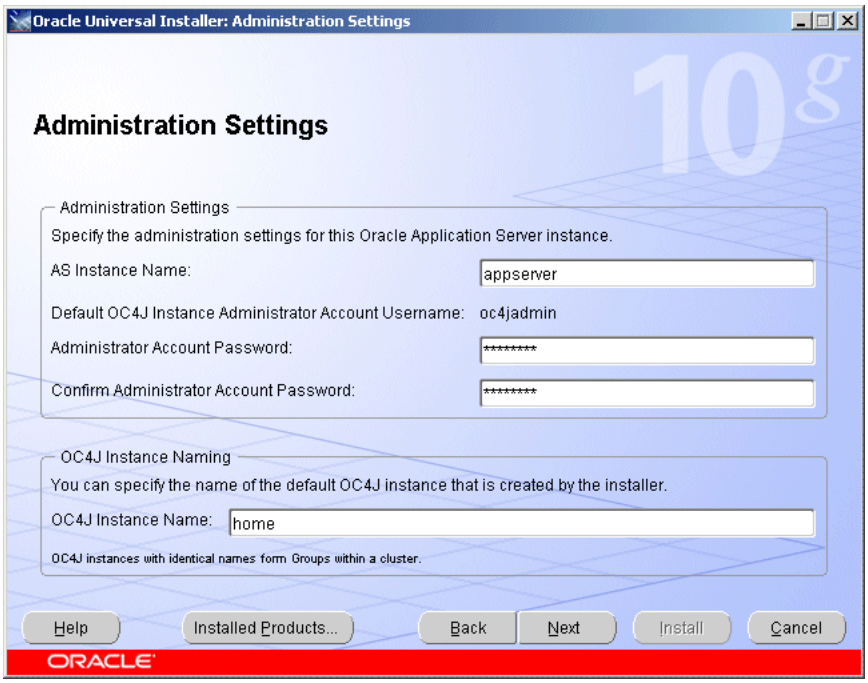
If you are using a cluster topology, you should select this option if you want this instance to administer the cluster using Application Server Control. In a cluster topology, only one instance should be configured as an Administration OC4J instance. Note that the Administration OC4J instance for the cluster does not have to be the first installed node.

If you do not select **Configure this as an Administration OC4J instance**, then Application Server Control will be configured to not run on this system. This Application Server instance will need to be managed by Application Server Control running on another OC4J instance within the cluster topology. You can configure the Application Server Control to run on this instance following installation if required. See "Enabling Remote Management by Setting Administrator Credentials" in the *Oracle Application Server Administrator's Guide* for details.

5.3.5 Administration Settings Screen

Specify the Oracle Application Server instance name, `oc4jadmin` password, and the OC4J instance name.

Figure 5–6 Oracle Universal Installer: Administration Settings Screen



AS Instance Name

The AS Instance Name uniquely identifies this Oracle Application Server instance.

For more information about instance names, see Section 3.3, "Oracle Application Server Instances and Instance Names".

Default OC4J Instance Administrator Account Username

The administrative username for Oracle Application Server instances is set to `oc4jadmin` and cannot be changed. To manage Oracle Application Server instances using Enterprise Manager, log in as the `oc4jadmin` user.

For more information about the `oc4jadmin` user, see Section 3.4, "The oc4jadmin User and Restrictions on its Password".

Administrator Account Password and Confirm Administrator Account Password

On a host, you can install multiple Oracle Application Server instances, each with its own unique instance name, but the name of the administrative user is `oc4jadmin` for all instances. You can specify a different password for the `oc4jadmin` user for each instance.

For more information about the `oc4jadmin` password, see Section 3.4, "The oc4jadmin User and Restrictions on its Password".

OC4J Instance Name

The **OC4J instance name** identifies the default OC4J instance created by the installer.

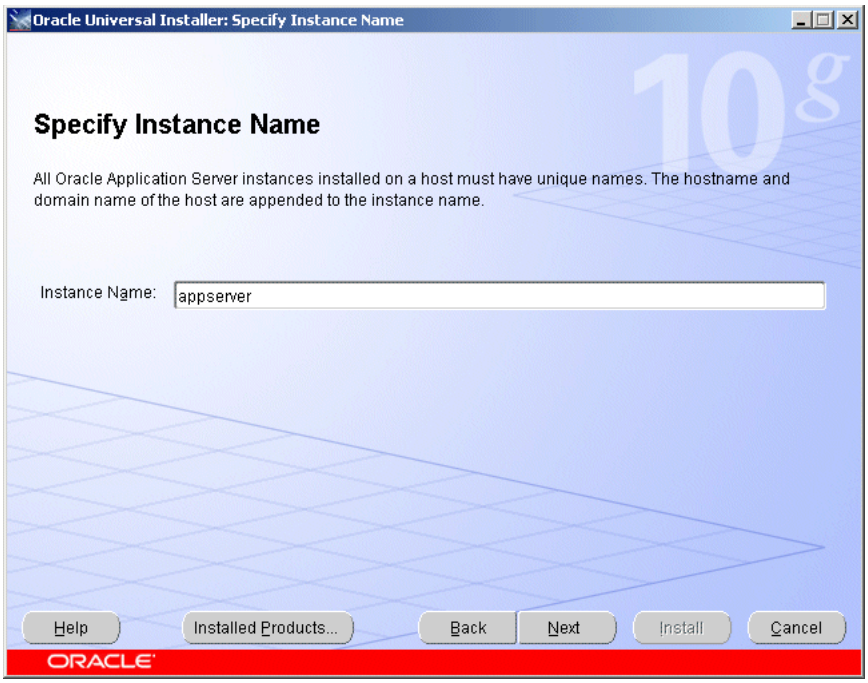
OC4J instance names can consist only of the alphanumeric characters (`A-Z`, `a-z`, `0-9`) and the underscore character (_).

There is no maximum length for an OC4J instance name.

5.3.6 Specify Instance Name Screen

This screen only appears if you select the **Web Server and Process Management** option on the Select Installation Type screen shown in Figure 5–7.

Figure 5–7 Oracle Universal Installer: Specify Instance Name Screen



Instance Name

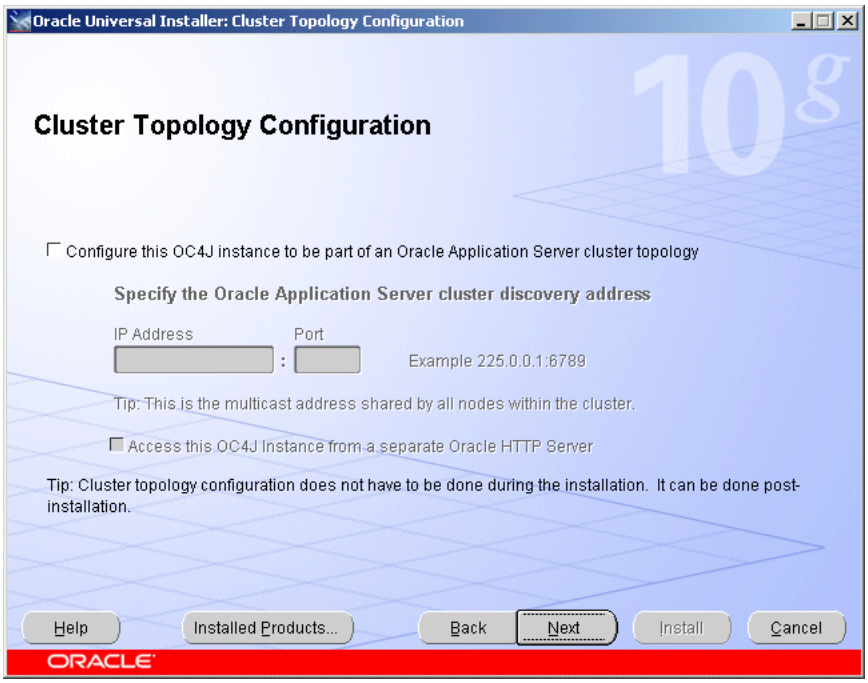
Specify the Oracle Application Server instance name. The instance name uniquely identifies this Oracle Application Server instance.

For more information about instance names, see Section 3.3, "Oracle Application Server Instances and Instance Names".

5.3.7 Cluster Topology Configuration Screen - J2EE Server and Process Management Install Type

Select whether you would like to configure this instance to be part of an Oracle Application Server cluster topology.

Figure 5–8 Oracle Universal Installer: Cluster Topology Configuration (J2EE)



Configure this OC4J instance to be part of an Oracle Application Server cluster topology

Select this option if you would like to configure this instance to be part of an Oracle Application Server cluster topology. You may also configure the cluster topology following installation. See Section 7.4, "Configuring OracleAS Clusters" for details.

Specify the Oracle Application Server cluster discovery address

Specify the **IP Address** and the **Port** for the multicast address shared by all the nodes in the cluster.

Note:

- When installing the first instance of the cluster, you only need to provide the discovery address. You do not need to perform any additional steps before installing the first instance of the cluster.
- All nodes within the topology must be configured to use the same multicast address and port.
- The multicast address must be within the valid address range, which is `224.0.0.1` to `239.255.255.255`.

If you are adding an instance to an existing cluster and do not know the multicast address, find the `<discover>` element in the `opmn.xml` file on an Oracle Application Server instance in the topology. The `<discover>` element should appear like this:

```
<notification-server>
  <topology>
    <discover list="*225.0.0.20:8001"/>
  </topology>
...
</notification-server>
```

In this example, the IP address is `225.0.0.20` and the port is `8001`.

Access this OC4J Instance from a separate Oracle HTTP Server

Select this option if you want the OC4J instance to accept requests from an Oracle HTTP Server instance. If you select this option, then the OC4J instance will be configured so that its default web site is running in AJP protocol mode and accepts requests from `mod_oc4j` running in Oracle HTTP Server.

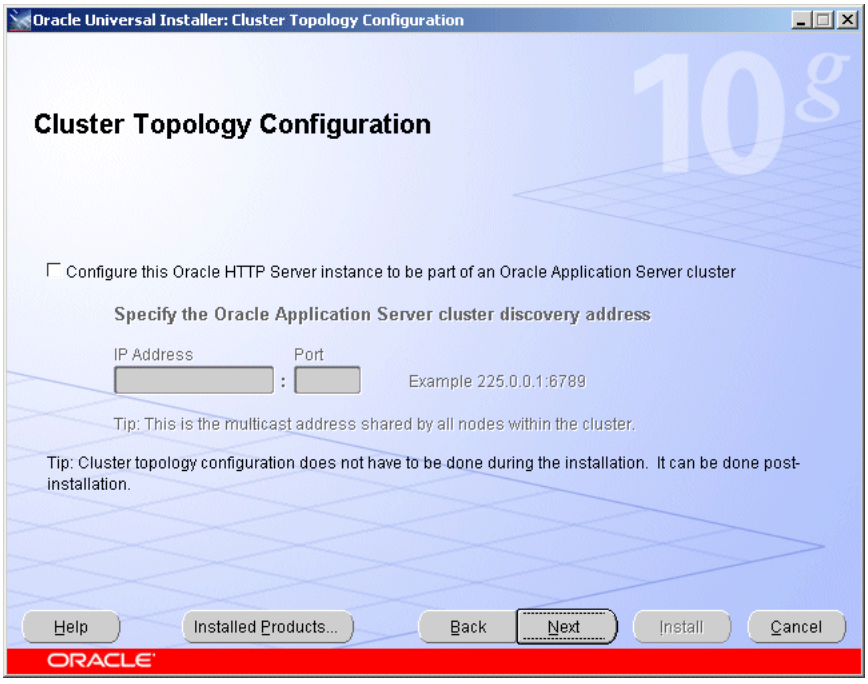
If you do not select this option, the OC4J instance will listen for requests from browser clients using its own HTTP listener. The OC4J instance will be configured so that its default web site is running in HTTP protocol mode and can be directly accessed from browser clients.

You can change how this OC4J instance is accessed following installation. See "Configuring Multicast Discovery with opmnctl" in the *Oracle Containers for J2EE Configuration and Administration Guide*.

5.3.8 Cluster Topology Configuration Screen: Web Server and Process Management Install Type

Select whether you would like to configure this instance to be part of an Oracle Application Server cluster topology.

Figure 5–9 Oracle Universal Installer: Cluster Topology Configuration (Web Server)



Configure this Oracle HTTP Server instance to be part of an Oracle Application Server cluster

Select this option if you would like to configure this instance to be part of an Oracle Application Server cluster. You may also configure the cluster following installation. See Section 7.4, "Configuring OracleAS Clusters" for details.

Specify the Oracle Application Server cluster discovery address

Specify the **IP Address** and the **Port** for the multicast address shared by all the nodes in the cluster.

Note:

- When installing the first instance of the cluster, you only need to provide the discovery address. You do not need to perform any additional steps before installing the first instance of the cluster.
- All nodes within the topology must be configured to use the same multicast address and port.
- The multicast address must be within the valid address range, which is `224.0.0.1` to `239.255.255.255`.

If you are adding an instance to an existing cluster and do not know the multicast address, find the `<discover>` element in the `opmn.xml` file on an Oracle Application Server instance in the topology. The `<discover>` element should appear like this:

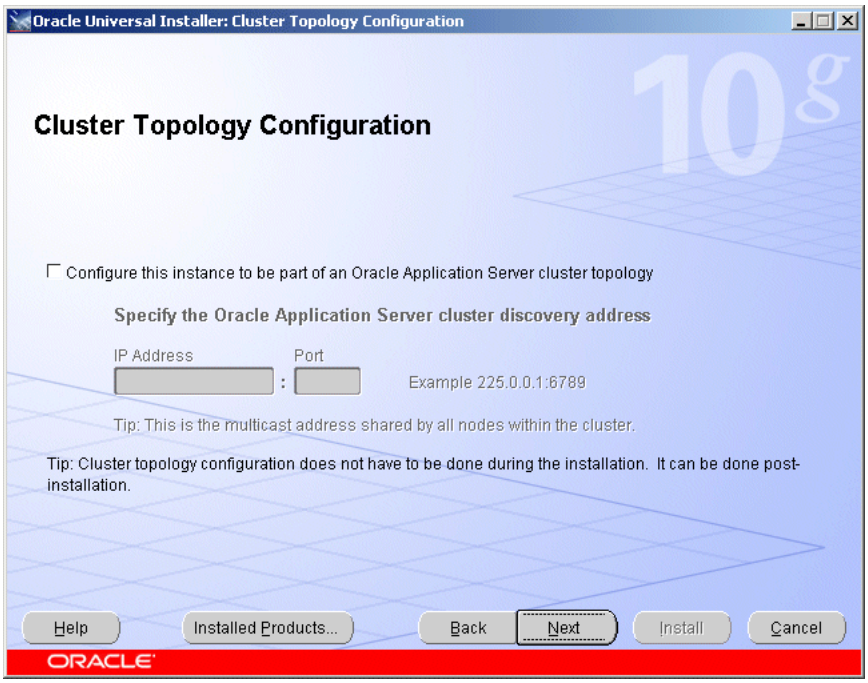
```
<notification-server>
  <topology>
    <discover list="*225.0.0.20:8001"/>
  </topology>
...
</notification-server>
```

In this example, the IP address is `225.0.0.20` and the port is `8001`.

5.3.9 Cluster Topology Configuration Screen: Integrated Web Server, J2EE Server and Process Management Install Type

Select whether you would like to configure this instance to be part of an Oracle Application Server cluster topology.

Figure 5–10 Oracle Universal Installer: Cluster Topology Configuration (Integrated)



Configure this instance to be part of an Oracle Application Server cluster topology

Select this option if you would like to configure this instance to be part of an Oracle Application Server cluster topology. You may also configure the cluster topology following installation. See Section 7.4, "Configuring OracleAS Clusters" for details.

Specify the Oracle Application Server cluster discovery address

Specify the **IP Address** and the **Port** for the multicast address shared by all the nodes in the cluster.

Note:

- When installing the first instance of the cluster, you only need to provide the discovery address. You do not need to perform any additional steps before installing the first instance of the cluster.
- All nodes within the topology must be configured to use the same multicast address and port.
- The multicast address must be within the valid address range, which is `224.0.0.1` to `239.255.255.255`.

If you are adding an instance to an existing cluster and do not know the multicast address, find the `<discover>` element in the `opmn.xml` file on an Oracle Application Server instance in the topology. The `<discover>` element should appear like this:

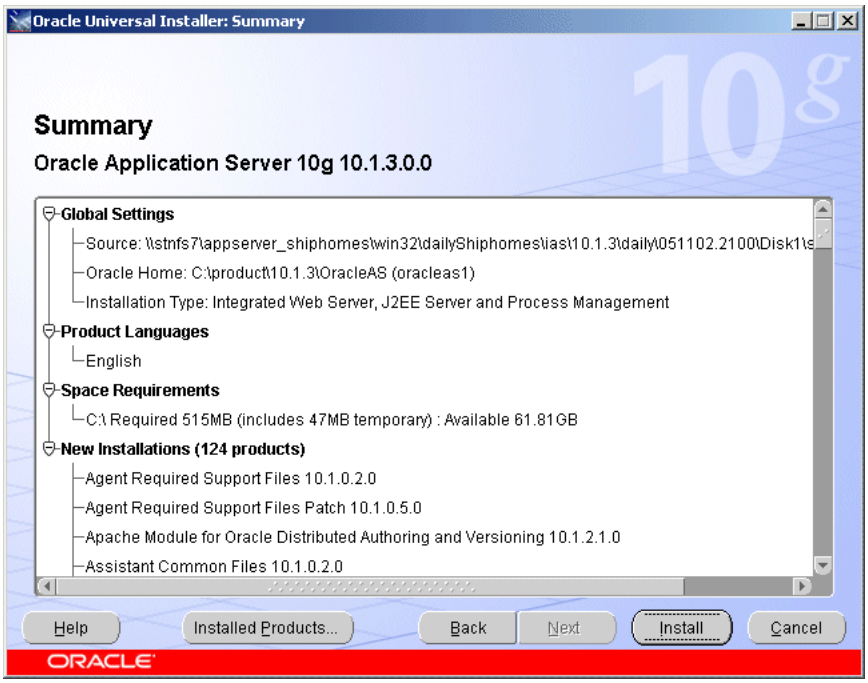
```
<notification-server>
  <topology>
    <discover list="*225.0.0.20:8001"/>
  </topology>
...
</notification-server>
```

In this example, the IP address is `225.0.0.20` and the port is `8001`.

5.3.10 Summary Screen

Check and verify that the installation parameters shown in this window are correct.

Figure 5–11 Oracle Universal Installer: Summary Screen

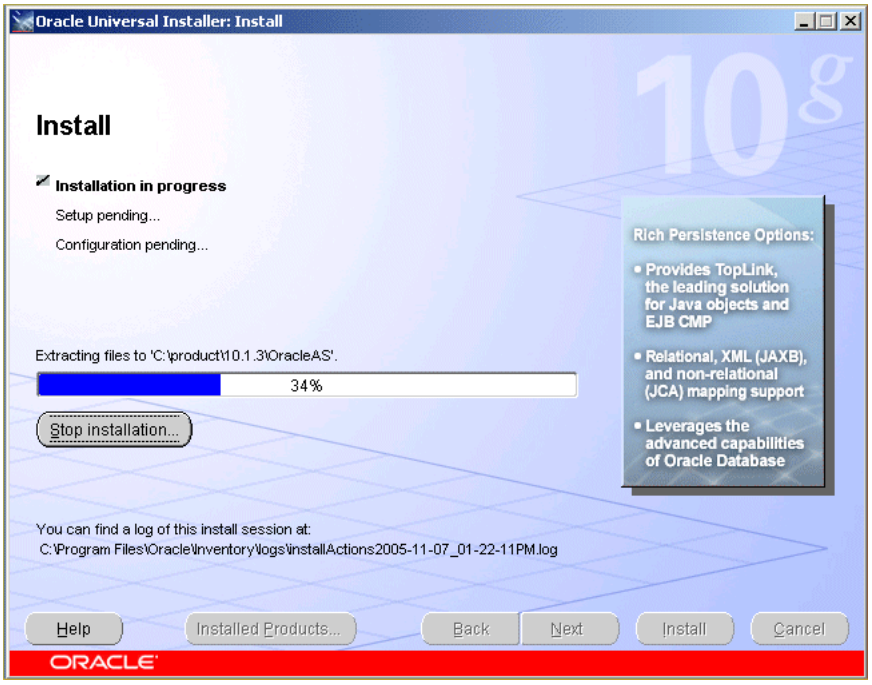


Click **Install** to begin the installation.

5.3.11 Install Screen

This screen shows the progress of the installation.

Figure 5–12 Oracle Universal Installer: Install Screen



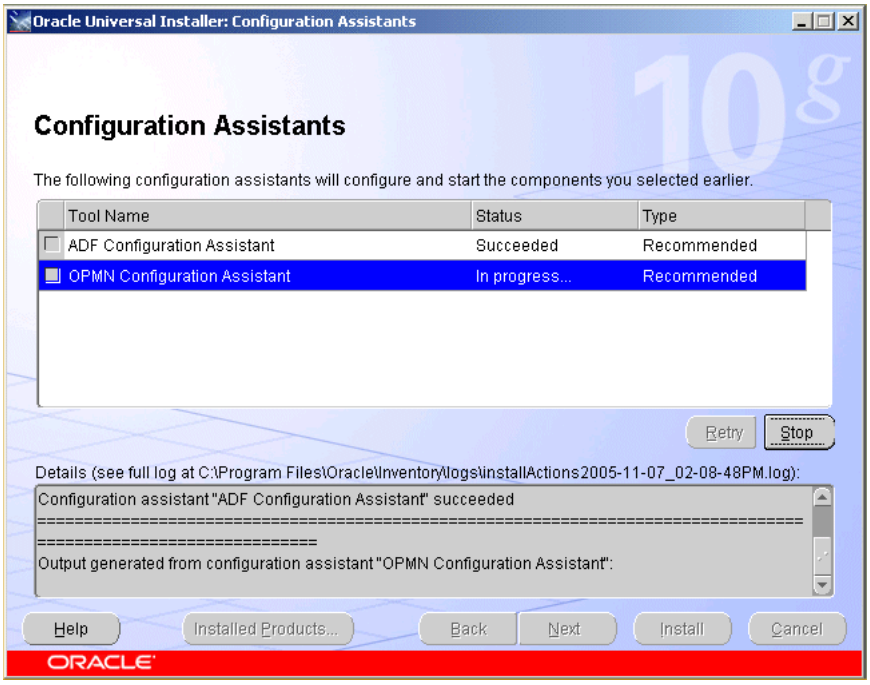
Click **Stop Installation** if you want to abort the installation. You will be asked to verify that you want to stop the installation.

This screen also provides the location of the install log, in case you want to view the contents of the log.

5.3.12 Configuration Assistants Screen

This screen shows the name, status, and tool type for tools recommended to be run before completing the installation.

Figure 5–13 Oracle Universal Installer: Configuration Assistants Screen



A tool may have one of the following states, as shown in the status column:

- **Succeeded**: The tool ran successfully.
- **Failed**: The tool ran, but failed.
- **Pending**: The tool is waiting to run.
- **Cancelled**: The tool was cancelled by the user (by clicking **Stop**).
- **In Progress**: The tool is currently running.
- **Skipped**: A configuration assistant running before this tool was cancelled or failed. Tools that follow a failed or cancelled tool are skipped.

When you select a tool, its details are shown in the Details box. Details are displayed as the tool is running. If you want to stop a configuration assistant while it is running, click **Stop**.

If all tools succeed on the first try, OUI automatically proceeds to the next page. Otherwise, OUI remains on the Configuration Assistants page until all tools are successful. You can then click **Next** to proceed.

If one or more tools fail, OUI does not proceed to the next page. Instead, you can read the details of failed tools, fix the problems, and try running the configuration assistant again. You should also consult the installation document for the product being installed for instructions on what to do if a tool fails. For all failed or skipped tools, OUI generates a list of the tool names and the commands used to run them; you can copy/paste this information directly into a shell script or batch file to run these tools after installation is complete.

By default, the check box in the Retry column will be checked for all tools that failed or were skipped. To retry all checked configuration assistants, click **Retry**.

To continue without fixing the problem, click **Next**.

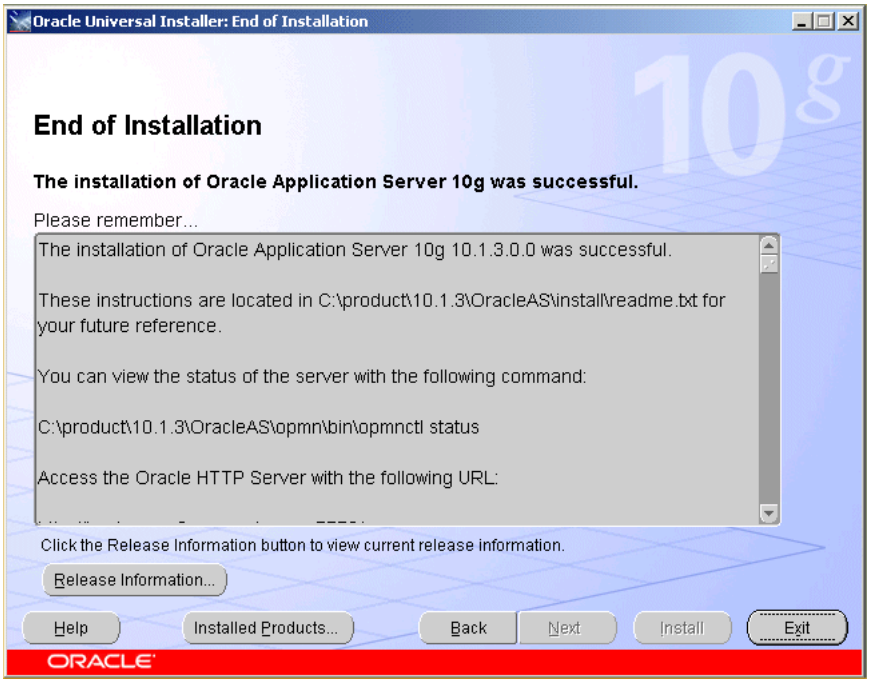
Note: The installation is considered successful even if all configuration assistants failed, irrespective of their type (Recommended or Optional). However, failing to successfully run all recommended tools results in an improperly configured product that may not function.

5.3.13 End of Installation Screen

This screen tells you whether or not your Oracle Application Server installation was successful and displays some important information that you must remember about the products you have installed. For example, it might contain information about the URLs for particular Web applications. Write down this information so that you can remember it.

This information can also be found in the *ORACLE_HOME*`\install\readme.txt` file.

Figure 5–14 Oracle Universal Installer: End of Installation



To view release notes for the products you have installed, click **Release Information** or see the documentation page on OTN (`http://www.oracle.com/technology/documentation`).

Click **Exit** to exit the Oracle Universal Installer.

5.4 Troubleshooting Information

If you encounter any problems with the installation, configuration assistants, or product in general, refer to Appendix E, "Troubleshooting" for common problems and solutions.

5.5 What Should I Do Next?

After the installation is complete, you should:

- Refer to Chapter 7 for instructions and information about postinstallation tasks you should perform.
- Refer to the *Oracle Application Server Administrator's Guide* for information about how to configure, administer, and manage Oracle Application Server after it has been successfully installed.

6

Installing in High Availability Environments

This chapter provides an overview of the high availability configurations supported by Oracle Application Server and instructions for installation.

Contents of this chapter:

- Section 6.1, "Overview of High Availability Configurations"
- Section 6.2, "Creating the Active-Active Topology"
- Section 6.3, "Creating the Active-Passive Topology"
- Section 6.4, "Creating an OracleAS Disaster Recovery Configuration"

6.1 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 at installation time. Note that there are multiple variants of each type.

- Section 6.1.1, "Active-Active Topologies: OracleAS Clusters"
- Section 6.1.2, "Active-Passive Topologies: OracleAS Cold Failover Clusters"
- Section 6.1.3, "OracleAS Disaster Recovery"

For a quick summary of the high availability configurations, see Section 6.1.4, "Summary of Differences".

6.1.1 Active-Active Topologies: OracleAS Clusters

Oracle Application Server provides an active-active redundant model for all its components with OracleAS Clusters. In an OracleAS Clusters configuration, two or more Oracle Application Server instances are configured to serve the same workload. These instances can run on the same machine or on different machines.

The instances are front-ended by an external load balancer, which directs requests to any of the active instances. Instead of an external load balancer, you can also run a software load balancer to distribute the requests. In production environment, however, a hardware load balancer is recommended.

Common properties of an OracleAS Clusters configuration include:

- Similar instance configuration

The instances need to serve the same workload or applications. Some configuration properties should have similar values across instances so that the instances can deliver the same reply to the same request. Other configuration properties may be instance-specific, such as local host name information.

If you make a configuration change to one instance, you should also make the same change to the other instances in the active-active topology. The "Configuring and Managing Clusters" chapter in the *Oracle Containers for J2EE Configuration and Administration Guide* lists the files that contain properties that should be replicated.

- Independent operation

  If one Oracle Application Server instance in an active-active topology fails, the other instances in the cluster continue to serve requests. The load balancer directs requests only to instances that are alive.

Advantages of an OracleAS Clusters configuration include:

- Increased availability

  An active-active topology is a redundant configuration. Loss of one instance can be tolerated because other instances can continue to serve the same requests.

- Increased scalability and performance

  Multiple identically-configured instances provide the capability to share a workload among different machines and processes. You can scale the topology by adding new instances as the number of requests increase.

For instructions on creating the OracleAS Clusters configuration, see Section 6.2, "Creating the Active-Active Topology".

6.1.2 Active-Passive Topologies: OracleAS Cold Failover Clusters

Oracle Application Server provides an active-passive model for all its components in OracleAS Cold Failover Clusters. In an OracleAS Cold Failover Cluster topology, two Oracle Application Server instances are configured to serve the same application workload but only one is active at any particular time. The passive instance runs (that is, becomes active) only when the active instance fails. These instances run on nodes that are in a hardware cluster.

Common properties of an OracleAS Cold Failover Cluster topology include:

- Hardware cluster

  In an OracleAS Cold Failover Cluster topology, you run Oracle Application Server on machines that are in a hardware cluster, with vendor clusterware running on the machines.

- Shared storage

  You install the Oracle home for the Oracle Application Server instance on storage shared by the machines in the hardware cluster.

  The active node in the OracleAS Cold Failover Cluster topology mounts the shared storage so that it has access to the Oracle home. If it fails, the passive instance mounts the shared storage and accesses the same Oracle home.

- Virtual hostname

  The virtual hostname gives clients a single system view of the Oracle Application Server middle tier. Clients use the virtual hostname to access the Oracle Application Server middle tier.

The virtual hostname is associated with a virtual IP. This name-IP entry must be added to the DNS that the site uses. For example, if the two physical hostnames of the hardware cluster are `node1.mycompany.com` and `node2.mycompany.com`, the single view of this cluster can be provided by the virtual hostname `apps.mycompany.com`. In the DNS, `apps` maps to a virtual IP address that floats between `node1` and `node2` via a hardware cluster. Clients access Oracle Application Server using `apps.mycompany.com`; they do not know which physical node is active and actually servicing a particular request.

You can specify the virtual hostname during installation. See Section 6.3, "Creating the Active-Passive Topology".

- Failover procedure

  An active-passive configuration also includes a set of scripts and procedures to detect failure of the active instance and fail over to the passive instance while minimizing downtime.

Advantages of an OracleAS Cold Failover Cluster topology include:

- Increased availability

  If the active instance fails for any reason or must be taken offline, an identically configured passive instance is prepared to take over at any time.

- Reduced operating costs

  In an active-passive topology only one set of processes is up and serving requests. Managing the active instance is generally easier than managing an array of active instances.

- Application independence

  Some applications may not be suited to an active-active topology. This may include applications that rely heavily on application state or on information stored locally. An active-passive topology has only one instance serving requests at any particular time.

For instructions on creating the OracleAS Cold Failover Cluster configuration, see Section 6.3, "Creating the Active-Passive Topology".

6.1.3 OracleAS Disaster Recovery

OracleAS Disaster Recovery configurations have the following characteristics:

- A production site and a standby site that mirrors the production site. Typically, these sites are located some distance from each other to guard against site failures such as floods, fires, or earthquakes. During normal operation, the production site handles all the requests. If the production site goes down, the standby site takes over and handles all the requests.
- Each site has all the hardware and software to run. It contains nodes for running Oracle Application Server instances, load balancers, and DNS servers.

For installation details, see Section 6.4, "Creating an OracleAS Disaster Recovery Configuration".

6.1.4 Summary of Differences

Table 6–1 summarizes the differences among the high availability configurations.

Table 6–1 Differences Among the High Availability Configurations

	OracleAS Cold Failover Cluster	OracleAS Clusters	OracleAS Disaster Recovery
Node configuration	Active-Passive	Active-Active	Active-Passive
Hardware cluster	Yes	No	Optional (hardware cluster required only if you installed the OracleAS Infrastructure in an OracleAS Cold Failover Cluster configuration)
Virtual hostname	Yes	No	Yes
Load balancer	No	Yes	No
Shared storage	Yes	No	No

6.2 Creating the Active-Active Topology

This section describes how to install Oracle Application Server in an active-active topology with OracleAS Clusters. OracleAS Clusters is one of the high availability environments supported by Oracle Application Server.

Contents of this section:

- Section 6.2.1, "Active-Active Topologies: Introduction"
- Section 6.2.2, "OracleAS Clusters in Active-Active Topologies"
- Section 6.2.3, "Properties of Oracle Application Server Instances in Active-Active Topologies"
- Section 6.2.4, "Installation Steps for Active-Active Topologies"
- Section 6.2.5, "Supporting Procedures for Creating the Active-Active Topology"

6.2.1 Active-Active Topologies: Introduction

An active-active topology consists of redundant middle-tier instances that deliver greater scalability and availability than a single instance. Active-active topologies remove the single point of failure that a single instance poses. While a single Oracle Application Server instance leverages the resources of a single host, a cluster of middle-tier instances spans multiple hosts, distributing application execution over a greater number of CPUs. A single Oracle Application Server instance is vulnerable to the failure of its host and operating system, but an active-active topology continues to function despite the loss of an operating system or a host, hiding any such failure from clients.

In active-active topologies, all the instances are active at the same time. This is different from active-passive topologies, where only one instance is active at any time.

The nodes in the active-active topologies are not in a hardware cluster.

Load Balancer Requirements

Active-active topologies use a load balancer to direct requests to one of the Oracle Application Server instances in the topology. In other words, the Oracle Application Server instances are fronted by the load balancer.

You configure the load balancer with virtual server names for HTTP and HTTPS traffic. Clients use the virtual server names in their requests. The load balancer directs requests to an available Oracle Application Server instance.

See the *Oracle Application Server High Availability Guide* for a list of features that your load balancer should have.

Figures of Active-Active Topologies

The following figures show two active-active topologies. The difference in the topologies is whether you install Oracle HTTP Server and OC4J in the same Oracle home or in separate Oracle homes.

Figure 6–1 shows an active-active topology with Oracle HTTP Server and OC4J in the same Oracle home. Figure 6–2 shows an active-active topology with Oracle HTTP Server and OC4J in separate Oracle homes.

Figure 6–1 Active-Active Topology with Oracle HTTP Server and OC4J in the Same Oracle Home

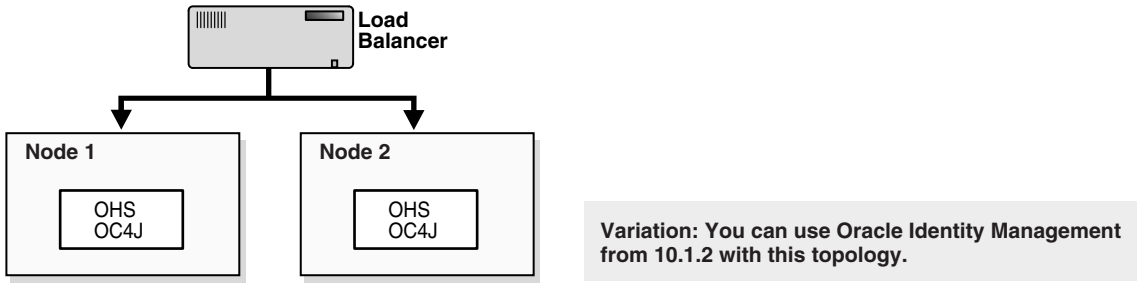
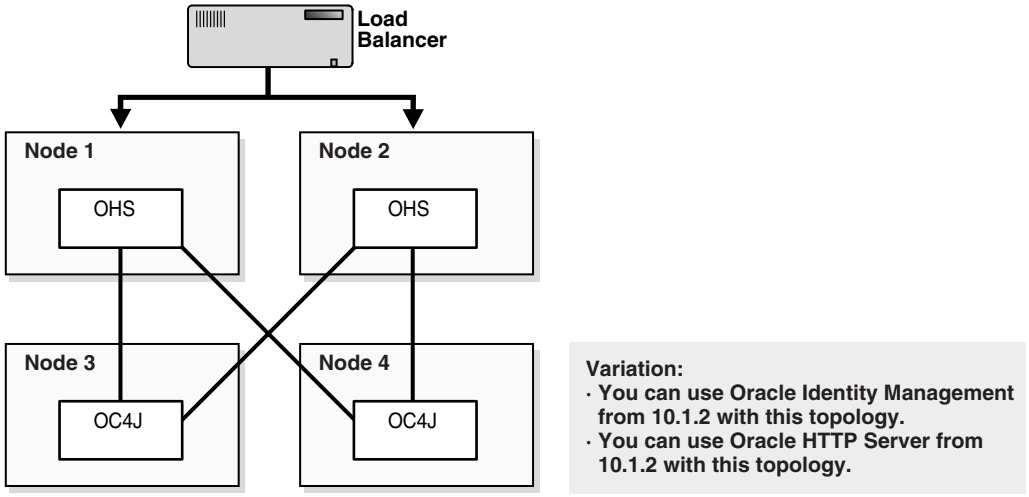


Figure 6–2 Active-Active Topology with Oracle HTTP Server and OC4J in Separate Oracle Homes



6.2.2 OracleAS Clusters in Active-Active Topologies

All the Oracle Application Server instances in an active-active topology belong to the same cluster. Oracle HTTP Server forwards application requests only to OC4J instances that belong to the same cluster.

You can cluster instances with OPMN using one of the following ways:

- All the instances use the same multicast IP address and port.
- All the instances are chained to the same discovery server.
- Each instance specifies all other instances in the opmn.xml configuration file.

- If the instances run on nodes that are on different subnets, you have to designate a node to be the gateway server, which bridges the instances on the different subnets.

Clustering with OPMN also enables you to use the `@cluster` parameter in some `opmnctl` commands. Commands that use the `@cluster` parameter apply to all instances in the cluster. For example, you can use the `@cluster` parameter to start all components in all instances in the cluster.

OC4J instances in a cluster have the following features:

- OC4J instances have cluster-wide properties as well as instance-specific properties. Cluster-wide properties are properties whose values are identical for all OC4J instances in the cluster. Instance-specific properties are properties that have different values for each OC4J instance. For a list of cluster-wide properties, see the "Configuring and Managing Clusters" chapter in the *Oracle Containers for J2EE Configuration and Administration Guide*.
- If you modify a cluster-wide property in one OC4J instance, make sure that you propagate the change to all other OC4J instances in the cluster.
- When you deploy an application to an OC4J instance, you also need to deploy it on all other OC4J instances in the cluster.
- The number of OC4J processes is an instance-specific property: it can be different for each OC4J instance. This must be configured for each Oracle Application Server instance in the cluster. The OC4J process configuration provides flexibility to tune according to the specific hardware capabilities of the host. By default, each OC4J instance is instantiated with a single OC4J process.

For details, see the "Configuring and Managing Clusters" chapter in the *Oracle Containers for J2EE Configuration and Administration Guide*.

6.2.3 Properties of Oracle Application Server Instances in Active-Active Topologies

Because the load balancer can send a request to any Oracle Application Server instance in the topology, you need to ensure that the instances are configured in the same manner so that clients get the same response regardless of which instance handles the request. This includes the following:

- Deploy the same applications on each OC4J instance in the topology.
- Ensure that you replicate state and stateful session bean information across OC4J instances so that in the event that an OC4J instance fails, another OC4J instance contains the state information and can continue the session.
- Ensure that configuration properties for all the OC4J instances in the topology are identical. These configuration properties are listed in chapter 8, "Configuring and Managing Clusters", in section "Replicating Changes Across a Cluster", in the *Oracle Containers for J2EE Configuration and Administration Guide*.

6.2.4 Installation Steps for Active-Active Topologies

To create the topology shown in Figure 6–1 or Figure 6–2, you perform the following steps:

Step 1: Configure the Load Balancer with Virtual Server Names

Step 2: Install Oracle HTTP Server and OC4J and Cluster the Instances using OPMN

Step 3: Cluster the OC4J Components to Create an Application Cluster

The following sections describe the steps in detail.

Step 1 Configure the Load Balancer with Virtual Server Names

Refer to your load balancer documentation for configuration steps. On your load balancer, you need to configure a virtual server name and port for HTTP traffic, and another virtual server name and port for HTTPS traffic. The port numbers for the virtual server names should match the port numbers at which Oracle HTTP Server is listening. Clients will use the virtual server names and ports to access Oracle Application Server instances.

Step 2 Install Oracle HTTP Server and OC4J and Cluster the Instances using OPMN

You can install Oracle HTTP Server and OC4J in the same Oracle home (see Figure 6–1), or in different Oracle homes (see Figure 6–2).

For Oracle Application Server instances that you want to group in the same active-active topology, you need to place them in the same cluster. This enables communication between the Oracle HTTP Server and OC4J instances, and simplifies the management of Oracle Application Server instances. OracleAS Clusters enable you to use the `@cluster` parameter for the `opmnctl` command to manage all the instances in the cluster.

You can create clusters using one of the following methods:

- Dynamic Discovery Method

  In this method, each ONS node within the same subnet announces its presence with a multicast message. The cluster topology map for each node is automatically updated as nodes are added or removed, enabling the cluster to be self-managing.

  If you use this method, you should specify the multicast address and port on the Cluster Topology Configuration screen in the installer.

- Discovery Server Method

  In this method, specific nodes within a cluster are configured to serve as "discovery servers", which maintain the topology map for the cluster; the remaining nodes then connect with one another via this server.

  If you use this method, you can define a cluster for OPMN by specifying the names of the Oracle Application Server instances explicitly in the `opmn.xml` file of each instance by following the steps in Section 6.2.5.1, "Setting up Clusters with the Discovery Server Method" after installation.

- Gateway Method

  This configuration is used to connect topologies separated by firewalls or on different subnets using specified "gateway" nodes.

  If you use this method, see the section "Configuring Cross-Topology Gateways" in the *Oracle Containers for J2EE Configuration and Administration Guide* for configuration details.

You can perform either an integrated installation or a distributed installation.

- **For Integrated Installations (Oracle HTTP Server and OC4J in the Same Oracle Home)**

  You install Oracle Application Server on the local storage of each node in the active-active topology.

Perform an advanced installation by following the steps in Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management" so that both Oracle HTTP Server and OC4J will run from the same Oracle home.

During the installation procedure, follow the prompts, ensuring you perform the following:

- On the Administration Instance Settings screen:
  - If you want this node to administer the cluster using Application Server Control, select **Configure this as an Administration OC4J instance**. In a cluster topology, only one instance should be configured as an Administration OC4J instance. Note that the Administration OC4J instance for the cluster does not have to be the first installed node.
  - If you do not want this node to administer the cluster, deselect **Configure this as an Administration OC4J instance**.
- If you are using the dynamic discovery method to cluster the Oracle Application Server instances for OPMN, perform the following:

  On the Cluster Topology Configuration screen, select **Configure this instance to be part of an Oracle Application Server cluster topology**. Specify the **IP Address** and **Port** for the multicast address shared by all the nodes in the cluster.

  Note that the multicast address must be between 224.0.0.1 and 239.255.255.255. If you are installing on the first node in the cluster, you may choose any IP address and port, as long as it falls in the multicast address range.

Note the following:

- Set the Oracle home to be on the local storage of each node.
- Ensure that the same component uses the same port number in each Oracle Application Server instance in the cluster. For example, ensure that Oracle HTTP Server is listening at the same port number for all instances in the cluster.
- To simplify administering the instances, use the same Oracle home path and the same instance name for each node.
- If you are using the discovery server method to cluster the Oracle Application Server instances for OPMN, be sure to perform the steps in Section 6.2.5.1, "Setting up Clusters with the Discovery Server Method" after installation.
- If you are using the gateway method to cluster the Oracle Application Server instances for OPMN, see the section "Configuring Cross-Topology Gateways" in the *Oracle Containers for J2EE Configuration and Administration Guide* for configuration details.

- **For Distributed Installations (Oracle HTTP Server and OC4J in Different Oracle Homes)**

  You install Oracle Application Server on the local storage of each node in the active-active topology.

  For the nodes where you want to run Oracle HTTP Server, follow the steps in Section 5.2.3, "Installing Web Server and Process Management". For the nodes where you want to run OC4J, follow the steps in Section 5.2.2, "Installing J2EE Server and Process Management".

  During installation, select the following options:

- On the Administration Instance Settings screen:
  - If you want this node to administer the cluster using Application Server Control, select **Configure this as an Administration OC4J instance**. In a cluster topology, only one instance should be configured as an Administration OC4J instance. Note that the Administration OC4J instance for the cluster does not have to be the first installed node.
  - If you do not want this node to administer the cluster, deselect **Configure this as an Administration OC4J instance**.
- If you are using the dynamic discovery method to cluster the Oracle Application Server instances for OPMN, perform the following:
  - If you are installing Oracle HTTP Server, select **Configure this HTTP Server instance to be part of an Oracle Application Server cluster** on the "Cluster Topology Configuration" screen. Specify the **IP Address** and **Port** for the multicast address shared by all the nodes in the cluster.
  - If you are installing OC4J, select **Configure this OC4J instance to be part of an Oracle Application Server cluster topology** on the "Cluster Topology Configuration" screen. Specify the **IP Address** and **Port** for the multicast address shared by all the nodes in the cluster and select **Access this OC4J Instance from a separate Oracle HTTP Server**.

  Note that the multicast address must be between 224.0.0.1 and 239.255.255.255. If you are installing on the first node in the cluster, you may choose any IP address and port, as long as it falls in the multicast address range.

Note the following:

- Set the Oracle home to be on the local storage of each node.
- Ensure that the same component uses the same port number in each Oracle Application Server instance in the cluster. For example, ensure that Oracle HTTP Server is listening at the same port number for all instances in the cluster.
- To simplify administering the instances, use the same Oracle home path and the same instance name for each node.
- If you are using the discovery server method to cluster the Oracle Application Server instances for OPMN, be sure to perform the steps in Section 6.2.5.1, "Setting up Clusters with the Discovery Server Method" after installation.
- If you are using the gateway method to cluster the Oracle Application Server instances for OPMN, see the section "Configuring Cross-Topology Gateways" in the *Oracle Containers for J2EE Configuration and Administration Guide* for configuration details.

Step 3 Cluster the OC4J Components to Create an Application Cluster

You can also cluster the OC4J components within the Oracle Application Server instances. This type of cluster is called Application Cluster.

Application Clusters provides the following features:

- Replication of objects and data contained in an HTTP session or a stateful session Enterprise JavaBean
- In-memory replication using multicast or peer-to-peer communication, or persistence of state to a database
- Load-balancing of incoming requests across OC4J instances

- Transparent failover across applications within the cluster

Application Clusters Defined at the Global Level or Application Level

You can define properties of an application cluster at the global level or at the application level. Properties defined at the global level apply to all applications, but you can override specific properties by defining them at the application level.

To define properties at the global level, you define them in the `ORACLE_HOME\j2ee\home\config\application.xml` file, which is the configuration file for the global `default` application.

To define properties at the application level, you define them in the application's `orion-application.xml` file. When you deploy the application, the file is located in the `ORACLE_HOME\j2ee\home\application-deployments\<app-name>/` directory.

Procedure

To create an application cluster at either the global or application level, you perform these steps:

1. Add an empty `<distributable/>` tag to the `web.xml` file for all Web modules that are part of an application configured for clustering.
2. Specify the mechanism for replicating state and session information between Oracle Application Server instances. You choose one of the following replication mechanisms:

Table 6–2 Application Cluster Replication Mechanisms

Replication Mechanism	Description
Multicast	OC4J instances use a multicast address and port to replicate information between themselves. See Section 6.2.5.2, "Setting up Multicast Replication" for details.
Peer-to-peer	Oracle Application Server supports two types of peer-to-peer replication: dynamic and static. ▪ In dynamic peer-to-peer replication, OC4J discovers other OC4J instances through OPMN. You do not have to list the names of the instances in a configuration file. ▪ In static peer-to-peer replication, you list the names of the instances that you want to be involved in the replication. See Section 6.2.5.3, "Setting up Peer-to-Peer Replication" for details.
Replication to database	State and session information are saved to the database that you specify. The database must be defined in the `data-sources.xml` file. See Section 6.2.5.4, "Setting up Replication to a Database" for details.

3. Specify how often and which data are replicated. See Section 6.2.5.5, "Setting the Replication Policy" for details.
4. Specify the number of nodes to replicate the data to. See Section 6.2.5.6, "Specifying the Number of Nodes to Replicate To" for details.

For details, see the "Application Clustering in OC4J" chapter in the *Oracle Containers for J2EE Configuration and Administration Guide*.

6.2.5 Supporting Procedures for Creating the Active-Active Topology

This section describes some common procedures that you may need to perform to maintain the active-active topology:

- Section 6.2.5.1, "Setting up Clusters with the Discovery Server Method"
- Section 6.2.5.2, "Setting up Multicast Replication"
- Section 6.2.5.3, "Setting up Peer-to-Peer Replication"
- Section 6.2.5.4, "Setting up Replication to a Database"
- Section 6.2.5.5, "Setting the Replication Policy"
- Section 6.2.5.6, "Specifying the Number of Nodes to Replicate To"

6.2.5.1 Setting up Clusters with the Discovery Server Method

If you do not want to use the multicast method, you can define a cluster by specifying the names of the nodes running the Oracle Application Server instances in the `opmn.xml` file of each instance.

Example: if you want to cluster four instances (inst1.node1.mycompany.com, inst2.node2.mycompany.com, inst3.node3.mycompany.com, inst4.node4.mycompany.com), you would perform these steps:

1. Designate at least one of the instances to serve as the "discovery server". The discovery server maintains the topology for the cluster.

   This example assumes that inst1.node1.mycompany.com and inst2.node2.mycompany.com will be the discovery servers for the cluster.

   In distributed installations (Oracle HTTP Server and OC4J on different Oracle homes), any instance, whether running Oracle HTTP Server or OC4J, can serve as the discovery server.

2. In the `opmn.xml` file for all instances in the cluster, specify the nodes that are running the discovery servers (node1.mycompany.com and node2.mycompany.com in the example).

   In the example, the `opmn.xml` file is changed to include the following lines:

   ```
   <notification-server>
      <topology>
         <discover
             list="node1.mycompany.com:6201,node2.mycompany.com:6201"/>
      </topology>
   ...
   </notification-server>
   ```

   The 6201 specifies the port number at which the notification server is listening. You can find this value in the `opmn.xml` file of that instance.

   If you have more than one discovery server, you separate them with the comma character.

3. On all the instances, run "`opmnctl reload`" to force OPMN to read the updated `opmn.xml` file.

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

6.2.5.2 Setting up Multicast Replication

Multicast replication is the default replication type. To set up an application to use multicast replication, you can just add the empty `<cluster/>` tag to the application's `orion-application.xml` file or to the global `ORACLE_HOME\j2ee\home\config\application.xml` file. For example:

```
<orion-application ... >
   ...
   <cluster/>
</orion-application>
```

You need to add the `<cluster/>` tag on all nodes where the application is deployed.

By default, multicast replication uses multicast address 230.230.0.1 and port 45566. If you want to change these values, you specify the desired values in the `ip` and `port` attributes of the `multicast` element. For example, the following snippet shows the `ip` and `port` attributes set to customized values:

```
<orion-application ... >
   ...
   <cluster allow-colocation="false">
      <replication-policy trigger="onShutdown" scope="allAttributes"/>
      <protocol>
         <multicast ip="225.130.0.0" port="45577" bind-addr="226.83.24.10"/>
      </protocol>
   </cluster>
</orion-application>
```

The multicast address must be between 224.0.0.1 and 239.255.255.255.

Description of other tags and attributes used in the snippet above:

- `allow-colocation`: specifies whether or not application state is replicated to other Oracle Application Server instances running on the same host. The default is true.
- `trigger` and `scope`: see Section 6.2.5.5, "Setting the Replication Policy".
- `bind-addr`: specifies the IP of the network interface card (NIC) to bind to. This is useful if the host machine has multiple NICs, each with its own IP address.

6.2.5.3 Setting up Peer-to-Peer Replication

Oracle Application Server supports two types of peer-to-peer replication: dynamic and static.

- In dynamic peer-to-peer replication, OC4J discovers other OC4J instances through OPMN. You do not have to list the names of the instances in a configuration file.
- In static peer-to-peer replication, you list the names of the instances that you want to be involved in the replication.

Dynamic Peer-to-Peer Replication

To specify dynamic peer-to-peer replication, you include an empty `<opmn-discovery/>` tag in the application's `orion-application.xml` file or in the global `ORACLE_HOME\j2ee\home\config\application.xml` file

```
<orion-application ... >
   ...
   <cluster allow-colocation="false">
      <replication-policy trigger="onShutdown" scope="allAttributes"/>
      <protocol>
```

```
        <peer>
           <opmn-discovery/>
        </peer>
      </protocol>
   </cluster>
</orion-application>
```

You defined how OPMN discovers instances in a cluster in step 2, "Install Oracle HTTP Server and OC4J and Cluster the Instances using OPMN" on page 6-7.

Static Peer-to-Peer Replication

To specify static peer-to-peer replication, you list the names of the hosts in the `<node>` element in the application's `orion-application.xml` file or in the global `ORACLE_HOME\j2ee\home\config\application.xml` file. For each node, you specify another node in the active-active topology such that all the nodes in the topology are connected in the chain. For example, if you have three Oracle Application Server instances in your topology, node 1 can specify node 2, node 2 can specify node 3, and node 3 can specify node 1.

Example:

On node 1, the `<node>` tag specifies node 2:

```
<orion-application ... >
   ...
   <cluster allow-colocation="false">
      <replication-policy trigger="onShutdown" scope="allAttributes"/>
      <protocol>
         <peer start-port="7900" range="10" timeout="6000">
            <node host="node2.mycompany.com" port="7900"/>
         </peer>
      </protocol>
   </cluster>
</orion-application>
```

On node 2, the `<node>` tag specifies node 3:

```
<orion-application ... >
   ...
   <cluster allow-colocation="false">
      <replication-policy trigger="onShutdown" scope="allAttributes"/>
      <protocol>
         <peer start-port="7900" range="10" timeout="6000">
            <node host="node3.mycompany.com" port="7900"/>
         </peer>
      </protocol>
   </cluster>
</orion-application>
```

On node 3, the `<node>` tag specifies node 1:

```
<orion-application ... >
   ...
   <cluster allow-colocation="false">
      <replication-policy trigger="onShutdown" scope="allAttributes"/>
      <protocol>
         <peer start-port="7900" range="10" timeout="6000">
            <node host="node1.mycompany.com" port="7900"/>
         </peer>
      </protocol>
   </cluster>
```

```
</orion-application>
```

Another way of doing this is to have all the nodes specify the same node. In a three-node example, you could also have nodes 1 and 2 specify node 3, and node 3 can specify either node 1 or node 2.

Description of the tags and attributes used in the example above:

- `start-port`: specifies the first port on the local node that Oracle Application Server tries to bind to for peer communication. If this port is already in use, Oracle Application Server increments the port number until it finds an available port. The default is 7800.
- `timeout`: specifies the length of time in milliseconds to wait for a response from the specified peer node. The default is 3000 milliseconds.
- `host`: specifies the name of the peer node.
- `port`: specifies the port to use on the specified host (in the `host` attribute) for peer communication. The default is 7800.
- `range`: specifies the number of times to increment the port specified on the `port` (not `start-port`) attribute. The default is 5.

Note the following:

- In static peer-to-peer replication, the application's `orion-application.xml` file is different for each instance. When you deploy your application, you have to make sure that you update the `orion-application.xml` accordingly.

6.2.5.4 Setting up Replication to a Database

In this replication mechanism, the replicated data is saved to a database. You specify the database in the `<database>` tag in the application's `orion-application.xml` file or in the global `ORACLE_HOME\j2ee\home\config\application.xml` file. For example:

```
<orion-application ... >
   ...
   <cluster allow-colocation="false">
      <replication-policy trigger="onShutdown" scope="allAttributes"/>
      <protocol>
         <database data-source="jdbc/MyOracleDS"/>
      </protocol>
   </cluster>
</orion-application>
```

The value for the `data-source` attribute must match the data source's `jndi-name` as specified in the `data-sources.xml` file. See the *Oracle Containers for J2EE Services Guide* for details on creating and using data sources.

6.2.5.5 Setting the Replication Policy

Attributes in the `<replication-policy>` tag enable you to specify which data is to be replicated and how frequently the data is replicated.

The trigger attribute

The `trigger` attribute specifies when replication occurs. Table 6–3 describes supported values for this attribute:

Table 6–3 Values for the trigger Attribute

Value	HttpSession	Stateful Session Bean
`onSetAttribute`	Replicate each change made to an HTTP session attribute at the time the value is modified. From a programmatic standpoint, replication occurs each time `setAttribute()` is called on the `HttpSession` object. This option can be resource intensive in cases where the session is being extensively modified.	Not applicable.
`onRequestEnd` (default)	Queue all changes made to HTTP session attributes, then replicate all changes just before the HTTP response is sent.	Replicate the current state of the bean after each EJB method call. The state is replicated frequently, but offers higher reliance.
`onShutdown`	Replicate the current state of the HTTP session whenever the JVM is terminated gracefully, such as with Control-C. State is not replicated if the host is terminated unexpectedly, as in the case of a system crash. Because session state was not previously replicated, all session data is sent across the network at once upon JVM termination, which can impact network performance. This option can also significantly increase the amount of time needed for the JVM to shut down.	Replicate the current state of the bean whenever the JVM is terminated gracefully. State is not replicated if the host is terminated unexpectedly, as in case of a system crash. Because bean state was not previously replicated, all state data is sent across the network at once upon JVM termination, which can impact network performance. This option may also significantly increase the amount of time needed for the JVM to shut down.

The scope attribute

The `scope` attribute specifies which data is replicated. Table 6–4 describes supported values for the attribute:

Table 6–4 Values for the scope Attribute

Value	HttpSession	Stateful Session Bean
`modifiedAttributes`	Replicate only the modified HTTP session attributes. This is the default replication setting for HttpSession.	Not applicable.
`allAttributes`	Replicate all attribute values set on the HTTP session.	Replicate all member variable values set on the stateful session bean. This is the default replication setting for stateful session beans.

6.2.5.6 Specifying the Number of Nodes to Replicate To

To specify the number of nodes to replicate to, use the `write-quota` attribute of the `<cluster>` tag. For example, the following snippet specifies that the replicated data is replicated to two other nodes.

```
<orion-application ... >
   ...
   <cluster allow-colocation="false" write-quota="2">
      <replication-policy trigger="onShutdown" scope="allAttributes"/>
      <protocol>
         <peer>
            <opmn-discovery/>
         </peer>
      </protocol>
   </cluster>
</orion-application>
```

The default is 1.

Recommendations: For a two-node active-active topology, set `write-quota` to `1`, so that the data is replicated to the other node.

For topologies with three or more nodes, set `write-quota` to at least `2` to ensure that the data is replicated to at least two other nodes.

To replicate data to all nodes in the topology, set `write-quota` to the total number of nodes in the topology. It is possible to write back to the same node if there is another instance running on that node.

The `write-quota` attribute is not used if you are replicating to database.

6.3 Creating the Active-Passive Topology

This section describes how to install Oracle Application Server in an active-passive topology with OracleAS Cold Failover Cluster. OracleAS Cold Failover Cluster is one of the high availability environments supported by Oracle Application Server.

Contents of this section:

- Section 6.3.1, "Active-Passive Topologies: Introduction"
- Section 6.3.2, "Overview of Installation Steps for OracleAS Cold Failover Cluster"
- Section 6.3.3, "Preinstallation Steps for OracleAS Cold Failover Cluster"
- Section 6.3.4, "OracleAS Cold Failover Cluster: Details of Installation Steps"

6.3.1 Active-Passive Topologies: Introduction

An active-passive topology consists of the following:

- Two nodes in a hardware cluster
- A virtual hostname and IP address
- A shared storage, to be shared between the two nodes

You install the Oracle home on the shared storage. During runtime in an active-passive topology, only one node is active. The other node is passive. The active node mounts the shared storage so that it can access the files and runs all the processes and handles all the requests. Clients access the active node through the virtual hostname. Clients do not need to know the physical hostnames of the nodes in the topology.

If the active node fails for any reason, a failover event occurs and the passive node takes over and becomes the active node. It mounts the shared storage and runs all the processes and handles all the requests. The virtual hostname and IP now point to the passive node. Clients, because they access the nodes using the virtual hostname, do not know that it is the passive node that is servicing their requests.

The nodes need to be in hardware cluster to enable failover.

> **Note:** Installing the Oracle home on the local storage of each node in the OracleAS Cold Failover Cluster topology is not supported. You have to install it on the shared storage.

Vendor Clusterware

The two nodes in an active-passive topology are in a hardware cluster, which typically includes some vendor clusterware. For a list of certified clusterware, visit the Oracle Technology Network website (`http://www.oracle.com/technology`).

If you are running on Windows, you need the following products for the cluster:

- Oracle Fail Safe
- Microsoft Cluster Server

These products must be installed on both nodes (active and passive) in the topology.

Figures of Active-Passive Topologies

Figure 6–3 shows a diagram of an active-passive topology with the Oracle Application Server Oracle home installed on the shared storage. The Oracle home contains both Oracle HTTP Server and OC4J. Figure 6–4 shows a distributed active-passive topology, where Oracle HTTP Server and OC4J are installed on different Oracle home.

Figure 6–3 Active-Passive Topology with Oracle HTTP Server and OC4J in the Same Oracle Home

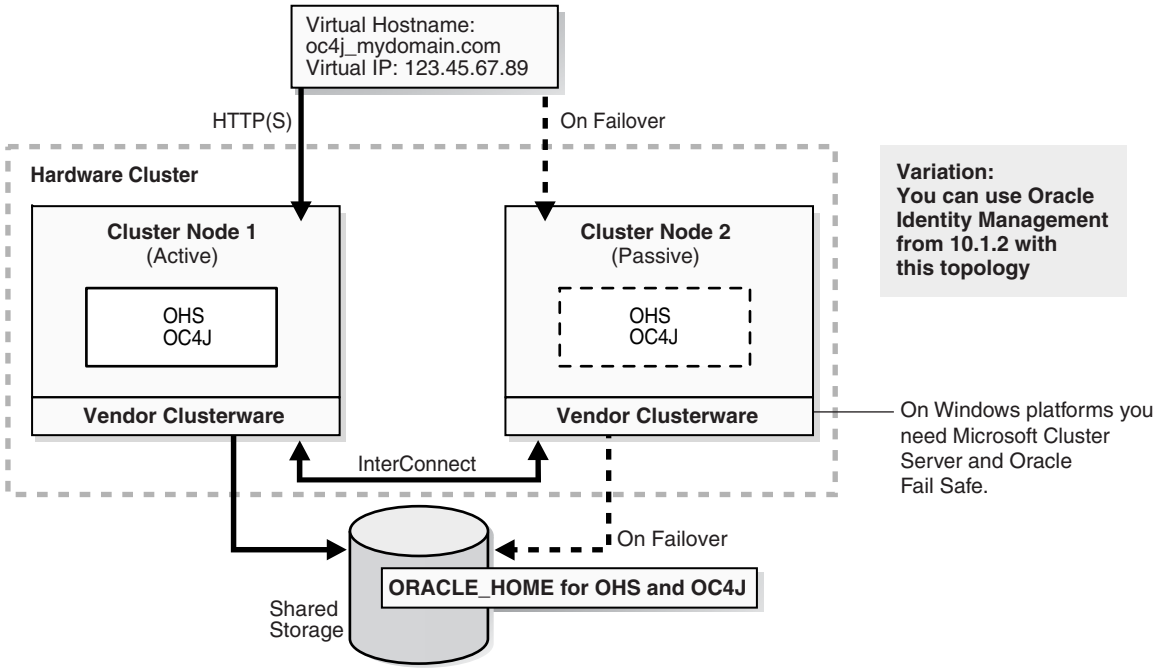
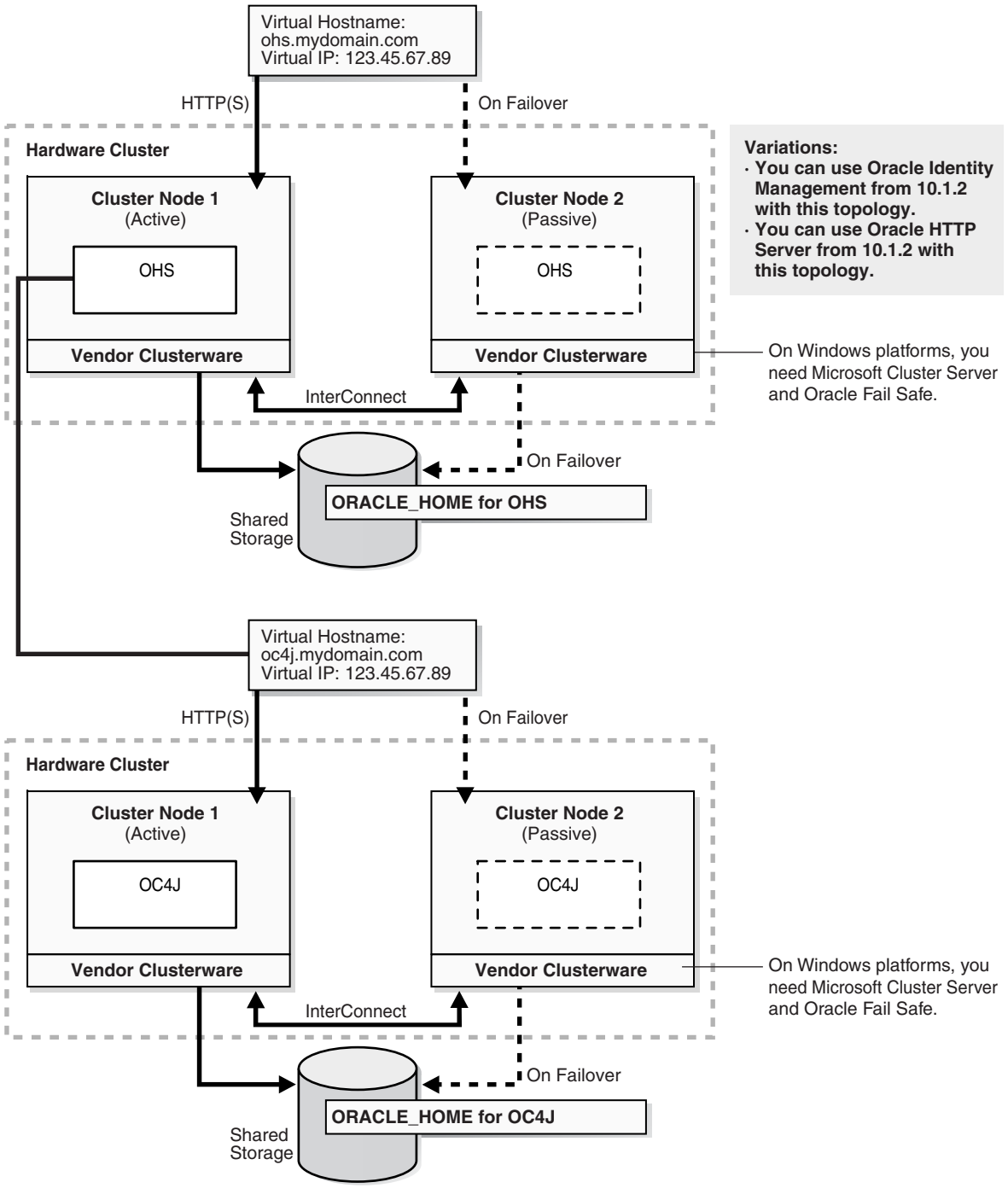


Figure 6–4 Active-Passive Topology with Oracle HTTP Server and OC4J in Separate Oracle Homes



6.3.2 Overview of Installation Steps for OracleAS Cold Failover Cluster

Follow the steps in Table 6–5 to create the OracleAS Cold Failover Cluster configuration. If you are installing Oracle HTTP Server and OC4J in the same Oracle Home (Figure 6–3), perform the steps on the hardware cluster. If you are installing Oracle HTTP Server and OC4J in separate Oracle Homes (Figure 6–4), perform each step on both hardware clusters.

Table 6–5 Overview of Installation Steps for OracleAS Cold Failover Cluster

	Step	Description
1.	Perform Preinstallation Steps	Preinstallation tasks, described in Section 6.3.3 include: ■ Section 6.3.3.1, "Ensure that the Event Log Service Is Running" ■ Section 6.3.3.2, "Get a Virtual Address for the Cluster" ■ Section 6.3.3.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes" ■ Section 6.3.3.4, "Determine the Name of the Cluster" ■ Section 6.3.3.5, "Determine a Domain User to Administer Oracle Fail Safe" ■ Section 6.3.3.6, "Install Oracle Fail Safe on the Local Storage of Each Node" ■ Section 6.3.3.7, "Create a Group in Oracle Fail Safe" ■ Section 6.3.3.8, "Set up staticports.ini File"
2.	Install Oracle Application Server on the Shared Disk	In this step, you run the installer from either node of the hardware cluster to install Oracle HTTP Server and OPMN on the shared disk.
3.	(optional) Configure the Oracle Application Server Instance for SSL	If you want the Oracle Application Server instance to use SSL, enable SSL in the Oracle Application Server installation.
4.	(optional) Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence	If you are using OracleAS JMS, create a file system on the shared disk.

6.3.3 Preinstallation Steps for OracleAS Cold Failover Cluster

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

- Section 6.3.3.1, "Ensure that the Event Log Service Is Running"
- Section 6.3.3.2, "Get a Virtual Address for the Cluster"
- Section 6.3.3.3, "Verify that Microsoft Cluster Server (MSCS) Is Installed on Both Nodes"
- Section 6.3.3.4, "Determine the Name of the Cluster"
- Section 6.3.3.5, "Determine a Domain User to Administer Oracle Fail Safe"
- Section 6.3.3.6, "Install Oracle Fail Safe on the Local Storage of Each Node"
- Section 6.3.3.7, "Create a Group in Oracle Fail Safe"
- Section 6.3.3.8, "Set up staticports.ini File"

6.3.3.1 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 2003: Select **Start > Administrative Tools > Services**.

6.3.3.2 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 6–3 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 passive nodes at the same time. When you fail over, only then map the virtual hostname and IP address to the passive node, which is now the active node.

6.3.3.3 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 2003: Select **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.

6.3.3.4 Determine the Name of the Cluster

You can use the Cluster Administrator to find out the name of your cluster.

6.3.3.5 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.

6.3.3.6 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 6–3 shows Oracle Fail Safe installed 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 6.3.3.5, "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 6-21.
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`.

   Note: You should use the same name and path for the Oracle Fail Safe installations on both nodes.

   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.

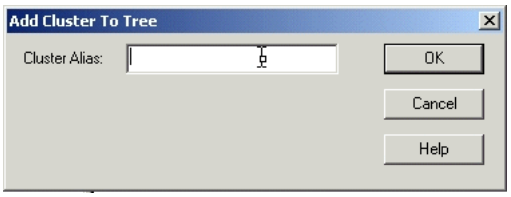
1. Start Oracle Fail Safe Manager from the Start menu:

   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 6–5). You defined the cluster name using Cluster Administrator. Click **OK**.

Figure 6–5 Oracle Fail Safe Manager: Add Cluster to Tree dialog

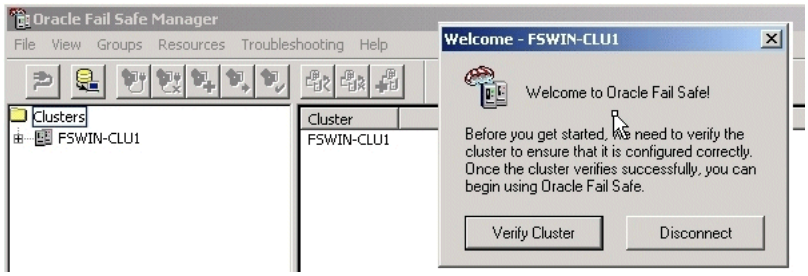


3. In the left frame, select the cluster. This causes Oracle Fail Safe Manager to display the Welcome dialog (Figure 6–6). In the figure, "FSWIN-CLU1" is the cluster name.

   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 6–6 Oracle Fail Safe Manager: Welcome / Verify Cluster dialog



6.3.3.7 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 Oracle Application Server 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 6–6 Resources to Add to the Group Before Installing Oracle Application Server

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.

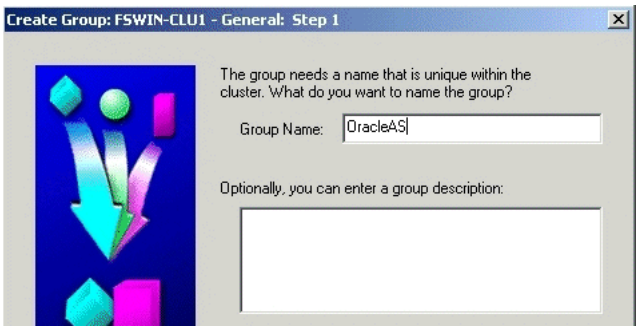
2. Expand the cluster on the left side.

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".

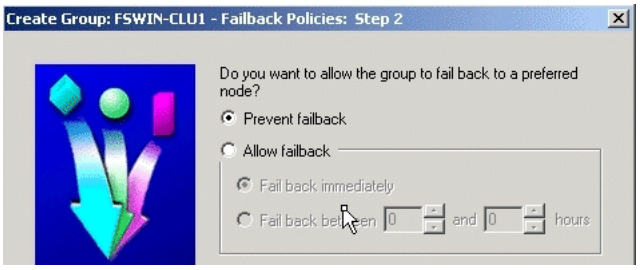
   a. General, Step 1, screen: Enter the group name for the Oracle Application Server resources and click **Next**. This guide calls the group "`OracleAS`".

Figure 6–7 Oracle Fail Safe Manager: Create Group Wizard, General Screen



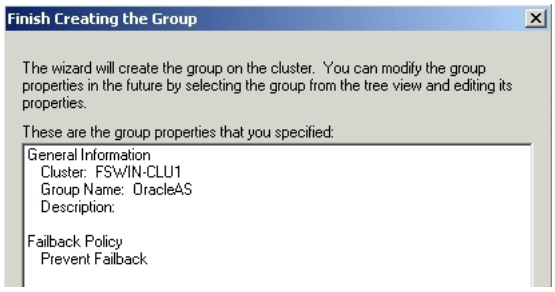
   b. Failback Policies, Step 2, screen: Select **Prevent Failback** and click **Next**.

Figure 6–8 Oracle Fail Safe Manager: Create Group Wizard, Failback Policies Screen



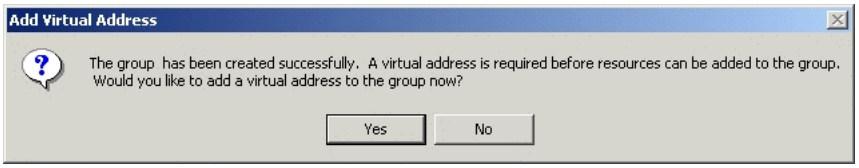
   c. Finish Creating the Group screen: Review the information and click **OK**.

Figure 6–9 Oracle Fail Safe Manager: Create Group Wizard, Finish Creating the Group Screen



d. Add Virtual Address screen: Click **Yes**.

Figure 6–10 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**.

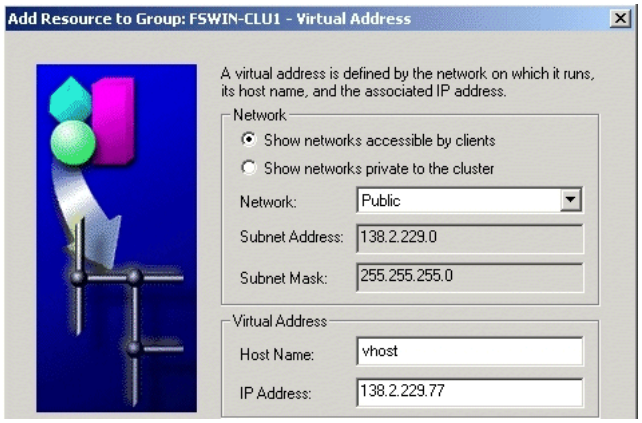
Network: Select the name associated with the primary network interface card on the node. By default, it is "Local Area Connection".

Host Name: Enter the virtual hostname. Example: `vhost`.

IP Address: Enter the IP of the virtual hostname. Example: `138.2.229.77`.

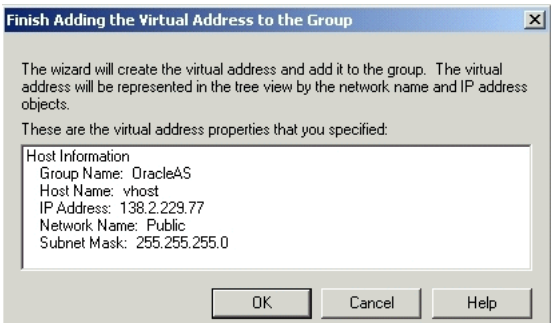
Click **Next**.

Figure 6–11 Oracle Fail Safe Manager: Create Group Wizard, Add Resource to Group - Virtual Address Screen



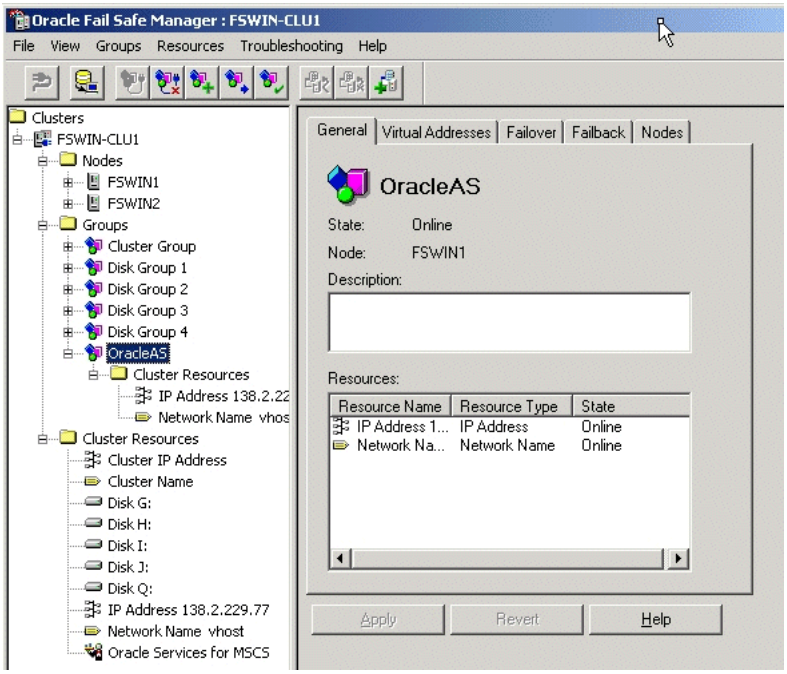
f. Finish Adding the Virtual Address to the Group screen: Review the information and click **OK**.

Figure 6–12 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 6–13) and that the group has these two resources in it:
   - IP address of the virtual host
   - Virtual hostname (shown as Network Name)

Figure 6–13 Oracle Fail Safe Manager Showing the Resources in the New Group



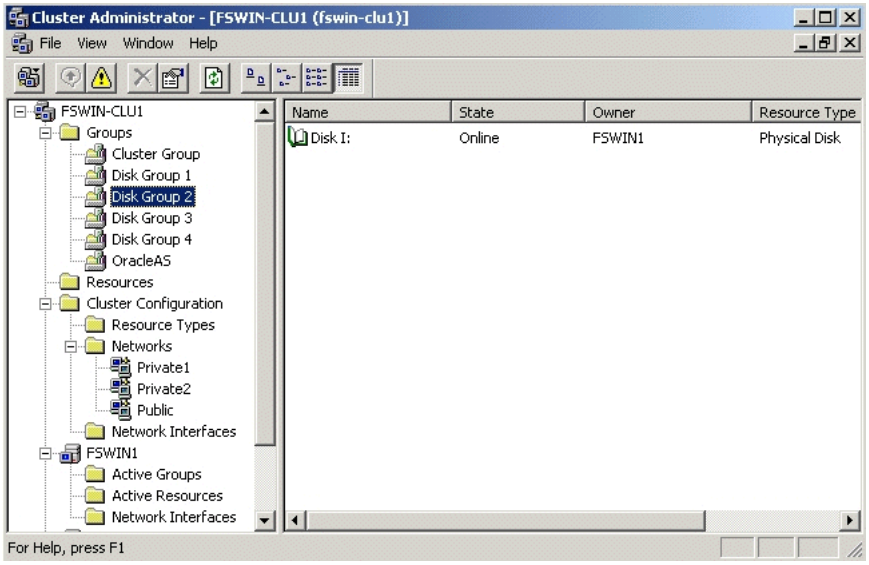
6. Using Cluster Administrator, move the shared disk where you will be installing Oracle Application Server into the group that you just created in Oracle Fail Safe Manager.
   a. Start up Cluster Administrator from the Start menu:

   Windows 2003: **Start > Administrative Tools > Cluster Administrator**

   b. On the left side, select the disk group that contains the shared disk. In Figure 6–14, Disk I is the shared disk.

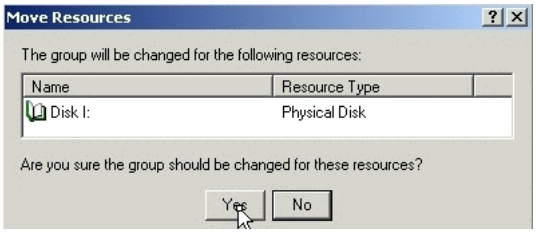
   Note the "OracleAS" group on the left side. This is the group that you created in Oracle Fail Safe Manager.

Figure 6–14 Cluster Administrator Showing the Shared Disk



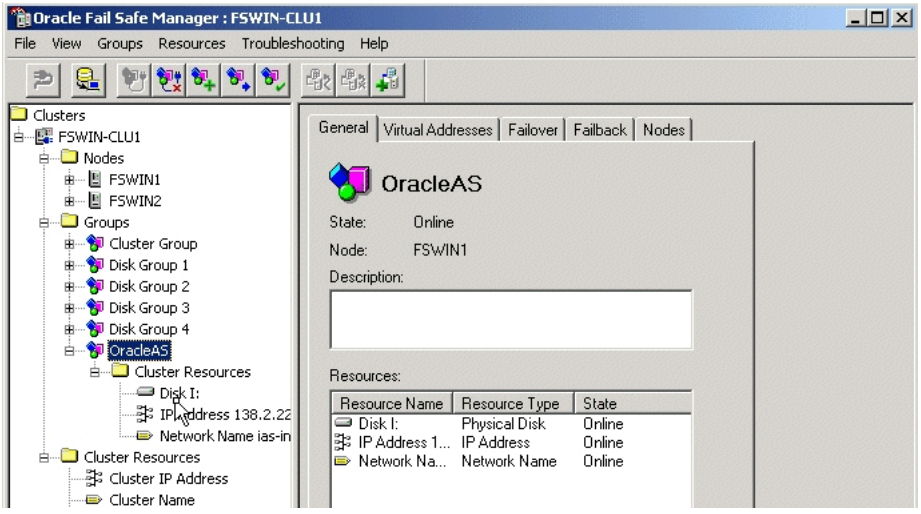
c. Drag and drop the shared disk (Disk I in the example) from the right side to the "OracleAS" group on the left side. If the Cluster Administrator prompts you to confirm (Figure 6–15), click **Yes**.

Figure 6–15 Cluster Administrator: Move Resources Confirmation Dialog



7. In Oracle Fail Safe Manager, check that the group now includes the shared disk.

Figure 6–16 Oracle Fail Safe Manager After Adding the Shared Disk to the Group



6.3.3.8 Set up staticports.ini File

Set up a staticports.ini file to use when installing the middle tiers. See Section 2.4.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details on creating the staticports.ini file.

Note: The ports must be different from those used for other Oracle Homes on the same node. To check the ports assigned to components in any Oracle Home, run the following commands:

```
C:\> ORACLE_HOME/opmn/bin/opmnctl startall
C:\> ORACLE_HOME/opmn/bin/opmnctl status -l
```

6.3.4 OracleAS Cold Failover Cluster: Details of Installation Steps

This section lists the steps for installing OracleAS Cold Failover Cluster.

If you are installing Oracle HTTP Server and OC4J in separate Oracle Homes, you need to perform each of these steps on both clusters.

Step 1 Perform Preinstallation Steps

Perform the preinstallation steps listed in Section 6.3.3, "Preinstallation Steps for OracleAS Cold Failover Cluster".

Step 2 Install Oracle Application Server on the Shared Disk

To install Oracle Application Server on the shared disk of the hardware cluster, perform the following steps:

1. Install Oracle Application Server on the shared disk of the hardware cluster from node 1.

   - **For OracleAS Cold Failover Cluster with Oracle HTTP Server and OC4J in the Same Oracle Home**

     Follow the steps in Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management". During installation, perform the following actions:

     – On the "Specify Port Configuration Options" screen, specify the staticports.ini file you created in Section 6.3.3.8, "Set up staticports.ini File".

     – On the "Administration Instance Settings" screen, select **Configure this as an Administration OC4J instance** if you want to configure Application Server Control for administering the OC4J instance. Otherwise, deselect this option.

   - **For OracleAS Cold Failover Cluster with Oracle HTTP Server and OC4J in Separate Oracle Homes**

     If you are installing on the hardware cluster where you want to run Oracle HTTP Server, follow the steps in Section 5.2.3, "Installing Web Server and Process Management". During installation, perform the following actions:

     – On the "Specify Port Configuration Options" screen, specify the staticports.ini file you created in Section 6.3.3.8, "Set up staticports.ini File".

     – If you want to route all requests to OC4J through the Oracle HTTP Server, select **Configure this HTTP Server instance to be part of an Oracle**

Application Server cluster on the "Cluster Topology Configuration" screen. Specify the **IP Address** and **Port** for the multicast address shared by all the nodes in the cluster.

- If you do not want to route all requests to OC4J through the Oracle HTTP Server, deselect **Configure this HTTP Server instance to be part of an Oracle Application Server cluster** on the "Cluster Topology Configuration" screen.

If you are installing on the hardware cluster where you want to run OC4J, follow the steps in Section 5.2.2, "Installing J2EE Server and Process Management". During installation, perform the following actions:

- On the "Specify Port Configuration Options" screen, specify the staticports.ini file you created in Section 6.3.3.8, "Set up staticports.ini File".
- On the "Administration Instance Settings" screen, select **Configure this as an Administration OC4J instance** if you want to configure Application Server Control for administering the OC4J instance. Otherwise, deselect this option.
- If you want to route all requests to OC4J through the Oracle HTTP Server, select **Configure this OC4J instance to be part of an Oracle Application Server cluster topology** on the "Cluster Topology Configuration" screen. Specify the **IP Address** and **Port** for the multicast address shared by all the nodes in the cluster. Select **Access this OC4J Instance from a separate Oracle HTTP Server**.
- If you do not want to route all requests to OC4J through the Oracle HTTP Server, deselect **Configure this OC4J instance to be part of an Oracle Application Server cluster topology** on the "Cluster Topology Configuration" screen.

2. Stop the Oracle Application Server Services on node 1, and set their startup type to manual.

   a. Display the Services window.

      Windows 2003: Select **Start > Administrative Tools > Services**.

   b. Stop this service.

      `Oracle-<InstanceName>ProcessManager`

      To stop a service, right-click the service and select **Stop** from the pop-up menu.

   c. Set the start type of the service listed above to manual.

      Right-click the service, and select **Properties**.

      Select **Manual** from the "Startup Type" section, and click **OK**.

3. Remove the ORACLE_HOME directory.
4. Fail over the Cluster group created in the preinstallation to node 2.
   - Use Oracle Fail Safe to move the group that you created in Oracle Fail Safe.
   - Start up Oracle Fail Safe Manager.
   - Right-click the group and select "Move to a different node".

5. Install Oracle HTTP Server and OC4J on the shared disk of the hardware cluster from node 2 using the installation steps in step 1. Make sure that you use the same values as you did in the earlier install.

Step 3 (optional) Configure the Oracle Application Server Instance for SSL

If you want the Oracle Application Server instance to use SSL, follow the steps in the *Oracle Application Server Administrator's Guide*.

Step 4 (optional) Create a File System on the Shared Disk for OracleAS JMS File-Based Persistence

If you are using OracleAS JMS with file-based persistence, create a file system on the shared disk for the OracleAS JMS queues. Add this shared disk to the Oracle Fail Safe group using the Cluster Administrator. You can do this by performing steps 6 and 7 in Section 6.3.3.7, "Create a Group in Oracle Fail Safe".

Step 5 Make OPMN Highly Available

Add OPMN as a resource to the group that you created in Oracle Fail Safe. See Section 6.3.5, "Postinstallation Steps: Make OPMN Highly Available" for details.

6.3.5 Postinstallation Steps: Make OPMN Highly Available

To make OPMN highly available, add it to the Oracle Fail Safe group that you created in Section 6.3.3.7, "Create a Group in Oracle Fail Safe". OPMN corresponds to the `Oracle-<InstanceName>ProcessManager` service.

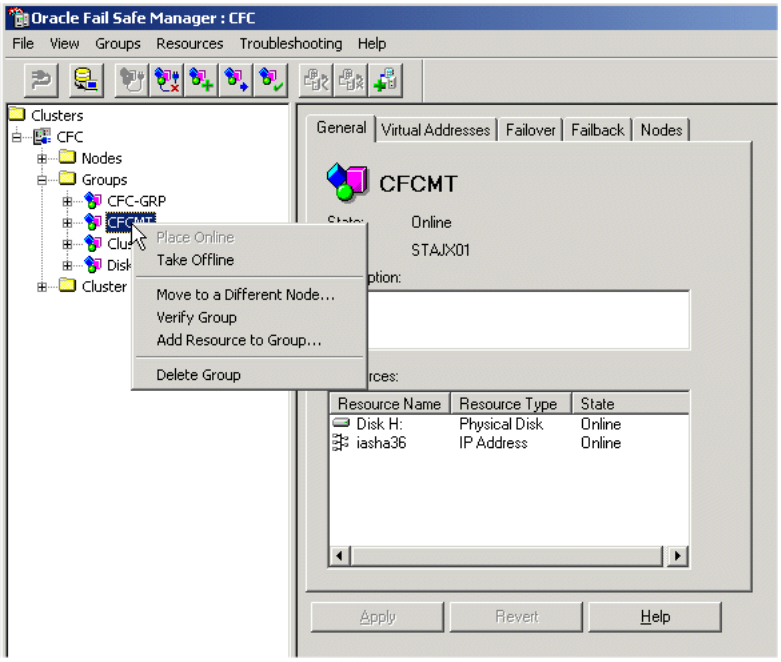
1. Start up Oracle Fail Safe Manager from the Start menu.

   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. On the left side, expand **Groups**, right-click the group that you created in Section 6.3.3.7, "Create a Group in Oracle Fail Safe", and select **Add Resource to Group**. This starts up the Add Resource to Group wizard.

Figure 6–17 Oracle Fail Safe Manager: Add Resource to Group

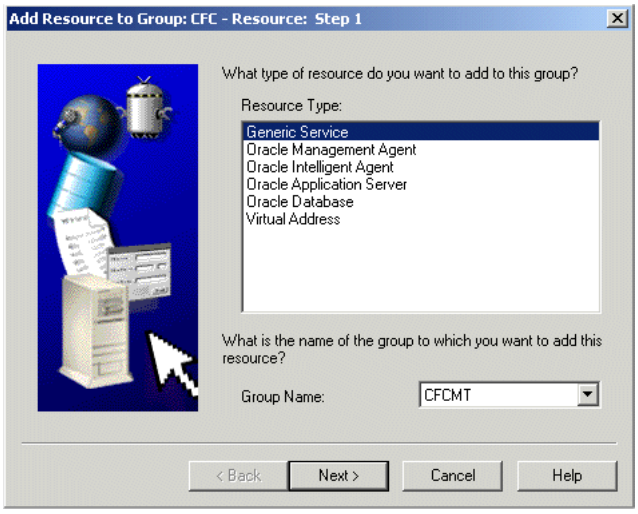


3. Perform these steps in the Add Resource to Group wizard:

   a. Resource, Step 1

   Select **Generic Service**, verify that the group is correct, and click **Next**.

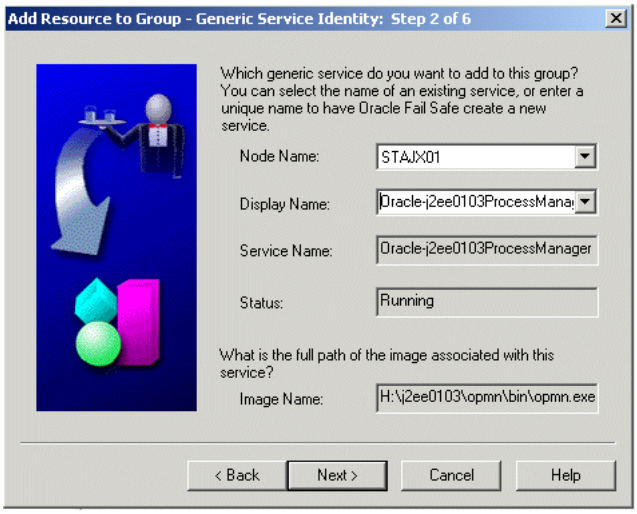
Figure 6–18 Add Resource to Group Wizard (Adding OPMN), Resource, Step 1 Screen



   b. Generic Service Identity, Step 2

   Select `Oracle-<InstanceName>ProcessManager` from **Display Name**, and click **Next**.

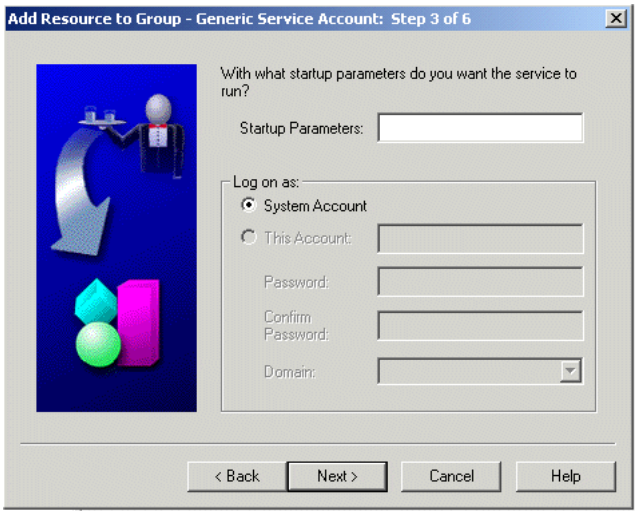
Figure 6–19 Add Resource to Group Wizard (Adding OPMN), Generic Service Identity, Step 2 Screen



c. Generic Service Account, Step 3

There are no startup parameters for OPMN. Click **Next**.

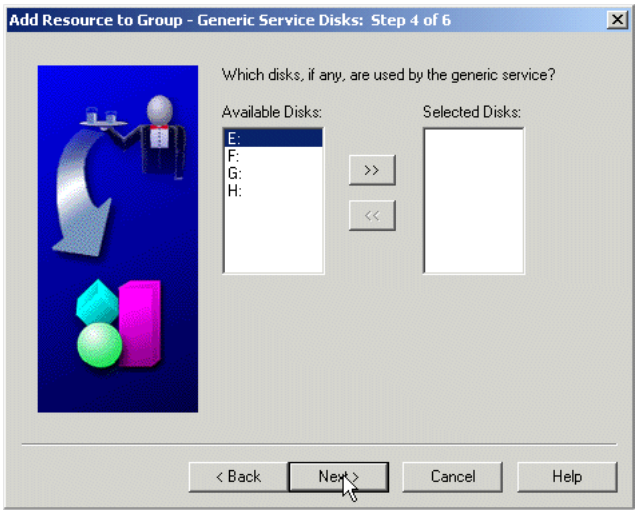
Figure 6–20 Add Resource to Group Wizard (Adding OPMN), Generic Service Account, Step 3 Screen



d. Generic Service Disks, Step 4

There should not be anything under **Selected Disks**. Click **Next**.

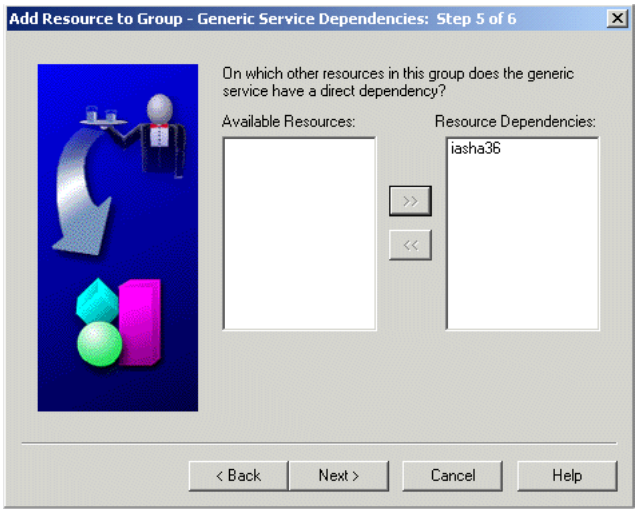
Figure 6–21 Add Resource to Group Wizard (Adding OPMN), Generic Service Disks, Step 4 Screen



e. Generic Service Dependencies, Step 5

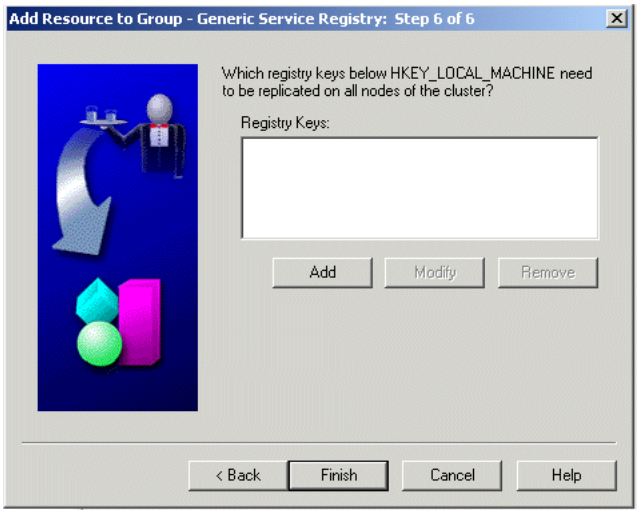
Move the Network Name to the **Resource Dependencies** column. Click **Next**.

Figure 6–22 Add Resource to Group Wizard (Adding OPMN), Generic Service Dependencies, Step 5 Screen



f. Generic Service Registry, Step 6: Click **Finish**.

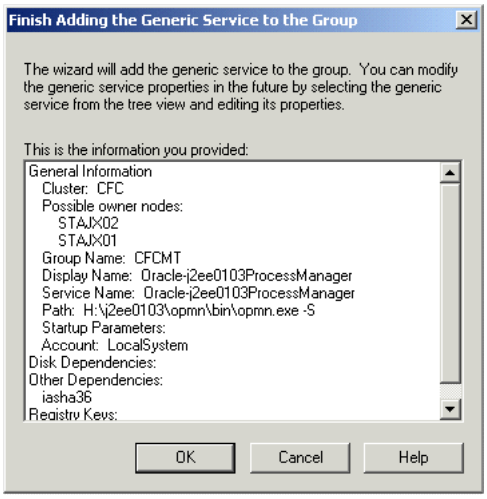
Figure 6–23 Add Resource to Group Wizard (Adding OPMN), Generic Service Registry, Step 6 Screen



g. Finish Adding the Generic Service to the Group

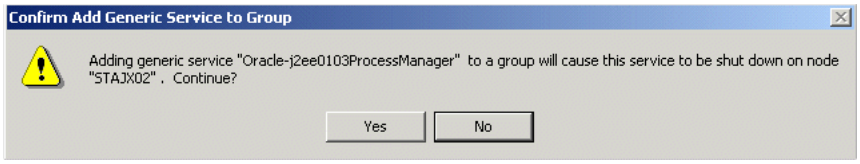
Verify the information and click **OK**. In particular, check that both nodes in the cluster are listed under Possible Owner Nodes.

Figure 6–24 Add Resource to Group Wizard (Adding OPMN), Finish Adding the Generic Service to the Group Screen



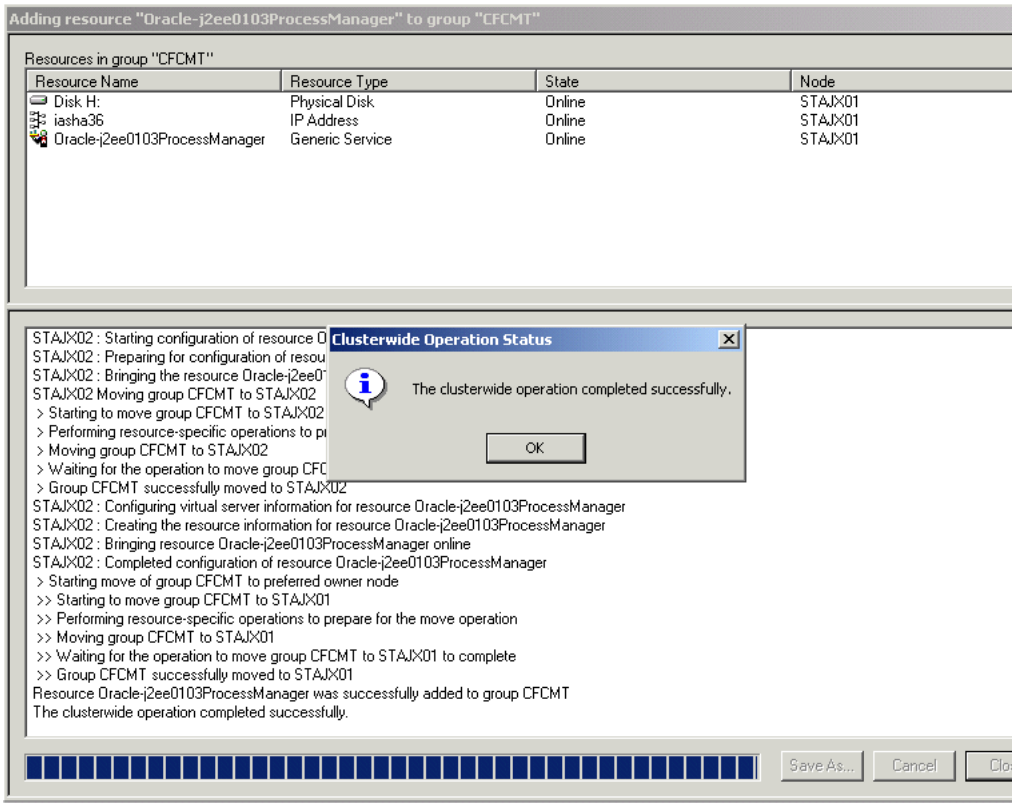
h. Confirm Add Generic Service to Group screen: Click **Yes**.

Figure 6–25 Add Resource to Group Wizard (Adding OPMN), Confirm Add Generic Service to Group Screen



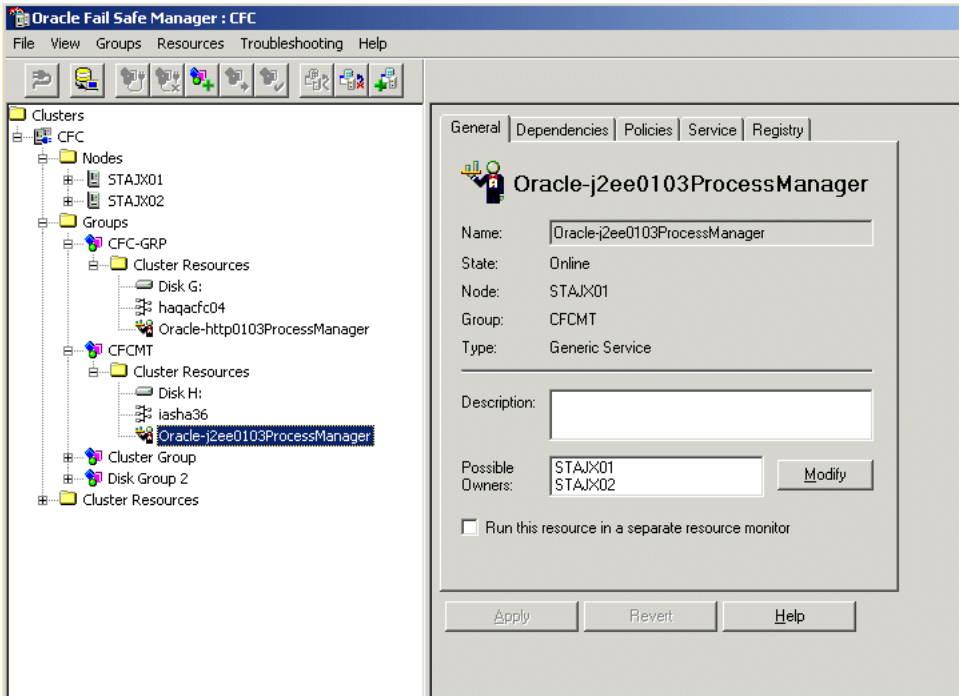
Oracle Fail Safe Manager now configures the Process Manager service so that both nodes in the cluster can run it. When it is done, it displays a screen similar to Figure 6–26. Click **OK** in the success dialog.

Figure 6–26 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 6–27 Oracle Fail Safe Manager With the Process Manager Service Added to the Group



6.4 Creating an OracleAS Disaster Recovery Configuration

This section 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 section:

- Section 6.4.1, "OracleAS Disaster Recovery: Introduction"
- Section 6.4.2, "Setting up the OracleAS Disaster Recovery Environment"
- Section 6.4.3, "Installing Oracle Application Server in an OracleAS Disaster Recovery Environment"
- Section 6.4.4, "Installing the OracleAS 10g (10.1.3) Standalone Install of OracleAS Guard into Oracle Homes"
- Section 6.4.5, "Patching OracleAS Guard Release 10.1.2.n.n with Release 10.1.3.0.0"
- Section 6.4.6, "What to Read Next?"

6.4.1 OracleAS Disaster Recovery: Introduction

Use the OracleAS Disaster Recovery environment when you want to have two physically separate sites in your environment. One site is the production site, and the other site is the standby site. The production site is active, while the standby site is passive; the standby site becomes active when the production site goes down.

OracleAS Disaster Recovery supports a number of basic topologies for the configuration of the Infrastructure and middle tier on production and standby sites. OracleAS Disaster Recovery supports these basic topologies:

- Symmetrical topologies -- strict mirror of the production site with collocated Oracle Identity Management and OracleAS Metadata Repository Infrastructure
- Asymmetrical topologies -- simple asymmetric standby topology with collocated Oracle Identity Management and OracleAS Metadata Repository Infrastructure
- Separate OracleAS Metadata Repository for OracleAS Portal with collocated Oracle Identity Management and OracleAS Metadata Repository Infrastructure (the Departmental Topology)
- Distributed Application OracleAS metadata Repositories with Non collocated Oracle Identity Management and OracleAS Metadata Repository Infrastructure
- Redundant Multiple OracleAS 10.1.3 Home J2EE Topology
- Redundant Single OracleAS 10.1.3 Home J2EE Topology Integrated with an Existing Oracle Identity Management 10.1.2.0.2 Topology

In a symmetric topology, each node in the standby site corresponds to a node in the production site. This includes the nodes running both OracleAS Infrastructure and middle tiers. In an asymmetric topology, the number of instances required on the standby site are fewer than the number on the production site and the number of instances required on the standby site must be the minimum set of instances required to run your site in the event of a switchover or failover operation. The last two supported topologies are particularly important in OracleAS Release 10.1.3.0.0. See the *Oracle Application Server High Availability Guide* for a detailed description of these topologies.

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 6.4.2.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site (OracleAS 10.1.2.n.n only)" for details.

For these supported topologies, OracleAS Guard will be installed in every Oracle home on every system that is part of your production and standby topology configured for the OracleAS Disaster Recovery solution.

OracleAS Guard can be installed as a standalone install kit located on OracleAS Companion CD #2. See Section 6.4.4, "Installing the OracleAS 10g (10.1.3) Standalone Install of OracleAS Guard into Oracle Homes" for more information about when this standalone kit should be installed.

Figure 6–28 shows an example symmetric OracleAS Disaster Recovery environment. Each site has two nodes running middle tiers and a node running OracleAS Infrastructure.

Data Synchronization

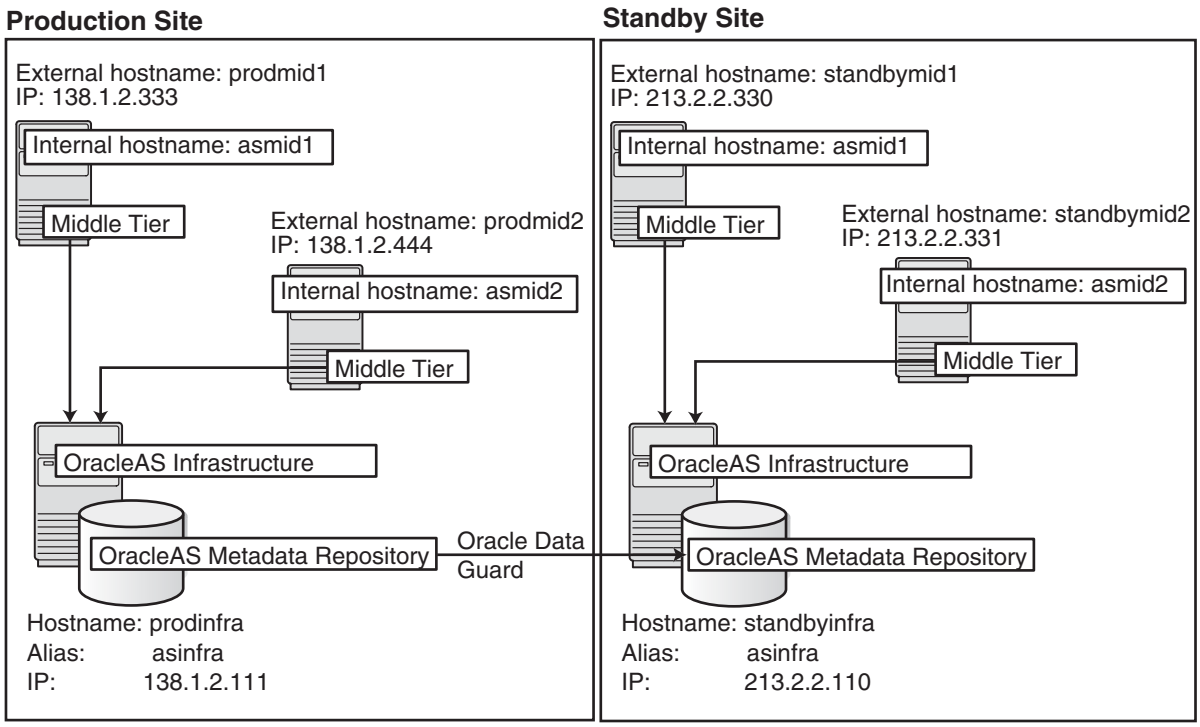
For OracleAS Disaster Recovery to work, data between the production and standby sites must be synchronized so that failover can happen very quickly. Configuration changes done at the production site must be synchronized with the standby site.

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

- Use Oracle Data Guard to synchronize data in the OracleAS Metadata Repository databases on the production and standby sites. You can configure Oracle Data Guard to perform the synchronization.
- Use the backup and recovery scripts to synchronize data outside of the database (such as data stored in configuration files).

See the *Oracle Application Server High Availability Guide* for details on how to use Oracle Data Guard and the backup and recovery scripts.

Figure 6–28 OracleAS Disaster Recovery Environment



6.4.2 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 6.4.2.1, "Ensure Nodes Are Identical at the Operating System Level"
- Section 6.4.2.2, "Set Up staticports.ini File"
- Section 6.4.2.3, "Set Up Identical Hostnames on Both Production and Standby Sites"
- Section 6.4.2.4, "If You Want to Use OracleAS Cold Failover Cluster on the Production Site (OracleAS 10.1.2.n.n only)"

6.4.2.1 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.

6.4.2.2 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 2.4.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

6.4.2.3 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`).

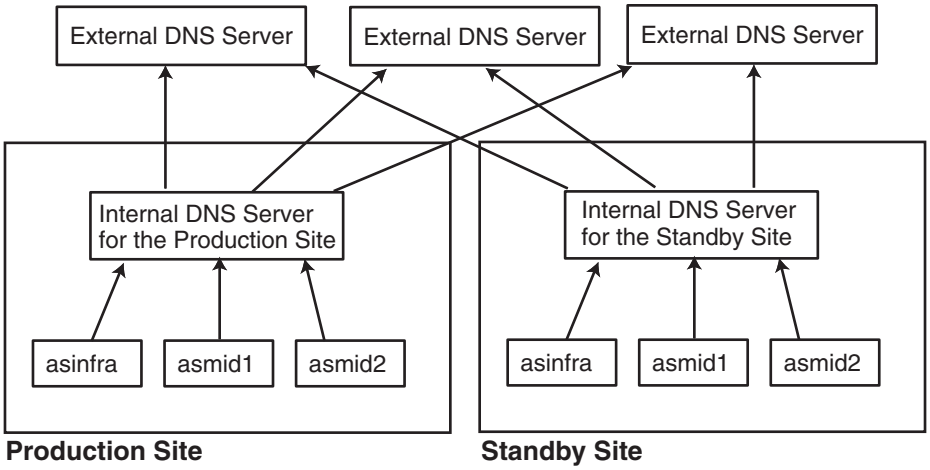
   Note: You must set the `_CLUSTER_NETWORK_NAME_` environment variable as a "user" environment variable, not as a "system" environment variable.

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 6–29.

Figure 6–29 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 6–7 Configure the DNS Resolver to Point to Internal DNS Servers

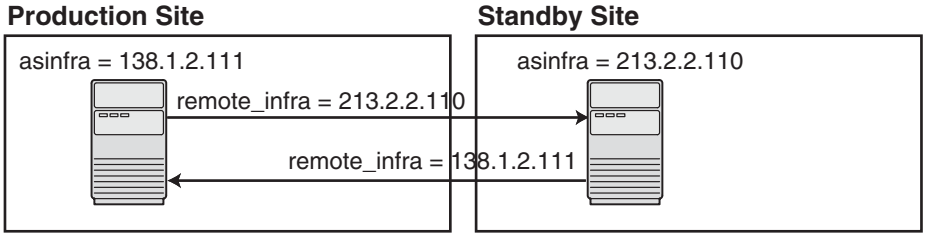
Microsoft Windows 2003
1. Display the Local Area Connection Status dialog. In Windows 2003, select **Start > Control Panel > Network Connections > Local Area Connection**.
2. Click **Properties** to display the Local Area Connection Properties dialog.
3. With the General tab selected, select **Internet 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 6–30 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

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
```

a. 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
```

b. 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
```

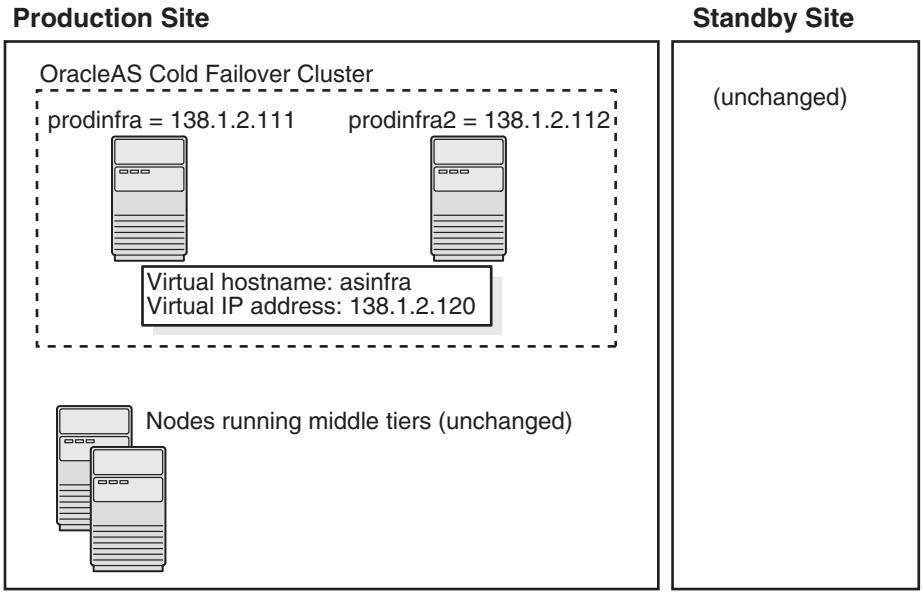
```
C:> ping asmid2           ping the second production midtier node
Pinging asmid2 [138.1.2.444] with 32 bytes of data:
Reply from 138.1.2.444: bytes=32 time<1ms TTL=128

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
```

6.4.2.4 If You Want to Use OracleAS Cold Failover Cluster on the Production Site (OracleAS 10.1.2.n.n only)

Note: You must perform this installation in an OracleAS Release 10.1.2.*n.n* environment, where *n.n* represents 0.0 or higher. This information is presented here for informative purposes only.

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" in the *Oracle Application Server Installation Guide* 10*g* Release 2 (10.1.2) Documentation set for details.

Figure 6–31 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; that is, add a Resource Type of Oracle Database.

See Section 11.12.2, "Make OracleAS Metadata Repository Highly Available" in the *Oracle Application Server Installation Guide* 10*g* Release 2 (10.1.2) Documentation set.

In step 3c, 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.

6.4.3 Installing Oracle Application Server in an OracleAS Disaster Recovery Environment

For OracleAS Release 10.1.3.0.0, you can only install middle tiers on the production and standby sites.

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 6.4.2.2, "Set Up staticports.ini File".

Install Middle Tiers (OracleAS Release 10.1.3 only)

1. Install middle tiers on the production site.
2. Install middle tiers on the standby site.

Install OracleAS Infrastructure and Middle Tiers (Release 10.1.2.n.n only)

> **Note:** You must perform this installation in an OracleAS Release 10.1.2.*n.n* environment, where *n.n* represents 0.0 or higher. This information is presented here for informative purposes only.

1. Install OracleAS Infrastructure on the production site.
2. Install OracleAS Infrastructure on the standby site.
3. Start the OracleAS Infrastructure in each site before installing the middle tiers for that site.

4. Install middle tiers on the production site.
5. Install middle tiers on the standby site.

6.4.3.1 Installing the OracleAS Infrastructure (OracleAS Release 10.1.2.n.n Only)

> **Note:** You must perform this installation in an OracleAS Release 10.1.2.*n.n* environment, where *n.n* represents 0.0 or higher. This information is presented here for informative purposes only.

In an OracleAS Release 10.1.2.0.0 environment, you must install the Oracle Identity Management and the OracleAS Metadata Repository components of OracleAS Infrastructure on the same node. You cannot distribute the components over multiple nodes. In an OracleAS Release 10.1.2.0.2 environment, you can 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" in the *Oracle Application Server Installation Guide 10g* Release 2 (10.1.2) Documentation set for the screen sequence.

Note the following points:

- **Select Configuration Options** screen: be sure you select **High Availability and Replication**. See Table 11–7, step 2.
- In the **Specify Virtual Hostname** screen, enter the fully qualified local hostname as the virtual address (for example, asinfra.oracle.com). See Table 11–7, step 6.

6.4.3.2 Installing Middle Tiers (OracleAS Release 10.1.3 and 10.1.2.n.n)

Depending on your configuration, you can install OracleAS 10.1.3 middle tiers or OracleAS 10.1.2.*n.n* middle tiers, where *n.n* represents 0.0 or higher.

OracleAS Release 10.1.3

On OracleAS release 10.1.3, you can install any type of middle tier that you like:

For installing J2EE Server and Process Management, see Section 5.2.2, "Installing J2EE Server and Process Management".

For installing Web Server and Process Management, see Section 5.2.3, "Installing Web Server and Process Management".

For installing Integrated Web Server, J2EE Server, and Process Management, see Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management".

OracleAS Release 10.1.2.n.n

> **Note:** You must perform this installation in an OracleAS Release 10.1.2.*n.n* environment, where *n.n* represents 0.0 or higher. This information is presented here for informative purposes only.

On OracleAS Release 10.1.2.*n.n*, 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 Oracle Identity Management Access" in the *Oracle Application Server Installation Guide* for 10*g* Release 2 (10.1.2).

For installing Portal and Wireless or Business Intelligence and Forms, see Section 7.13, "Installing Portal and Wireless or Business Intelligence and Forms".

Note the following points on OracleAS 10.1.2.*n.n*:

- 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).

6.4.4 Installing the OracleAS 10g (10.1.3) Standalone Install of OracleAS Guard into Oracle Homes

OracleAS 10g (10.1.3) standalone install of OracleAS Guard is located on Companion CD Disk 2. This standalone install of OracleAS Guard can be installed in the following environments:

- In its own home in the case when you are cloning an instance or topology to a new standby system (see the section on standby site cloning in *Oracle Application Server High Availability Guide* for more information).
- Oracle database server home for an OracleAS Metadata Repository configuration created using OracleAS Metadata Repository Creation Assistant.
- OracleAS Disaster Recovery full site upgrade from OracleAS 10g (9.0.4) to OracleAS 10g (10.1.3) (see the chapter on OracleAS Disaster Recovery site upgrade procedure in *Oracle Application Server High Availability Guide* for more information).
- OracleAS Guard patch upgrade from OracleAS 10g (10.1.2.0.0) to OracleAS 10g (10.1.2.0.2) (see Section 6.4.5, "Patching OracleAS Guard Release 10.1.2.n.n with Release 10.1.3.0.0" for more information).

If this is an upgrade installation of OracleAS Guard, make a copy of your `dsa.conf` configuration file to save your current settings for your OracleAS Guard environment. After running the OracleAS 10g (10.1.3) standalone install kit of OracleAS Guard, you can restore your saved `dsa.conf` configuration file with your settings to continue using the same settings for the upgraded OracleAS Guard environment.

To run the OracleAS 10g (10.1.3) standalone install kit of OracleAS Guard, run the kit in the following directory path:

On Windows systems:

```
\Disk2\asg\install\setup.exe
```

Choose the type of install that you want. Choose **Typical** for most installations. Choose **Custom or Reinstall** for upgrading from an older release of OracleAS Guard to the current release.

Enter the `oc4jadmin` account password to continue the installation.

6.4.5 Patching OracleAS Guard Release 10.1.2.n.n with Release 10.1.3.0.0

If you already have an OracleAS Disaster Recovery environment set up using OracleAS Guard Release 10.1.2.*n.n* (where *n.n* represents 0.0 or higher, you can patch OracleAS Guard in your environment to take advantage of new features and support for the topologies described in Section 6.4.1, "OracleAS Disaster Recovery: Introduction". To patch your OracleAS Disaster Recovery environment, follow these basic steps:

1. Stop the OracleAS Guard server in all OracleAS 10.1.2.*n.n* Oracle homes on both production and standby sites using the following opmnctl command:

On Windows systems:

```
<ORACLE_HOME>\opmn\bin\opmnctl stopall
```

2. Install the OracleAS 10g (10.1.3.0.0) standalone install of OracleAS Guard into each Oracle home on the production and standby sites.

   If multiple Oracle homes exist on the same system, ensure that different ports are configured for each of the OracleAS Guard servers in this configuration file.

   Because this is an upgrade installation of OracleAS Guard, make a copy of your `dsa.conf` configuration file to save your current settings for your OracleAS Guard environment. After running the OracleAS 10g (10.1.3.0.0) standalone install kit of OracleAS Guard, you can restore your saved `dsa.conf` configuration file with your settings to continue using the same settings for the upgraded OracleAS Guard environment.

   On Windows systems:

   ```
   <ORACLE_HOME>\dsa\dsa.conf
   ```

3. Start the OracleAS Guard server in all OracleAS 10.1.3.0.0 Oracle homes on both production and standby sites using the following opmnctl command:

   On Windows systems:

   ```
   <ORACLE_HOME>\opmn\bin\opmnctl startall
   <ORACLE_HOME>\opmn\bin\opmnctl startproc ias-component=DSA
   ```

6.4.6 What to Read Next?

For information on how to manage your OracleAS Disaster Recovery environment, such as setting up Oracle Data Guard and configuring the OracleAS Metadata Repository database, see the *Oracle Application Server High Availability Guide*.

7

Postinstallation Tasks

Contents:

- Section 7.1, "Deploying Oracle Business Rules Rule Author"
- Section 7.2, "State of Oracle Application Server Instances After Installation"
- Section 7.3, "Passwords for Oracle Application Server Components"
- Section 7.4, "Configuring OracleAS Clusters"
- Section 7.5, "Backup and Recovery"
- Section 7.6, "SSL"
- Section 7.7, "Regional and Language Option Settings and the NLS_LANG Parameter"
- Section 7.8, "What to Do Next"

7.1 Deploying Oracle Business Rules Rule Author

After installing Oracle Application Server, you need to perform some additional steps to use Oracle Business Rules Rule Author and its associated online help.

The steps are as follows:

1. Access the Oracle Enterprise Manager 10g Application Server Control Console using the following URL:

   `http://`*`hostname`*`:`*`http_port_number`*`/em`

   In the **Groups** section of the page, click **home** in the Name column.
2. Select the **Applications** tab.
3. To deploy Oracle Business Rules Rule Author, perform the following steps:
   a. Click **Deploy**. This opens the Deploy: Select Archive page.
   b. Select one of the following options:
      – **Archive already present on server where Application Server Control is running.**

        If you select this option, fill in the **Location on Server** field with *`ORACLE_HOME`*`\rules\webapps\ruleauthor.ear`, replacing *`ORACLE_HOME`* with the directory containing the Oracle Application Server installation.
      – **Archive is present on local host. Upload archive to the server where Application Server Control is running.**

If you select this option, click **Browse** to locate the `ruleauthor.ear` file on your machine. The file is located at *ORACLE_HOME*`\rules\webapps\ruleauthor.ear`, where *ORACLE_HOME* is the directory containing the Oracle Application Server installation.

c. Click **Next**. This opens the Deploy: Application Attributes page.

d. Enter the name of the application as `ruleauthor`.

e. Click **Next**. This opens the Deploy: Deployment Settings page.

f. Click **Deploy**. This will display server messages during deployment.

g. Click **Return**.

4. To deploy the online help for Oracle Business Rules Rule Author, perform the following steps:

a. Click **Deploy**. This opens the Deploy: Select Archive page.

b. Select one of the following options:

– **Archive already present on server where Application Server Control is running.**

If you select this option, fill in the **Location on Server** field with *ORACLE_HOME*`\rules\webapps\rulehelp.ear`, replacing *ORACLE_HOME* with the directory containing the Oracle Application Server installation.

– **Archive is present on local host. Upload archive to the server where Application Server Control is running.**

If you select this option, click **Browse** to locate the `rulehelp.ear` file on your machine. The file is located at *ORACLE_HOME*`\rules\webapps\rulehelp.ear`, where *ORACLE_HOME* is the directory containing the Oracle Application Server installation.

c. Click **Next**. This opens the Deploy: Application Attributes page.

d. Enter the name of the application as `rulehelp`.

e. Click **Next**. This opens the Deploy: Deployment Settings page.

f. Click **Deploy**. This will display server messages during deployment.

7.2 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\readme.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 2003: Select **Start > Administrative Tools > Services**.

You can use scripts or you can use the Oracle Enterprise Manager 10*g* Application Server Control to start and stop Oracle Application Server instances. See the *Oracle Application Server Administrator's Guide* for details.

7.3 Passwords for Oracle Application Server Components

By default, all passwords for Oracle Application Server components 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.

7.4 Configuring OracleAS Clusters

If you did not configure OracleAS Clusters during installation, you can use Oracle Process Manager and Notification Server (OPMN) commands to do so following installation. See "Configuring Cluster Topologies" in the *Oracle Application Server Administrator's Guide* for details.

7.5 Backup and Recovery

After installation would be a good time to start backing up the files, and to set up your backup and recovery strategy. See the *Oracle Application Server Administrator's Guide* for details.

7.6 SSL

By default, most components are not configured for SSL. To enable SSL, see the SSL section in the *Oracle Application Server Administrator's Guide*.

7.7 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.

7.8 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

Silent and Non-Interactive Installation

This appendix describes how to install Oracle Application Server in silent mode. This appendix contains the following topics:

- Section A.1, "Silent Installation"
- Section A.2, "Non-Interactive Installation"
- Section A.3, "Preinstallation"
- Section A.4, "Create the Response File"
- Section A.5, "Start the Installation"
- Section A.6, "Postinstallation"
- Section A.7, "Security Tips for Silent and Non-Interactive Installations"
- Section A.8, "Deinstallation"

A.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 A.3, "Preinstallation".

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.

A.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 A.3, "Preinstallation".

Use non-interactive installation of Oracle Application Server when there are specific screens you want to observe during installation.

A.3 Preinstallation

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
```

A.4 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.

A.4.1 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 A–1 Response File Templates in the stage/Response Directory

Installation Type	Filename
Integrated Web Server, J2EE Server and Process Management	`oracle.as.j2ee.top.allProducts.rsp`
J2EE Server and Process Management	`oracle.as.j2ee.top.core.rsp`
Web Server and Process Management	`oracle.as.j2ee.top.httpServer.rsp`
Oracle TopLink	`oracle.as.j2ee.top.toplink.rsp`

See the template files for descriptions of the parameters in the file.

Note: For Boolean parameters, specify either "true" or "false".

A.4.2 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:\myJ2EEResponse.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 click the **Install** button, 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. To set the password, modify the `sl_adminDialogReturn` parameter. See the generated response file for a description of the parameter.

A.4.3 Variables to Modify in the Response Files

For all installation types, modify the following variables:

```
FROM_LOCATION
ORACLE_HOME
```

For the J2EE Server and Process Management install type, modify the following variables:

```
szl_PortListSelect
sl_DlgClusterInfoReturn
sl_AdminInstanceSettingsSelections
b_autoPortDetect
sl_adminDialogReturn
```

For the Web Server and Process Management install type, modify the following variables:

```
szl_PortListSelect
szl_InstanceInformation
sl_DlgClusterInfoWebReturn
b_autoPortDetect
```

For the Integrated Web Server, J2EE Server and Process Management install type, modify the following variables:

```
szl_PortListSelect
sl_DlgClusterInfoWebReturn
sl_AdminInstanceSettingsSelections
b_autoPortDetect
sl_adminDialogReturn
```

A.4.4 Example Response Files

The following sections shows example response files for the following Oracle Application Server installation types:

- Section A.4.4.1, "Example Response File for Standalone J2EE Server and Process Management"
- Section A.4.4.2, "Example Response File for Web Server and Process Management"

- Section A.4.4.3, "Example Response File for Integrated Web Server, J2EE Server and Process Management"
- Section A.4.4.4, "Example Response File for Oracle TopLink"

> **Note:** Be sure that you read the description of each *parameter=value* in the provided sample files, and edit *value* accordingly for your environment.

A.4.4.1 Example Response File for Standalone J2EE Server and Process Management

The following shows an example of a response file for a **silent** installation of standalone instance of J2EE Server and Process Management as described in Section 5.2.2, "Installing J2EE Server and Process Management".

```
RESPONSEFILE_VERSION=2.2.1.0.0
FROM_LOCATION=""E:\Disk1\stage\products.xml
FROM_LOCATION_CD_LABEL="LABEL1"
NEXT_SESSION_RESPONSE=<Value Unspecified>
ORACLE_HOME=""C:\oracle\oracle_home
ORACLE_HOME_NAME="OHOME1"
TOPLEVEL_COMPONENT={"oracle.as.j2ee.top","10.1.3.0.0"}
DEINSTALL_LIST={"oracle.as.j2ee.top","10.1.3.0.0"}
SHOW_SPLASH_SCREEN=true
SHOW_WELCOME_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_CUSTOM_TREE_PAGE=false
SHOW_SUMMARY_PAGE=true
SHOW_INSTALL_PROGRESS_PAGE=true
SHOW_REQUIRED_CONFIG_TOOL_PAGE=true
SHOW_CONFIG_TOOL_PAGE=true
SHOW_XML_PREREQ_PAGE=true
SHOW_RELEASE_NOTES=true
SHOW_END_OF_INSTALL_MSGS=true
SHOW_ROOTSH_CONFIRMATION=true
SHOW_END_SESSION_PAGE=true
SHOW_EXIT_CONFIRMATION=true
NEXT_SESSION=true
NEXT_SESSION_ON_FAIL=true
SHOW_DEINSTALL_CONFIRMATION=true
SHOW_DEINSTALL_PROGRESS=true
ACCEPT_LICENSE_AGREEMENT=true
RESTART_SYSTEM=<Value Unspecified>
CLUSTER_NODES=<Value Unspecified>
OUI_HOSTNAME=<Value Unspecified>
REMOVE_HOMES=<Value Unspecified>
COMPONENT_LANGUAGES={"en"}
INSTALL_TYPE="core"
szl_PortListSelect={"YES",""C:\oracle\mystaticports.ini}
szl_InstanceInformation=<Value Unspecified>
sl_DlgClusterInfoWebReturn=<Value Unspecified>
sl_DlgClusterInfoReturn={"YES","NO","225.0.0.20","8001"}
sl_AdminInstanceSettingsSelections={"true"}
s_asInstanceName=<Value Unspecified>
s_adminPassword=<Value Unspecified>
b_useLocalInstance=<Value Unspecified>
b_autoPortDetect=false
sl_adminDialogReturn={"appserver","oc4jadmin","welcome1","welcome1","OHOME1",""}
```

```
nValidationInstanceInfo=<Value Unspecified>
n_DlgClusterInfoWebValidate=<Value Unspecified>
nValidationPortListSelect=<Value Unspecified>
n_DlgClusterInfoValidate=<Value Unspecified>
n_validateAdminDialogInfo=<Value Unspecified>
```

A.4.4.2 Example Response File for Web Server and Process Management

The following shows an example of a response file for a **silent** installation of Web Server and Process Management as described in Section 5.2.3, "Installing Web Server and Process Management".

```
RESPONSEFILE_VERSION=2.2.1.0.0
FROM_LOCATION="E:\Disk1\stage\products.xml"
FROM_LOCATION_CD_LABEL="LABEL1"
NEXT_SESSION_RESPONSE=<Value Unspecified>
ORACLE_HOME="C:\oracle\oracle_home"
ORACLE_HOME_NAME="OHOME1"
TOPLEVEL_COMPONENT={"oracle.as.j2ee.top","10.1.3.0.0"}
DEINSTALL_LIST={"oracle.as.j2ee.top","10.1.3.0.0"}
SHOW_SPLASH_SCREEN=true
SHOW_WELCOME_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_CUSTOM_TREE_PAGE=false
SHOW_SUMMARY_PAGE=true
SHOW_INSTALL_PROGRESS_PAGE=true
SHOW_REQUIRED_CONFIG_TOOL_PAGE=true
SHOW_CONFIG_TOOL_PAGE=true
SHOW_XML_PREREQ_PAGE=true
SHOW_RELEASE_NOTES=true
SHOW_END_OF_INSTALL_MSGS=true
SHOW_ROOTSH_CONFIRMATION=true
SHOW_END_SESSION_PAGE=true
SHOW_EXIT_CONFIRMATION=true
NEXT_SESSION=true
NEXT_SESSION_ON_FAIL=true
SHOW_DEINSTALL_CONFIRMATION=true
SHOW_DEINSTALL_PROGRESS=true
ACCEPT_LICENSE_AGREEMENT=true
RESTART_SYSTEM=<Value Unspecified>
CLUSTER_NODES=<Value Unspecified>
OUI_HOSTNAME=<Value Unspecified>
REMOVE_HOMES=<Value Unspecified>
COMPONENT_LANGUAGES={"en"}
INSTALL_TYPE="httpServer"
szl_PortListSelect={"YES","C:\oracle\mystaticports.ini"}
szl_InstanceInformation={"appserver"}
sl_DlgClusterInfoWebReturn={"NO","",""}
sl_DlgClusterInfoReturn=<Value Unspecified>
sl_AdminInstanceSettingsSelections=<Value Unspecified>
s_asInstanceName=<Value Unspecified>
s_adminPassword=<Value Unspecified>
b_useLocalInstance=<Value Unspecified>
b_autoPortDetect=false
sl_adminDialogReturn=<Value Unspecified>
nValidationInstanceInfo=<Value Unspecified>
n_DlgClusterInfoWebValidate=<Value Unspecified>
nValidationPortListSelect=<Value Unspecified>
n_DlgClusterInfoValidate=<Value Unspecified>
n_validateAdminDialogInfo=<Value Unspecified>
```

```
s_group=<Value Unspecified>
OPTIONAL_CONFIG_TOOLS=<Value Unspecified>
```

A.4.4.3 Example Response File for Integrated Web Server, J2EE Server and Process Management

The following shows an example of a response file for a **silent** installation of Integrated Web Server, J2EE Server and Process Management as described in Section 5.2.4, "Installing Integrated Web Server, J2EE Server and Process Management".

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME=<Value Unspecified>
FROM_LOCATION="E:\Disk1\stage\products.xml"
FROM_LOCATION_CD_LABEL="LABEL1"
NEXT_SESSION_RESPONSE=<Value Unspecified>
ORACLE_HOME="C:\oracle\oracle_home"
ORACLE_HOME_NAME="OHOME1"
TOPLEVEL_COMPONENT={"oracle.as.j2ee.top","10.1.3.0.0"}
DEINSTALL_LIST={"oracle.as.j2ee.top","10.1.3.0.0"}
SHOW_SPLASH_SCREEN=true
SHOW_WELCOME_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_CUSTOM_TREE_PAGE=false
SHOW_SUMMARY_PAGE=true
SHOW_INSTALL_PROGRESS_PAGE=true
SHOW_REQUIRED_CONFIG_TOOL_PAGE=true
SHOW_CONFIG_TOOL_PAGE=true
SHOW_XML_PREREQ_PAGE=true
SHOW_RELEASE_NOTES=true
SHOW_END_OF_INSTALL_MSGS=true
SHOW_ROOTSH_CONFIRMATION=true
SHOW_END_SESSION_PAGE=true
SHOW_EXIT_CONFIRMATION=true
NEXT_SESSION=true
NEXT_SESSION_ON_FAIL=true
SHOW_DEINSTALL_CONFIRMATION=true
SHOW_DEINSTALL_PROGRESS=true
ACCEPT_LICENSE_AGREEMENT=true
RESTART_SYSTEM=<Value Unspecified>
CLUSTER_NODES=<Value Unspecified>
OUI_HOSTNAME=<Value Unspecified>
REMOVE_HOMES=<Value Unspecified>
COMPONENT_LANGUAGES={"en"}
INSTALL_TYPE="allProducts"
szl_PortListSelect={"YES","C:\oracle\mystaticports.ini"}
szl_InstanceInformation=<Value Unspecified>
sl_DlgClusterInfoWebReturn={"YES","225.0.0.20","8001"}
sl_DlgClusterInfoReturn=<Value Unspecified>
sl_AdminInstanceSettingsSelections={"false"}
s_asInstanceName=<Value Unspecified>
s_adminPassword=<Value Unspecified>
b_useLocalInstance=<Value Unspecified>
b_autoPortDetect=false
sl_adminDialogReturn={"appserver","oc4jadmin","welcome1","welcome1","OHOME1",""}
nValidationInstanceInfo=<Value Unspecified>
n_DlgClusterInfoWebValidate=<Value Unspecified>
nValidationPortListSelect=<Value Unspecified>
n_DlgClusterInfoValidate=<Value Unspecified>
n_validateAdminDialogInfo=<Value Unspecified>
```

```
s_group=<Value Unspecified>
OPTIONAL_CONFIG_TOOLS=<Value Unspecified>
```

A.4.4.4 Example Response File for Oracle TopLink

The following shows an example of a response file for a **silent** installation of Oracle TopLink as described in Section 5.2.5, "Installing Oracle TopLink".

```
RESPONSEFILE_VERSION=2.2.1.0.0
UNIX_GROUP_NAME=<Value Unspecified>
FROM_LOCATION="E:\Disk1\stage\products.xml"
FROM_LOCATION_CD_LABEL="LABEL1"
NEXT_SESSION_RESPONSE=<Value Unspecified>
ORACLE_HOME="C:\oracle\oracle_home"
ORACLE_HOME_NAME="OHOME1"
TOPLEVEL_COMPONENT={"oracle.as.j2ee.top","10.1.3.0.0"}
DEINSTALL_LIST={"oracle.as.j2ee.top","10.1.3.0.0"}
SHOW_SPLASH_SCREEN=true
SHOW_WELCOME_PAGE=false
SHOW_COMPONENT_LOCATIONS_PAGE=false
SHOW_CUSTOM_TREE_PAGE=false
SHOW_SUMMARY_PAGE=true
SHOW_INSTALL_PROGRESS_PAGE=true
SHOW_REQUIRED_CONFIG_TOOL_PAGE=true
SHOW_CONFIG_TOOL_PAGE=true
SHOW_XML_PREREQ_PAGE=true
SHOW_RELEASE_NOTES=true
SHOW_END_OF_INSTALL_MSGS=true
SHOW_ROOTSH_CONFIRMATION=true
SHOW_END_SESSION_PAGE=true
SHOW_EXIT_CONFIRMATION=true
NEXT_SESSION=true
NEXT_SESSION_ON_FAIL=true
SHOW_DEINSTALL_CONFIRMATION=true
SHOW_DEINSTALL_PROGRESS=true
ACCEPT_LICENSE_AGREEMENT=true
RESTART_SYSTEM=<Value Unspecified>
CLUSTER_NODES=<Value Unspecified>
OUI_HOSTNAME=<Value Unspecified>
REMOVE_HOMES=<Value Unspecified>
COMPONENT_LANGUAGES={"en"}
INSTALL_TYPE="toplink"
szl_PortListSelect=<Value Unspecified>
szl_InstanceInformation=<Value Unspecified>
sl_DlgClusterInfoWebReturn=<Value Unspecified>
sl_DlgClusterInfoReturn=<Value Unspecified>
sl_AdminInstanceSettingsSelections=<Value Unspecified>
s_asInstanceName=<Value Unspecified>
s_adminPassword=<Value Unspecified>
b_useLocalInstance=<Value Unspecified>
b_autoPortDetect=<Value Unspecified>
sl_adminDialogReturn=<Value Unspecified>
nValidationInstanceInfo=<Value Unspecified>
n_DlgClusterInfoWebValidate=<Value Unspecified>
nValidationPortListSelect=<Value Unspecified>
n_DlgClusterInfoValidate=<Value Unspecified>
n_validateAdminDialogInfo=<Value Unspecified>
```

A.5 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
```

A.6 Postinstallation

The success or failure of the non-interactive and silent installations is logged in the `installActions<time_stamp>.log` file. Additionally, the silent installation creates the `silentInstall<time_stamp>.log` file. The log files are created in the `C:\Program Files\Oracle\Inventory\Logs` directory.

The `silentInstall<time_stamp>.log` file contains the following line if the installation was successful:

```
The installation of OracleAS <Installation Type> was successful.
```

The `installActions<time_stamp>.log` file contains specific information for each Oracle Application Server installation type.

A.7 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.

A.8 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.

Modify the following parameter in 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 clean up steps described in Appendix C, "Deinstallation and Reinstallation". 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
```

B

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 2.4.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

This appendix contains the following topics:

- Section B.1, "Method of Assigning Default Port Numbers"
- Section B.2, "Default Port Numbers"
- Section B.3, "Ports to Open in Firewalls"

B.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.

B.2 Default Port Numbers

Table B–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 2.4.4, "Using Custom Port Numbers (the "Static Ports" Feature)" for details.

Table B–1 Default Port Numbers and Ranges (Grouped by Component)

Component	Default Port	Port Number Range	Name in staticports.ini
Oracle Process Manager and Notification Server (OPMN)			
Oracle Notification Server Request Port	6003	6003 - 6099	`Oracle Notification Server Request port`
Oracle Notification Server Local Port	6100	6100 - 6199	`Oracle Notification Server Local port`
Oracle Notification Server Remote Port	6200	6200 - 6299	`Oracle Notification Server Remote port`
Oracle Application Server Containers for J2EE (OC4J)			
OC4J AJP	12501	12501 - 12600	Not settable through staticports.ini
OC4J RMI	12401	12401 - 12500	Not settable through staticports.ini
JMS	12601	12601 - 12700	Not settable through staticports.ini
IIOP	13301	13301 - 13400	Not settable through staticports.ini
IIOPS1	13401	13401 - 13500	Not settable through staticports.ini
IIOPS2	13501	13501 -13600	Not settable through staticports.ini
Oracle HTTP Server			
Listen Port	7777	7777 - 7877	Not settable through staticports.ini
Listen (SSL) Port	4443	4443	Not settable through staticports.ini
SSL Port	4443	443, 4443	`Oracle HTTP Server SSL port`
Java Object Cache	7000	7000 - 7099	Not settable through staticports.ini
Port Tunneling	7501	7501 - 7599	Not settable through staticports.ini
Oracle HTTP Server Diagnostic port	7200	7200 - 7299	Not settable through staticports.ini

B.3 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).

For a 10*g* Release 3 (10.1.3) middle-tier instance, you need access to Oracle Notification Server and AJP ports. You need to open the following ports used by these components in the firewall:

- OPMN Oracle Notification Server remote port
- OC4J AJP port

C

Deinstallation and Reinstallation

This appendix guides you through the deinstallation and reinstallation process for Oracle Application Server.

- Section C.1, "Deinstallation Procedure: Overview"
- Section C.2, "Deinstalling Procedure"
- Section C.3, "Deinstalling All Oracle Products Manually"
- Section C.4, "Reinstallation"

C.1 Deinstallation Procedure: Overview

Follow these high-level steps to deinstall Oracle Application Server (the details are provided in later sections):

1. Run the deinstaller.
2. Clean up any remaining files.

Items to Remove or Clean Up

To deinstall Oracle Application Server instances, you have to clean up the items listed in Table C–1. The procedures are described later in this appendix.

Table C–1 Items to Deinstall

Item to Clean Up	Tool to Use
Files from the Oracle home directory	Installer If the installer does not remove all the files, you can remove the remaining files using the `rm` command.
Entries for the deleted instance in the Inventory directory	Installer
Instance name from Farm page	Installer
Entries for the deleted instance in the Windows registry	Installer The installer does not remove all the Oracle registry entries. If you need to delete all Oracle registry entries, see Section C.3, "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.

The installer does not permit custom deinstallation of individual components.

C.2 Deinstalling Procedure

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. Start the installer.

   Select **Start > Programs > Oracle -** *InstanceName* **> Deinstall**.
4. Follow these steps in the installer.
   a. Click **OK** to start the deinstaller.
   b. Press Enter to exit the deinstaller 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%
```

C.3 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, *InstanceName* indicates the name of the Oracle Application Server instance, which you entered in the Oracle Application Server 10g 10.1.3.0.0 Installation screen.

      * **HKEY_LOCAL_MACHINE \SOFTWARE\ORACLE**
      * **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\ Services\Oracle-***InstanceName***ProcessManager**
      * **HKEY_LOCAL_MACHINE\SYSTEM\ControlSet** *X***Services\Oracle-***InstanceName***ProcessManager**

        X is a number, for example, 001.
      * **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**

   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 > All Programs** (Windows 2003). 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.

C.4 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.

D

Configuration Assistants

This appendix lists the configuration assistants and the location of their log files.

- Section D.1, "Troubleshooting Configuration Assistants"
- Section D.2, "Description of Oracle Application Server Configuration Assistants"

D.1 Troubleshooting Configuration Assistants

Contents:

- Section D.1.1, "General Tips"
- Section D.1.2, "Configuration Assistant Result Codes"

D.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 E.1, "Log Files".
2. Review the log files for the failed configuration assistant. Configuration assistant log files are listed in Section D.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. If an optional configuration assistant fails, and it does not have any dependencies, run the remaining configuration assistants. Uncheck the cancelled optional configuration assistant, highlight and check the next listed configuration assistant, and click **Retry**.
5. If configuration assistant failure occurs when running configuration assistant execution commands on the command line, then re-run the configuration assistant execution command again.

   You can use the generated script file named `configtoolcmds.pl` located in the `ORACLE_HOME\bin` directory to 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.
6. If you see a "Fatal Error. Reinstall" message, find the cause of the problem by analyzing the log files. You cannot recover from a fatal error by correcting the problem and continuing. You must remove the current installation and reinstall Oracle Application Server. The following tasks describe the recovery procedure:

a. Deinstall the failed installation using the procedure described in Appendix C, "Deinstallation and Reinstallation".

b. Correct the cause of the fatal error.

c. Reinstall Oracle Application Server.

D.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 D–1) to the following log file:

`C:\Program Files\Oracle\Inventory\logs\installActions`*`timestamp`*`.log`

Table D–1 Result Codes for Configuration Assistants

Result Code	Description
`0`	Configuration assistant succeeded
`1`	Configuration assistant failed
`-1`	Configuration assistant cancelled

D.2 Description of Oracle Application Server Configuration Assistants

Table D–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.

Table D–2 Oracle Application Server Configuration Assistants

Configuration Assistant	Description	Log File Location

ADF Configuration Assistant	Integrates Oracle Application Development Framework Runtime Libraries with Oracle Enterprise Manager 10*g* Application Server Control.	`ORACLE_HOME\cfgtoollogs\configtool`*`timestamp`*`.log`
		
		`C:\Program Files\Oracle\Inventory\logs\installActions`*`timestamp`*`.log`

OPMN Configuration Assistant	Starts OPMN and OPMN-managed processes.	`ORACLE_HOME\cfgtoollogs\configtool`*`timestamp`*`.log`
		
		`ORACLE_HOME\cfgtoollogs\ipm.log`
		
		`ORACLE_HOME\cfgtoollogs\ons.log`

E

Troubleshooting

This appendix describes solutions to common problems that you might encounter when installing Oracle Application Server. It contains the following sections:

- Section E.1, "Log Files"
- Section E.2, "General Troubleshooting Tips"
- Section E.3, "Installation Problems and Solutions"
- Section E.4, "Need More Help?"

E.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
```

E.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 2, "Requirements".
- 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 D.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 C, "Deinstallation and Reinstallation".
  3. Correct the issue that caused the error.
  4. Restart the installation.

E.3 Installation Problems and Solutions

This section describes common installation problems and solutions:

- Section E.3.1, "Location of Log Files"
- Section E.3.2, "Installer Does Not Appear"
- Section E.3.3, "Unable to Clean Up a Failed Installation"
- Section E.3.4, "User Interface Does Not Display in the Desired Language, or Does Not Display Properly"
- Section E.3.5, "Unable to Run Oracle Application Server On-Network as Well as Off-Network"
- Section E.3.6, "Configuration Assistant Failures - General"

E.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.

E.3.2 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 -Dsun.awt.nopixfmt=true
```

E.3.3 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 C, "Deinstallation and Reinstallation" for instructions.

E.3.4 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 Installation Type" screen. To see which languages are installed by default, see Section 3.2, "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 contacting Customer Service for the requirement fonts.

E.3.5 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 2.7.6, "Installing a Loopback Adapter".

E.3.6 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 D, "Configuration Assistants".

Problem

Configuration assistant failed

Solution

Configuration assistants fail from a variety of causes. Some things you can check are:

- 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.

If the configuration assistant fails while running configuration assistant execution commands on the command line, then run the configuration assistant execution command again.

You can use the generated script file named `configtoolcmds.pl` located in the *`ORACLE_HOME`*`\bin` directory to run the failed configuration assistant again. The `configtoolcmds.pl` script is generated after you exit the installer. During silent or non-interactive installation, the `configtoolcmds.pl` script is generated immediately after configuration assistant failure.

E.4 Need More Help?

If this appendix does not solve the problem you encountered, try these other sources:

- *Oracle Application Server Release Notes*, available on the Oracle Technology Network (`http://www.oracle.com/technology/documentation`)
- Oracle*MetaLink* (`https://metalink.oracle.com`)

If you do not find a solution for your problem, open a service request.

Index

Numerics

256 color requirement, 2-4

A

active-active topology
  creating, 6-4
  installation, 6-6
  introduction, 6-4
  supporting procedures, 6-11
active-passive topology
  creating, 6-16
  installation details, 6-27
  installation overview, 6-18
  introduction, 6-16
  OracleAS Cold Failover Cluster, 6-2
  postinstallation steps, 6-29
  preinstallation steps, 6-19
adapters
  loopback, 2-13
  network, 2-13
adding shared disk to group in Oracle Fail Safe, 6-25
adding virtual address to group in Oracle Fail Safe, 6-24
additional languages, 3-2
Administrators group, 2-10
advanced installation, 5-1
  installation steps, 5-2
  installed components, 5-1
  Integrated Web Server, J2EE Server and Process Management, 5-4
  J2EE Server and Process Management, 5-2
  Oracle TopLink, 5-5
  Web Server and Process Management, 5-3
aliases
  installing on computers with aliases, 2-14

B

backup and recovery
  in OracleAS Disaster Recovery environment, 6-36
  postinstallation, 7-3
basic installation, 4-1
  installation steps, 4-2
  installed components, 4-1
browser requirement, 2-4

C

CD-ROM
  copying to hard drive, 2-18
cluster name (for OracleAS Cold Failover Cluster), 6-20
cluster topologies
  installing a Web server middle tier and multiple OC4J middle tiers on separate hosts, 1-10
  installing a Web server middle tier and OC4J middle tier on separate hosts, 1-9
  installing multiple integrated Web server and OC4J middle tiers, 1-5
cluster, verifying (OracleAS Cold Failover Cluster), 6-22
_CLUSTER_NETWORK_NAME_ environment variable, 6-38, 6-39
components
  default port numbers, B-1
  how to assign custom port numbers, 2-8
configuration assistants, D-1
  dependencies, D-1
  descriptions of, D-2
  error codes, D-2
  fatal errors, D-1
  troubleshooting, D-1
copying CD-ROM/DVD to hard drive, 2-18
CPU requirements, 2-3
custom ports
  see static ports

D

default port numbers, 2-7, B-1
deinstallation, C-1
  overview, C-1
  removing all Oracle products, C-2
  silent mode, A-8
deinstallation procedure, C-2
deploying Oracle Business Rules Rule Author, 7-1
DHCP
  installing on DHCP computers, 2-12
disk space requirements, 2-3
DNS server for name resolution (OracleAS Disaster

Recovery), 6-38
DVD
copying to hard drive, 2-18

E

environment variables, 2-11
_CLUSTER_NETWORK_NAME_, 6-38, 6-39
ORACLE_HOME, 2-11
ORACLE_SID, 2-11
PATH, 2-11
setting, 2-11
TEMP, 2-12
TNS_ADMIN, 2-11
ephemeral ports, 2-5
error codes from configuration assistants, D-2
Event Log service (for OracleAS Cold Failover Cluster), 6-19

F

fatal errors, D-1
file system type requirement, 2-3
firewalls
and ports, B-2
font problems, E-3

G

groups (Oracle Fail Safe)
adding shared disk to groups, 6-25
adding virtual address to groups, 6-24
creating, 6-22

H

high availability environments, 6-1
active-active topology, 6-4
active-passive topology, 6-16
OracleAS Clusters, 6-4
OracleAS Cold Failover Cluster, 6-16
overview, 6-1
summary of differences, 6-3
hostname requirement, 2-2
hostnames
installing on computers with multiple aliases, 2-14
hosts file for name resolution (OracleAS Disaster Recovery), 6-40
httpd.conf file, 2-10

I

installActions.log, A-8
installation
advanced
see advanced installation
basic
see basic installation
Integrated Web Server, J2EE Server and Process Management, 5-4
J2EE Server and Process Management, 5-2
Oracle TopLink, 5-5
Web Server and Process Management, 5-3
installation steps
advanced installation, 5-2
basic installation, 4-2
installation types, 1-2
installer
see Oracle Universal Installer
installing additional languages, 3-2
installing from hard drive, 2-18
installing Oracle Fail Safe, 6-20
instance names, 3-2
how they are used, 3-3
restrictions, 3-2
valid characters, 3-2
Integrated Web Server, J2EE Server and Process Management
installation, 5-4
inventory directory, 3-4
IP
installing on a computer with multiple IP addresses, 2-13
requirements, 2-2

J

J2EE Server and Process Management
installation, 5-2

L

languages, installing additional, 3-2
log files, E-1
from non-interactive installations, A-8
location of, E-2
loopback adapters, 2-13
installing, 2-15
removing (Windows 2000, Windows 2003, Windows XP), 2-18

M

memory requirements, 2-3
middle tiers
installing in OracleAS Disaster Recovery, 6-44
monitor requirement, 2-4
MSCS
for OracleAS Cold Failover Cluster, 6-20
multihomed computers, installing on, 2-13

N

name resolution (OracleAS Disaster Recovery), 6-38
using DNS servers, 6-38
using hosts file, 6-40
names of instances
see instance names
nbtstat command, 6-41
network adapter, primary, 2-13
network requirements, 2-2

network topics, 2-12
installing from hard drive, 2-18
installing from remote CD-ROM/DVD drive, 2-20
installing on computers with aliases, 2-14
installing on DHCP computers, 2-12
installing on multihomed computers, 2-13
installing on off-network computers, 2-14
remote installations, 2-22
NLS_LANG parameter, 7-3
non-interactive installations, A-1
deinstalling, A-8
log files, A-8
postinstallation steps, A-8
preinstallation steps, A-2
security tips, A-8
non-networked computers, installing on, 2-14

O

oc4jadmin user, 3-3
password for, 3-3
off-network computers, installing on, 2-14
off-network problems, E-3
operating system groups
Administrators group, 2-10
operating system users, 2-10
Administrators group, 2-10
operating system version, 2-2
Oracle Business Rules Rule Author
deploying, 7-1
Oracle Data Guard (for OracleAS Disaster Recovery), 6-36, 6-40
Oracle E-Delivery, 3-5
Oracle Enterprise Manager Application Server Control
URL, 7-2
Oracle Fail Safe
adding shared disk to group, 6-25
adding virtual address to group, 6-24
creating groups, 6-22
installing, 6-20
OracleMSCSServices service, 6-20
user requirements, 6-20
verifying cluster, 6-22
Oracle home
directory, 3-1
installing in a non-empty, 3-1
installing in an existing, 3-1
naming, 3-1
Oracle HTTP Server
configuring static ports, 2-10
Oracle MetaLink
using to obtain updates to 10.1.3.0.0, 2-1
Oracle TopLink
installation, 5-5
Oracle Universal Installer
does not appear, E-2
log files, E-1
prerequisite checks, 2-23
starting, 3-6
where it writes files, 3-4
ORACLE_HOME environment variable, 2-11
ORACLE_SID environment variable, 2-11
OracleAS Clusters
see active-active topology
OracleAS Cold Failover Cluster
advantages, 6-3
cluster name, 6-20
domain user requirements, 6-20
Event Log service, 6-19
in OracleAS Disaster Recovery environment, 6-42
MSCS, 6-20
preinstallation steps, 6-19
see active-passive topology
verifying cluster, 6-22
virtual address, 6-19
OracleAS Disaster Recovery
data synchronization, 6-36
installation steps, 6-43
installing middle tiers, 6-44
installing OracleAS Infrastructure, 6-44
name resolution, 6-38
Oracle Data Guard, 6-40
setting up, 6-37
setting up identical hostnames, 6-38
staticports.ini file, 6-37
with OracleAS Cold Failover Cluster, 6-42
OracleAS Infrastructure
installing in OracleAS Disaster Recovery, 6-44
OracleMSCSServices service (Oracle Fail Safe), 6-20

P

pagefile size (virtual memory) requirement, 2-4
passwords
for oc4jadmin user, 3-3
PATH environment variable, 2-11
pcAnywhere, 2-22
ports, 2-5
checking if a port is in use, 2-7
ephemeral, 2-5
list of default port numbers, B-1
static ports, 2-8
to open in firewalls, B-2
using default port numbers, 2-7
postinstallation steps, 7-1
for silent or non-interactive installations, A-8
preinstallation steps
for silent and non-interactive installations, A-2
prerequisite checks, 2-23
primary network adapter, 2-13
processor, 2-3
Product Languages button, 3-2

R

RAM requirements, 2-3
record mode in the installer, A-2
remote control software, 2-22
remote installations, 2-20, 2-22

requirements
browser, 2-4
disk space, 2-3
environment variables, 2-11
file system type, 2-3
for computers that you want to disconnect from network later, 2-15
for DHCP computers, 2-12
for multi-alias computers, 2-14
for multihomed computers, 2-13
for non-networked computers, 2-14
hostname, 2-2
IP, 2-2
memory, 2-3
monitor, 2-4
network, 2-2
operating system version, 2-2
pagefile size (virtual memory), 2-4
processor, 2-3
space in TEMP directory, 2-3
response files, A-1
creating, A-2
creating using the record mode, A-2
examples, A-3
specifying on command-line, A-8
templates, A-2
variables to modify, A-3
runInstaller command
-executeSysPrereqs parameter, 2-2

S

security tips for silent and non-interactive installations, A-8
Services dialog, displaying, 7-2
setup.exe command
on CD-ROM, 3-6
on DVD-ROM, 3-6
shared disk, adding to group (Oracle Fail Safe), 6-25
shared storage, 6-2
silent installations, A-1
deinstalling, A-8
postinstallation steps, A-8
preinstallation steps, A-2
security tips, A-8
silentInstall.log, A-8
SSL
postinstallation configuration, 7-3
starting Oracle Universal Installer, 3-6
static ports, 2-8
for Oracle HTTP Server, 2-10
not working, 2-9
staticports.ini file, 2-8
creating, 2-8
format, 2-8
in OracleAS Disaster Recovery, 6-37
system requirements, 2-2

T

TEMP directory, 2-12
space required, 2-3
TEMP environment variable, 2-12
/tmp directory, 3-5
TNS_ADMIN environment variable, 2-11
topologies
10.1.3 middle tiers, 1-3
high availability, 1-3
integrated Web server and OC4J middle tier, 1-4
multiple integrated Web server and OC4J middle tiers, 1-5
Web server middle tier and multiple OC4J middle tiers on separate hosts, 1-10
Web server middle tier and OC4J middle tier on separate hosts, 1-9
with 10.1.2 Oracle HTTP Server, 1-3
with 10.1.2 OracleAS Web Cache, 1-4
with 10.1.2 OracleAS Web Cache cluster, 1-4
with 9.0.4 or 10.1.2 OracleAS Infrastructure, 1-4
supported, 1-2 to 1-14
trigger attribute (for replication-policy), 6-14
troubleshooting, E-1
configuration assistants, D-1
general tips, E-1

U

user interface problems, E-3
user requirements for OracleAS Cold Failover Cluster, 6-20
users (operating system)
see operating system users

V

verifying cluster (OracleAS Cold Failover Cluster), 6-22
virtual address for OracleAS Cold Failover Cluster, 6-19
virtual address, adding to group (Oracle Fail Safe), 6-24
virtual IP, 6-3
virtual memory (pagefile size) requirement, 2-4
VNC, 2-22

W

Web Server and Process Management installation, 5-3
Welcome page, URL for, 7-2
Windows registry
removing all Oracle products, C-2
Windows system files (wsf.exe), 2-4
write-quota attribute (in cluster tag), 6-16
wsf.exe, 2-4