This document describes the tasks to install Oracle Database 10g Standard Edition on a Windows two-node cluster, using Real Application Clusters (RAC) and Automated Storage Management (ASM). This install also builds a general purpose starter database with the Sample Schemas included and with automatic disk backup enabled.

This installation assumes that neither of the nodes has any Oracle software installed, either from the current or from an earlier release.
The installation has two phases. In the first phase, you install and configure the Cluster Ready Services (CRS) software. In the second phase, you install the Oracle Database with RAC software. The document includes following topics:

1. Log in to the System as Administrator
2. Check Software Requirements
3. Check Web Browser Requirements
4. Check Hardware Requirements
5. Check Disk Space Requirements
6. Check Network Requirements
7. Configure Disk System
8. Install Cluster Ready Services
9. Stamp the Logical Drives for ASM
10. Install Oracle Database 10g with Real Application Clusters
11. **Ensure Valid Path Name Exists on Both Nodes**
12. **What to Do Next**
13. **Additional Information**
14. **Documentation Accessibility**

### 1 Log in to the System as Administrator

For all activities in this document, you need to log on to the nodes in your cluster as a member of the Administrators group. If you are installing on a Primary Domain Controller (PDC) or a Backup Domain Controller (BDC), then log on as a member of the Domain Administrators group.

### 2 Check Software Requirements

Table 1 lists the software requirements for Oracle Real Application Clusters 10g.
Check Web Browser Requirements

The following Web browsers are supported for SQL*Plus and Oracle Enterprise Manager Database Control:

- Netscape Navigator 4.78, 4.79, 7.0.1, or 7.1.0
- Microsoft Internet Explorer 5.5 with service pack 1
- Microsoft Internet Explorer 6.0 with service pack 2

### Table 1 Software Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Architecture</td>
<td>32-bit</td>
</tr>
<tr>
<td>Operating System</td>
<td>Windows 2000 with service pack 1 or higher or Windows Server 2003</td>
</tr>
<tr>
<td>Network Protocol</td>
<td>TCP/IP</td>
</tr>
</tbody>
</table>
4 Check Hardware Requirements

To ensure that both nodes in the cluster meet the minimum requirements to install Oracle Database 10g Real Application Clusters, complete these steps on both of your nodes:

1. Check that the physical RAM size is at least 512 MB. For a computer using Windows 2000, for example, open System in the control panel and select the General tab. If the size of the physical RAM installed in the system is less than 512 MB, then you must install more memory before continuing.

2. Confirm that the size of the configured swap space (also known as paging file size) is at least twice the physical RAM size. For a computer using Windows 2000, for example, open System in the control panel, select the Advanced tab, and click Performance Options.

If necessary, refer to your operating system documentation for information about how to configure additional swap space.
5 Check Disk Space Requirements

To support your Real Application Clusters database, your database files must be stored on disks that are shared by both nodes in your cluster. Any shared disks supported by your hardware vendor, other than Network Attached Storage (NAS), can be used. The shared disks must be attached to both nodes in your cluster and both nodes must be able to read and write to them. For performance and availability reasons, you should use at least two shared disks for your database files.

Table 2 lists the disk space requirements for Oracle Real Application Clusters 10g installation and database creation.

### Table 2  Disk Space Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Free Space Needed</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ancillary Oracle files</td>
<td>100 MB on both nodes</td>
<td>Any local system drive</td>
</tr>
<tr>
<td>Temporary space</td>
<td>50 MB on both nodes</td>
<td>Any local system drive</td>
</tr>
</tbody>
</table>
Confirm that you have the required amount of free disk space available.

For a computer using Windows 2000, for example, to check local disks, open My Computer, right-click the drive that you are verifying, and choose Properties.

To check the shared disks, navigate to Start > Settings > Control Panel > Administrative Tools > Computer Management > Storage > Disk Management.

Table 2  (Cont.) Disk Space Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Free Space Needed</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster Ready Services software</td>
<td>500 MB on both nodes</td>
<td>Any local system drive but must be the same named drive on both nodes</td>
</tr>
<tr>
<td>Database software</td>
<td>1 GB on both nodes</td>
<td>Any local system drive but must be the same named drive on both nodes</td>
</tr>
<tr>
<td>Database files</td>
<td>7 GB</td>
<td>Shared disks</td>
</tr>
</tbody>
</table>
6 Check Network Requirements

Check that you have the networking hardware and internet protocol (IP) addresses required for an Oracle Real Application Clusters installation.

The two nodes in the cluster must be able to communicate with each other and with external clients using the TCP/IP protocol. Communication between clients and the nodes in the cluster is across the public network. Both nodes need a network adapter configured for the public network.

To enable availability and failover, a virtual IP (VIP) address is also required for each of your nodes. A VIP address can be moved between nodes in case of a failure. CRS manages the VIP addresses for you.

To support a virtual IP address, both nodes require an unused IP address that is compatible with the public network’s subnet and netmask. The virtual IP address and host name should also be registered in the domain name system (DNS).
For communications between the instances running on the two nodes, a private network is required. This private network connects only the nodes in the cluster and cannot be accessed from outside the cluster. Both nodes need a separate network adapter configured for this private network.

Specifically, both nodes must meet the following public and private network requirements:

- Support two network adapters: one for the public network interface, used for client connections, and one for the private network interfaces, used for communication between the database instances.

- The following describes the naming restrictions for the public and private network interface names:
  - The characters used for the names are case sensitive
  - The names must not contain any multibyte language characters
  - The public and private network interface names must be different from each other
- The name for each interface must be the same on both nodes
- The public and private IP addresses must be on different subnets

- The public network interface must have an IP address and host name registered in the domain name system (DNS)
- Each private network interface must have a private IP address and may, optionally, have a private host name. Oracle recommends that you use private network IP addresses for these interfaces, for example: 10.*.*.* or 192.168.*.*. You can use the %SystemRoot%\system32\drivers\etc\hosts file on both nodes to associate private host names with private IP addresses.

For example, in a two node cluster, you might have the following host names and IP addresses:
<table>
<thead>
<tr>
<th>Host Name</th>
<th>Type</th>
<th>IP Address</th>
<th>Registered In</th>
</tr>
</thead>
<tbody>
<tr>
<td>rac1.mydomain.com</td>
<td>Public</td>
<td>143.46.43.100</td>
<td>DNS</td>
</tr>
<tr>
<td>rac2.mydomain.com</td>
<td>Public</td>
<td>143.46.43.101</td>
<td>DNS</td>
</tr>
<tr>
<td>rac1-vip.mydomain.com</td>
<td>Virtual</td>
<td>143.46.43.104</td>
<td>DNS</td>
</tr>
<tr>
<td>rac2-vip.mydomain.com</td>
<td>Virtual</td>
<td>143.46.43.105</td>
<td>DNS</td>
</tr>
</tbody>
</table>
As you perform the following steps, you may wish to add your own values to the preceding table for easy reference when completing the installation dialogs.

To configure or determine the IP addresses associated with your cluster nodes, perform the following steps:

1. Determine the IP addresses and names for the two public and two virtual IP addresses that you will be using. These names and IP addresses should be registered with your DNS. You will also need to know the IP address of your

<table>
<thead>
<tr>
<th>Host Name</th>
<th>Type</th>
<th>IP Address</th>
<th>Registered In</th>
</tr>
</thead>
<tbody>
<tr>
<td>rac1-priv</td>
<td>Private</td>
<td>10.0.0.1</td>
<td>%SystemRoot%\system32\drivers\etc\hosts</td>
</tr>
<tr>
<td>rac2-priv</td>
<td>Private</td>
<td>10.0.0.2</td>
<td>%SystemRoot%\system32\drivers\etc\hosts</td>
</tr>
</tbody>
</table>
2. If your nodes already contain network adapters with IP addresses, you can retrieve the public addresses by entering the `ipconfig` command in a Command window.

3. If necessary, install the network adapters for the public and private networks and configure one of them with a private IP address and the other with the public IP address. For a node using Windows 2000, for example, complete the following procedure to assign IP address information to each network adapter:

   a. Navigate to **Start > Settings > Control Panel > Network and Dial-up Connections > Local Area Connection > Properties**

   b. Double-click **Internet Protocol (TCP/IP)**

   c. Click **Use the following IP address** and enter the required IP address components. Also specify your DNS server IP address.
d. Click **OK** on each intermediate open window and **Close** on the main Local Area Connection Status window to complete the task.

4. Check that the public network interfaces have the same interface names on both nodes of your cluster. Similarly, check that the private network interfaces have the same interface names on both nodes of your cluster.

5. If you need to change a network interface name, follow these steps:
   a. Navigate to **Start > Settings > Control Panel > Network and Dial-up Connections**
   b. Right click the icon of the network interface for which you need to change the name
   c. Select **Rename**
   d. Enter and save the new name

6. On both nodes, edit the `%SystemRoot%\system32\drivers\etc\hosts` file to add an entry for each of the private IP addresses. Because
the private IP addresses are not accessible on the public network, you do not need to register them with your DNS. The following example uses the values from the preceding table, you should substitute your own values if they are different:

<table>
<thead>
<tr>
<th>IP Address</th>
<th>Alias Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.0.0.1</td>
<td>rac1-priv</td>
</tr>
<tr>
<td>10.0.0.2</td>
<td>rac2-priv</td>
</tr>
</tbody>
</table>

7. From a Command window on one node, execute a `ping` command, using the IP address or alias name for the other node's private IP address, and another `ping` command for its public IP address. Repeat this process from a Command window on the other node.

If any of the `ping` commands fail to receive a reply, there is a configuration problem that must be resolved before you proceed.

7 Configure Disk System

This task includes the following activities:
- Disable Write Caching
- Prepare Disks for Cluster Ready Services
- Prepare Disks for Database Storage

7.1 Disable Write Caching

Perform the following steps to disable write caching on all the shared disks that you intend to use for your database files. You must do this from both nodes in your cluster:

1. Navigate to Start > Settings > Control Panel > Administrative Tools > Computer Management > Device Manager > Disk drives
2. Expand the Disk drives hive and double-click the first drive listed
3. Under the Disk Properties tab for the selected drive, uncheck the option that enables the write cache
4. Double-click each of the other drives listed in the Disk drives hive and disable the write cache as described in the previous step

7.2 Prepare Disks for Cluster Ready Services

Cluster Ready Services (CRS) provides overall management of the cluster activities. CRS requires two key files that must be located in logical drives on the shared disks: one for a Voting Disk and one for the Oracle Cluster Registry. Complete the following steps to configure both of these required logical drives:

1. From one of the existing nodes of the cluster, run the Windows disk administration tool as follows:
   a. Navigate to Start > Settings > Control Panel > Administrative Tools > Computer Management > Storage
   b. Expand the Storage folder to Disk Management
2. Identify a shared disk that does not contain a primary partition and has free space available in one or more extended partitions.

3. Right click inside an unused part of an extended partition and choose Create Logical Drive. A wizard presents pages for configuring the logical drive.

4. Enter 20 MB as the size that you want for the voting disk logical drive.

5. Choose the option Do not assign a drive letter and then choose the option Do not format this partition. Click Finish on the last page of the wizard.

6. Repeat Steps 2 through 5, replacing 20 MB with 100 MB in Step 4, to create a second logical drive of 100 MB for the Oracle Cluster Registry.

7. Check the two nodes in the cluster to ensure that the partitions are visible on both of them and to ensure that none of the Oracle partitions have drive letters assigned. If any partitions have drive letters assigned, then remove them as described in step 5.
7.3 Prepare Disks for Database Storage

You need to configure disk storage for use with Automatic Storage Management (ASM). ASM storage consists of one or more disk groups, each of which can span multiple disks. To prepare the shared disks that you identified in Section 5, "Check Disk Space Requirements", you need to create two or more logical drives, each on a different shared disk, for a total of at least 7 GB. To prepare each logical drive, perform these steps:

1. Navigate to **Start > Settings > Control Panel > Administrative Tools > Computer Management**
2. Expand the **Storage** folder to **Disk Management**
3. Identify a shared disk that contains the required amount of free space and right click inside an unused part of an extended partition.
4. Choose **Create Logical Drive** in the option window and a wizard presents pages for configuring the logical drive.
5. Enter the size that you want for the partition. All of the partitions that you create for your ASM disk groups should include as much of the free space on the disk as possible. Additionally, however, the partitions should all be the same size.

6. Choose the option Do not assign a drive letter and then choose the option Do not format this partition. Click Finish on the last page of the wizard.

8 Install Cluster Ready Services

Perform the following procedures to complete phase one of the installation, installing Cluster Ready Services:

1. Run the setup.exe command on the Oracle Cluster Ready Services Release 1 (10.1.0.2) CD-ROM. This will open the Oracle Universal Installer (OUI) Welcome page.

2. After you click Next on the Welcome page, the Specify Inventory directory page provides the location where Oracle will store its inventory of installed products. Accept
the default and click **Next** to proceed to the Specify File Locations page.

3. The Specify File Locations page identifies the source for the installation and the storage location for the CRS software, also referred to as the **CRS home**. You should not change anything on this page with one exception. The drive listed in the **Path** name field in the **Destination** section should be the drive that contains the free space that you identified for the Cluster Ready Services software requirements in **Section 5, "Check Disk Space Requirements"**. If the drive is not the one where you identified the free space, then change the drive value. Click **Next** to confirm your choices and proceed to the Language Selection page.

4. Select the language or languages for your CRS installation on the Language Selection page, then click **Next** for the Cluster Configuration page.

5. On the Cluster Configuration page, provide the following information:
An alternate cluster name if you do not wish to use the name provided by the OUI.

The cluster name that you use must be globally unique throughout the enterprise and its allowable character set is the same as that for hostnames, which excludes special characters such as (, ), @, #, ^, &, and *.

Enter the public and private node name for both nodes. Neither node name should have a domain qualifier.

Click Next after you have entered the cluster configuration information. This saves your entries and opens the Specify Network Interface Usage page.

6. On the Specify Network Interface Usage page, the OUI displays a list of cluster-wide interfaces. Use the drop-down menus in the Interface Type column to classify each interface as Public, Private, or Do Not Use. The default setting for both interfaces is Do Not Use.

Identify your network interfaces as public and private according to the decisions you made in Step 7 of Section 6,
"Check Network Requirements". You must classify at least one interconnect as Public and one as Private.

Click Next and the OUI displays the Select Disk Formatting Options page.

7. On the Select Disk Formatting Options page, you must select the **Do not format any logical drives** option.

---

**Note:** Do not select one of the options that require a formatted drive because these options are implemented only in Oracle Database 10g Enterprise Edition.

---

After making your selection on the Select Disk Formatting Options page, click **Next** to proceed to the pages where you select your CRS storage options.

8. On the Disk Configuration - Oracle Cluster Registry (OCR) page, locate the partition that you created to hold the OCR (100 MB) and select that partition’s disk number and
partition number from the list. Click **Next** to proceed to the voting disk configuration page.

9. On the Disk Configuration - Voting Disk page, locate the partition that you created to hold your voting disk (20 MB) and select the partition’s disk number and partition number from the list. Click **Next** to proceed to the Summary page.

10. On the Summary page, click **Install** to start the installation and the OUI displays the Install page.

11. The Install page displays an installation progress bar. One of the final installation steps performed by the OUI is to run a series of configuration tools, during which it displays a Configuration Assistants page.

12. After the configuration tools complete their processing, which is monitored on the Configuration Assistants page, the OUI displays the End of Installation page.

13. Click **Exit** on the End of Installation page to terminate the OUI session.
At this point, you have installed CRS, which completes phase one of the installation.

9 Stamp the Logical Drives for ASM

To enable disk discovery during the database install, the logical drives used to store your database files must be stamped with an ASM header using a GUI tool called asmtoolg. All disk names created by the tool begin with the prefix ORCLDISK for identification purposes. Complete the following procedure to stamp the logical drives that you created in the Section 7.3, “Prepare Disks for Database Storage”:

1. To open the tool, double-click CRS home\BIN\asmtoolg where CRS home is the directory that you identified in Step 2 of Section 8, "Install Cluster Ready Services".

2. Select Add or change label and click Next on the Welcome screen.
3. On the **Stamp Disks** screen, select the disks to stamp and keep the default settings for **Generate stamps with this prefix**, then click **Next**.

4. Click **Next** on the **Stamp disks** screen.

5. Click **Finish** to save your work and exit from the tool.

10 Install Oracle Database 10g with Real Application Clusters

Perform the following procedures to install the Oracle Database 10g with RAC.

1. Insert the Oracle Database 10g Release 1 (10.1.0.2) CD-ROM and the Autorun screen should appear. If the Autorun screen does not appear, then:
   a. Click **Start > Run**.
   b. Enter the following command, where `DRIVE_LETTER` identifies the CD-ROM drive holding the install disk:
If you are installing the software from a hard drive, then navigate to the parent directory of the directory where the Oracle Database 10g product is stored and execute the setup.exe program.

2. When the OUI displays the Welcome page, click Next, and the OUI displays the Specify File Locations page.

3. The Specify File Locations page identifies the source for the installation and the destination storage location for the database software, also referred to as the Oracle home. You should not change anything on this page with one exception. The drive listed in the Path name field in the Destination section should be the drive that contains the free space that you identified for the database software in Section 5, "Check Disk Space Requirements". If the drive is not the one where you identified the free space, then change the drive value. Click Next to confirm your choices and proceed to the Specify Hardware Cluster Installation Mode page.
4. On the Specify Hardware Cluster Installation Mode page, the Cluster Installation mode is selected by default when the OUI detects that you are performing this installation on a cluster. The local node, from which you are running the OUI, is always selected for you. Select the additional node that is to be part of this installation session and click Next.

When you click Next on the Specify Hardware Cluster Installation Mode page, the OUI verifies that the Oracle home directory is writable on the remote node and that the remote node is operating.

If the OUI detects a network problem on any node that you have included in this installation, then the OUI displays a

---

**Note:** The Oracle home name and path that you use in this step must be different from the home that you used during the CRS installation in phase one. In other words, you must not install Oracle Database 10g with RAC software into the same home where you installed the CRS software.
warning on the Specify Hardware Cluster Installation Mode page. This warning appears next to the node and indicates that you should correct a problem before proceeding. To resolve problems, examine the OUI actions recorded in the installation log file:

```
system_drive:\Program Files\Oracle\Inventory\logs\installActionsdate_time.log
```

5. On the Select Installation Type page, select the **Standard Edition** option and click **Next**. The OUI displays the Select Database Configuration page.

6. On the Select Database Configuration page, accept the default options that are pre-selected to create a **General Purpose** starter database. Click **Next** and the OUI displays the Specify Database Configuration Options page.

7. Complete the sections on the Specify Database Configuration Options page as follows:
a. In the **Database Naming** section, enter a value for the **Global Database Name** and accept or change the generated value for the SID.

A global database name is a name that includes the database name and database domain, such as `db.us.acme.com`. The name that you enter on this page must be unique among all the global database names used in your environment.

The SID value is the common prefix for the Oracle SID of both instances. The instances have a SID that consists of the common prefix that you provide in this step and an instance ID that is automatically generated. Note that a SID cannot include more than 61 characters.

b. In the **Database Character Set** section, accept the default value, which is based on your system locale. To support more than one language, click **Help** for more information about the supported character sets.

c. In the **Database Examples** section, select the **Create database with sample schemas** option.
Click **Next** and the OUI displays the Select Database Management Option page.

8. On the Select Database Management Option page, accept the default values. Click **Next**, and the OUI displays the Specify Database File Storage Option page.

---

**Note:** You can enable e-mail notifications after you have installed the software.

---

9. On the Specify Database File Storage Option page, you must select **Automatic Storage Management** (the other options are only supported by the Enterprise Edition). Click **Next** to proceed to the Specify Backup and Recovery Options page.

10. On the Specify Backup and Recovery Options page, you should first select **Enable Automated Backups**. The **Automatic Storage Management** option is selected by default for you. In the **Backup Job Credentials** section, enter the name and password of your current Windows
session user. When you click Next on the Specify Backup and Recovery Options page, the OUI displays the Configure Automatic Storage Management page.

11. The Configure Automatic Storage Management page lists the available disk partition locations. Select the disks that you prepared for your ASM disk groups in Section 9, "Stamp the Logical Drives for ASM" section. The only partitions that the OUI displays are logical drives located on disks that have been stamped with `asmtoolg`.

If the Configure Automatic Storage Management page contains no entries, either you did not complete the ASM configuration steps correctly or the OUI is not looking in the correct location for your shared disks. If the OUI is not searching in the correct location, then click Change Disk Discovery Path and enter the default partition name for your ASM disk groups, which should be "\\.\ORCLDISK*"

Provide a name in the Disk Group Name field, accept the default value for the Redundancy setting, which is
Normal, and check the Select column for each partition that you want to include in the disk group. You must select at least two disk partitions.

See also: Oracle Real Application Clusters Installation and Configuration Guide for information about other ASM redundancy options with RAC

When you have completed your entries on this page, click Next to advance to the Specify Database Schema Passwords page.

12. On the Specify Database Schema Passwords page, enter and confirm passwords for all of the privileged database accounts. Oracle recommends that you specify a different password for each account. When you click Next on the Specify Database Schema Passwords page, the OUI displays the Summary page.

13. The Summary page lists the software components that the OUI will install. The Summary page also displays the space available in the Oracle home with a list of the nodes that
are part of the installation session. Verify the details about the installation that appear on the Summary page and click **Install** or click **Back** to revise your installation. When you click **Install**, the Install page opens.

14. The Install page displays an installation progress bar. When the installation completes, the OUI displays the Welcome page for the Virtual IP Configuration Assistant (VIPCA). Click **Next** on the VIPCA Welcome page to proceed to the Network Interfaces page.

15. On the Network Interfaces page, identify and select (highlight) the network interface card (NIC) to which you want to assign your VIP addresses.

---

**Note:** You must be certain that only your public NIC is selected for this purpose. If you select your private NIC on this page, which may be highlighted by default, your cluster will not function correctly.
When you click **Next**, the VIPCA displays the Virtual IPs for cluster nodes page.

**Tip:** To identify your public NICs, run the `ipconfig` command at a command prompt.

16. On the Virtual IPs for cluster nodes page, enter the virtual IP (VIP) addresses that you identified in Step 1 of Section 6, "Check Network Requirements" for both nodes. Click **Next** and the VIPCA displays a Summary page.

17. After you review and determine that the information on the VIPCA Summary page is correct, click **Finish**. A Configuration Assistant Progress Dialog page opens.

18. When the configuration completes, click **OK** on the Configuration Assistant Progress Dialog page to see the VIPCA session results in the Configuration Results window. Click **Exit** to exit the VIPCA and return to the OUI dialog.

19. After you exit from the VIPCA session, the OUI runs the Net Configuration Assistant (NetCA) and then Database
Configuration Assistant (DBCA). Toward the end of the DBCA session, the DBCA Password Management page appears.

20. The text on the DBCA Password Management page indicates that the database creation is almost complete. Click **Password Management** on the DBCA Password Management page to display the DBCA Password Management dialog.

21. On the DBCA Password Management dialog, you may unlock any of the default accounts. To unlock an account, click the blue check mark that appears next to it. By default, the **SYS**, **SYSTEM**, **DBSNMP**, and **SYSMAN** accounts are already unlocked. Click **OK** on the dialog when you are finished. Then click **OK** on the DBCA Password Management page and the Start Cluster Database dialog appears.

22. On the DBCA Password Management dialog, click any blue check marks for any accounts that you want to unlock. You can also enter a new password for the accounts that are unlocked. Click **OK** on the dialog when you are finished.
Then click **OK** on the DBCA Password Management page and the Start Cluster Database dialog appears.

**23.** The appearance of the Start Cluster Database dialog indicates the completion of the creation of the database. The dialog also starts the cluster database instances on both nodes. When this process completes, the End of the Installation page appears. Click **Exit** to exit OUI.

You have completed the second and final phase of the installation. Before you try to use your database, you should complete the additional tasks in the following sections.

### 11 Ensure Valid Path Name Exists on Both Nodes

Ensure that the path name for your new Oracle home is defined across the cluster by completing the following procedure on each of your two nodes:

1. Navigate to **Start > Settings > Control Panel > System > Advanced > Environment Variables**
2. In the System variables dialog, select the **Path** variable and ensure that the value for the **Path** variable contains `Oracle home\BIN`, where `Oracle home` is your new Oracle home. If the variable does not contain this value, then click **Edit** and add this value to the start of the path variable definition in the Edit System Variable dialog. Click **OK** in the Environment Variables page, then click **OK** in the System Properties page, and then close the Control Panel.

3. Click **OK** in the Environment Variables page, then click **OK** in the System Properties page, and then close the Control Panel.

You have now created a two-node RAC database in which both nodes have an Oracle instance, an Oracle Net Services listener, and the Oracle Enterprise Manager components for Database Control.

**12 What to Do Next**

To become familiar with your Oracle Database 10g with RAC, complete the following tasks:
- Log in to Oracle Enterprise Manager Database Control using a Web browser.

- Oracle Enterprise Manager Database Control is a Web-based application that you can use to manage a single Oracle database. The default URL for Database Control is:
  
  http://host.domain:5500/em/

  To log in, use the user name SYS and connect as SYSDBA. Use the password that you specified for this user during the Oracle Database 10g installation.

- See Chapter 12 of the Oracle Real Application Clusters Installation and Configuration Guide for information about required and optional post-installation tasks, depending on the products that you want to use.

- Review Chapters 13 and 14 of the Oracle Real Application Clusters Installation and Configuration Guide for information about the configuration of your installed database.

- Read the Oracle Database 2 Day DBA guide, to learn more about using Oracle Enterprise Manager Database Control
to administer a database. This guide, designed for new Oracle DBAs, describes how to use Oracle Enterprise Manager Database Control to manage all aspects of an Oracle database installation. It also provides information about how to enable e-mail notifications, which you might not have configured during the installation.

13 Additional Information

This section contains information about the following:

- Product Licenses
- Purchasing Licenses, Version Updates, and Documentation
- Contacting Oracle Support Services
- Locating Product Documentation

13.1 Product Licenses

You are welcome to install and evaluate the products included in this media pack for 30 days under the terms of the Trial
License Agreement. However, you must purchase a program license if you want to continue using any product after the 30 day evaluation period. See the following section for information about purchasing program licenses.

13.2 Purchasing Licenses, Version Updates, and Documentation

You can purchase program licenses, updated versions of Oracle products, and printed versions of Oracle documentation from the Oracle Store Web site:

http://oraclestore.oracle.com/

13.3 Contacting Oracle Support Services

If you have purchased Oracle Product Support, you can call Oracle Support Services for assistance 24 hours a day, seven days a week. For information about purchasing Oracle Product Support or contacting Oracle Support Services, go to the Oracle Support Services Web site:
13.4 Locating Product Documentation

Documentation for Oracle products is available in both HTML and Adobe portable document format (PDF) formats from several locations:

- On discs in the media pack:
  - Platform-specific documentation is available on the product discs. To access the documentation, see the welcome.htm file located in the top-level directory of the CD-ROM or DVD-ROM.
  - Generic product documentation is available on the Oracle Documentation Library CD-ROM and on the DVD-ROM.

- From the Oracle Technology Network Web site:
  http://otn.oracle.com/documentation/
To view PDF documents, download the free Adobe Acrobat Reader from the Adobe Web site, if necessary:

http://www.adobe.com/

For more information about the management of your Oracle RAC database, refer to these Oracle resources:

- Oracle Real Application Clusters Administrator’s Guide: Describes the tasks that a database administrator performs to manage a cluster database.


- Oracle Database Administrator’s Guide: Describes the functions performed by a database administrator with
different requirements for data availability, performance, user load, and so on

Oracle error message documentation is only available in HTML. If you only have access to the Oracle Documentation CD, then browse the error messages by range. Once you find a range, use your browser's "find in page" feature to locate a specific message. When connected to the Internet, you can search for a specific error message using the error message search feature of the Oracle online documentation.

14 Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Standards will continue to evolve over time, and Oracle is actively engaged with other market-leading
technology vendors to address technical obstacles so that our
documentation can be accessible to all of our customers. For
additional information, visit the Oracle Accessibility Program
Web site at:

http://www.oracle.com/accessibility/

14.1 Accessibility of Code Examples in Documentation

JAWS, a Windows screen reader, may not always correctly read
the code examples in this document. The conventions for
writing code require that closing braces should appear on an
otherwise empty line; however, JAWS may not always read a
line of text that consists solely of a bracket or brace.

14.2 Accessibility of Links to External Web Sites in
Documentation

This documentation may contain links to Web sites of other
companies or organizations that Oracle does not own or
control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.