

# Install Oracle10g Real Application Clusters Release 1 (10.1.0.4) on SuSE Linux Enterprise Server 9 and Matrix Server

This Installation Guide is intended to augment the Oracle and Novell documentation for installing Oracle10g Real Application Clusters. The scope of this document is to point out best practices particular to Matrix Server. Following the steps in this document will result in a single, shared Oracle Home for all Oracle10g nodes in the cluster. Screen shots and examples in this guide are taken from a 10-node Matrix Server running SLES9.

# **SLES9 System-Level Configuration**

# **Critical Supplemental Documentation**

In addition to this Installation Guide, the following Oracle and Novell documents are required for a successful installation. The Oracle documents describe generic configuration and setup procedures for Real Application Clusters. The Novell document provides generic SLES9-specific installation documentation. Having PolyServe Matrix Server in the stack does not change the generic requirements at all.

• Oracle® Real Application Clusters Installation and Configuration Guide 10g Release 1 (10.1) for AIX-Based Systems, HP-UX PA-RISC (64-bit), Tru64 UNIX, Linux, Solaris Operating System (SPARC 64-bit), Part No. B10766-01

This is a very large document. Chapter 5, which is Linux-specific, is of primary interest during systems preparation.

- Oracle® Database Patch Set Notes 10g Release 1 (10.1.0.4) Patch Set 2 for Linux x86, Metalink Node 304930
- *ORA-27125* while creating the DB instance on Kernel 2.6 above, Metalink Note 293988.1
- Oracle 10g R1 (10.1.0.3) on SUSE LINUX Enterprise Server 9, available at: <u>ftp://ftp.novell.com/partners/oracle/docs/10gR1\_sles9\_install.pdf</u>

Although this Novell document does not cover an installation of Real Application Clusters, it does offer system-level configuration information pertinent to Oracle10g, and therefore Oracle10g RAC.

# **Overview of System Configuration Requirements**

Installing Oracle10g RAC on Linux requires specific node-level configuration. PolyServe Matrix Server does not change those requirements in any way. It is not possible to install Oracle10g RAC on a Linux cluster that does not comply with the following:

- Kernel Parameters. Metalink Note 263715.1 contains a lengthy list of kernel parameters and recommended values. Generally speaking, the only parameter that affects an install of Oracle10g is SHMMAX. The recommendations for the remaining parameters are optimized settings.
- SSH. Oracle10g introduces the use of ssh by Oracle Universal Installer. ssh must be configured in accordance *with Oracle® Real Application Clusters Installation and Configuration Guide 10g Release 1* (Part Number B10766-01), page 5-14.

# Install Oracle10g Real Application Clusters on SLES9 and Matrix Server 3.0

To aid in the generic installation complexity of Oracle10g RAC, Oracle Support Services has prepared a Pre-Install script that validates the OS-level requirements on Linux. PolyServe recommends that you obtain this script, which is mentioned in the following MetaLink Note: *Pre-Install Checks for 10g RDBMS on Linux, Note: 283748.1* 

However, PolyServe recommends that Novell documents override this installation checker. If a failure is detected that conflicts with the Novell document, PolyServe advises you to keep the Novell setting.

# Matrix Server Filesystem Requirements for Oracle10g RAC

After the cluster nodes are configured in accordance with the above requirements, installing Oracle10g RAC on PolyServe Matrix Server is quite simple. There are three requirements:

- **Regular PolyServe Filesystem Mount Option**. At least one PolyServe filesystem must be mounted with the non-DB Optimized mount option in which to locate ORACLE\_BASE. For example, */u01* with ORACLE\_BASE being */u01/app/oracle*.
- **DB Optimized Mount Option**. At least one PolyServe cluster filesystem must be mounted with the DB Optimized mount option before Oracle10g is installed.
- **Preallocated Oracle Clusterware Files**. New with Oracle10g is the Cluster Ready Services (CRS) clusterware. As was the case with the OCMS clusterware of Oracle9iRAC, this clusterware will execute alongside the Matrix Server clusterware.

Tip! The Oracle Cluster Repository file must be presized to the recommended size of least 100 MB and must be located within a filesystem mounted with the DB Optimized option. Provided that /u02 is mounted with the DB Optimized option, this file can be created using the following **dd**(1) command syntax:

\$ dd if=/dev/zero of=/u02/ocr.dbf bs=1024k count=100

The CSS voting disk must be presized to the recommended size of 25 MB and must reside in a filesystem mounted with the DB Optimized option. Provided that /u02 is mounted with the DB Optimized option, this file can be created using the following sample **dd**(1) command syntax:

\$ dd if=/dev/zero of=/u02/voting.dbf bs=1024k count=25

# PolyServe Oracle Disk Manager Library (MxODM)

As stated in the MxODM documentation, it is advisable to postpone the installation of MxODM until the entire Oracle10g installation is complete, including DBCA. While there is no functional reason to do so, it does help ensure that hitting any Oracle10g installation problems does not invoke suspicion about Oracle Disk Manager. Once you are satisfied with your Oracle10g RAC installation, simply shut down all instances and install MxODM in accordance with the product release notes.

# Failed Oracle10g Installation Attempts

If any of the aforementioned requirements are not implemented, the installation of Cluster Ready Services (CRS) will fail. Oracle Corporation has associated the startup of the CRS processes with system runtime control (see **init**(8)). If CRS does not install cleanly, looping system reboots may result. It is imperative to quickly uninstall any residual CRS files should the installation not succeed.

The procedure for cleaning up after a failed CRS installation attempt is documented in Metalink note 239998.1, "10g RAC: How to Clean Up After a Failed CRS." In brief, the most critical step to take immediately after a failed CRS install attempt is to restore, on each node, the */etc/inittab* file preserved by Oracle Universal Installer. Use the following command:

# cp /etc/inittab.orig /etc/inittab

# Dual Version Oracle9i/Oracle10g Clusters

Both Oracle9i RAC and Oracle10g RAC can be installed in the same cluster. This configuration is supported as per Metalink note 220970.1; however, you will encounter significant difficulty if Oracle10g is installed after Oracle9i. Oracle Corporation states support for the combination but does not document how to implement it.

If you want to configure a dual Oracle9i/Oracle10g system and neither is installed yet, simply install Oracle10g RAC first and then install Oracle9i RAC. The 9i RAC install has no knowledge of 10g, and Oracle Universal Installer will not take a different course based on detecting Oracle10g. The converse is not true.

If an Oracle9i RAC installation exists when Oracle10g is being installed, the Oracle Universal Installer will detect that fact and force the direction of the installation procedure through an upgrade path full of steps to convert the Oracle9i Server Config file over to Cluster Ready Services format along with many other undesired side effects.

To successfully install Oracle10g to co-exist with Oracle9i RAC in the same cluster, PolyServe recommends the following tested method:

Task 1. Shut down all Oracle9i RAC processes, including:

- All Oracle Database instances
- All SQL\*Net Listeners
- All Global Services Daemon processes
- All Oracle Cluster Management Services processes

**Task 2**. Obscure the Oracle9i RAC Installation by renaming the Server Configuration pointer file as in the following example:

#### mv /var/opt/oracle/srvConfig.loc /var/opt/oracle/srvConfig.loc.save

**Task 3**. In the environment of the processes invoking the Oracle10g OUI, unset any environment variables such as the following that point to the Oracle9i installation:

- SRVM\_SHARED\_CONFIG
- TNS\_ADMIN

**Task 4.** Choose a location for the Oracle10g ORACLE\_BASE. For example, if the Oracle9i ORACLE\_BASE *is /u01/app/oracle*, create and use another directory such as */u01/app/oracle10*.

After Oracle10g is installed, reverse the action in Task 2 and then reverse the actions in Task 1. You will then have a dual purpose Oracle9i/Oracle10g RAC Matrix Server setup.

# Cryptic And Erroneous Error Messages From Oracle Universal Installer

There are conditions under which the Oracle Universal Installer raises an exception with completely incorrect diagnostics during the installation of Cluster Ready Services. These dialog boxes are generically titled "Error" and no error numbers are provided. As a courtesy, two of these conditions are described below.

# Condition 1

During the Cluster Ready Services installation, the exception shown in Figure 1.1 may be raised:



# Figure 1.1

If the paths you have specified for the Oracle Cluster Registry (also known as Repository) and Cluster Synchronization Services disks are located in a PolyServe DB Optimized location and presized in accordance with the information above, this is simply an erroneous exception. That is not to say, however, that there is not a problem. This exception is raised under any of the following misconfiguration scenarios:

- SSH is not configured for unchallenged remote command execution among all nodes.
- The filesystems containing the preallocated OCR and/or CSS disks are not mounted on all nodes of the cluster.
- The permissions for the CRS\_HOME are incorrect on one or more nodes.

 The permissions for the mount point of the OCR and/or CSS disk are incorrect on one or more nodes.

#### **Condition 2**

The exception shown in Figure 1.2 suggests that **ssh/scp** or **rsh/rcp** are not configured. However, this exception can also be raised in circumstances where the true problem is actually related to permissions. If this exception is raised, ensure that the */etc/hosts* file is the same on all nodes.

💿 Error	四
<b>9</b>	The specified nodes are not clusterable. This could be due to one or more of the following reasons:
	<ol> <li>The user performing the install is not configured in an equivalent manner on all nodes.</li> </ol>
	<ol> <li>ssh and scp are not configured properly on all nodes.</li> <li>rsh and rcp are not configured properly on all nodes.</li> </ol>
	Note that if ssh and scp are not configured on your cluster, Oracle Universal Installer will attempt to use rsh and rcp for remote operations. See the "Oracle (r) Real Application Clusters Installation and Configuration Guide" for more details on how to properly setup user equivalence on all nodes of the cluster.
	K OK



# **Oracle Managed Files**

When you execute the Database Configuration Assistant, you will be given the option to choose Oracle Managed Files. (See Figure 6.10.) Using Oracle Managed Files (OMF) is optional, but recommended. With the Matrix Server cluster filesystem and OMF, such things as file sizes, names, and segment management are taken care of automatically for the core database files such as the SYSTEM and SYSAUX tablespaces. The database created with this option is easy to add to later on with customized, site-specific tablespace create scripts.

# ORACLE\_BASE, ORACLE\_HOME and CRS\_HOME

Before invoking OUI, it is important to review section 2, pages 17 and 18 of the *Oracle*® *Real Application Clusters Installation and Configuration Guide* (part number B10766-01). The installer asks for the name and location for the CRS home and by default tries to place it into Oracle Home. (See Figure 2.7.) It is imperative that the default path be changed.

Tip! It is recommended that you accept the default name of the CRS home (e.g.,

OraCr10g\_home1), but change the CRS path to be a subdirectory adjacent to Oracle Home and mandatorily placed under Oracle Base. Assign Oracle Base to a directory in a Matrix Server cluster filesystem that is **not mounted** with the DB Optimized mount option. For example:

```
ORACLE_BASE=/u01/app/oracle
ORACLE_HOME=/u01/app/oracle/product/10.1.0/db_1
```

Given the above example, the value provided for CRS home should be \${ORACLE\_BASE}/product/10.1.0/crs\_1.

# Install Oracle10g Real Application Clusters on SLES9 and Matrix Server

# Installation Methodology Overview

Oracle Universal Installer (OUI) is a feature-rich installation tool. It provides functionality to call other Oracle configuration tools during the installation based upon decisions by the Database Administrator. For example, the Database Administrator can direct OUI to invoke DBCA to create a starter database. In the end, there are many paths that can be taken to get the same result.

This document contains a series of informational text and screen shots detailing an Oracle10g RAC install on a 10-node Matrix Server. The sample procedure details a "best-practices" approach consisting of the following steps:

- 1. Extract the distribution medium.
- 2. Install Cluster Ready Services version 10.1.0.3.
- 3. Upgrade CRS to version 10.1.0.4.
- 4. Install Oracle10g Enterprise Edition without a starter database.
- 5. Upgrade Oracle10g Enterprise Edition to 10.1.0.4.
- 6. Execute the Database Configuration Assistant (a 14-step process). The key points are:
  - Select Cluster Filesystem (the default in step 7 of 14. See Figure 6.9).
  - Select OMF (step 8 of 14, Figure 6.10).
- 7. Execute the Enterprise Manager Configuration Assistant.

# Step 1: Extract the Distribution Medium

Before starting the installation, ensure that all of the system configuration steps described earlier have been performed. Next, extract the distribution medium into a working directory in accordance with the Oracle documentation.

# Step 2: Install Cluster Ready Services (CRS) 10.1.0.3

Several environment variables must be set before you run the Oracle Universal Installer. Figure 2.1 shows a terminal session with an example of the necessary and recommended environment variable assignments.



#### Figure 2.1

As the Oracle software owner, go to the directory where the CRS distribution medium was extracted and execute Oracle Universal Installer (i.e., ./runInstaller).



Figure 2.2

The Welcome page appears as shown in Figure 2.3. Click Next.

Oracle Universal Installer: Welcome	
Welcome	
The Oracle Universal Installer guides you through your Oracle products.	n the installation and configuration of
Click "Installed Products" to see all installed pro	ducts.
	2
	Deinstall Products
	About <u>Oracle Universal Installer</u> )

#### Figure 2.3

On the Specify Inventory directory and credentials page, ensure that the path specified for the OraInventory is under Oracle Base. (By convention, it is generally an immediate subdirectory under Oracle Base.) If ORACLE\_BASE is set in the environment, this will be the default as shown in Figure 2.4.

Specify Inventory dire	ctory and crede	entials	
You are starting your first installation or directory for installer files. This is callec installer automatically sets up subdirect consume typically 150 Kilobytes per pr	n this host. As part of this in d the "inventory directory". 1 fories for each product to c oduct.	nstall, you need to sp Within the inventory d ontain inventory data	ecify a lirectory, the and will
Enter the full path of the inventory direc	tory.		
/u01/app/oracle10/oralnventory			Browse
You can specify an Operating System gr You can leave the field blank if you war	oup that has write permiss It to perform the above ope	ion to the above inve erations as a Superus	ntory directory
You can specify an Operating System gr You can leave the field blank if you war Specify Operating System group name:	roup that has write permiss It to perform the above ope	ion to the above inve erations as a Superus	ntory directory er.
You can specify an Operating System gr You can leave the field blank if you war Specify Operating System group name: dba	roup that has write permiss It to perform the above ope	ion to the above inve erations as a Superus	ntory directory er.
You can specify an Operating System gr You can leave the field blank if you war Specify Operating System group name: dba	roup that has write permiss It to perform the above ope	ion to the above inve erations as a Superus	ntory directory er.
You can specify an Operating System gi You can leave the field blank if you war Specify Operating System group name: dba	roup that has write permiss It to perform the above ope	ion to the above inve erations as a Superus	ntory directory er.
fou can specify an Operating System gr fou can leave the field blank if you war specify Operating System group name: dba	roup that has write permiss It to perform the above ope	ion to the above inve erations as a Superus	ntory directory er.

Figure 2.4

When you click Next, the dialog shown in Figure 2.5 asks you to execute the **orainstRoot.sh** script as superuser.

🚼 Oracle Universa	I Installer: Specify Inventory directory and credentials	_ X
1	🔀 Oracle Universal Installer 🏼 🕘 🗖 🗙	$\cap \sigma$
Specify In	Certain actions need to be performed with root privileges before the install can continue. These actions are stored in a shell script named	8
You are starting y directory for insta installer automati consume typically	/u01/app/oracle10/oralnventory/orainstRoot.sh.	pecify a directory, the ta and will
Enter the full patt //u01/app/oracl(	Please execute the /u01/app/oracle10/oralnventory/orainstRoot.sh script now from another window, then click "Continue" to continue the install.	Browse
You can specify a You can leave the		/entory directory. Jser.
Specify Operating dba	Help (Cancel	
	k}	
Help	Installed Broducts) Back Next Instal	L Cancel
ORACLE		

Figure 2.5

Perform this step in another terminal window as shown in Figure 2.6 and click Next.





The Specify File Locations page shown in Figure 2.7 appears next. As mentioned earlier, ensure that the Destination path for CRS home is not the same as ORACLE\_HOME. It is recommended that you accept the default name for CRS home (e.g., OraCr10g\_home1), but change the CRS path to be a subdirectory that is adjacent to Oracle Home and placed under Oracle Base. (Assign Oracle Base to a directory in a Matrix Server cluster filesystem that is not mounted with the DB Optimized mount option.)

In our example:

- ORACLE\_BASE is /u01/app/oracle10
- ORACLE\_HOME is /u01/app/oracle10/product/10.1.0/db\_1

The Destination path for CRS home is therefore /u01/app/oracle10/product/10.1.0/crs\_1.

Specify File Locations         Source         Enter the full path of the file representing the product(s) you want to install:         Path:       [/tmp/10g/Disk1/stage/products.xml]         Browse         Destination         Enter or select a name for the installation and the full path where you want to install the product.         Name:       CRShome         Path:       //u01/app/oracle10/product/10.1.0/crs_1         Browse         Help       Installed Products	Oracle	Universal Installer: Specify File Locations	
Source         Enter the full path of the file representing the product(s) you want to install:         Path:       /tmp/10g/Disk1/stage/products.xml         Destination         Enter or select a name for the installation and the full path where you want to install the product.         Name:       CRShome         Path:       /u01/app/oracle10/product/10.1.0/crs_1         Browse         Help       Installed Products         Back       Next	Spec	ify File Locations	
Enter the full path of the file representing the product(s) you want to install: Path: /tmp/10g/Disk1/stage/products.xml	Source		
Path:       /tmp/10g/Disk1/stage/products.xml       Browse         Destination       Enter or select a name for the installation and the full path where you want to install the product.         Name:       CRShome       Path:         Path:       /u01/app/oracle10/product/10.1.0/crs_1       Browse         About Qracle Universal Installer       Help       Installed Products       Back       Next       Install       Cancel	Enter th	e full path of the file representing the product(s) you want to install:	
Destination         Enter or select a name for the installation and the full path where you want to install the product.         Name:       CRShome         Path:       /u01/app/oracle10/product/10.1.0/crs_1         Browse         About Qracle Universal Installer         Help       Installed Products	Paţh: 🗍	/tmp/10g/Disk1/stage/products.xml Browse	)
Path:     /u01/app/oracle10/product/10.1.0/crs_1       Browse       About Qracle Universal Installer       Help     Installed Products	Destin	nation	
Path: //u01/app/oracle10/product/10.1.0/crs_1  Browse  About Qracle Universal Installer  Help ) Installed Products ) Back Next ) Install ) Cancel	Destin Enter or	nation - select a name for the installation and the full path where you want to install the product	
About Qracle Universal Installer       Help     (Installed Products)       Back     Next       (Installed Products)	Destin Enter or Na <u>m</u> e:	nation select a name for the installation and the full path where you want to install the product CRShome	
About Qracle Universal Installer       Help     Installed Products	Destin Enter or Na <u>m</u> e: P <u>a</u> th:	ration - select a name for the installation and the full path where you want to install the product CRShome /u01/app/oracle10/product/10.1.0/crs_1 Browse	)
About Qracle Universal Installer           Help         Installed Products         Back         Next         Install         Cancel	Destin Enter or Na <u>m</u> e: P <u>a</u> th:	Action select a name for the installation and the full path where you want to install the product CRShome /u01/app/oracle10/product/10.1.0/crs_1 Browse	
Help ) Installed Products ) Back Next ) Install ) Cancel	Destin Enter or Na <u>m</u> e: P <u>a</u> th:	Nation select a name for the installation and the full path where you want to install the product CRShome [/u01/app/oracle10/product/10.1.0/crs_1 Browse	
Help ) Installed Products Back Next ) Install Cancel	Destin Enter or Name: Path:	hation - select a name for the installation and the full path where you want to install the product CRShome [/u01/app/oracle10/product/10.1.0/crs_1 Browst About Qracle Universal Insta	
	Destin Enter or Name: Pgth:	Aation - select a name for the installation and the full path where you want to install the product CRShome /u01/app/oracle10/product/10.1.0/crs_1 Browst About Qracle Universal Insta	 Iler

# Figure 2.7

When you click Next, the Language Selection page appears as shown in Figure 2.8. Select the appropriate language and click Next again.



Figure 2.8

On the Cluster Configuration page, shown in Figure 2.9, supply a cluster name and the private and public interconnect information and then click Next.

Oracle Universal Installer: Cluster Config	guration 🥞
Cluster Configuration	
pecify the cluster name. For each node in th he private name, to be used to interconnect t he same as the public name, but can be an l	e cluster, specify the public name (the host name), and the nodes within the cluster. The private name cannot b P address.
luster Name : crs	
Iuster Name : crs	Private Node Name
Iluster Name : crs Public Node Name mxserv5	Private Node Name rac5
Cluster Name : crs Public Node Name mxserv5 mxserv6	Private Node Name rac5 rac6
Cluster Name : crs Public Node Name mxserv5 mxserv6 mxserv7	Private Node Name rac5 rac6 rac7
Cluster Name : crs Public Node Name mxserv5 mxserv6 mxserv7 mxserv8	Private Node Name rac5 rac6 rac7 rac8
Cluster Name : crs Public Node Name mxserv5 mxserv6 mxserv7 mxserv8 mxserv9	Private Node Name rac5 rac6 rac7 rac8 rac9
Cluster Name : crs Public Node Name mxserv5 mxserv6 mxserv7 mxserv8 mxserv9 mxserv10	Private Node Name rac5 rac6 rac7 rac8 rac9 rac10
Cluster Name : crs Public Node Name mxserv5 mxserv6 mxserv7 mxserv8 mxserv9 mxserv10	Private Node Name rac5 rac6 rac7 rac8 rac9 rac10



On the Specify Network Interface Usage page (Figure 2.10), use mouse clicks to establish interconnect types for each node specified on the Cluster Configuration page. Click Next.



Figure 2.10

The Oracle Cluster Registry page shown in Figure 2.11 appears next. The OCR location must be a pre-sized file and must reside in a filesystem mounted with the DB OptimizedTip! option. The install will not proceed beyond this point if either of these two critical requirements is not met. Enter a path for the OCR location and click Next.

Dracl	e Cluster Registry
he Orac pecify a odes of	e Cluster Registry (OCR) stores cluster configuration and cluster database configuration, shared raw device, or cluster filesystem file that will be visible by the same name on all he cluster.
n OCR v	ill be created for you., and will require approximately 100MB of disk space.
pecify (	CR Location : //u02/ocr.dbf

#### Figure 2.11

The Voting Disk page shown in Figure 2.12 now appears. Cluster Synchronization Services (CSS) require that this file be pre-sized and reside in a filesystem mounted withTip! the DB Optimized option. Once again, installation will not proceed if these criteria are not met. Supply the appropriate path and click Next.

🗑 Oracle Universal Installer: Voting Disk 🧕	_ ×
Voting Disk	
Cluster Synchronization Services (CSS) voting disk is used to arbitrate ownership of the clus cluster nodes in the event of a complete private network failure. Specify a shared raw devi filesystem file that will be visible by the same name on all nodes of the cluster. A CSS voting disk will be created for you., and will require approximately 20MB of disk spa	ter among ice, or cluster ace.
Enter voting disk file name : //u02/voting.dbf	
	~
Help Installed Products ) Back Next Install	Cancel
ORACLE	

Figure 2.12

The dialog shown in Figure 2.13 now asks you to execute the **orainstRoot.sh** script on all nodes of the cluster. After doing so, click Next.

😹 Oracle Universal	Installer: Voting Disk		_ ×
6	😸 Oracle Universal Installer 🥥 🗖 🗙		
Voting Di Cluster Synchroni: cluster nodes in t filesystem file tha A CSS voting disk Enter voting disk	Certain actions need to be performed with root privileges before the install can continue. These actions are stored in a shell script named /u01/app/oracle10/oralnventory/orainstRoot.sh. Please execute the /u01/app/oracle10/oralnventory/orainstRoot.sh script now from another window on all cluster nodes, then click "Continue" to continue the install.	cluster among device, or clust k space.	er
	Help Cantinue Cancel		>
	nstalled <u>Products</u> <u>Back</u> <u>N</u> ext Install	) ( Cancel	
ORACLE'			

#### Figure 2.13

When the Summary screen (Figure 2.14) appears, click Install.



Figure 2.14

The Installer now performs processing such as copying files and relinking executables as shown in Figure 2.15.



Figure 2.15

The Setup Privileges dialog, shown in Figure 2.16, asks you to execute the **root.sh** script in the CRS home on the first node and then on the remaining nodes.



Figure 2.16

Figure 2.17 shows the output from the scripts.

🔕 Shell - Konsole <2> 🧶	_ 🗆 ×
Session Edit View Bookmarks Settings Help	
clscfg: Arguments check out successfully.	•
NU KEYS WERE WRITTEN. Supply -force parameter to override.	
-iorde is destructive and will destroy any previous cluster	
Consignation. Onacle Cluster Registry for cluster has already been initialized	
diding deemos to initial	
Prenaring Unacle Cluster Ready Services (CRS):	
Experting the CBS daemons to be un within 600 seconds.	
CSS is active on these nodes.	
mxseru1	
mxseru2	
mxseru3	
mxseru4 📅	
mxserv5	
mxseru6	
mxseru7	
mxseru8	
mxserv9	
mxseru10	
CSS is active on all nodes.	
Waiting for the Oracle CRSD and EVMD to start	
Uracle CKS stack installed and running under init(1M)	
	1
A Shell	

#### Figure 2.17

Click "OK" to continue. When the scripts are complete, click Next. The Configuration Assistants page shown in Figure 2.18 then appears. When the configuration assistants are complete, click Next.



Figure 2.18

Provided that the configuration assistants succeeded, the End of Installation page shown in Figure 2.19 will appear. CRS version 10.1.0.3 is now fully functional. Exit out of the Universal Installer as shown below.



Figure 2.19

# Step 3: Upgrade Cluster Ready Services (CRS) to 10.1.0.4

After you have downloaded the 10.1.0.4 patchset (p4163362), extract the zipped file into a working directory and execute **the runinstaller** script. When the Welcome screen appears as shown in Figure 3.1, click Next.



Figure 3.1

In the File Locations screen (Figure 3.2), select the CRS Home installed during the 10.1.0.3 phase of the installation and click Next.

🖸 Oracle Universal Installer: Specify File Locations 🗾	巴
	$\int g$
Specify File Locations	0
Source	
Enter the full path of the file representing the product(s) you want to install:	
Path: /tmp/10.1.0.4patch/Disk1/stage/products.xml	Browse
Destination Enter or select a name for the installation and the full path where you want to install Name: [CRShome]	the product.
Path: ///01/opp/oppsio10/product/10.1.0/opp.1	
About Qracle U Help Installed Products ) Back Next Insta	niversal Installer)
ORACLE	



Select all nodes as shown in Figure 3.3 and click Next.

Ľ	j uracie universal installer: selected Nodes		린
	Selected Nodes		
	You have chosen an existing Oracle Home. Installation will be performed on the following nodes.		
	Node Names		
	mxserv1		
	mxserv10		
	mxserv9		
	mxserv8		
	mxserv7 🤤		
	mxserv6		
	mxserv5		
-	mxserv4		
	mycon/2		
-			
		>	
1	Liele Installed Products Pack Next	a	
		:	)
	ORACLE		

Figure 3.3

When the Summary screen appears, click Install as shown in Figure 3.4.



Figure 3.4

On the End of Installation screen (Figure 3.5), review the post-install instructions in the scroll box and then click Exit.

🖸 Oracle Universal Installer: End of Installation	<u></u> ۲
End of Installation	
The installation of Oracle Database 10g Patch Set 2 was success	ful.
Please remember	
The installer has detected that your Cluster Ready Services (CRS) ins is shared amongst the following nodes:	tallation
mxserv1 mxserv10 mxserv9 I mxserv8 mxserv7 mxserv6 mxserv5 mxserv4 mxserv4 mxserv2 Because of the shared nature of this installation, you cannot perform	n a rolling
upgrade of your CRS software.	
Help Installed Products Back Next In	stall <u>Exit</u>
ORACLE	

Figure 3.5

To complete the installation of this patchset, perform the following tasks on each node:

- 1. Shut down all RAC databases that are running on the cluster.
- 2. On each node of the cluster, shut down the CRS daemons. To do this, log in as *root* and issue the following command:

/etc/init.d/init.crs stop

3. Run the **root10104.sh** script as *root* on each node. The script automatically starts the CRS daemons on each of the nodes upon completion.

The script is located in the CRS\_HOME/install directory. For example:

# cd /u01/app/oracle10/product/10.1.0/crs\_1/install

```
# sh ./root10104.sh
```

# Step 4: Install Oracle10g Enterprise Edition 10.1.0.3

This step installs Oracle10g Enterprise Edition without a starter database. Change directories to the *Disk1* subdirectory under the directory where the database distribution medium, **ship.db.lnx32.cpio.gz**, was extracted. Execute **runInstaller** and then take these actions:

- Click through the Welcome page
- Click through the Oracle Inventory page
- Execute the orainstRoot.sh script as directed and click Next

On the File Locations page shown in Figure 4.1, specify the path for ORACLE\_HOME. Be sure to specify a directory other than where CRS was installed.

pecify File Locations         source         Inter the full path of the file representing the product(s) you want to install:         "ath: [/tmp/10g/Disk1/stage/products.xmi]         Destination         Inter or select a name for the installation and the full path where you want to install the product.         Iame: ORAhome         "ath: [/u01/app/oracle10/product/10.1.0/db_1]         Browse         About Qracle Universal Installer         Help       Installed Products	Oracle U	niversal Installer: Specify File Locations	9		
pecify File Locations         source         Inter the full path of the file representing the product(\$) you want to install:         Path:       [/tmp/10g/Disk1/stage/products.xml]         Destination         Inter or select a name for the installation and the full path where you want to install the product.         Iame:       ORAhome         ath:       [/u01/app/oracle10/product/10.1.0/db_1]         Browse					
Fource         Inter the full path of the file representing the product(s) you want to install:         (ath: //tmp/10g/Disk1/stage/products.xml         Destination         Inter or select a name for the installation and the full path where you want to install the product.         Iame: ORAhome         gth: //u01/app/oracle10/product/10.1.0/db_1         About Qracle Universal Installer         Help       Installed Products         Back       Next       Install	specif	fv File Locations			
inter the full path of the file representing the product(s) you want to install: (ath: /tmp/10g/Disk1/stage/products.xml    Destination  Inter or select a name for the installation and the full path where you want to install the product.  Iame: ORAhome  ath: /u01/app/oracle10/product/10.1.0/db_1   About Qracle Universal Installer  Help Installed Products Back Next Install Cancel					
Inter the full path of the file representing the product(s) you want to install:          Image: Im	Source				
ath:       /tmp/10g/Disk1/stage/products.xml <ul> <li>Browse</li> <li>Destination</li> </ul> Inter or select a name for the installation and the full path where you want to install the product.         Iame:       ORAhome           gth:       /u01/app/oracle10/product/10.1.0/db_1           About Qracle Universal Installer           Help       Installed Products	Inter the	full path of the file representing the product(s)	you want to instal	1:	
Destination Inter or select a name for the installation and the full path where you want to install the product. Iame: ORAhome gth: /u01/app/oracle10/product/10.1.0/db_1 Browse About Qracle Universal Installer Help Installed Products Back Next Install Cancel	'aţh: /tn	mp/10g/Disk1/stage/products.xml		*	Browse
rath: //u01/app/oracle10/product/10.1.0/db_1 Browse  About Qracle Universal Installer  Help Installed Products Back Next Install Cancel	)estina	ition			
Igith: //u01/app/oracle10/product/10.1.0/db_1 Browse Browse About Qracle Universal Installer Help Installed Products Back Next Install Cancel	Destina	ttion select a name for the installation and the full p	th where you wan	t to install the	product.
About Qracle Universal Installer Help Installed Products ) Back Next Install Cancel	Destina Inter or s Name: C	<b>ttion</b> select a name for the installation and the full pa DRAhome	th where you wan	t to install the	product.
About Qracle Universal Installer. Help Installed Products Back Next Install Cance	Destina Enter or s Name: C Path: 7	tion select a name for the installation and the full p RAhome 1u01/app/oracle10/product/10.1.0/db_1	th where you wan	t to install the	product. Browse
Help Installed Products Back Next Install Cancel	Destina Enter or s Vame: C Path: 7	tion select a name for the installation and the full p DRAhome u01/app/oracle10/product/10.1.0/db_1	th where you want	t to install the	product. Bro <u>w</u> se
Help Installed Products Back Next Install Cancel	Destina Enter or s Name: [C Path: [7	<b>ttion</b> select a name for the installation and the full p RAhome w01/app/oracle10/product/10.1.0/db_1	th where you want	t to install the	product. Browse
	Destina Enter or s Name: C Path: 7	<b>ttion</b> select a name for the installation and the full p JRAhome /u01/app/oracle10/product/10.1.0/db_1	th where you want	t to install the	product. Browse rsal Installer.

Figure 4.1

Click Next and the Language Selection page will appear. Select the appropriate language and click Next.

Since CRS is active, the Specify Hardware Cluster Installation Mode page shown in Figure 4.2 appears. The pick list contains the cluster nodes specified during the CRS install. Select all of the nodes and click Next.

🛃 Orac	cle Universal Installer: Specify Hardware Cluster Installation Mode 🧕	_ ×
Spe Cli Se	ecify Hardware Cluster Installation Mode	g
pr	Node Name	
	7 mxserv5	
F	🖉 mxservб	
	Z mxserv7	
	7 mxserv8	
	nxserv9	
L.	mxcon/10	
	Select All Deselect	AII)
CLO	cal Installation	_
Sel	lect this option if you want to perform a single node non-cluster installation even though the loc de is part of a hardware cluster.	al
Н	elo Installed Products Back Next Install Can	rel 1
0		

# Figure 4.2

The Select Installation Type screen allows you to select either Enterprise or Standard Edition as seen in Figure 4.3. Select Enterprise Edition and click Next.

🔀 Oracle Universal Installer: Select Installation Type 🛛 🎱	_ ×
Select Installation Type Oracle Database 10g 10.1.0.3.0	
What type of installation do you want?	
Enterprise Edition (877MB)	
Oracle Database 10g Enterprise Edition, the first database designed for the grid, is that has the scalability, performance, high availability and security features require demanding, mission critical applications.	s a self-managing database ed to run the most
C Standard Edition (840MB)	
Oracle Database 10g Standard Edition is ideal for workgroups, departments and si businesses looking for a lower-cost offering.	mall-to-medium sized
C <u>C</u> ustom	
Enables you to choose individual components to install.	
	Product Languages
Help Installed Products Back Nex	Install Cancel
ORACLE	

Figure 4.3

The installer now performs checks and provides status. When the checks are complete, click Next as shown in Figure 4.4.

he installer will now verify that the system meets all the min	imum requirement	s for installing a	ind
onfiguring the chosen product. You are required to manuall agged as warnings or manual checks. For details on perforr ee the details at the bottom.	y verit and confirn ning those checks,	n the items that click on the iter	are n and
Check	Туре	Status	
Checking operating system certification	Automatic		P
Checking recommanded operating system packages	Automatic	Succeeded	
Checking recommended glibs version	Automatic	Succeeded	-
Validating ORACLE RASE location (if set)	Automatic	El Succeeded	
	Sector figure	Jucceded a	D
		Retry	Stop
0 requirements to be verified.			
Theck complete. The overall result of this check is: Passed			==

Figure 4.4

The Select Database Configuration page includes an option to have the OUI invoke DBCA to create a starter database. As shown in Figure 4.5, click "Do not create a starter database." (Database creation occurs later in the procedure as documented in Step 6.) Click Next.



Figure 4.5

The Summary page shown in Figure 4.6 now appears. Click Install.



Figure 4.6

The status update bar in Figure 4.7 shows the installation in progress.



Figure 4.7

Tip! When the installation is complete, the Setup Privileges dialog shown in Figure 4.7 asks you to run the **root.sh** script on each node of the cluster. At this point of the installation, be sure to run **root.sh** from a session in which the DISPLAY environment variable is set and exported. Before executing **root.sh**, test your X environment with **xterm**(1) or **xclock**(1) as shown in Figure 4.8.



#### Figure 4.8

After running **root.sh** on the listed nodes, click OK and the VIP Configuration Assistant screen will appear as shown in Figure 4.9. Click Next.



Figure 4.9

Select the desired interfaces as shown in Figure 4.10 and click Next.

# NOTE: Do not click Next more than once!

💥 VIP Configuration Assi	stant, 1 of 2 : Network Interfaces 🧕 📃 🗙
	This page displays the supported network interfaces found. Select the network interfaces from the list.
	eth0 eth1
	Select All Select None
Cancel Help	S Back Next >>)

# Figure 4.10

Enter the addresses of your Oracle Virtual IPs and click Next as shown in Figure 4.11.

	Node name	IP Alias Name	IP address	Subnet Mask
	mxserv1	vipc1	10.12.10.40	255.255.255.0
	mxserv2	vipc2 🖋	10.12.10.41	255.255.255.0
	mxserv3	vipc3	10.12.10.42	255.255.255.0
	mxserv4	vipc4	10.12.10.43	255.255.255.0
	♪ mxserv5	vipc5	10.12.10.44	255.255.255.0
	mycante	inec	10 10 10 45	
6				

Figure 4.11

The **vipca** tool now creates and configures the GSD and related infrastructure as shown in Figure 4.12.



#### Figure 4.12

When the configuration is complete, click OK. The Configuration Results page, shown in Figure 4.13, then appears. Click Exit.

The VIP Configu each cluster noc	ration Assistant has su de.	iccessfully created i	resource aplications for
<b>Nodes:</b> mxserv: nxserv9,mxserv	1,mxserv2,mxserv3,mx v10	kserv4,mxserv5,mx	serv6,mxserv7,mxserv8,
Network Interf	aces: eth0,eth1		
Mapping of no	des and virtual IP ad	dresses:	
Node name	IP Alias Name	IP address	Subnet Mask
mxserv1	vipc1	10.12.10.40	255.255.255.0
mxserv2	vipc2	10.12.10.41	255.255.255.0
mxserv3	vipc3	10.12.10.42	255.255.255.0
mxserv4	vipc4	10.12.10.43	255.255.255.0
mxserv5	vipc5	10.12.10.44	255.255.255.0
mxserv6	vipc6	10.12.10.45	255.255.255.0
022	vipc7	10.12.10.46	255.255.255.0
mxserv7		10.12.10.47	255.255.255.0
mxserv7 mxserv8	VIDC8		
mxserv7 mxserv8 mxserv9	vipc8 vipc9	10.12.10.48	255.255.255.0

# Figure 4.13

The End of Installation page shown in Figure 4.14 then appears.



Figure 4.14

# Step 5: Upgrade Oracle10g Enterprise Edition to 10.1.0.4

Return to the *Disk1* subdirectory where you extracted the 10.1.0.4 patchset distribution medium and execute **runInstaller**.

Supply the path to your Oracle Home in the File Locations screen (Figure 5.1) and click Next.



Figure 5.1

CRS detects of all the nodes and shows them on the Selected Node list (Figure 5.2). Select all nodes and click Next.

🖌 Oracle Universal Installer: Selected Nodes 🧕	ii
Selected Nodes You have chosen an existing Oracle Home. Installation will be per	ormed on the following nodes.
Node Names	
mxserv1	<u> </u>
mxserv2	
mxserv3	
mxserv4	
mxserv5	
mxserv6	
mxserv7	
mxserv8	
lmxser/9	<u> </u>
Help Installed Products Back	xt Install Cancel
ORACLE	



On the Summary screen (Figure 5.3), click Install.

Oracle Univ	versal Installer: Summary 🧐	
Summa Oracle Da	Iry atabase 10g Patch Set 2 10.1.0.4.0	
⊖-Global S	ettings	1
Source	e: /tmp/10.1.0.4patch/Disk1/stage/products.xml	
-Oracle	e Home: /u01/app/oracle10/product/10.1.0/db_1 (ORAhome)	1
⊕-Cluste	r Nodes	- 1
Product	Languages	- 1
Englis	h	- 1
⇔Space Re	equirements	- 1
-/u01/	/ Required 733MB : Available 13.91GB	- 1
-/ Req	uired 54MB (only as temporary space) : Available 17.48GB	- 1
⊕-Remo	te Nodes	- 1
€Upgrade	rs (4 products)	- 1
-New Inst	tallations (115 products)	- 1
-Advar	nced Queueing (AQ) API Patch 10.1.0.4.0	- 1
Advar	nced Replication Patch 10.1.0.4.0	6
Help	Installed Products	ncel
ORACL	E	

Figure 5.3

An Install screen appears (Figure 5.4) and displays a progress bar.

Oracle Universal I	istaller: Install	
Install		
Installation in prog	<b>r</b> ess	
Link pending		Oracle Database 10g: The Database for the G
Setup pending		Virtualization at every last
Configuration pend	ing	Policy-based provisioning
		Resource pooling
opying 'jdk/src.zip'		
	0%	
Stop installation		
You can find a log of t	nis install session at:	
/u01/app/oracle10/c	rainventory/logs/installActions200	)5-04-15_03-45-28PM.log
		I
Help ) Ins	alled Products ) Back	Next ) (Install) (Cano
ORACLE		

Figure 5.4

The Setup Privileges dialog (Figure 5.5) now directs you to execute the **\$ORACLE\_HOME/root.sh** script as superuser on each node.

🔀 Setup Priv	rileges 🎱 🗖 🗙
Instal	
🖌 Copy st	A configuration script needs to be run as root on cluster nodes before installation can proceed. Leaving this window open, open another window and run
Link su	'/u01/app/oracle10/product/10.1.0/db_1/root.sh' as root on node(s) mxserv1.mxserv2.mxserv3.mxserv4.mxserv5.
🖌 Setup s	mxserv6,mxserv7,mxserv8,mxserv9,mxserv10, then return to this window and click OK to continue.
Configu	
	<u>OK</u>
Starting remote operation i	n nodes mxserv2,mxserv3,mxserv4,mxserv5,
	100%
Stop installation	0
You can find a log of this in /u01/app/oracle10/oraln	istall session at: ventory/logs/installActions2005-04-15_03-45-28PM.log
Help Installe	d <u>Products</u> <u>Back</u> <u>Next</u> (install) <u>Cancel</u>
ORACLE	



¥ T

Tip! Since this is a shared Oracle Home, there is one unnecessary, time-consuming step that can be removed from the **root.sh** script. After running **root.sh** on the first node in the cluster, edit the script and comment out the line that executes the **chmod**(1) command recursively. There are, after all, over 35,000 files in the Oracle Home for 10.1.0.4.

Again, make sure that you have already run the script on the first node before implementing the tip. After you implement the tip, you still must execute the script on every node in the cluster. It will now complete nearly instantly.

Edit **\$ORACLE\_HOME/root.sh** and pattern search for the text CHMOD. Implement the change as shown in this sample cut from the file:

```
#
# Change mode to remove group write permission on Oracle home
#
$CHMOD -R g-w $ORACLE_HOME
$ECHO "Finished running generic part of root.sh script."| $TEE -a $LOG
$ECHO "Now product-specific root actions will be performed."| $TEE -a $LOG
```

After running **root.sh** on each node, click OK.

When the End of Installation screen appears (Figure 5.6), click Exit.



Figure 5.6

# Step 6: Execute Database Create Assistant

The DBCA utility complies with the Optimal Flexible Architecture for database layout and configuration. To prepare the PolyServe Matrix Server environment, the following configuration actions are required:

- Establish a DB Optimized location for the *oradata* directory. By default, DBCA places datafiles in *\$ORACLE\_BASE/oradata/<DBNAME>*. Since this is a shared install, the ORACLE\_BASE directory is not DB Optimized. Create a directory on a DB Optimized directory and create a symbolic link to the ORACLE\_BASE directory.
- Establish a DB Optimized Location for the Flash Recovery area. By default, DBCA places the Flash Recovery Area in *\$ORACLE\_BASE/<DBNAME>*. As this is a shared install, the ORACLE\_BASE directory is not DB Optimized. Create a directory on a DB Optimized directory and create a symbolic link to the ORACLE\_BASE directory.

Figure 6-1 shows an example of configuring DB Optimized *oradata* and *flash\_recovery* directories into the ORACLE\_BASE.

Session Edit View Bookmarks Settings Help
<pre>\$ cd \$URACLE_BASE \$ pwd /u01/app/oracle10 \$ mount   grep u02 /deu/psu/psu/psu/psu/psu/psu/psu/psu/psu/ps</pre>
🐱 🔳 Shell

#### Figure 6.1

Next, invoke **dbca** from the command line as the *oracle* user. Because CRS is running, the Welcome screen (Figure 6.2) offers the choice of RAC or non-RAC database. Choose Real Application Cluster database and click Next.

Tip! If the Real Application Clusters database configuration screen depicted in Figure 6.2 does not appear, there is something wrong with the configuration. Oddly, testing has proven that DBCA will omit this screen and not create a RAC database if the */etc/oraInst.loc* file is missing or incorrect. If this problem is encountered, verify that:

- The file exists
- The file is readable by the user executing OUI
- The inventory\_loc parameter in the file points to your Oracle10g inventory

Database Configuration	Assistant : Welcome 🥘 📃 🗙
	<ul> <li>Welcome to the Database Configuration Assistant for Oracle Real Application Clusters.</li> <li>The Database Configuration Assistant enables you to create, configure, or delete a cluster database and manage database templates. It also enables you to add and delete instances, and to add, delete, and modify services of a cluster database.</li> <li>Select the database type that you would like to create or administer:</li> <li>Oracle Real Application Clusters database</li> <li>Oracle single instance database</li> </ul>
Cancel Help	) Sext Dext Dext Dext Dext Dext Dext Dext D

Figure 6.2

On the Operations screen (Figure 6.3), choose Create a Database and click Next.

Database Configuration As	sistant, Step 1 of 17 : Operations 🧕	
	elect the operation that you want to perform:    Create a Database  Configure Database Options  Delete a Database  Manage Templates  Instance Management  Services Management	
	₽\$	
Cancel Help	Seck Next >	

Figure 6.3

**dbca** now queries CRS for the nodes of the cluster. All nodes configured during the Cluster Ready Services installation should be listed as shown in Figure 6.4. Click Select All and then click Next.

Database Configuration A	ssistant, Step 2 of 17 : Node Selection 🧕			×
	Select the nodes on which you want to create the cluster database. The local nodes will always be used, whether or not it is selected.           mxserv1           mxserv3           mxserv4           mxserv7           mxserv9           mxserv10	"mxse Select	2rv1"	-
Cancel Help	G Back Next >			

Figure 6.4

Select a template from the list of database types on the Database Templates screen as shown in Figure 6.5. General Purpose is a good default. Click Next.

Select	Template	Includes Datafile
0	Custom Database	No
•	Data Warehouse	Yes
9	General Purpose	Yes
0	Transaction Processing	Yes
And an and an An and an an an and an		

Figure 6.5

In the Database Identification screen (Figure 6.6), enter your Global Database Name and click Next.

Database Configuration	Assistant, Step 4 of 17 :	Database Identification	9	_ 🗆 X
	An Oracle database is u "name.domain". Global Database Name: A database is reference instance is uniquely ider instance, the SID is com; instance that is automati which you can accept or SID Prefix:	niquely identified by a Glob PROD.pdx.polyserve.com d by an Oracle instance on tified by an Oracle System orised of a common prefix cally generated. A suggest change to a value you pref PROD	al Database Name, typically o each cluster database node. I Identifier (SID). For each cluste for the database and a numbe d SID prefix has been entered er.	f the form lach rr database er for each d for you
Cancel Help	)		⊰ Back Next ≫	

Figure 6.6

In the Management Options screen (Figure 6.7), choose the management type appropriate for your environment and click Next.

Database Configuration	n Assistant, Step 5 of 16 : Manageme	nt Options 🥥 🗕	
	Each Oracle database may be mana Control or locally using the Oracle Er management option that you would Configure the Database with Ent Ouse Grid Control for Database	ged centrally using the Oracle Enterprise Manager terprise Manager Database Control. Choose the ike to use to manage this database. erprise Manager Management.	Grid
	Select the Management Service	No Agents Found	
National Statements	Use Database Control for Data	base Management	
Warnesdamme	Enable Email Notifications		
1 Marin 2004 Annuar Marin 2004 Annuar Marin 2004 Annuar	Outgoing Mail (SMTP) Server:		
Average Average Average Houstman Houstman Average	Email Address:		
Norman Hoped Sciences Hoped Sciences	🗆 Enable Daily Backup		
Notest Statement Notest Statement Notest Statement	Backup Start Time:	OZ OG AM C PM	
	OS Username:		
	Password:		
Cancel Help	C	S Back Next	

Figure 6.7

Confirm Password:
User Name Password Confirm Password SYS SYSTEM DBSNMP SYSMAN
SYS SYS SYSTEM DBSNMP SYSMAN
SYSTEM DBSNMP SYSMAN
DB5NMP SYSMAN
SYSMAN

Enter passwords in the Database Credentials screen (Figure 6.8) and click Next.

# Figure 6.8

As shown in Figure 6.9, choose the default Storage Option, which is Cluster File System. Click Next.

Database Configuration As	ssistant, Step 7 of 14 : Storage Options		X
	Select the storage mechanism you would like to use for the database. © Cluster File System Use cluster file system for database storage.		
Tana and a	C Automatic Storage Management (ASM) Automatic Storage Management simplifies database storage administration and optimizes database layout for I/O performance. To use this option you must eith specify a set of disks to create an ASM disk group or specify an existing ASM dis C Raw Device.	ier k group	).
Hamiltonian Hamil	Raw partitions or volumes can provide the required shared storage for Real App Clusters (RAC) databases if you do not use Automatic Storage Management and File System is not available. You need to have created one raw device for each of control file, and log file you are planning to create in the database. Specify Raw Devices Mapping File Browse	lication a Cluste datafile,	ır
Cancel Help		Einish	5

Figure 6.9

Choose Oracle Managed Files on the Database File Locations screen (Figure 6.10) and click Finish.

Database Configuration A	ssistant, Step 8 of 14 : Da	tabase File Locations 🥘	X
	Specify locations for the Dat C Use Database File Locat C Use Common Location fo	abase files to be created: ions from Template or All Database Files	
	Database Files Location:		Browse)
	Use Oracle-Managed Fil	es	
1 Spyregisterie Styregisterie Weitzskieler	Database Area:	(ORACLE_BASE)/oradata	Browse)
Hermitalisation Marken State Marken State	Multiplex Redo Logs at	d Control Files) v different locations for any data se the Storage page to specify e	base files, pick either of the ach location. File Location Variables )
Cancel Help		🤇 Bar	ck Next >) Einish

Figure 6.10

Since a DB Optimized location has been configured for Flash Recovery, accept the default by clicking Next as shown in Figure 6.11.

Database Configuration As	sistant, Step 9 of 14 : Recover	y Configuration 🧕	×
	Choose the recovery options for ti ✓ Specify Flash Recovery Area This is used as the default for for automatic backup using Er files and recovery files be loca performance.	he database: all backup and recovery operatior tterprise Manager. Oracle recomm tted on physically different disks fo	is, and is also required ends that the database ir data protection and
	Flash Recovery Area:	{ORACLE_BASE}/flash_recover	Browse)
Nacional Sciences	Flash Recovery Area Size:	2048	🗍 M Bytes 🐨
Hernergianerie Bergen Herner Herner Herner Hernergianerie Hernergianerie	Enable Archiving	Edit Archive Mode Parameter	File Location Variables)
Cancel Help		Rack N	Hext >>) Finish
		S Bark	

Figure 6.11

PolyServe recommends that you have DBCA create the sample schemas. Click Next as shown in Figure 6.12.

Sample Schemas Custom Scripts Sample Schemas illustrate the use of a layered approach to complexity, and are used by some demonstration programs. Installing this will give you the following schemas in your database: Human Resources, Order Entry, Online Catalog , Product Media, Queued Shipping, Sales History . It will also create a tablespace called EXAMPLE. The tablespace will be about 130 MB. Specify whether or not to add the Sample Schemas to your database. Sample Schemas
⟨∠ Bark Next ≫) Finish

# Figure 6.12

On the Database Services screen (Figure 6.13), select your Global Database and click Add.

Database Services	Service details			
PROD.pdx.polyserve.com	Instance	Not Used	Preferred	Available
ka €				
(Add Remove )	TAF Policy	None OBasic O	Pre-connect	

Figure 6.13

		Service details				
ROD.pdx.polyserve.com	Instance	Not Used	Preferred	Available		
Add a	a Service 🥥					
Enter St		7 <b>2</b>				
Enter Se	ervice Name: PROD	L				
	Corl	nal (Itala)				

Enter a Service name in the Add a Service dialog (Figure 6.14) and click OK.

# Figure 6.14

DBCA then fills the box with the names of the servers known by CRS as shown in Figure 6.15. Click Next.

Database Services	Details for PROD			
PROD.pdx.polyserve.com	Instance	Not Used	Preferred	Available
– <mark>prod</mark>	PROD1	0	۲	0
	PROD2	0	۲	0
	PROD3	0	۲	0
	PROD4	0		O
	PROD5	O		0
	PROD6	0		0
	PROD7	0	۲	0
	PROD8	0	۲	O
	PROD9	0	۲	0
	PROD10	0	6	0
(Add Remove)	TAE Policy @ Not	ne C.Bacir O	Pre-connect	

Figure 6.15

If you are satisfied with the settings for Memory, Sizing, Character Sets, and so on that are shown in the Initialization Parameters Box (Figure 6.16), click Next.

Memory	Sizing Character Sets Connection Mode
© Typical – Alloc	ate memory as a percentage of the total physical memory (100)
Percentage:	40 Show Memory Distribution )
○ Custom	
Shared Memo	ory Management: 🔍 Automatic 🔿 Manual
SGA Size	272 M Bytes
PGA Size:	90 M Bytes -
Total n	memory includes 40MB of Oracle Process Size and the defaults
	memory includes 40MB of Oracle Process Size and the defaults y parameters, if any.

# Figure 6.16

Review the Options as shown in Figure 6.17 and click OK.

Ontion	Colocted				
Dracle IVM	true				
Dracle Intermedia	true				
Dracle Text	true				
Dracle XML DB	true				
)racle OLAP	true				
Dracle Spatial	true				1
Dracle Data Mining	true				1
Dracle Ultra Search	true				1
Pracle Label Security	false				1
ample Schemas	true				1
Interprise Manager Repository	true				1

Figure 6.17

	Memory	Sizing	Character Sets	Connection Moc	le
Databa	se Configuration A:	ssistant	_		(1008 MB)
	*	<ul> <li>Copying databa</li> <li>Creating and st</li> <li>Creating cluster</li> <li>Configuring St</li> <li>Completing Dat</li> </ul>	se files arting Oracle instance database views <b>rvices</b> abase Creation	8	aults for th
<b>)</b>		Clone database cre	eation in progress		
			Stop	\$	

DBCA now creates the database. A progress bar appears as shown in Figure 6.18.

# Figure 6.18

When DBCA has completed creating the database, an information dialog appears as shown in Figure 6.19. Examine it and click Exit.

	Memory	Sizing	Character Sets	Connection Mode	
📑 Databas	e Configuration As	sistant			LOO8 MB
Database	Configuration Assi	stant <2> 🅘		□ ×	
Database cre /u01/app/or	ation complete. Chec acle10/admin/PROD	:k the logfiles at /create for details.			
Database Info Global Data System Ider Server Para	ormation: ubase Name: PR ntifier(SID) Prefix: PR meter Filename: /u	:OD.pdx.polyserve :OD 01/app/oracle10/	.com oradata/PROD/spfile	PROD.ora	]
Note: All data the Password the database you will use. immediately	abase accounts excep Management button accounts. From the F Oracle Corporation st after unlocking the ac	ot SYS, SYSTEM, DB to view a complet Password Manager rongly recommenc count.	SNMP, and SYSMAN e list of locked accou nent window, unlock is changing the defar	are locked. Select ints or to manage only the accounts ult passwords	lts for th
		à	Passwor	d Management)	
		Exit			
The second se					1

Figure 6.19



Another dialog box (Figure 6.20) states that database instances are being started.



# Step 7: Enterprise Manager Configuration

If your installation of steps 1-6 has not been interrupted by a system configuration violation, the Enterprise Manager Configuration will have started automatically. However, if problems were encountered, you can re-run Enterprise Manager Configuration Assistant (**emca**) at this time.

As shown in Figure 7.1, invoke **emca** with the **-c** and **-r** options. Answer the questions with appropriate values for your setup.

🐻 Shell - Konsole  🥯	
Session Edit View Bookmarks Settings Help	
oracle@mxserv1:~> emca -c -r	1
STARTED FMCA at Man Ann 25 12:23:39 PDT 2005	
Enter the following information about the cluster da	tabase to be configured
Listener port number: 1521	
Cluster name: crs	
Database name: PROD	
Service name: PROD.pdx.polyserve.com	
Email address for notification:	
Email gateway for notification:	
rassword for absimp:	
rasswura fur sysmall. Passwurd for sust	
Tassworu for sys.	
You have specified the following settings	
Database ORACLE_HOME	le10/product/10.1.0/db_1 L/app/oracle10/product/10.1.0
Database Instance host name mxserv1	L.voludemo.com
Listener port number 1521	1 3
Cluster name crs	<b>T</b>
Database name PROD	<u> </u>
Service name PROD.pdx.polyserve.com	n
Email address for notification	
Email gateway for notification	
No you wish to continue? [yes/mol: ∎	
🟯 🔳 Shell	

# Figure 7.1

After answering yes as in Figure 7.1, **emca** performs a great deal of configuration activity, logging progress to the screen.

As shown in Figure 7.2, the end of the procedure will report success and report how to connect to Enterprise Manager for this RAC setup.

Figure 7.2

Copyright © 2005 PolyServe, Inc. All rights reserved. PolyServe and the PolyServe logo are trademarks of PolyServe, Inc. All other trademarks mentioned in this document are the property of their respective owners. This document is for informational purposes only and does not set forth any warranty, expressed or implied, concerning any software, software feature, or service offered or to be offered by PolyServe, Inc. PolyServe, Inc., reserves the right to make changes to this document at any time, without notice, and assumes no responsibility for its use.