



Oracle Database 10g Standard Edition One to Oracle Database 10g Standard Edition with Real Application Clusters Migration using the Dell Server Platform

Matt Bush
Oracle Corporation

Shawn Kelley
Oracle Corporation

Mahmoud Ahmadian
Dell Inc.

August 8th, 2005

Intent

This document was designed to assist database administrators in migrating deployed Oracle® Database Standard Edition One databases on Dell™ Platforms to an Oracle Database 10g Standard Edition with Real Application Clusters environment.

Product Licensing

The migration process outlined in this document deals with products with different licenses. This document makes the assumption that the user has purchased the appropriate licenses for all appropriate products. For more information please see the [Licensing Information Document](#) available on [Oracle Technology Network](#) or contact your Oracle representative.

Required Hardware and Software

One Dell PowerEdge™ 2800 or 2850 server with installed Oracle Database Standard Edition One software.

Two Dell PowerEdge 2850 servers.

One EMC AX100 or CX300 Storage Array.

Four HBA cards and one fiber switch (optional).

See the [Oracle Database 10g Standard Edition Real Application Cluster for Microsoft® Windows® Deployment Guide](#) for further details on requirements.

Overview

Migration from Oracle Database 10g Standard Edition One to Oracle Database 10g Standard Edition with Real Application Clusters requires three basic steps.

Back up the existing Standard Edition One database.

Install the Oracle Database 10g Standard Edition with Real Application Clusters software. Restore the Standard Edition One database on the newly-installed Real Application Clusters cluster.

This process requires that a full Oracle Database Standard Edition One and Oracle Database 10g Standard Edition with Real Application Clusters hardware environment be available for the migration. Remote storage for database backups is advised. Please contact your systems administrator for details on remote storage. For additional information on database installation and migration see [Metalink](#) and [Oracle Technology Network](#).

Backup the Oracle Database Standard Edition One Database

Backup the existing Oracle Database Standard Edition One database using DBCA by following the steps detailed as the following: Backing up the database using Database Configuration Assistant.

Backing up the database using Database Configuration Assistant (DBCA)

Shutdown Oracle instance using `srvctl` command. For example if your global database SID is `gdbName`, the command line would look like:

```
srvctl stop database -d gdbName
```

Launch Database Configuration Assistant (DBCA) and select the database type as Oracle Real Application Clusters

Welcome to the Database Configuration Assistant for Oracle Real Application Clusters.

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.

Select the database type that you would like to create or administer:

- Oracle Real Application Clusters database
- Oracle single instance database



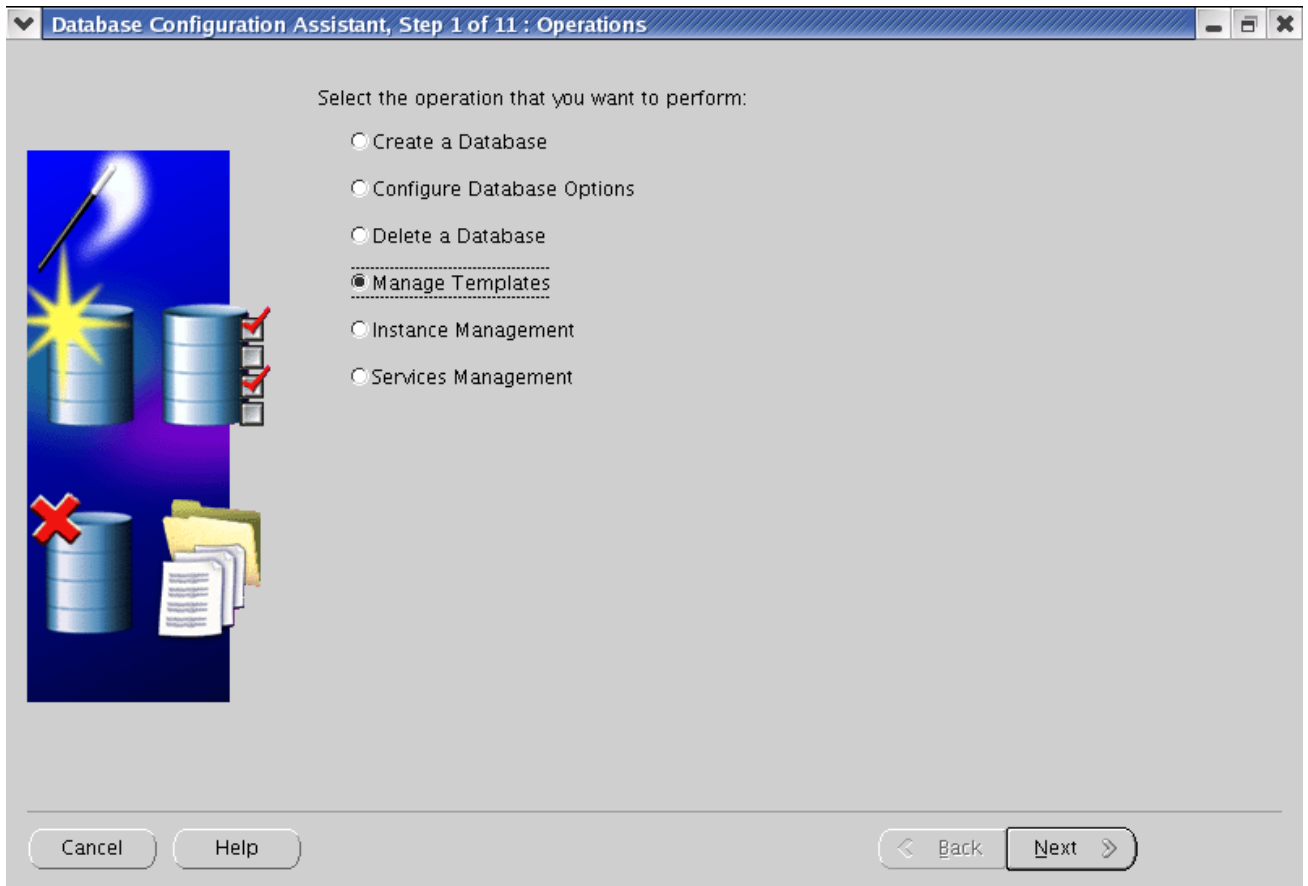
Cancel

Help

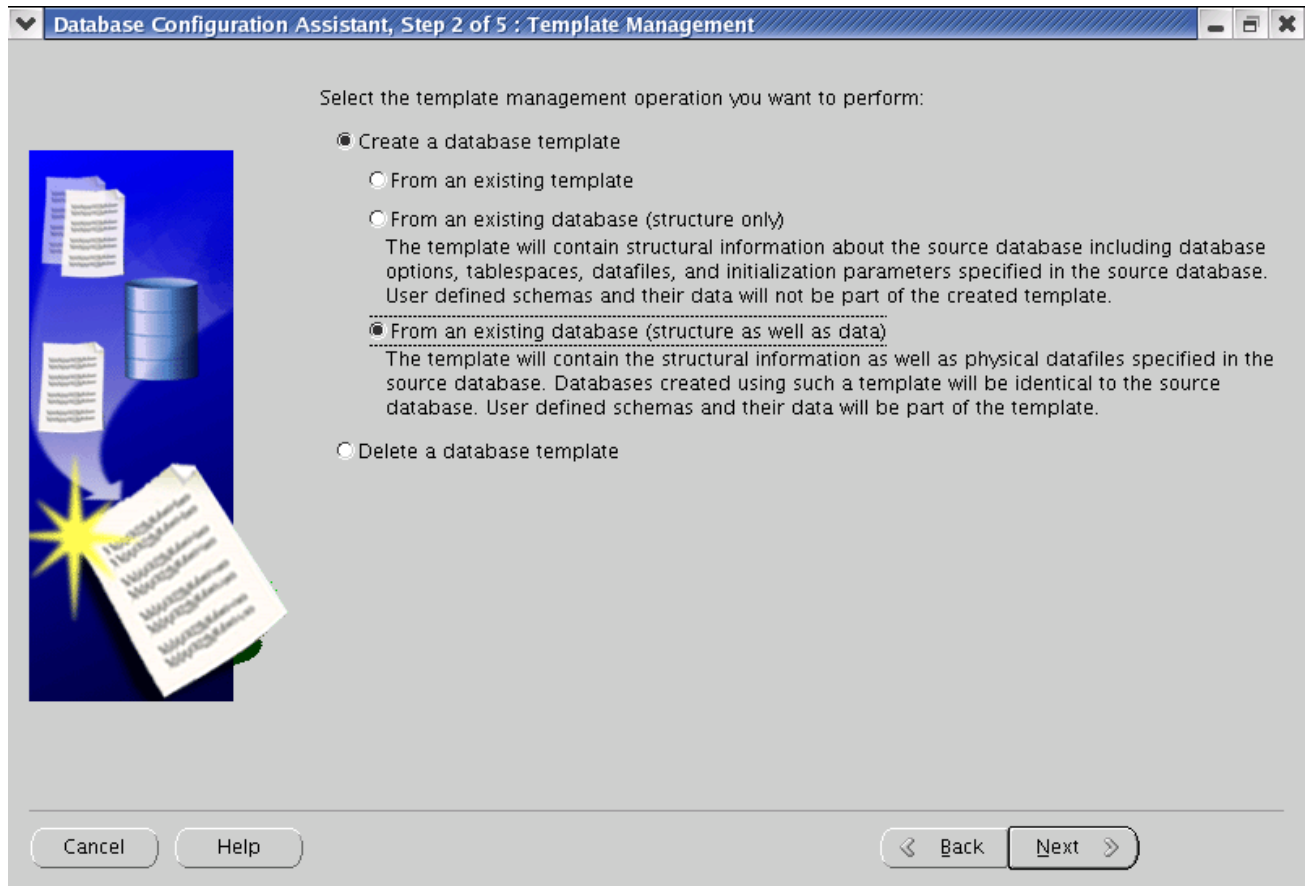
< Back

Next >

Select the operation you want to perform to be “Manage Templates”



Select the template management operation to “From an existing database (structure as well as data)”




Choose the database which you want to create a template from.

Database Configuration Assistant, Step 3 of 5 : Source database

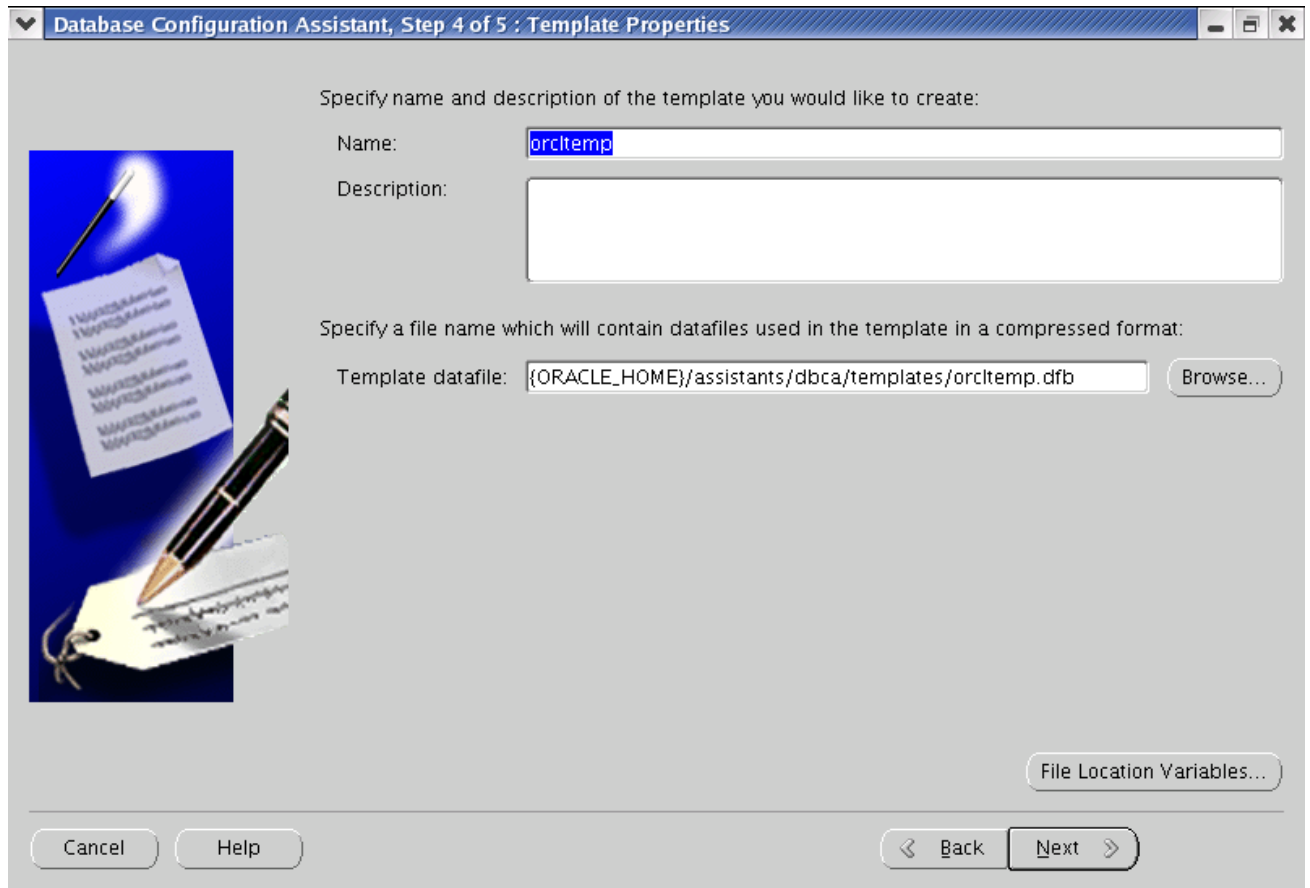
Choose a database from which you want to create the template. The database must be on this machine.
Note: The source database will be shutdown during the template creation.

Database Name



Cancel Help < Back Next >

Specify the name and description of the template you would like to create.



Database Configuration Assistant, Step 4 of 5 : Template Properties


Specify name and description of the template you would like to create:

Name:

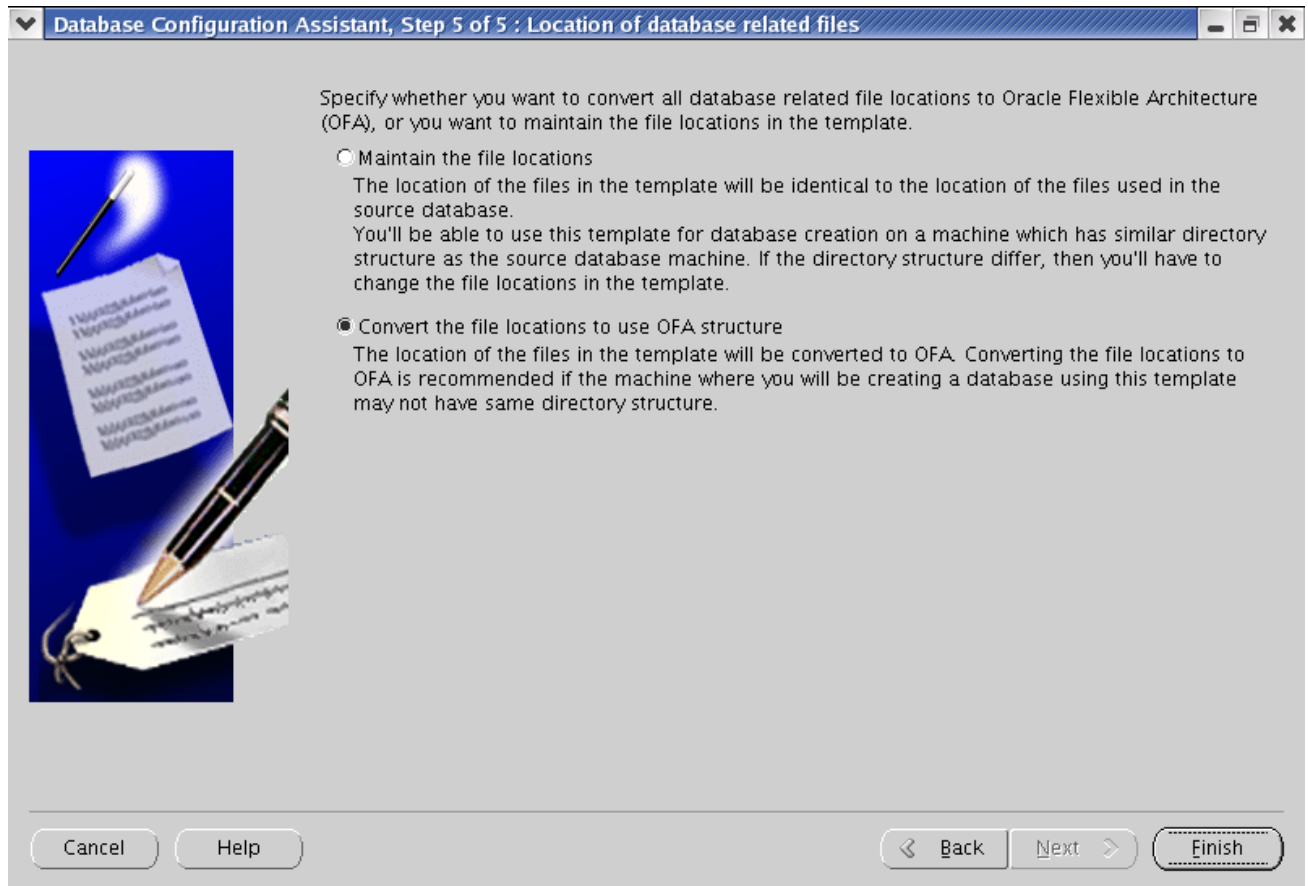
Description:

Specify a file name which will contain datafiles used in the template in a compressed format:

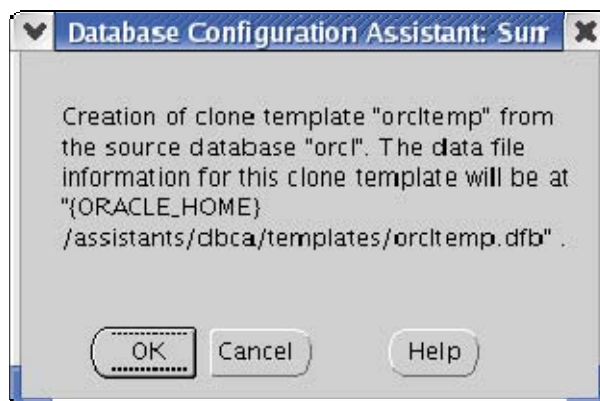
Template datafile:

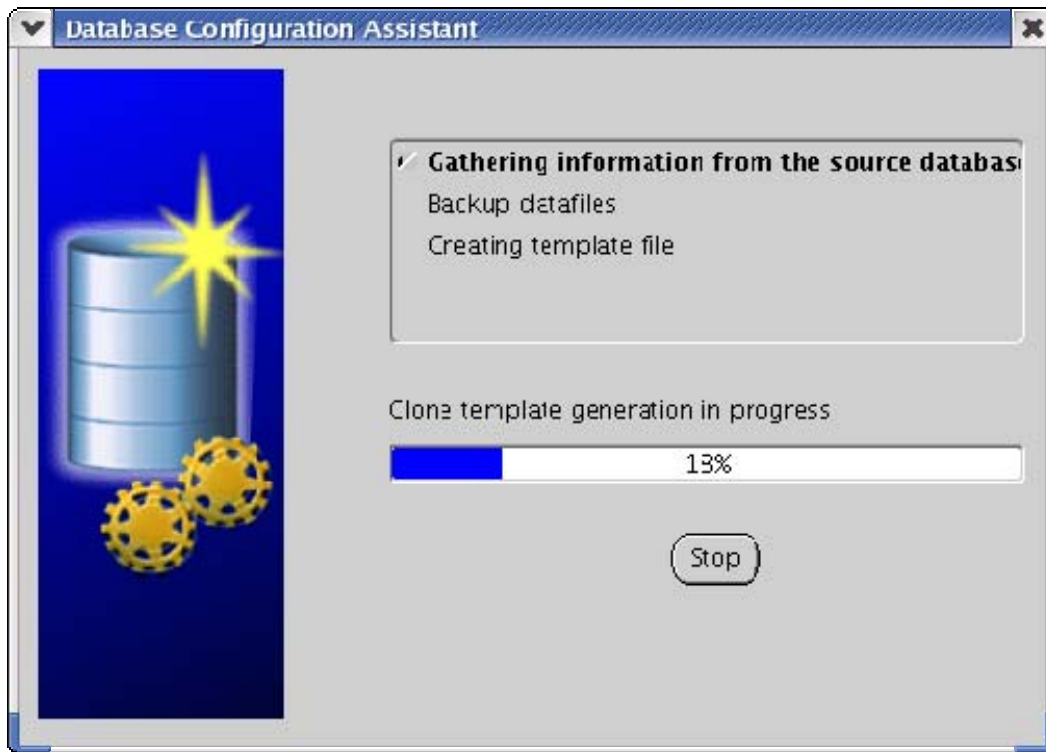


Select "Convert the file locations to use OFA structures"

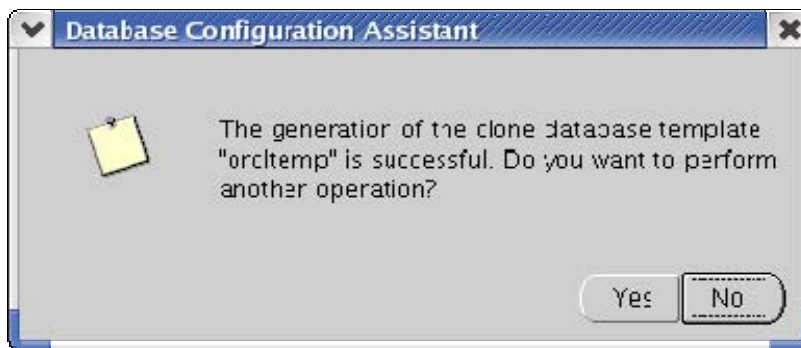


Click OK to accept the creation of template.





Click No to complete the database template creation.



Verify that two template files are created
\$ORACLE_HOME/assistants/dbca/templates/<templatename>.dfb and .dbc. Save these files to a media or remote server. **If you use lose these files, you will not be able to restore your database. So take all the standard precautions to safeguard them.** This seems pretty important. I would put this in bold.

Deploy and Configure the Oracle Database 10g Standard Edition with Real Application Clusters Cluster

Once you have a backup of your database, install the Oracle Database 10g Standard Edition with Real Application Clusters servers by following the [Oracle Database 10g Standard Edition Real Application Cluster for Microsoft® Windows® Deployment Guide](#), stopping when step *Creating the Seed*. I assume this is correct? Perhaps you meant “second”? Database is reached.

Restore the Oracle Database Standard Edition One Database on Oracle Database 10g Standard Edition with Real Application Clusters Cluster

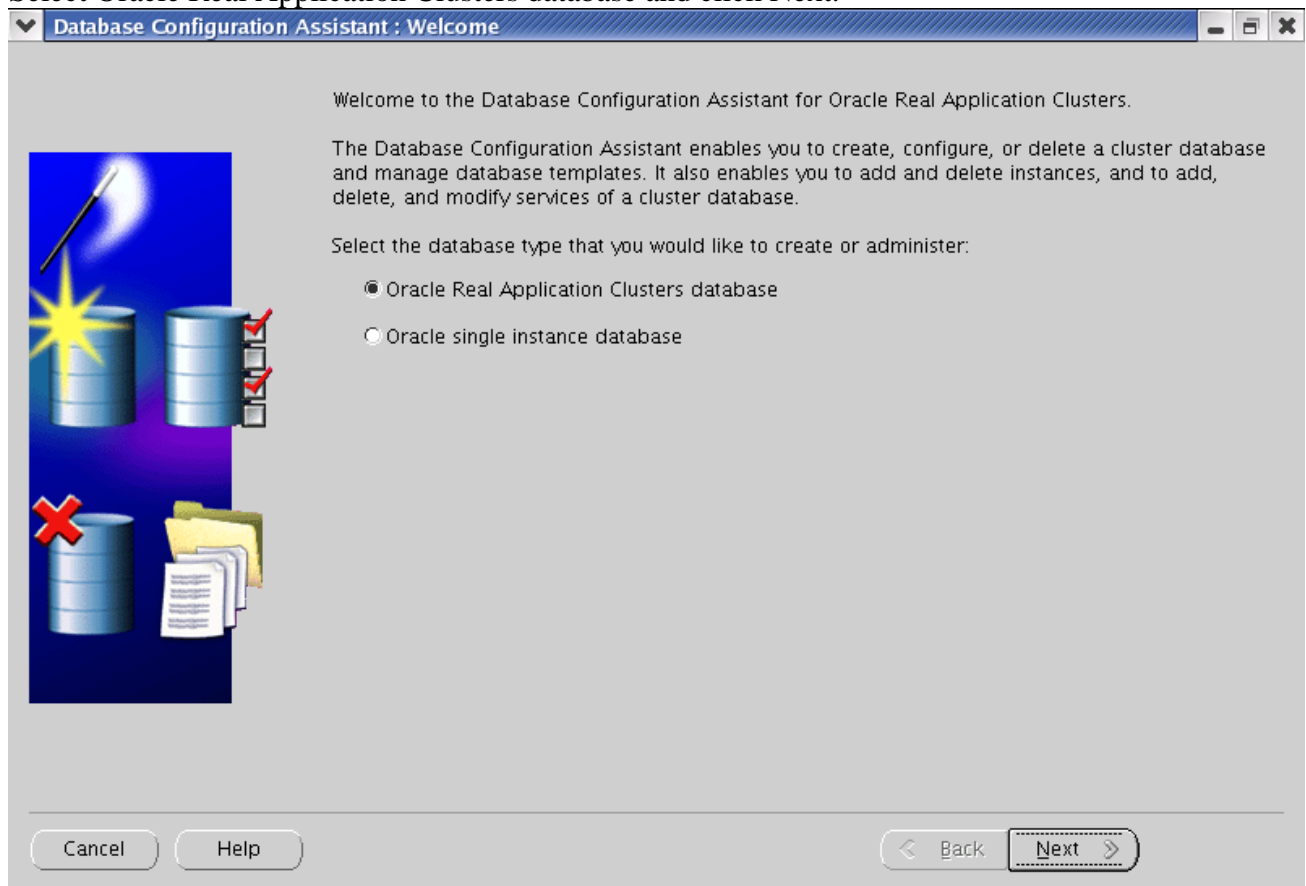
Restore the database backup created via DBCA by following the steps in section *Restoring the database using Database Configuration*.

Restoring the database from the backup using Database Configuration Assistant (DBCA)

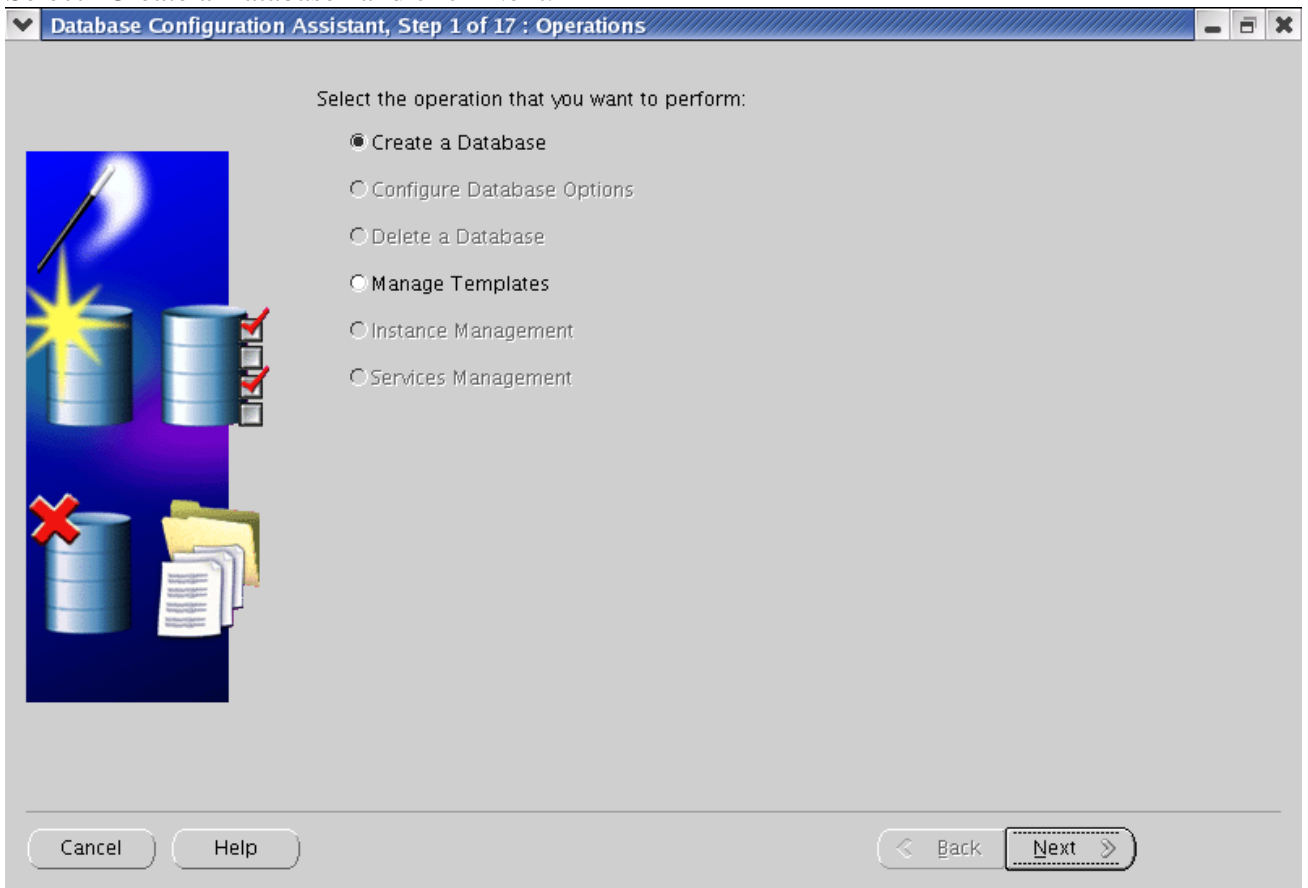
Start dbca with these command line options:

```
$ dbca -datafileDestination /<your_ASM_or_ocfs_mount_point>
```

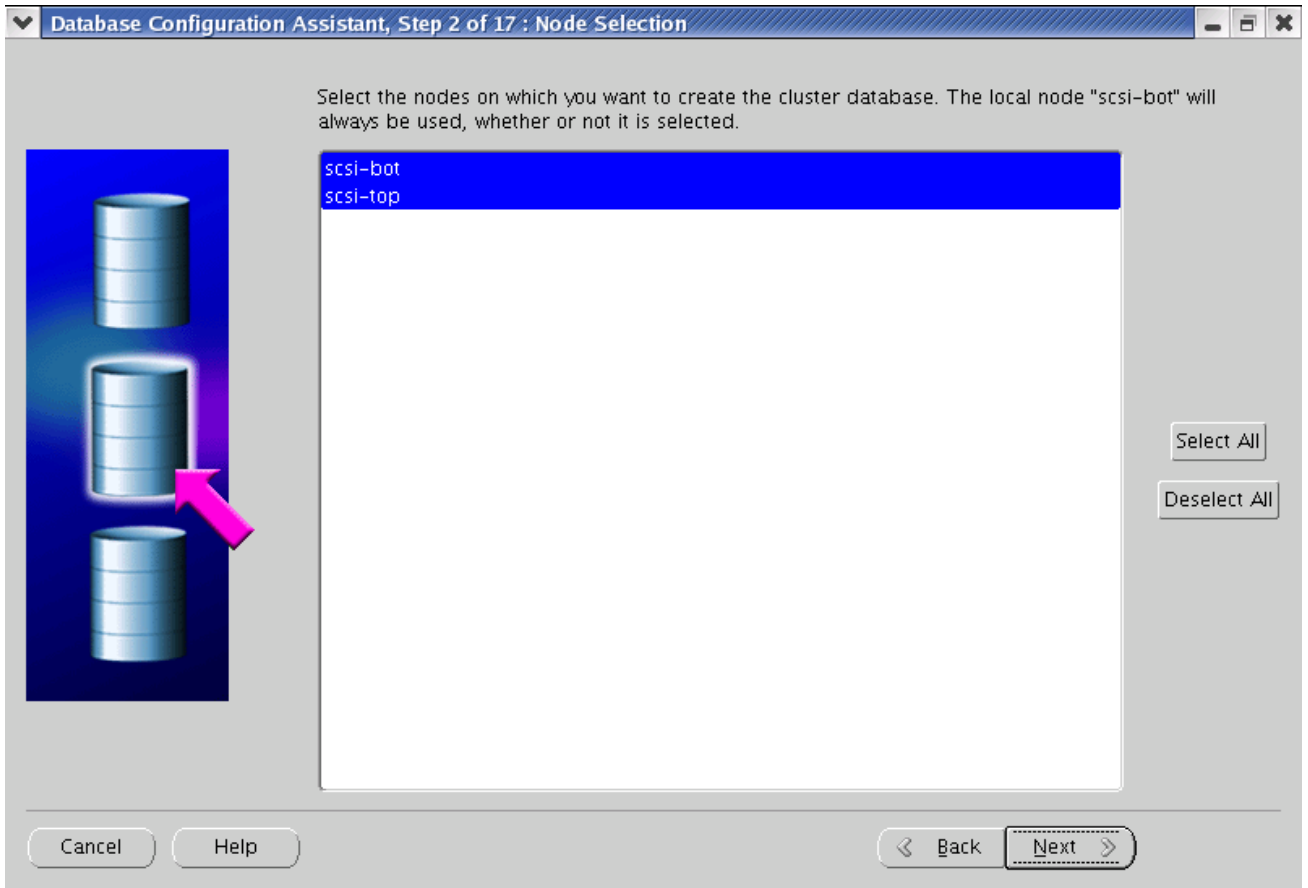
Select Oracle Real Application Clusters database and click Next.



Select "Create a Database" and click Next.




Click "Select All" to select all nodes within the cluster and click next.



Select the source template. This is the template that was created earlier as the backup of the database and click Next

Database Configuration Assistant, Step 3 of 8 : Database Templates

Select a source template to create the new template:



Select	Template	Includes Datafiles
<input type="radio"/>	Custom Database	No
<input type="radio"/>	Data Warehouse	Yes
<input type="radio"/>	General Purpose	Yes
<input type="radio"/>	Transaction Processing	Yes
<input type="radio"/>	orc	Yes
<input checked="" type="radio"/>	orc1temp	Yes

Show Details...

Cancel Help < Back Next >

Enter the Global Database Name and click Next


Database Configuration Assistant, Step 4 of 18 : Database Identification

An Oracle database is uniquely identified by a Global Database Name, typically of the form "name.domain".

Global Database Name:

A database is referenced by an Oracle instance on each cluster database node. Each instance is uniquely identified by an Oracle System Identifier (SID). For each cluster database instance, the SID is comprised of a common prefix for the database and a number for each instance that is automatically generated. A suggested SID prefix has been entered for you which you can accept or change to a value you prefer.

SID Prefix:



Cancel Help < Back Next >

Select Management Options as required for your environment and click Next

Database Configuration Assistant, Step 5 of 17 : Management Options

Each Oracle database may be managed centrally using the Oracle Enterprise Manager Grid Control or locally using the Oracle Enterprise Manager Database Control. Choose the management option that you would like to use to manage this database.

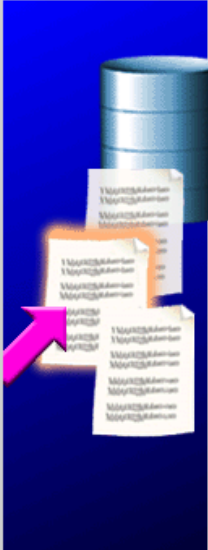
Configure the Database with Enterprise Manager

Use Grid Control for Database Management
Select the Management Service:

Use Database Control for Database Management

Enable Email Notifications
Outgoing Mail (SMTP) Server:
Email Address:

Enable Daily Backup
Backup Start Time: AM PM
OS Username:
Password:



Enter the password for the database and click Next.

Database Configuration Assistant, Step 6 of 17 : Database Credentials

For security reasons, you must specify passwords for the following user accounts in the new database.

Use the Same Password for All Accounts

Password:

Confirm Password:

Use Different Passwords

User Name	Password	Confirm Password
SYS		
SYSTEM		
DBSNMP		
SYSMAN		

Cancel Help Back Next

Select the option and click Next. In this example Automatic Storage Management (ASM) was selected.

Database Configuration Assistant, Step 7 of 16 : Storage Options

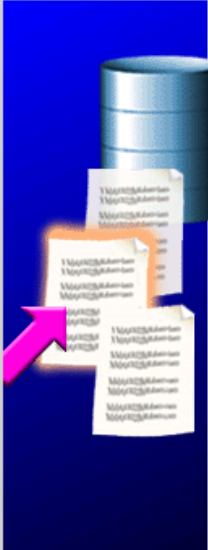
Select the storage mechanism you would like to use for the database.

Cluster File System
Use cluster file system for database storage.

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 either specify a set of disks to create an ASM disk group or specify an existing ASM disk group.

Raw Devices
Raw partitions or volumes can provide the required shared storage for Real Application Clusters (RAC) databases if you do not use Automatic Storage Management and a Cluster File System is not available. You need to have created one raw device for each datafile, control file, and log file you are planning to create in the database.

Specify Raw Devices Mapping File



Cancel Help < Back Next >

In this example the ASM disk group +DATA is available database files.

Database Configuration Assistant, Step 8 of 16 : ASM Disk Groups

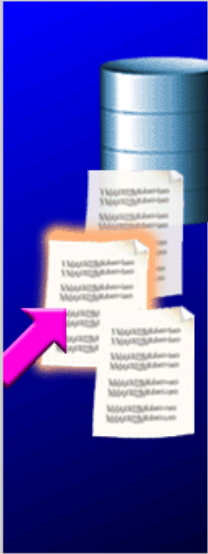
Select one or more disk groups to be used as storage for the database. You can choose to create a new disk group or add disks to an existing disk group.

Available Disk Groups

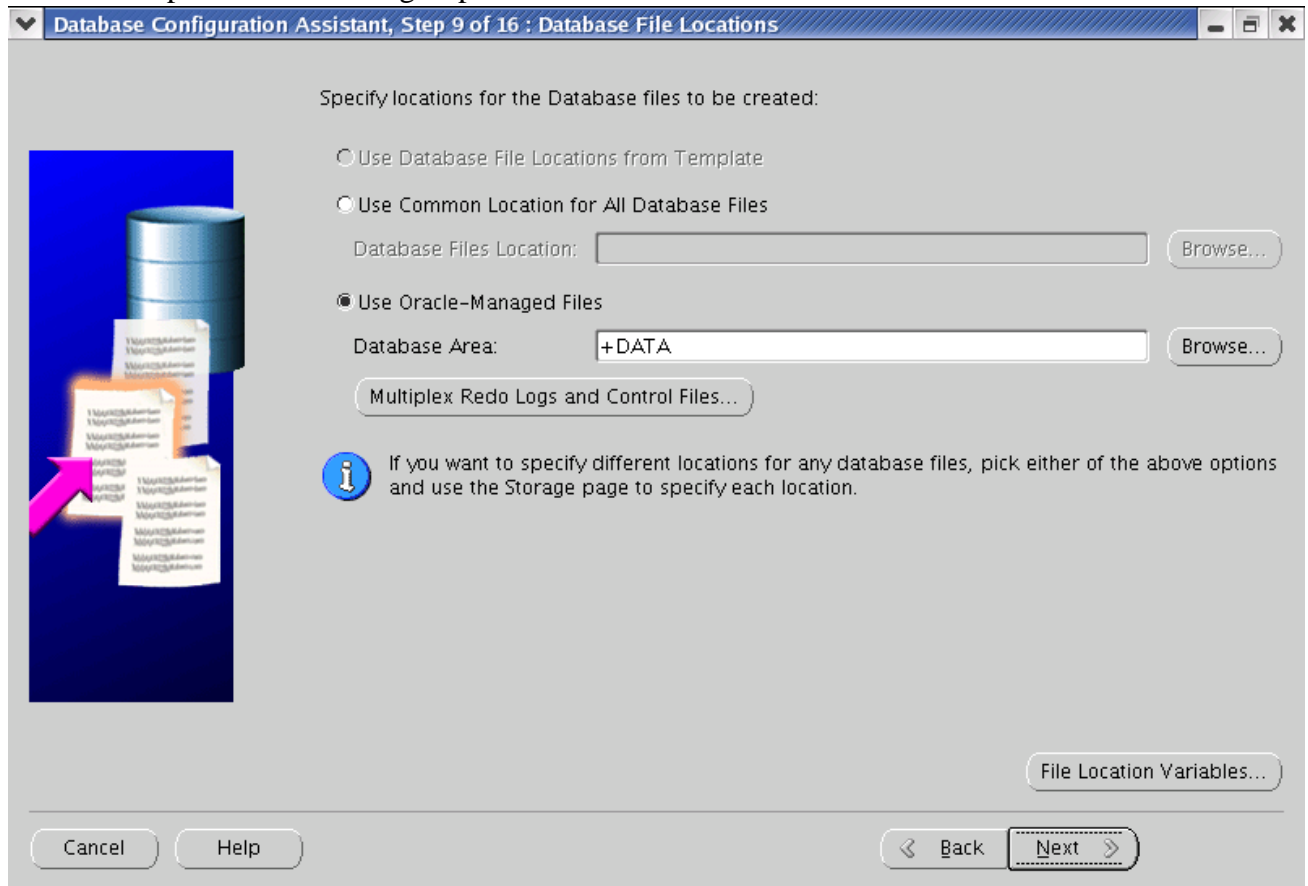
Select	Disk Group Name	Size (MB)	Free (MB)	Redundancy
<input checked="" type="checkbox"/>	DATA	209636	114389	EXTERN

Create New Add Disks

Cancel Help < Back Next >



In this example the ASM disk group +DATA is used for database files.



In this example the Flash Recovery Area feature may be selected.

Database Configuration Assistant, Step 10 of 16 : Recovery Configuration

Choose the recovery options for the database:

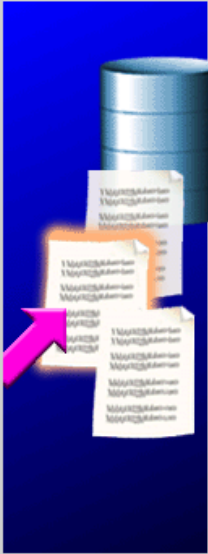
Specify Flash Recovery Area

This is used as the default for all backup and recovery operations, and is also required for automatic backup using Enterprise Manager. Oracle recommends that the database files and recovery files be located on physically different disks for data protection and performance.

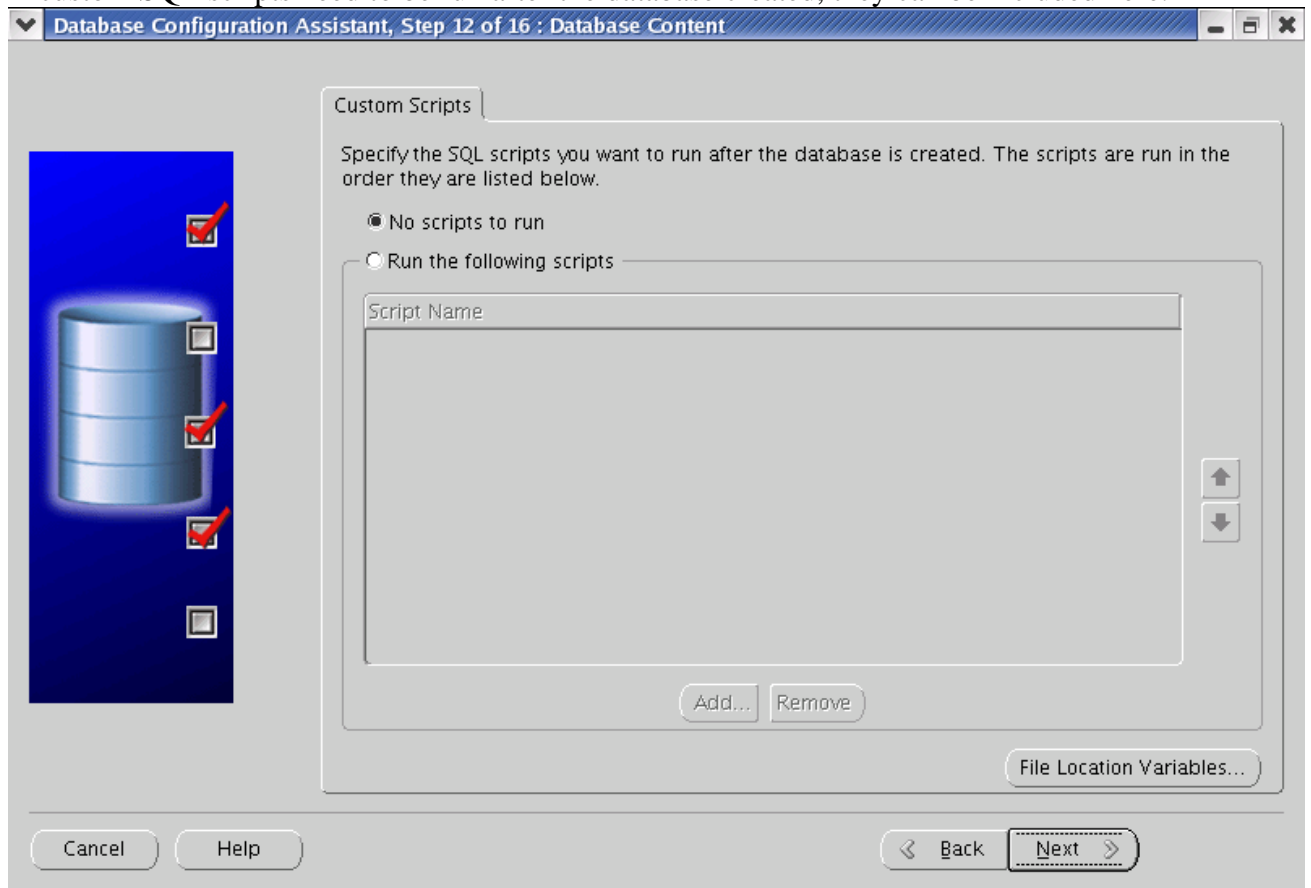
Flash Recovery Area: Browse...

Flash Recovery Area Size: Bytes

Enable Archiving



If custom SQL scripts need to be run after the database created, they can be included here.



The initialization parameters can be updated set here.

Database Configuration Assistant, Step 14 of 16 : Initialization Parameters

Memory Sizing Character Sets Connection Mode

Typical - Allocate memory as a percentage of the total physical memory (2012 MB)
Percentage: 70 Show Memory Distribution...

Custom

Shared Memory Management: Automatic Manual

Shared Pool: 100663296 Bytes


Buffer Cache: 24 M Bytes

Java Pool: 50331648 Bytes

Large Pool: 8388608 Bytes

PGA Size: 25165824 Bytes

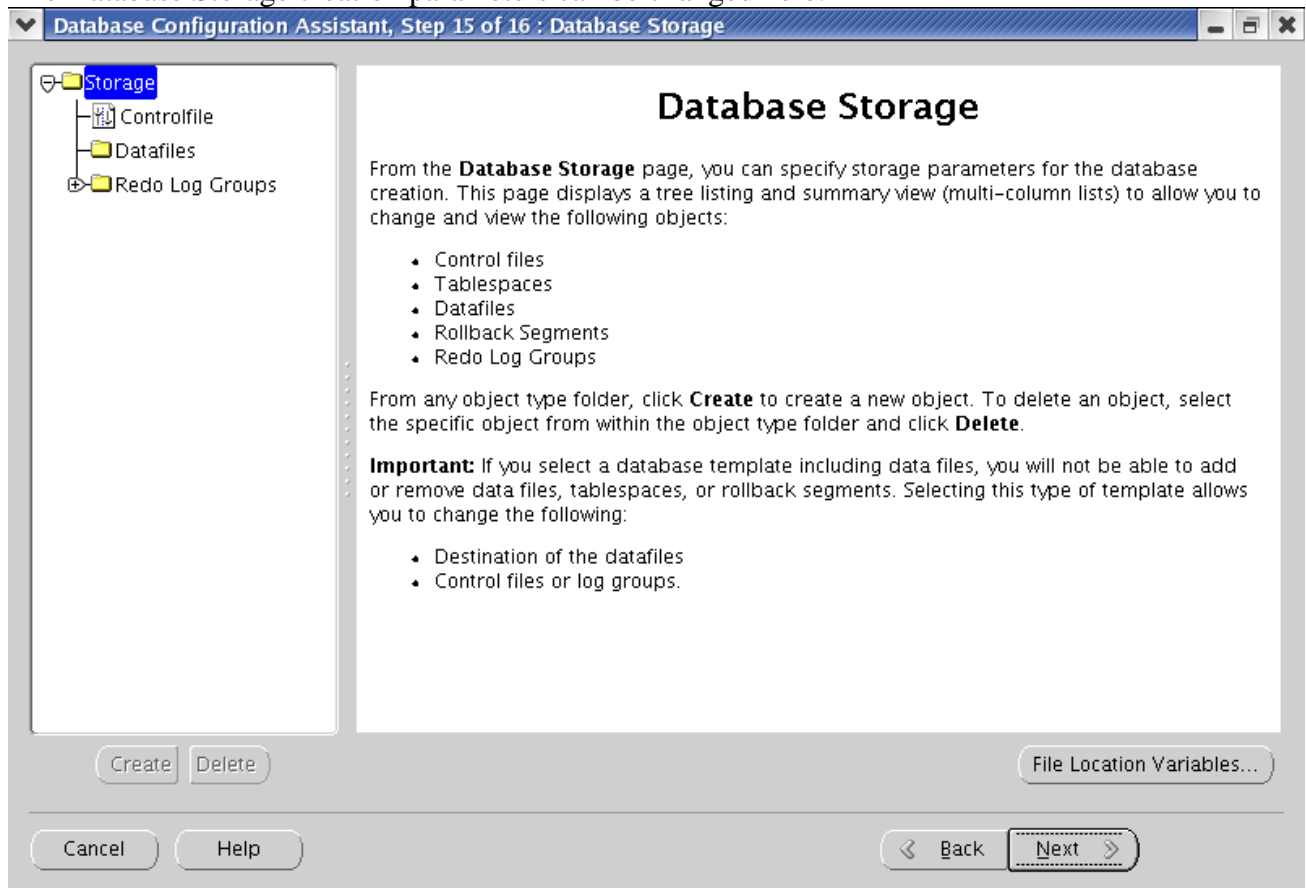
Total Memory for Oracle: 240 M Bytes

 Total memory includes 40MB of Oracle Process Size and the defaults for the empty parameters, if any.

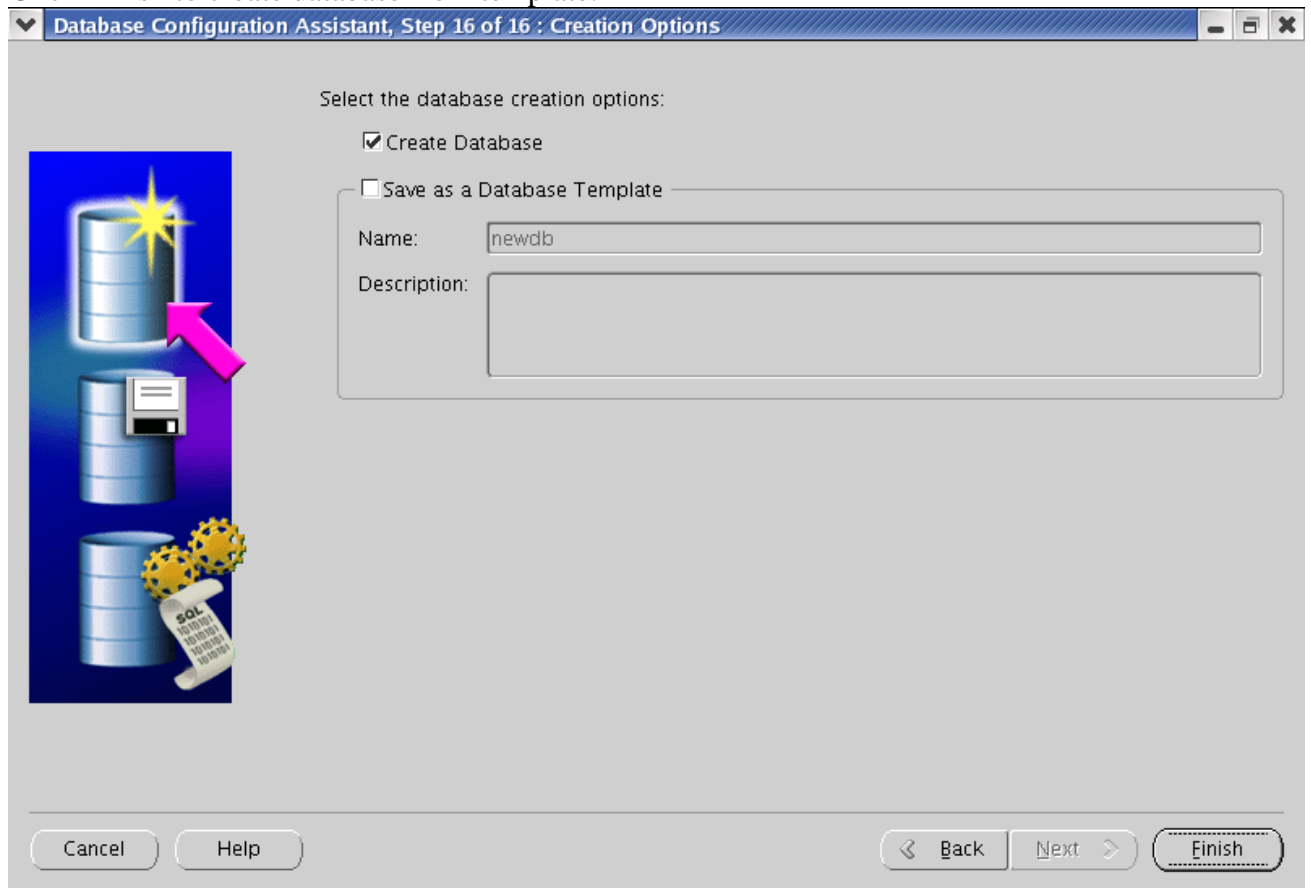
All Initialization Parameters...

Cancel Help < Back Next >

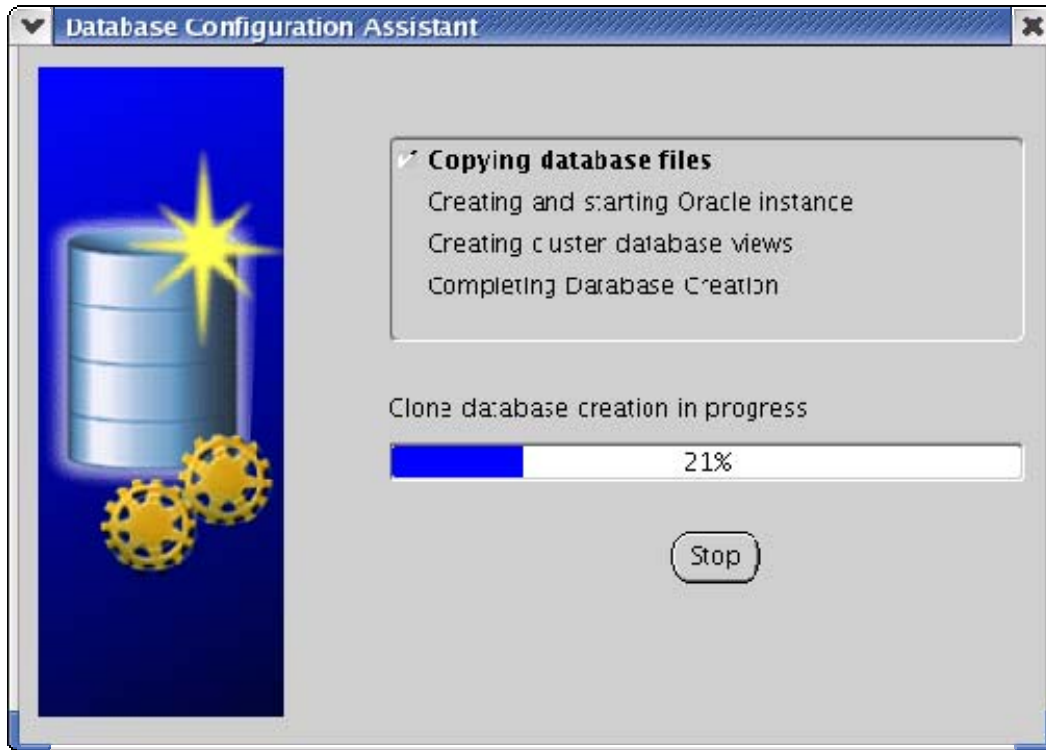
The Database Storage creation parameters can be changed here.



Click Finish to create database from template.



Status of database creation is reported here.



THIS WHITE PAPER IS FOR INFORMATIONAL PURPOSES ONLY AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.

© 2005 Dell Inc.