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Creating an Oracle Database Using DBCA

Objectives

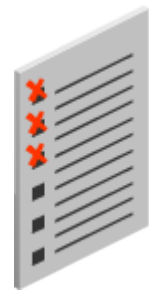
After completing this lesson, you should be able to do the following:

- Create a database by using the Database Configuration Assistant (DBCA)
- Generate database creation scripts with the DBCA
- Manage database design templates with the DBCA
- Perform additional tasks with the DBCA

Planning the Database

As a DBA, you must plan:

- The logical storage structure of the database and its physical implementation:
 - How many disk drives do you have? What type of storage is being used?
 - How many data files will you need? (Plan for growth.)
 - How many tablespaces will you use?
 - What types of information will be stored?
 - Are there any special storage requirements due to type or size?
- Overall database design
- Database backup strategy



Databases: Examples

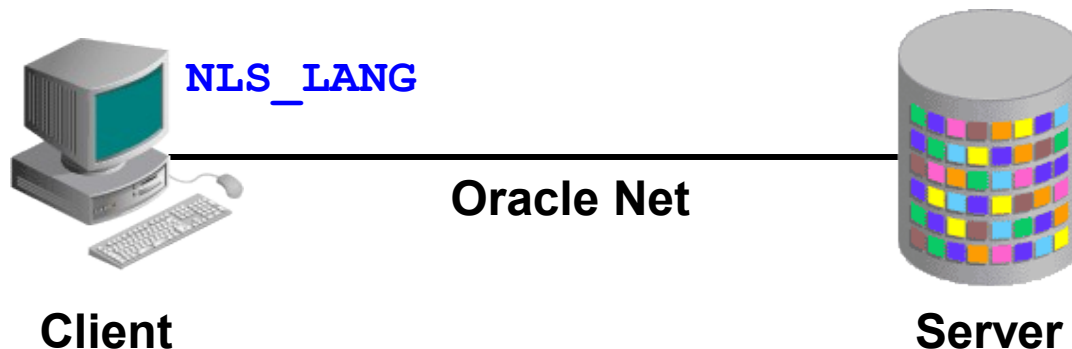
- General purpose or transaction processing:
 - Online transaction processing (OLTP) system, for example a retail billing system for a software house or a nursery
- Custom:
 - Multipurpose database (perhaps combined OLTP and data warehouse functionality)
- Data warehouse:
 - Research and marketing data
 - State or federal tax payments
 - Professional licensing (doctors, nurses, and so on)

Choosing the Appropriate Character Set

- The Oracle database supports different classes of character-encoding schemes:
 - Single-byte character sets
 - 7-bit
 - 8-bit
 - Multibyte character sets, including Unicode
- The character set is chosen at the time of database creation. Choose the character set that best meets your business requirements now and in the future because it can be difficult to change character sets later on.
- In general Unicode is recommended because it is the most flexible character set.

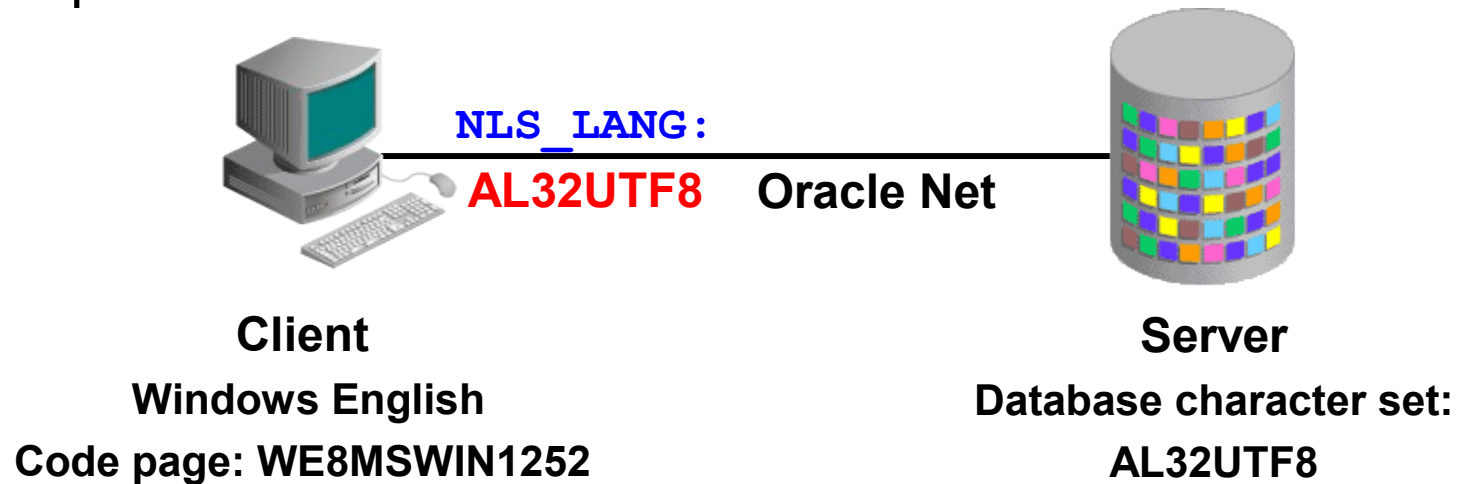
How Are Character Sets Used?

- Oracle Net compares the client `NLS_LANG` setting to the character set on the server.
- If needed, conversion occurs automatically and transparently.



Problems to Avoid

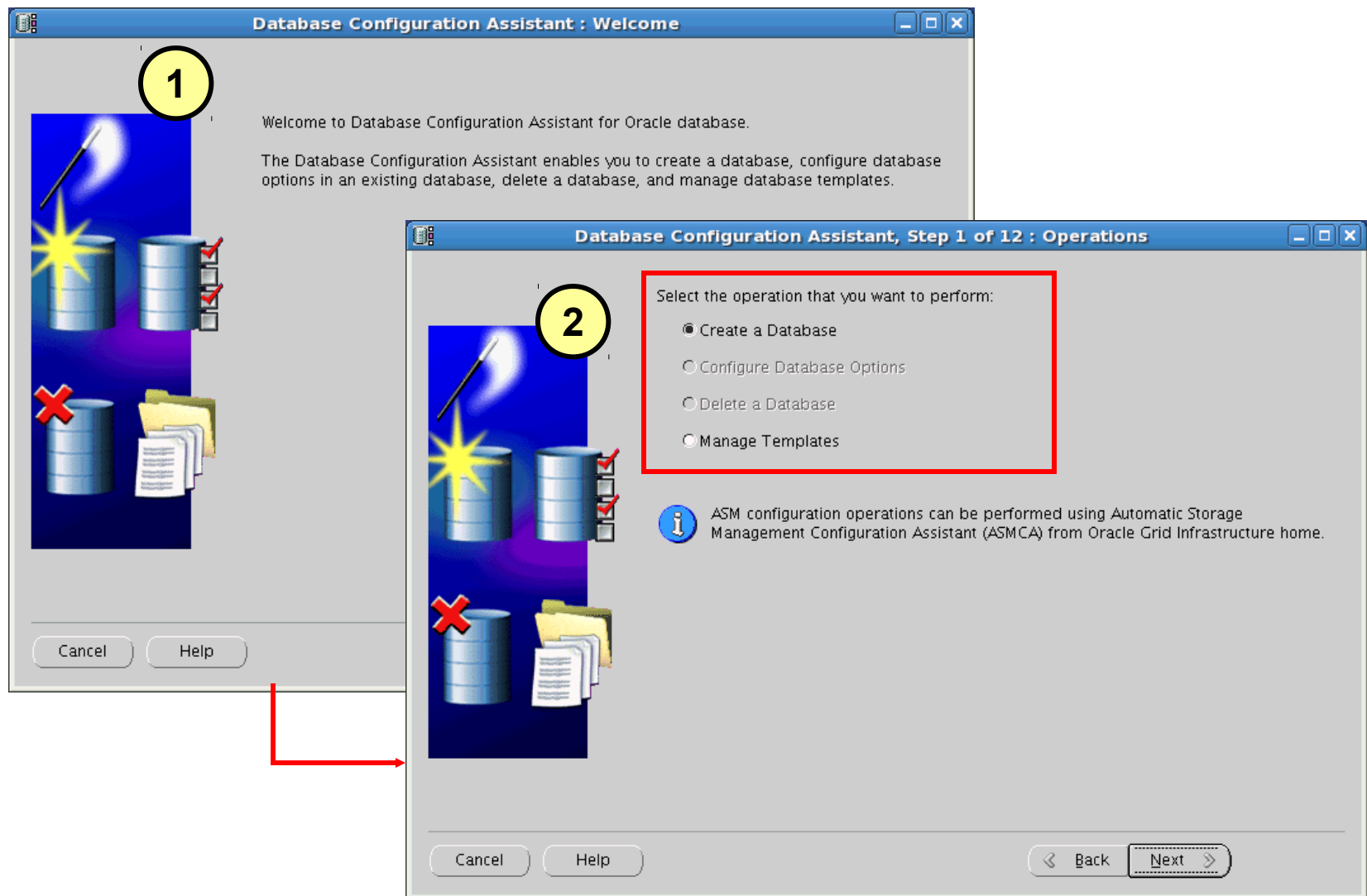
Example:



No conversion occurs, because it does not seem to be required.

Issue: Invalid data are entered into the database.

Database Configuration Assistant (DBCA)



Using the DBCA to Create a Database

The image shows two overlapping windows from the Oracle Database Configuration Assistant (DBCA).

Step 2 of 12: Database Templates

Templates that include datafiles contain pre-created databases. They allow you to create a new database in minutes, as opposed to an hour or more. Use templates without datafiles only when necessary, such as when you need to change attributes like block size, which cannot be altered after database creation.

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

Buttons: Cancel, Help

Step 3 of 12: Database Identification

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

Global Database Name:

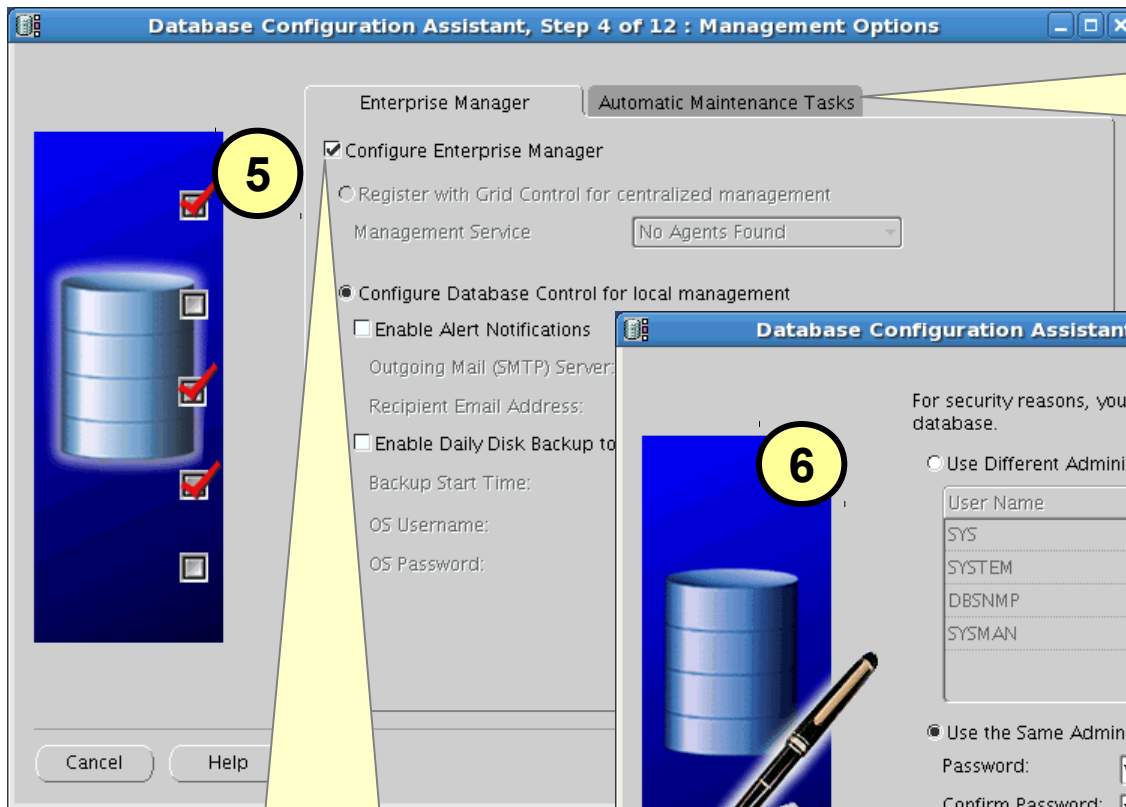
A database is referenced by at least one Oracle instance which is uniquely identified from any other instance on this computer by an Oracle System Identifier (SID).

SID:

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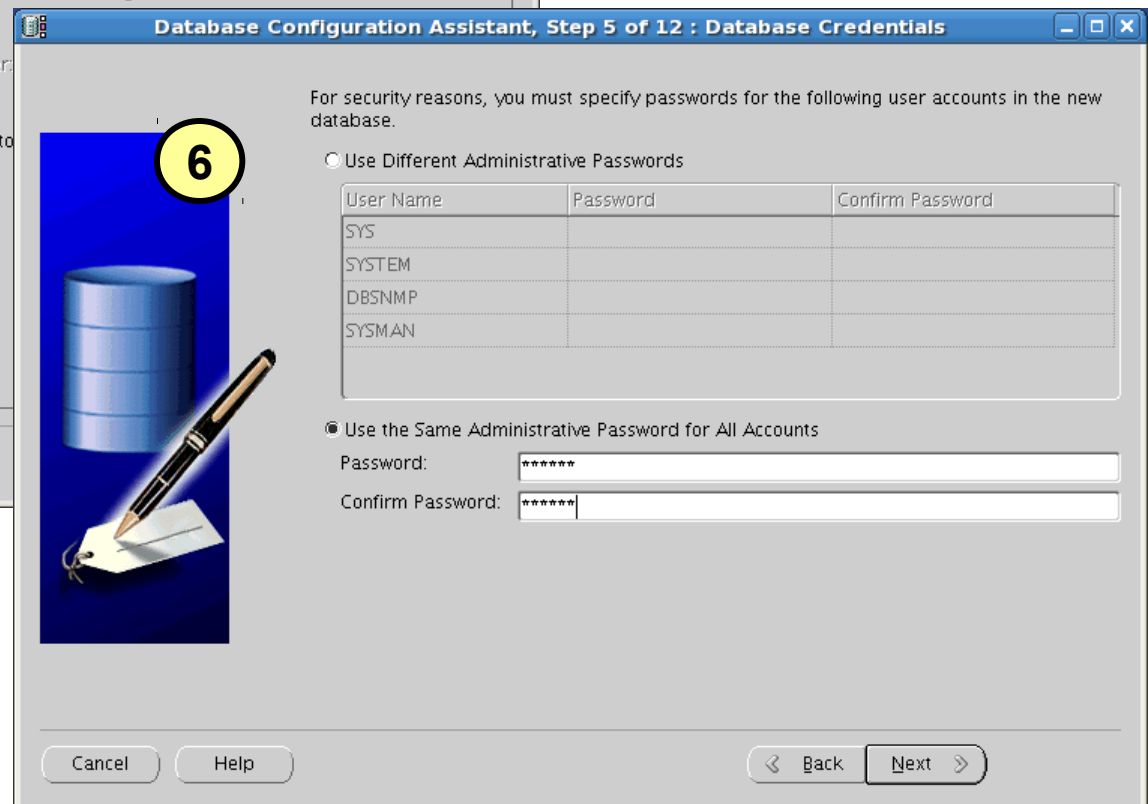
Buttons: Cancel, Help, < Back, Next >

Using the DBCA to Create a Database



Enable automatic maintenance tasks such as optimizer statistic collection and proactive advisor reports.

Configuring Enterprise Manager for your database requires a listener to be configured as well.



Using the DBCA to Create a Database

Choose between the file system or ASM (if ASM is available)

Create multiple copies of your redo logs and control files if desired.

Database Configuration Assistant, Step 6 of 12 : Database File Locations

Specify storage type and locations for database files.

Storage Type: Automatic Storage Management (ASM) 7

Storage Locations:

☐ Use Database File Locations from Template


☐ Use Common Location for All Database Files

Database Files Location: Browse...

☒ Use Oracle-Managed Files

Database Area: +DATA Browse...

Multiplex Redo Logs and Control Files...

 If you want to specify different locations for any database files, pick any of the above options except Oracle-Managed Files and use the Storage page later to customize each file location. If you use Oracle-Managed Files, Oracle automatically generates the names for database files, which can not be changed on the Storage page.

File Location Variables...

Back Next

Select Disk Group

Available Disk Groups

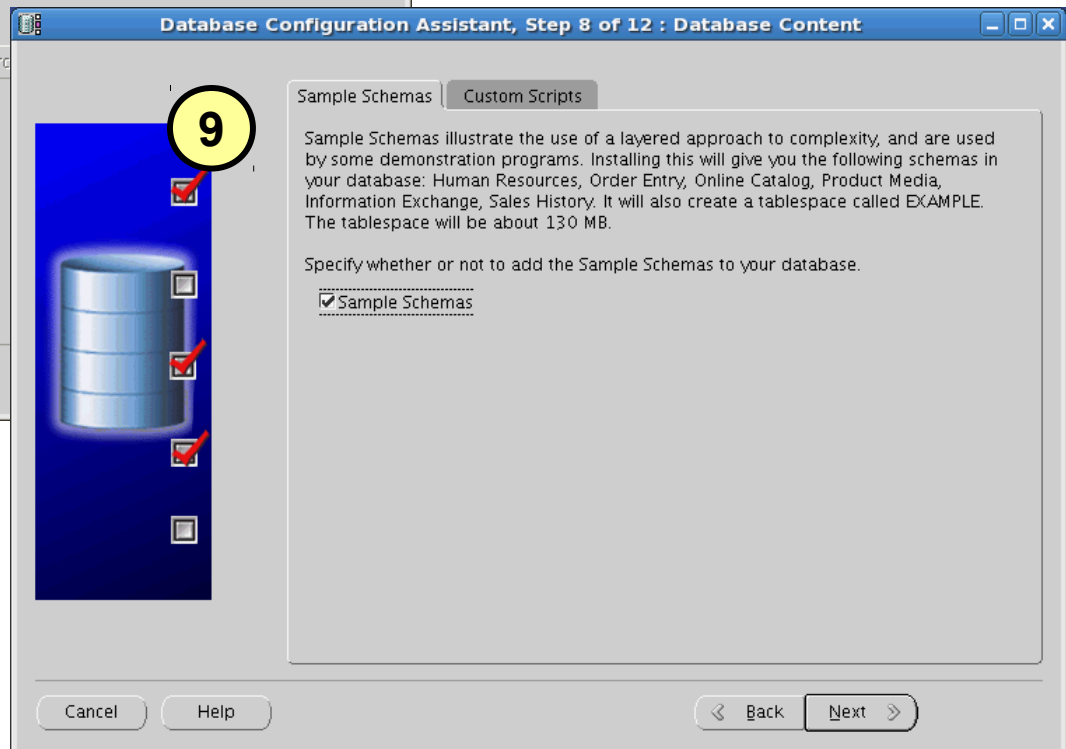
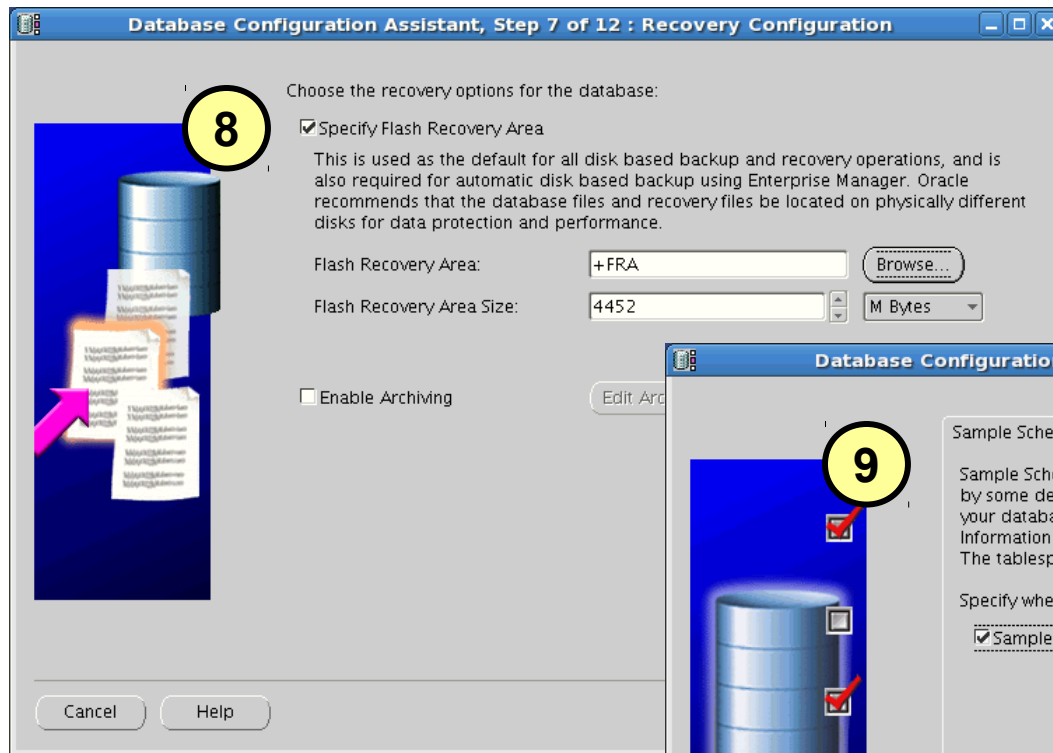
Select	Disk Group Name	Size (MB)	Free (MB)	Redundancy	State
<input checked="" type="radio"/>	DATA	9216	3365	Normal	Mounted
<input type="radio"/>	FRA	9216	9158	External	Mounted

Note: Free (MB) reflects the usable free space available taking redundancy into account.

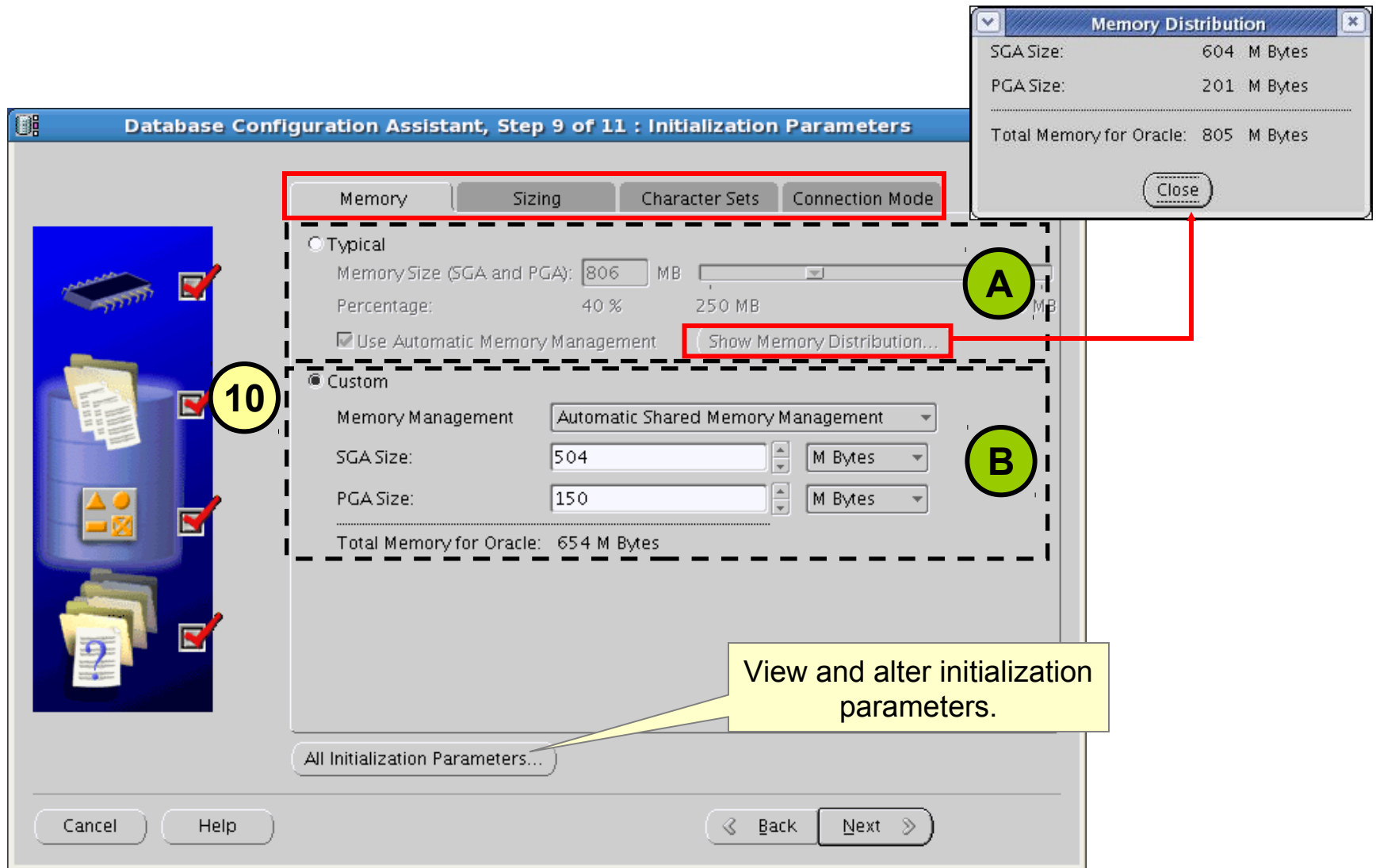
OK Cancel

Adjust file location variables (ORACLE_BASE, ORACLE_HOME, DB_NAME, DB_UNIQUE_NAME, SID) if needed.

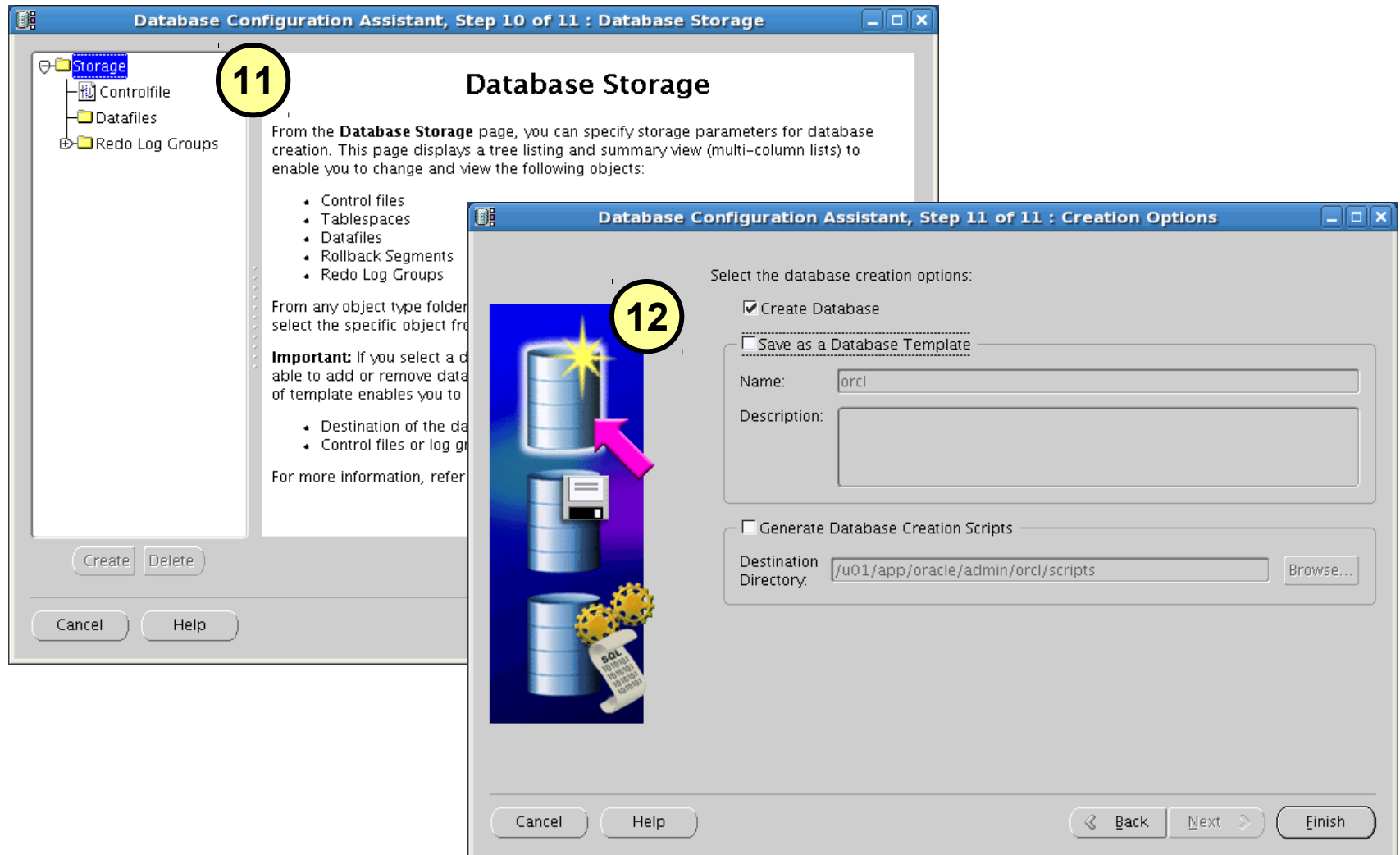
Using the DBCA to Create a Database



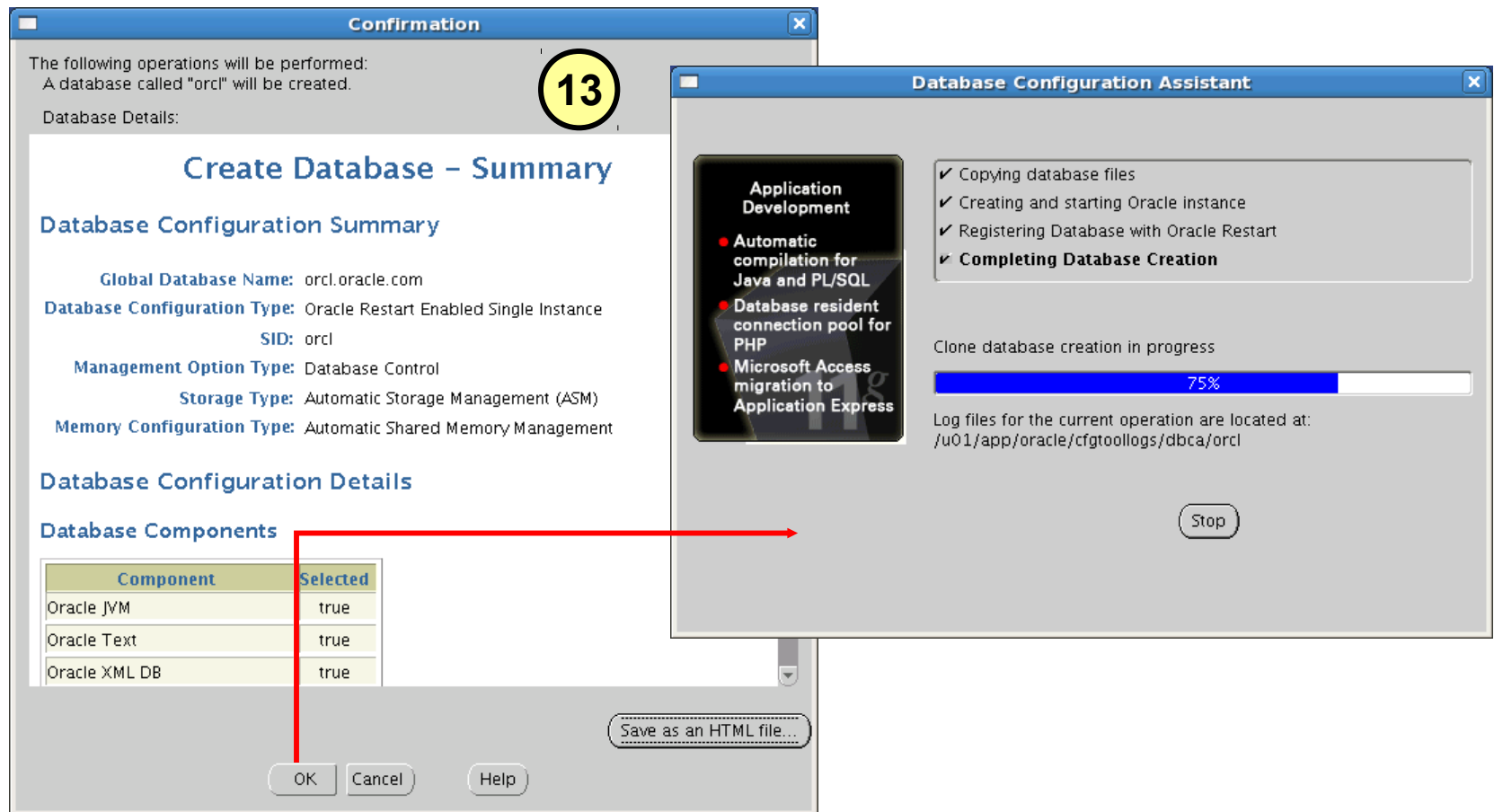
Using the DBCA to Create a Database



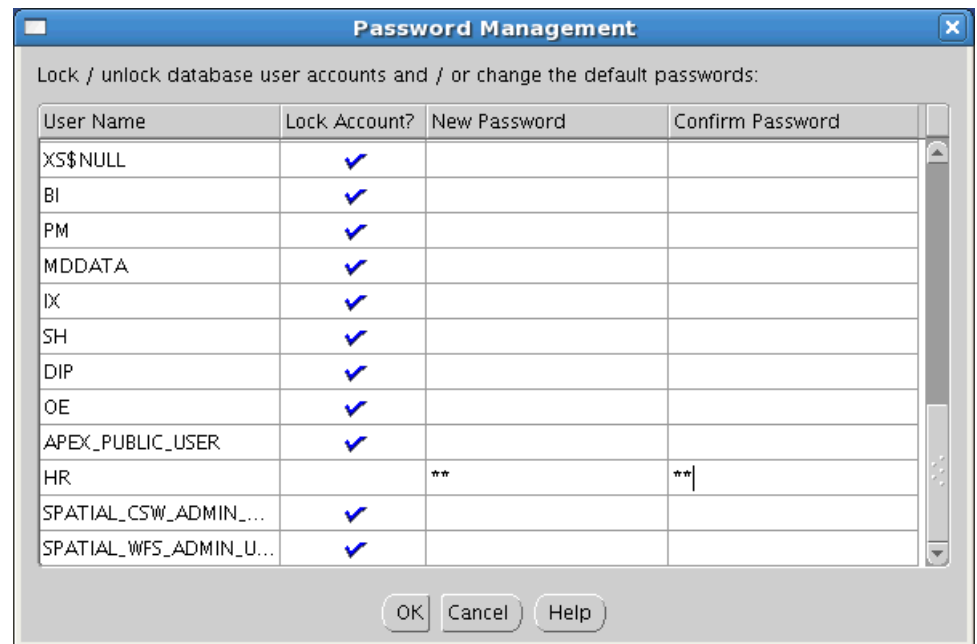
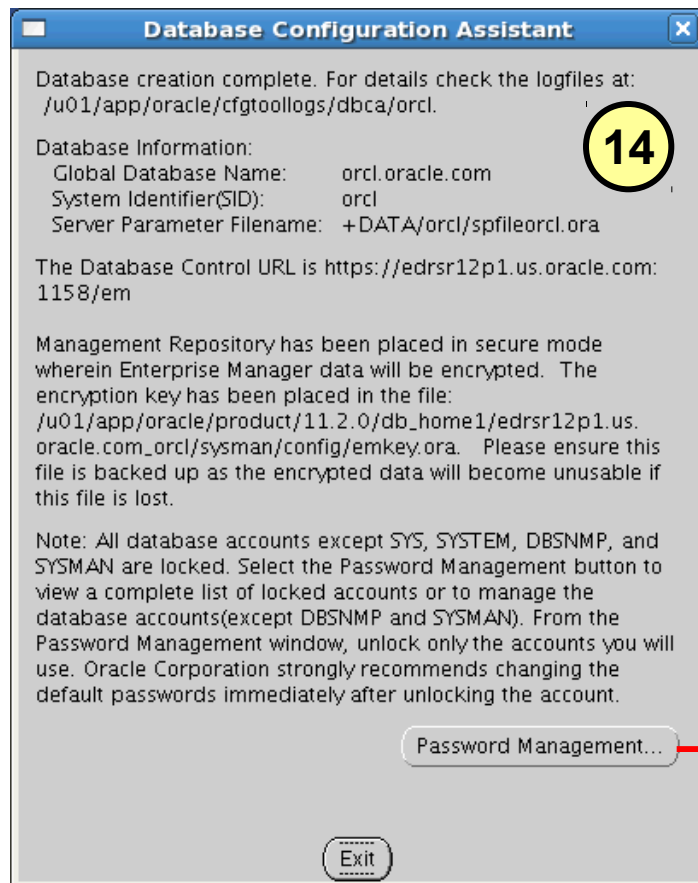
Using the DBCA to Create a Database



Create Database Summary



Password Management



Creating a Database Design Template

The image shows two overlapping windows from the Oracle Database Configuration Assistant. The background window is titled "Database Configuration Assistant, Step 2 of 5 : Template Management". It contains the instruction "Select the template management operation you want to perform:" and three radio button options. The first option, "Create a database template", is selected. Under it, "From an existing database (structure only)" is also selected. A red line connects this selection to the foreground window. The foreground window is titled "Database Configuration Assistant, Step 3 of 5 : Source database". It contains the instruction "Choose a database from which you want to create the template. The database may be local or reside on a remote machine." and "Specify a user with DBA role". Below this are input fields for "Username:" (containing "sys"), "Password:" (containing "*****"), and "Service:" (containing "ORCL"). A tip at the bottom explains the service format. Both windows have "Cancel" and "Help" buttons.

Database Configuration Assistant, Step 2 of 5 : Template Management

Select the template management operation you want to perform:

- ☒ Create a database template
 - ☐ From an existing template
 - ☒ From an existing database (structure only)
The template will contain structural information about the source database including database options, tablespaces, datafiles, and initialization parameters specified in the source database. User defined schemas and their data will not be part of the created template.
 - ☐ From an existing database (structure as well as data)
The template will contain the structural information as well as physical datafiles specified in the source database. Identical to the source database. the template.
- ☐ Delete a database template

Cancel Help

Database Configuration Assistant, Step 3 of 5 : Source database

Choose a database from which you want to create the template. The database may be local or reside on a remote machine.

Specify a user with DBA role

Username:

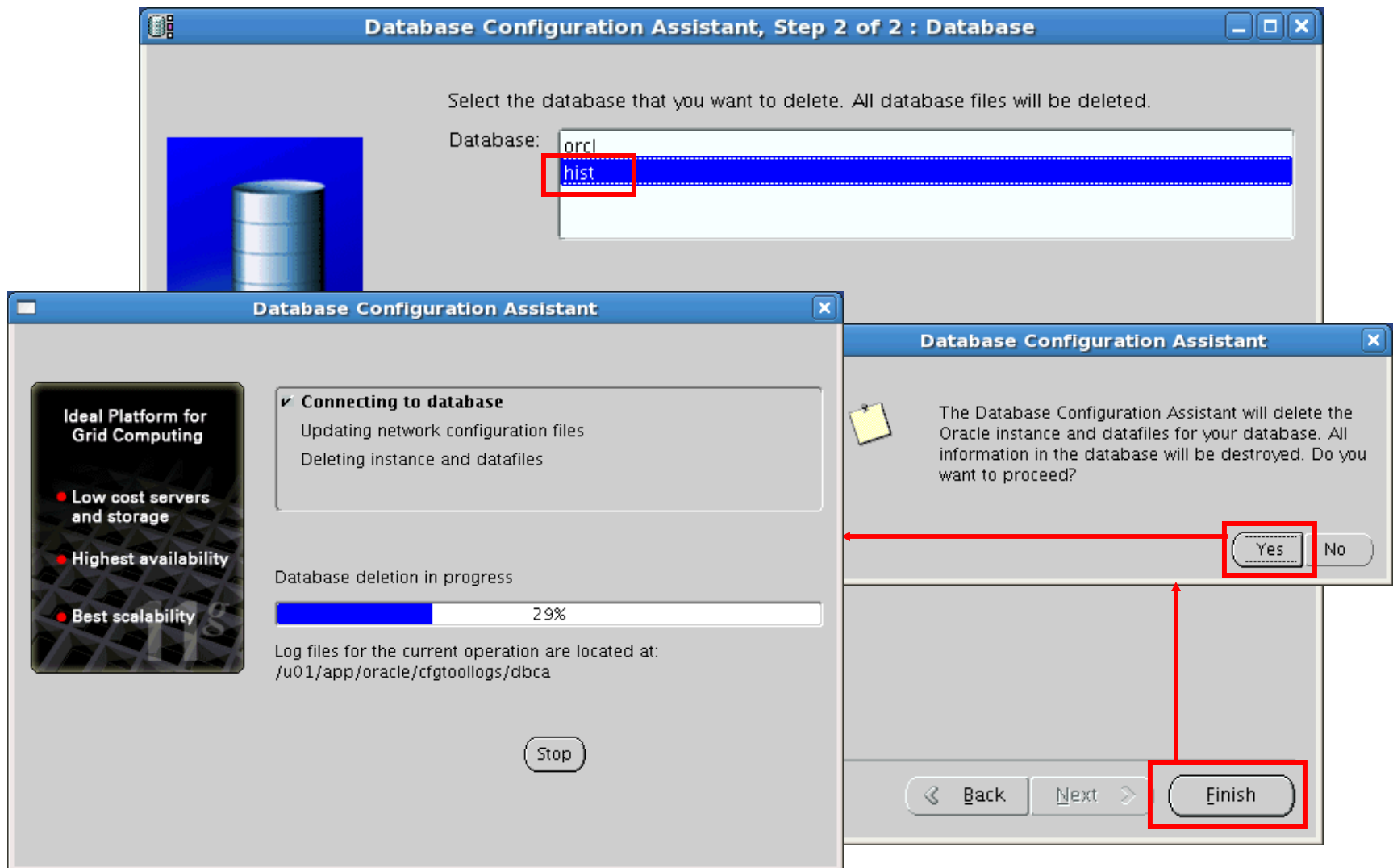
Password:

Service:

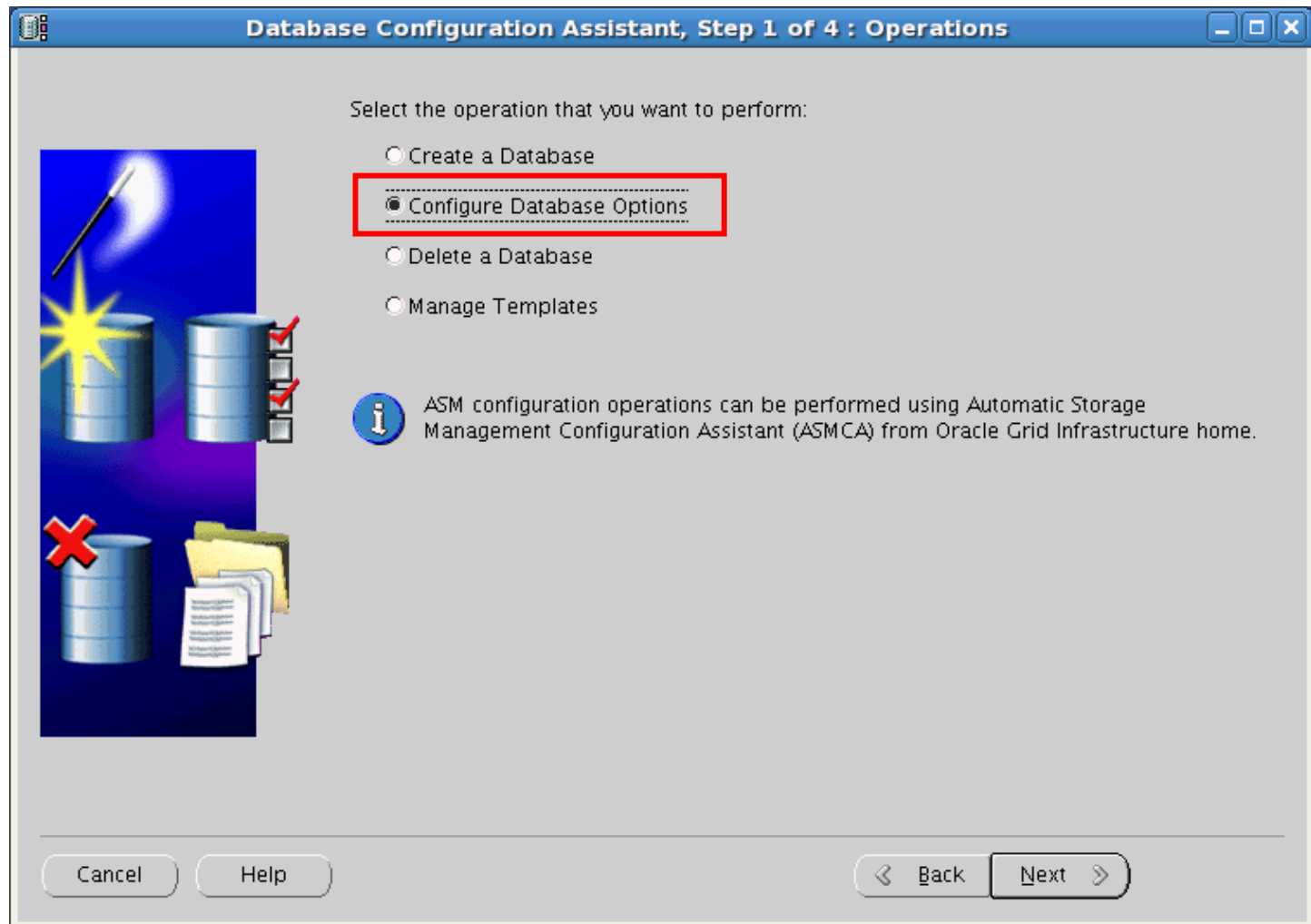
Tip: If your Oracle Net service is not configured for this Oracle home, the service may be specified using the form <host>:<port>:<sid>. For example: orange:1521:orcl

Cancel Help Back Next

Using the DBCA to Delete a Database



Using the DBCA for Additional Tasks



Quiz

The parameter `DB_BLOCK_SIZE` is set for the lifetime of a database and cannot be changed.

1. True
2. False

Quiz

In order to drop a database using the `DROP DATABASE` command, the database must be:

1. Open and in `RESTRICT` mode
2. Mounted exclusively in `RESTRICT` mode
3. Shut down with the immediate option

Summary

In this lesson, you should have learned how to:

- Create a database by using the Database Configuration Assistant (DBCA)
- Generate database creation scripts with the DBCA
- Manage database design templates with the DBCA
- Perform additional tasks with the DBCA

Practice 3 Overview: Using the DBCA

This practice covers the following topics:

- Creating the ORCL database by using the DBCA
- Unlocking the HR schema

Note: Completing database creation and unlocking the HR schema are critical for all following practices.

- Creating the ORCL database design template by using the DBCA
- Creating database creation scripts by using the DBCA