# Creating Oracle Databases

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# Objectives

In this lecture, you will learn how to perform the following:

- Plan for database creation
- Response to the dbca windows
- Run dbca in silent mode
- Describe the sample schemas
- Drop Oracle databases
- Understand the guideline of creating Oracle databases

# Basic Planning for Database Creation

- Capacity:
  - Number of users
  - Storage
- Database size: total size of all the segments
- Database name: **`DB_NAME`**
  - Acceptable characters: alphanumeric, _ , # , $
- Domain name: **`DB_DOMAIN`**
- Characterset
- Block Size: default 8K, 4K for OLTP, 16K for warehouses
- Multitenancy?

# Database Creation Tools

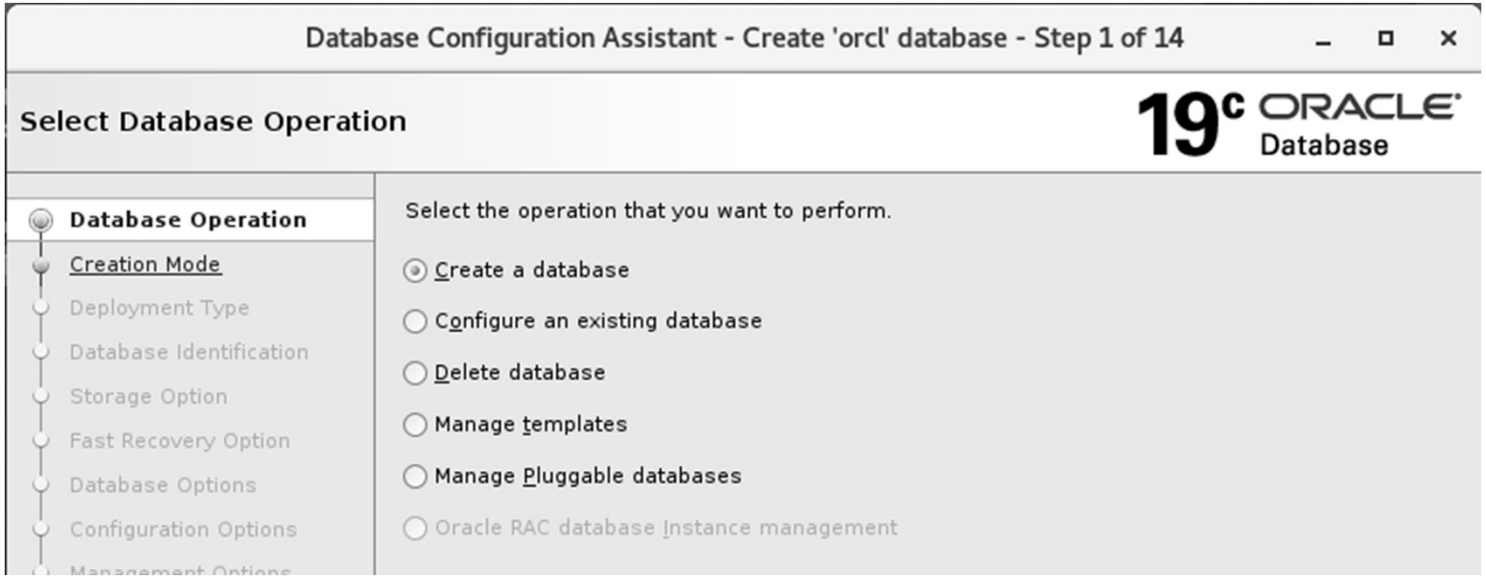
- Database Configuration Assistant **`dbca`**
  - Interactive mode
  - Silent mode
- Manually: running a script that issues **`CREATE DATABASE`** statement

# Configuring a Listener

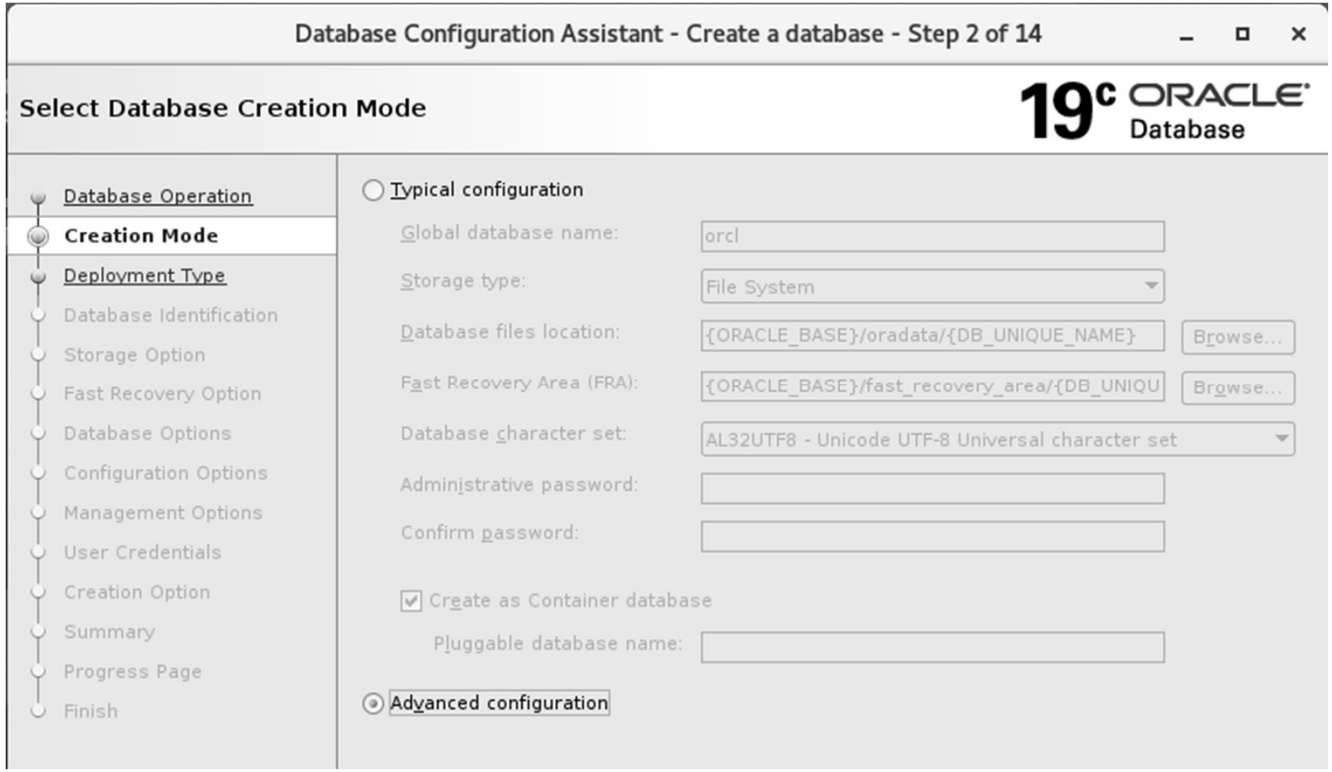
- If there is no listener already configured, configure a new listener using the Network Configuration Assistant (**`netca`**)
- If a GUI interface is not available in the machine, run **`netca`** in silent mode

```
netca -silent -responsefile
/u01/app/oracle/product/19.0.0/db_1/assistants/netca/netca.rsp
```

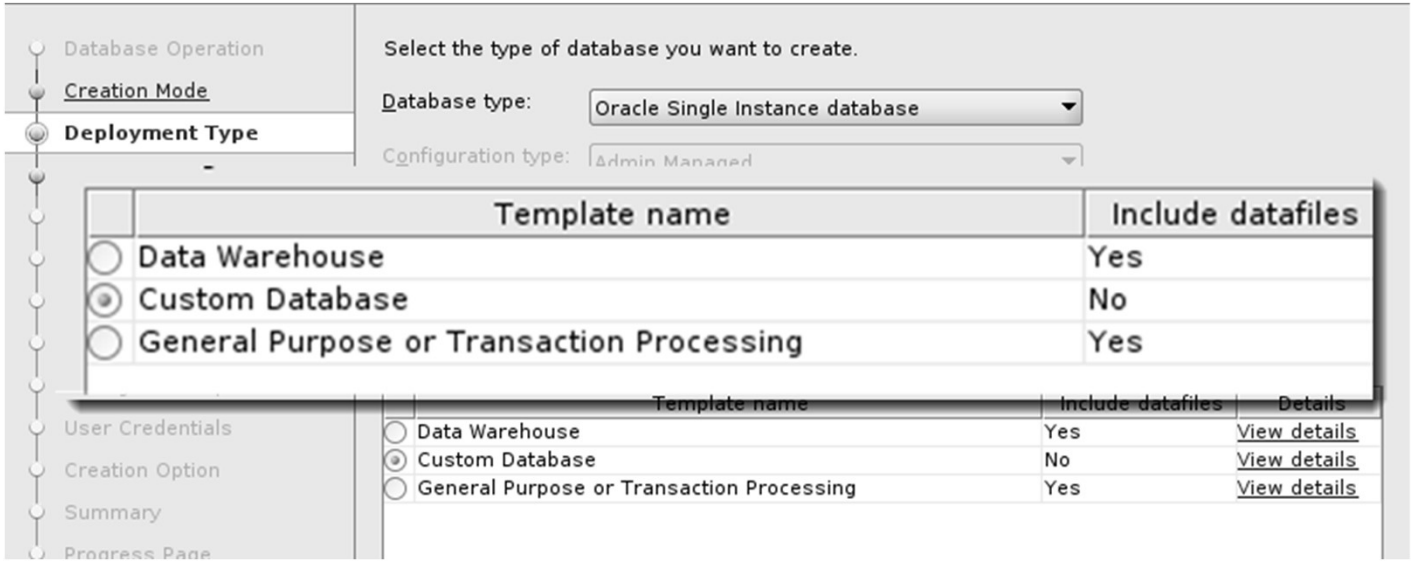
# Database Operation



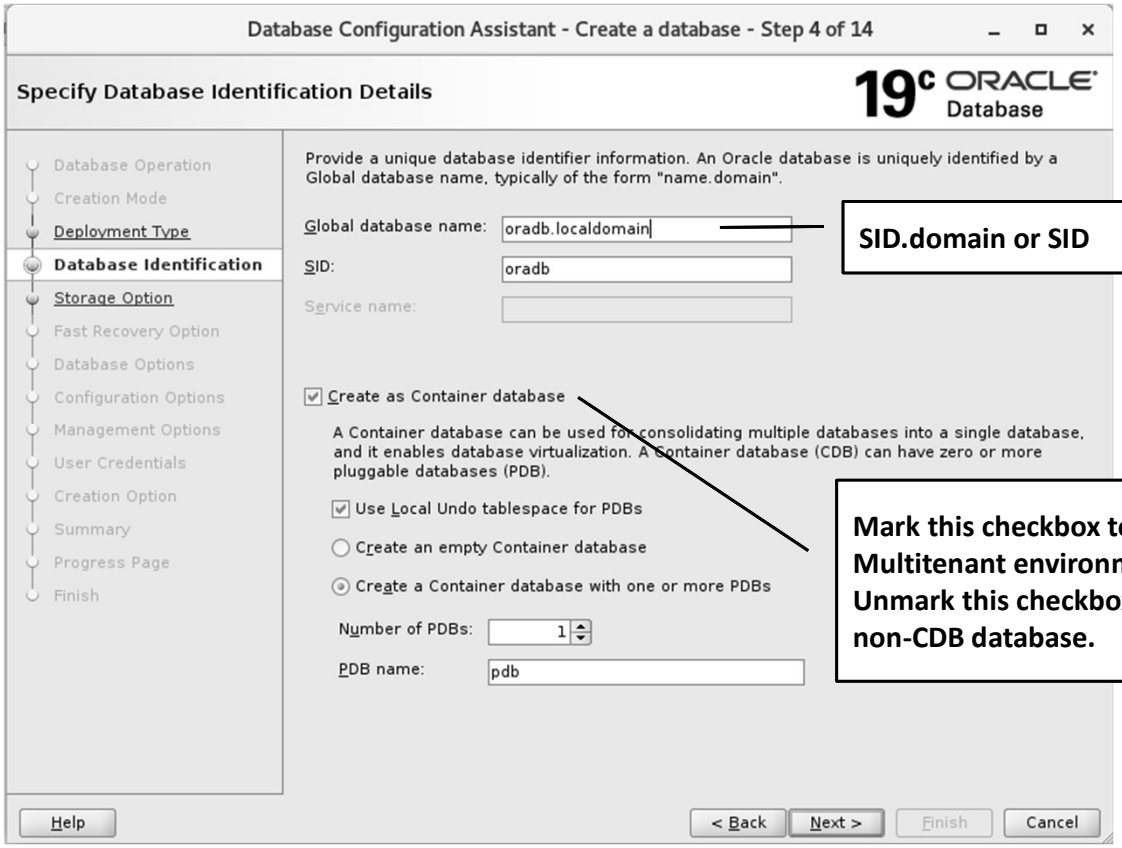
# Creation Mode



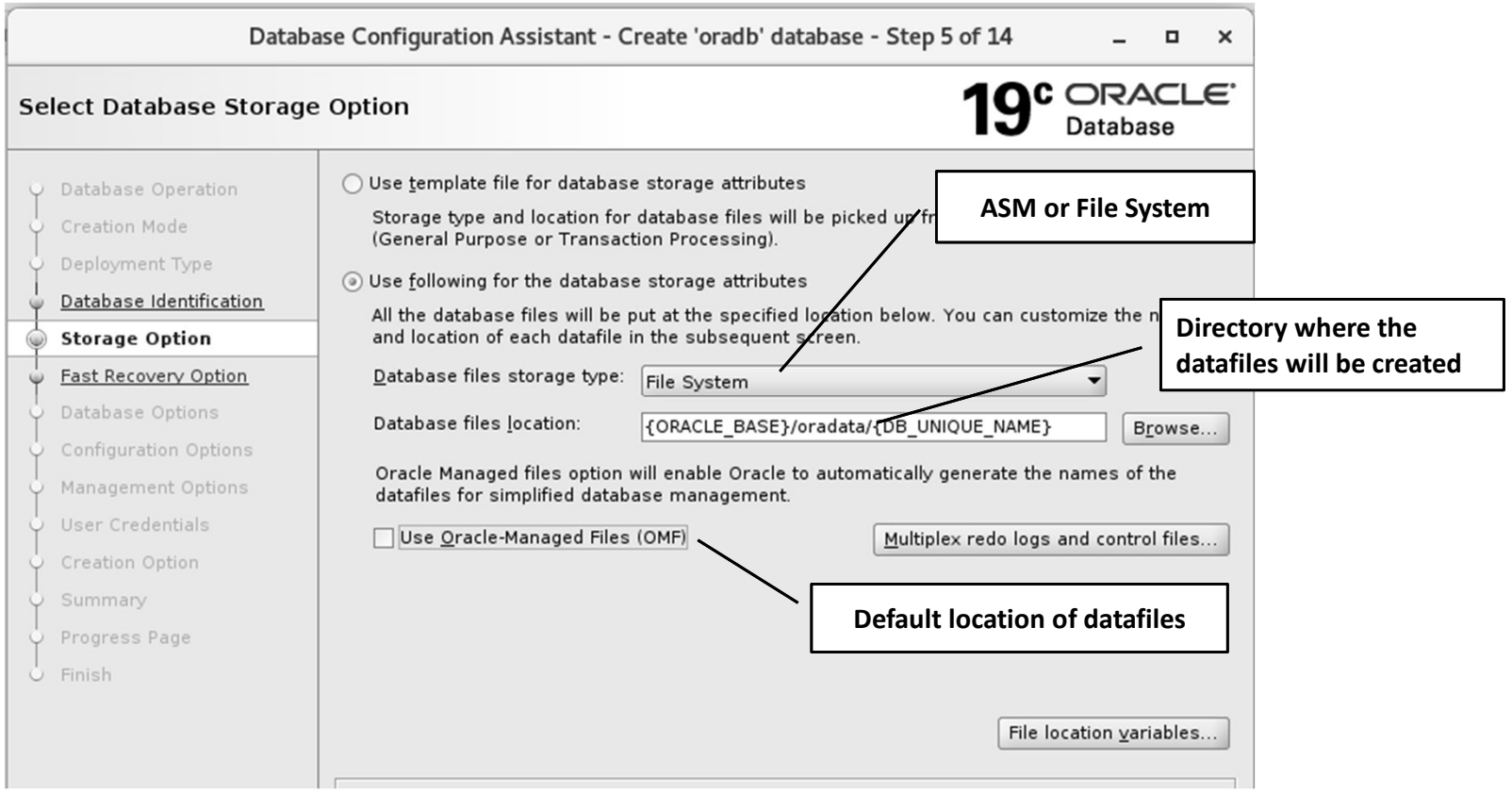
# Deployment Type



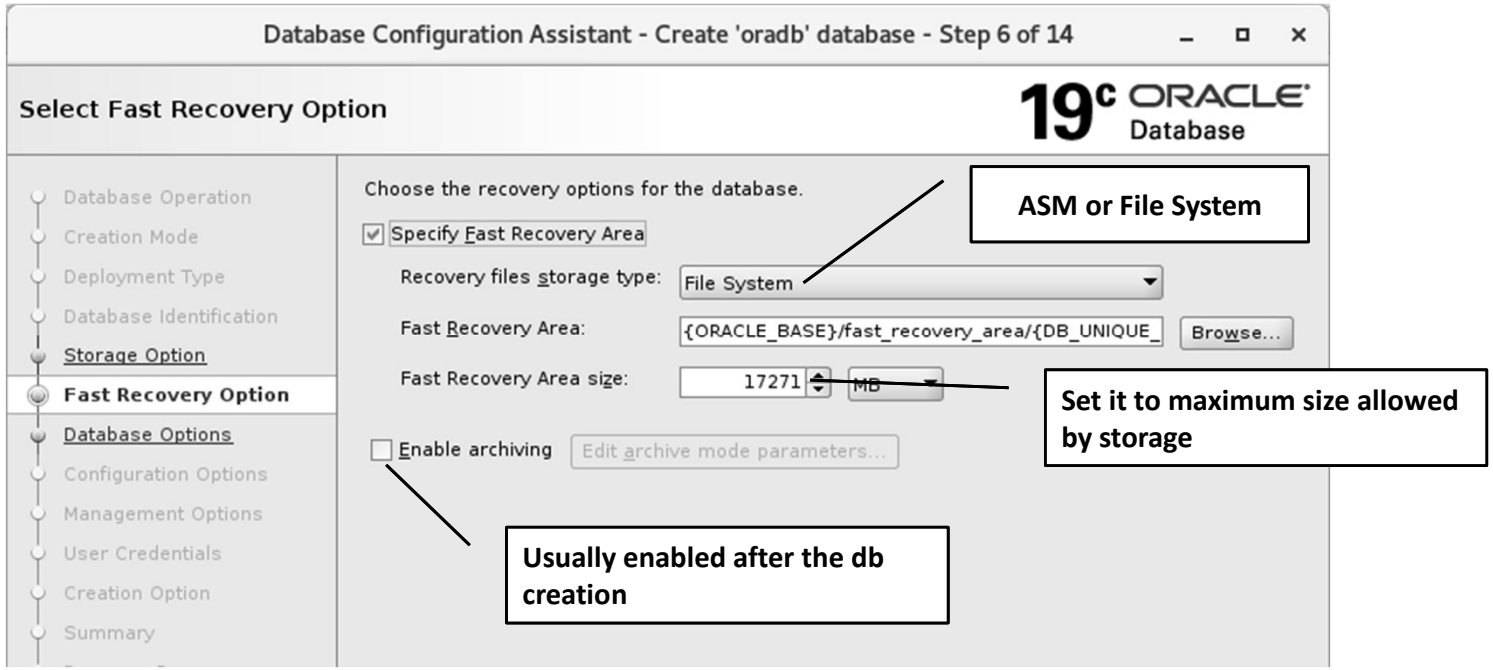
# Database Identification Details



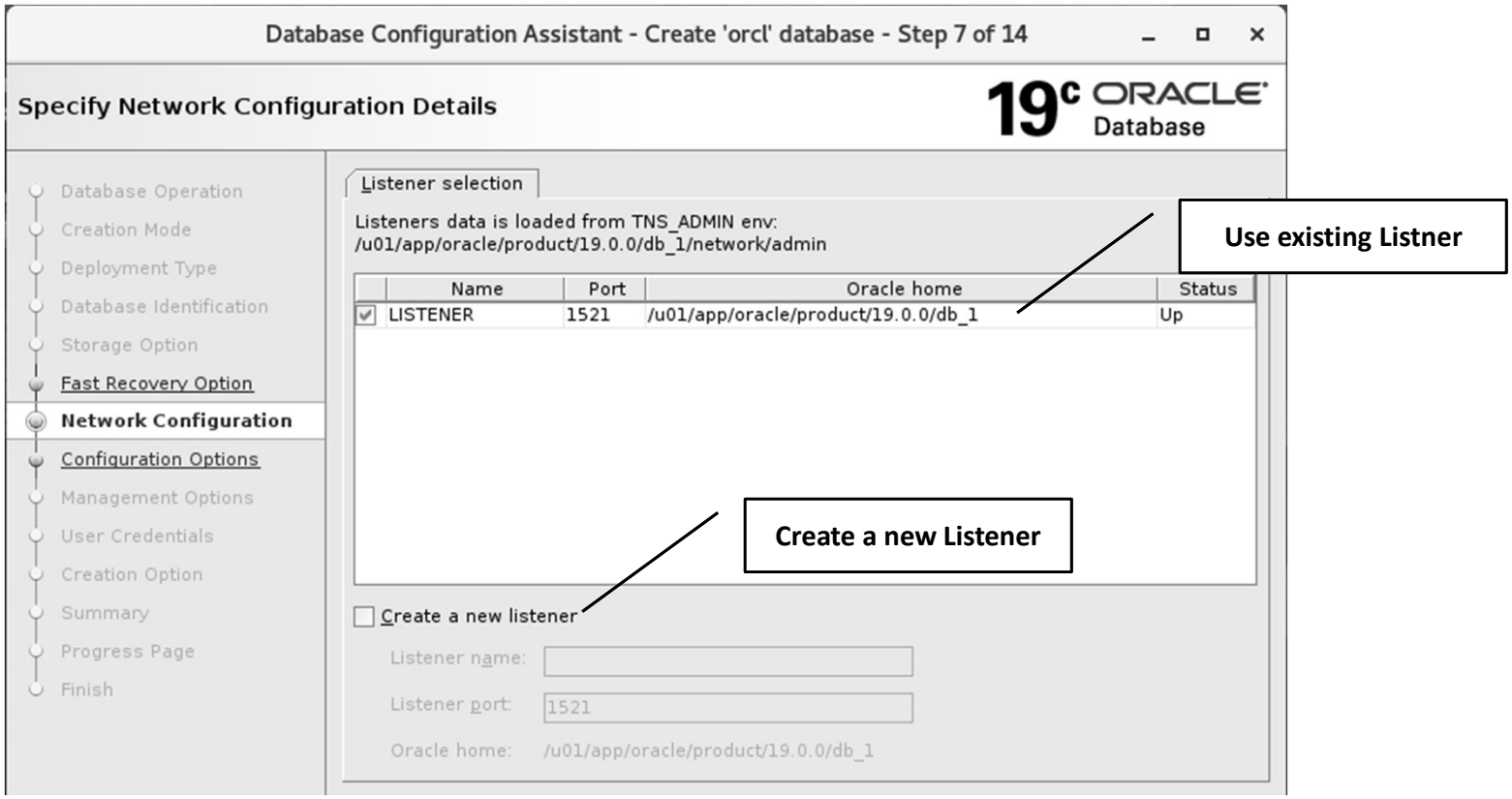
# Storage Option



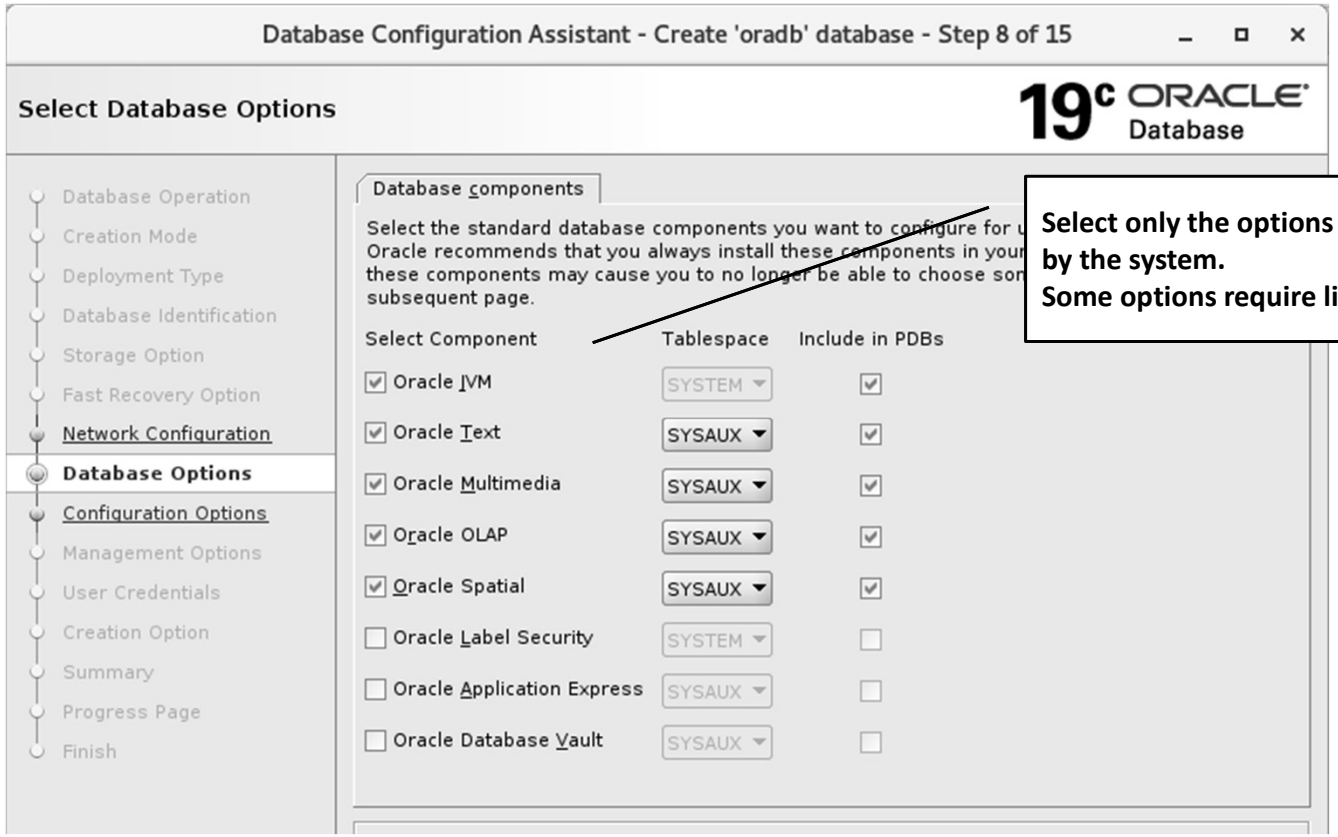
# Setting Fast Recovery Option



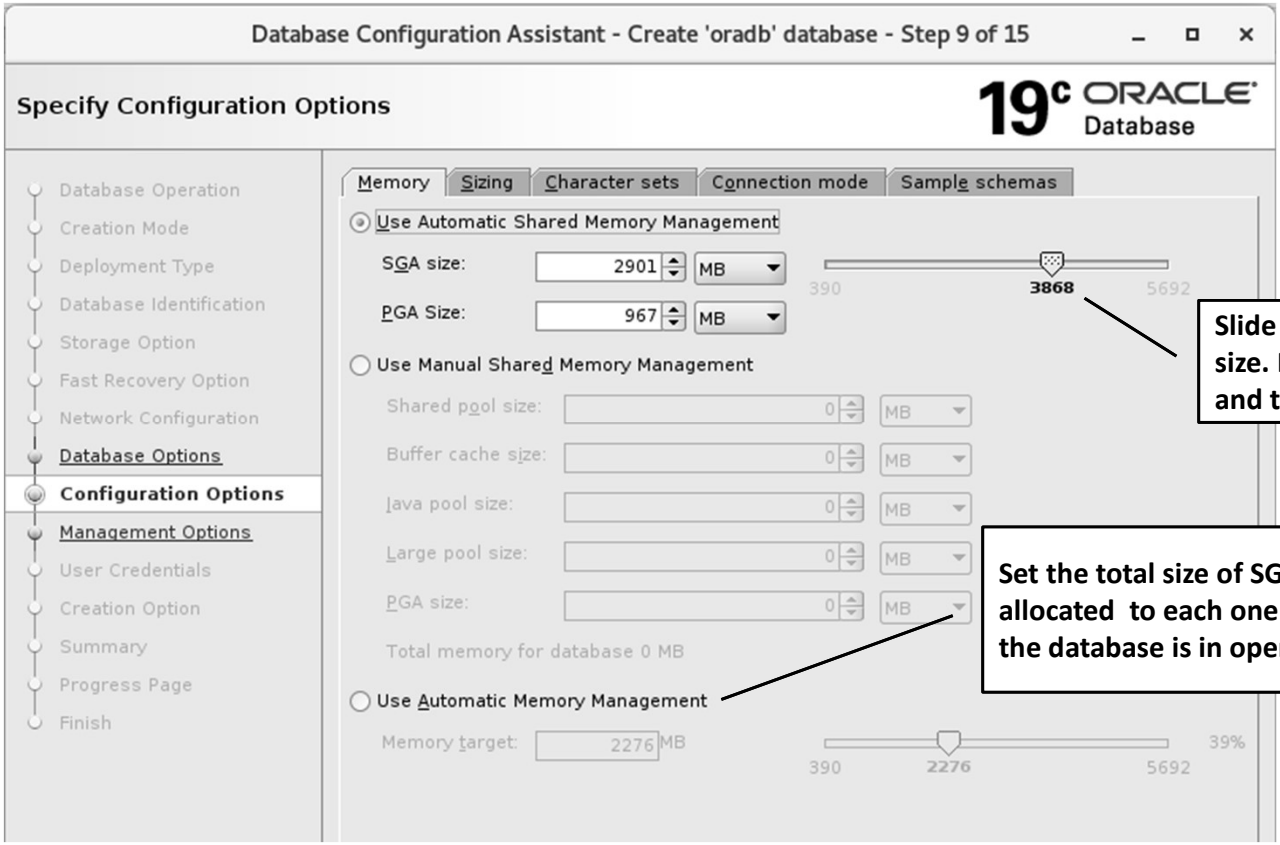
# Network Configuration



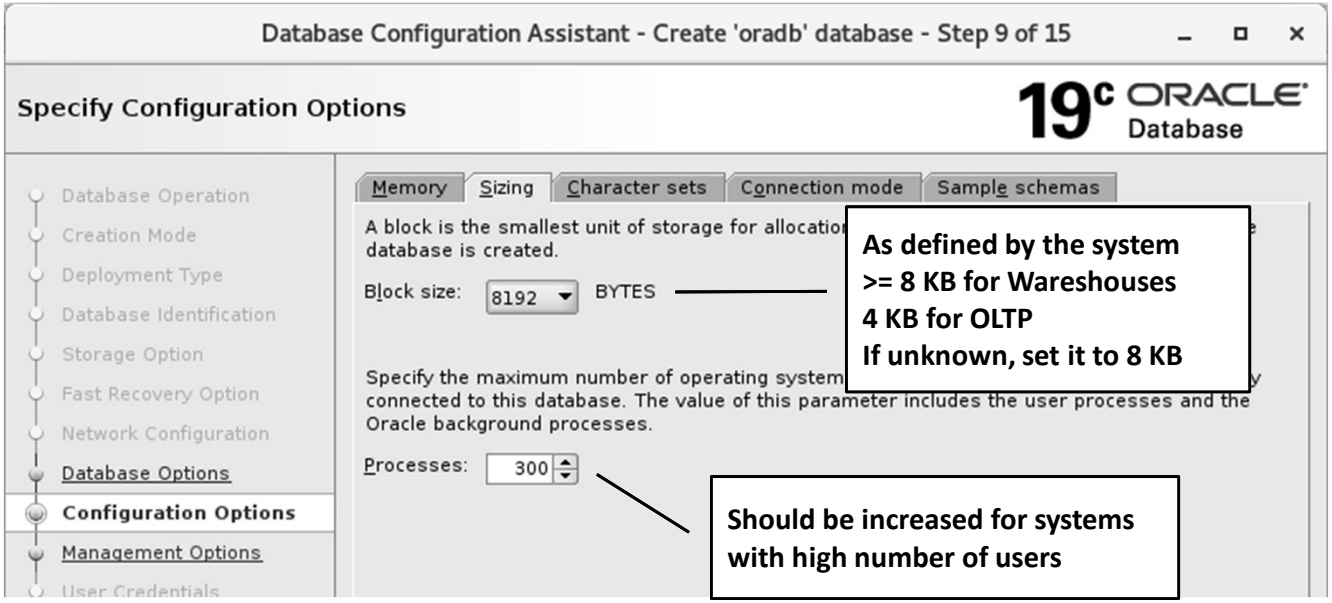
# Selecting Database Options



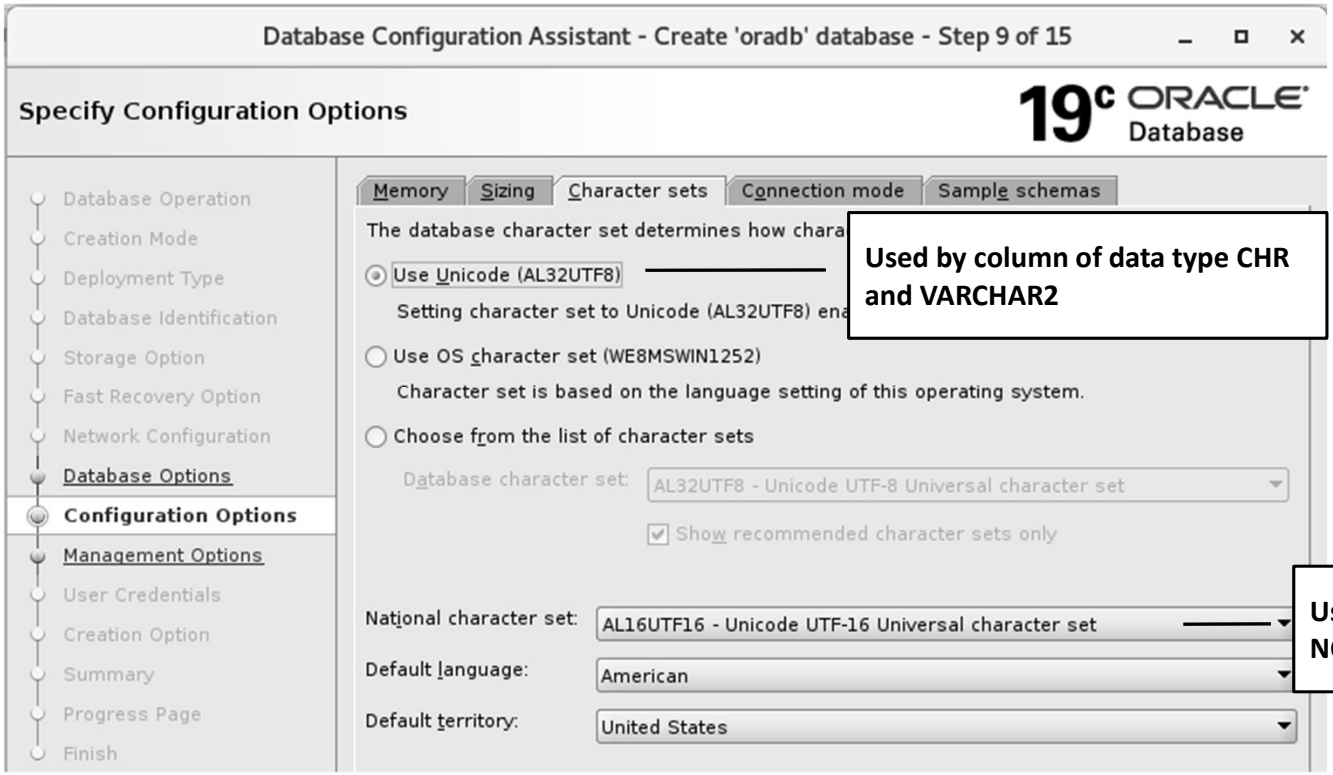
# Setting the Memory



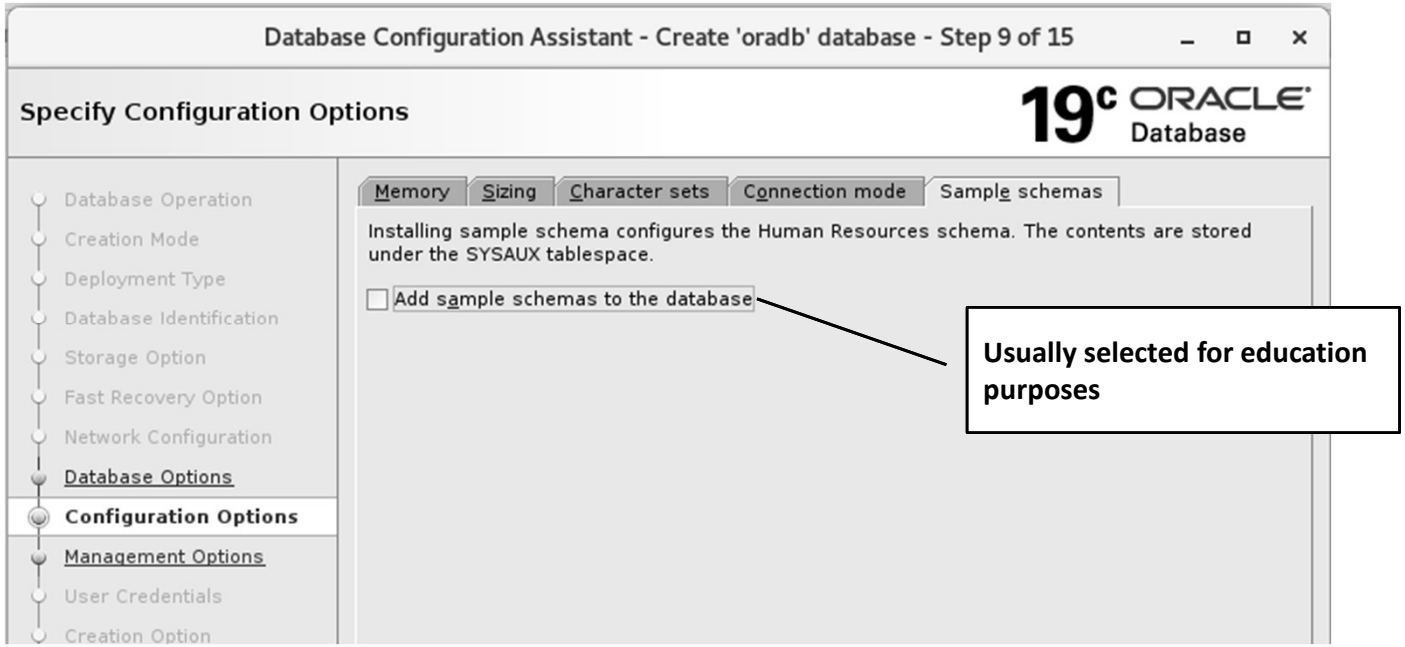
# Setting Block Size and Processes



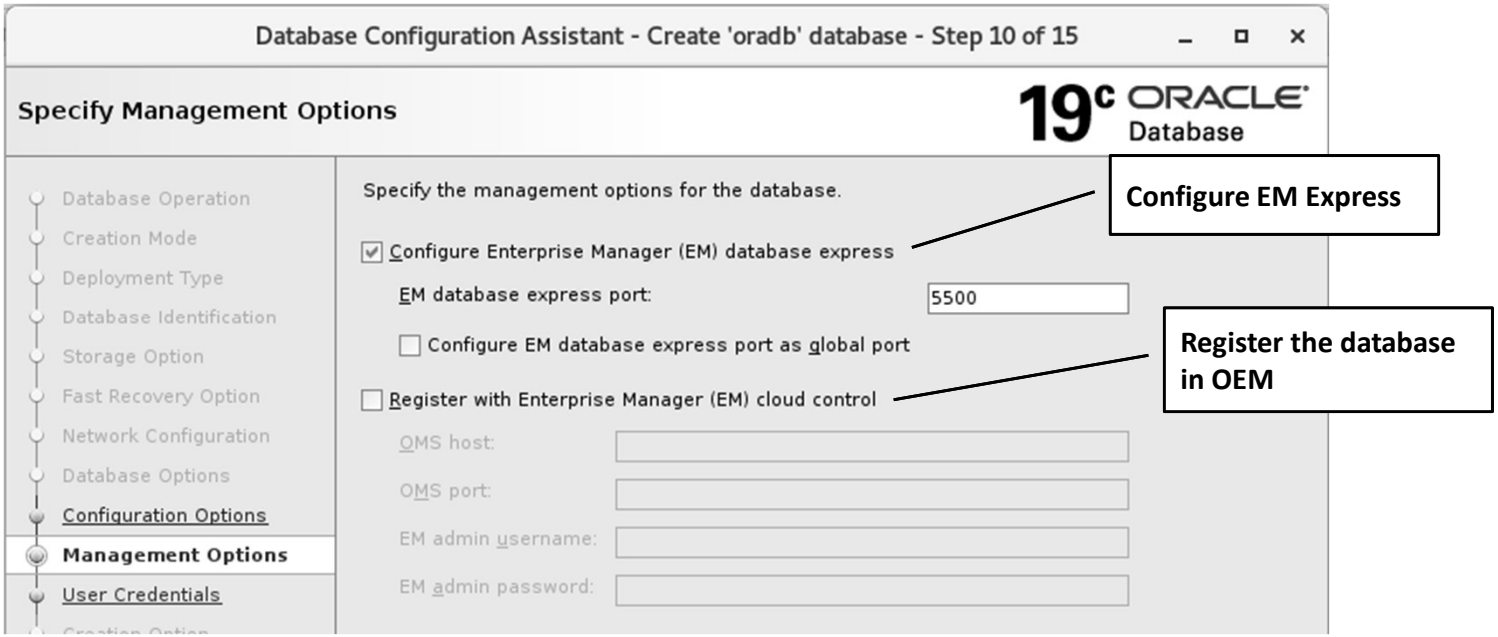
# Setting Charactersets



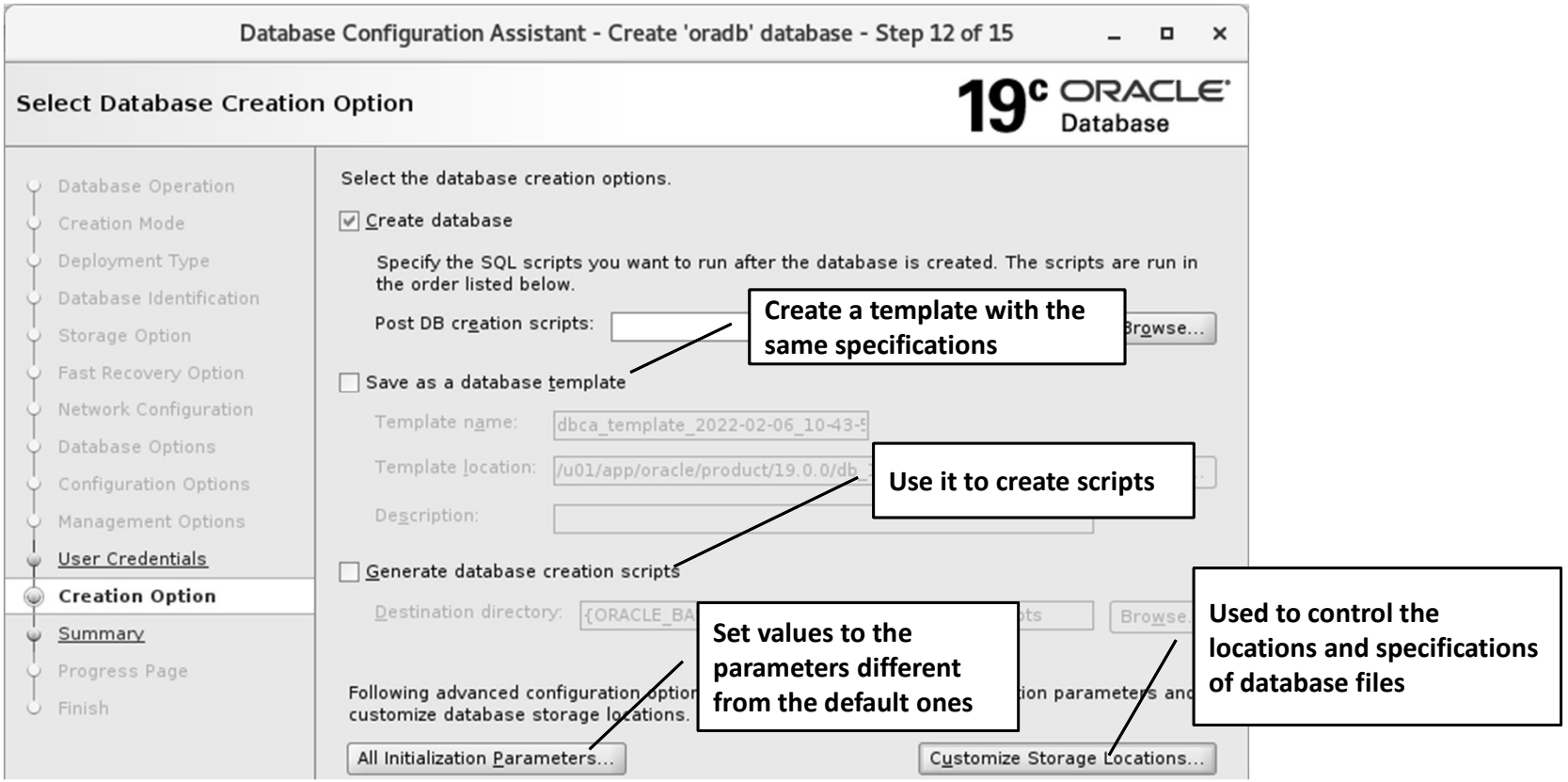
# Installing Sample Schemas



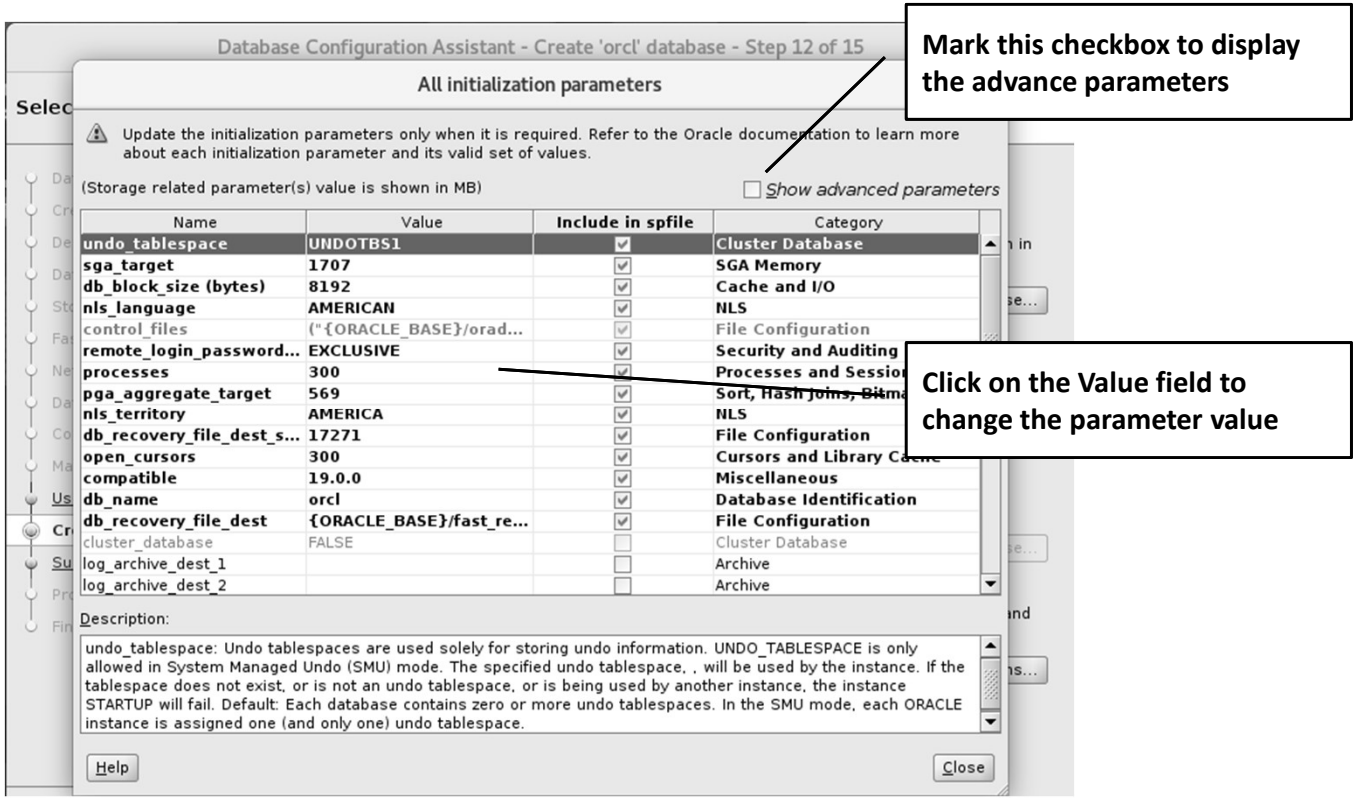
# Configuring EM Express and Registering in OEM



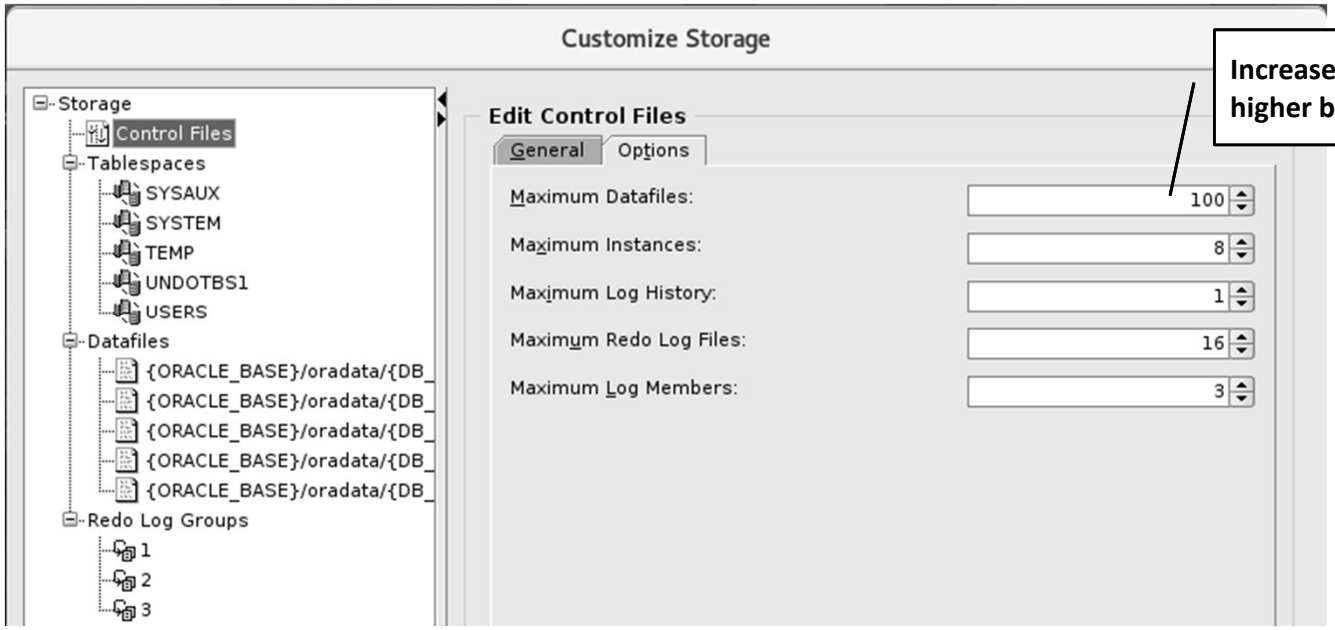
# Creation Option



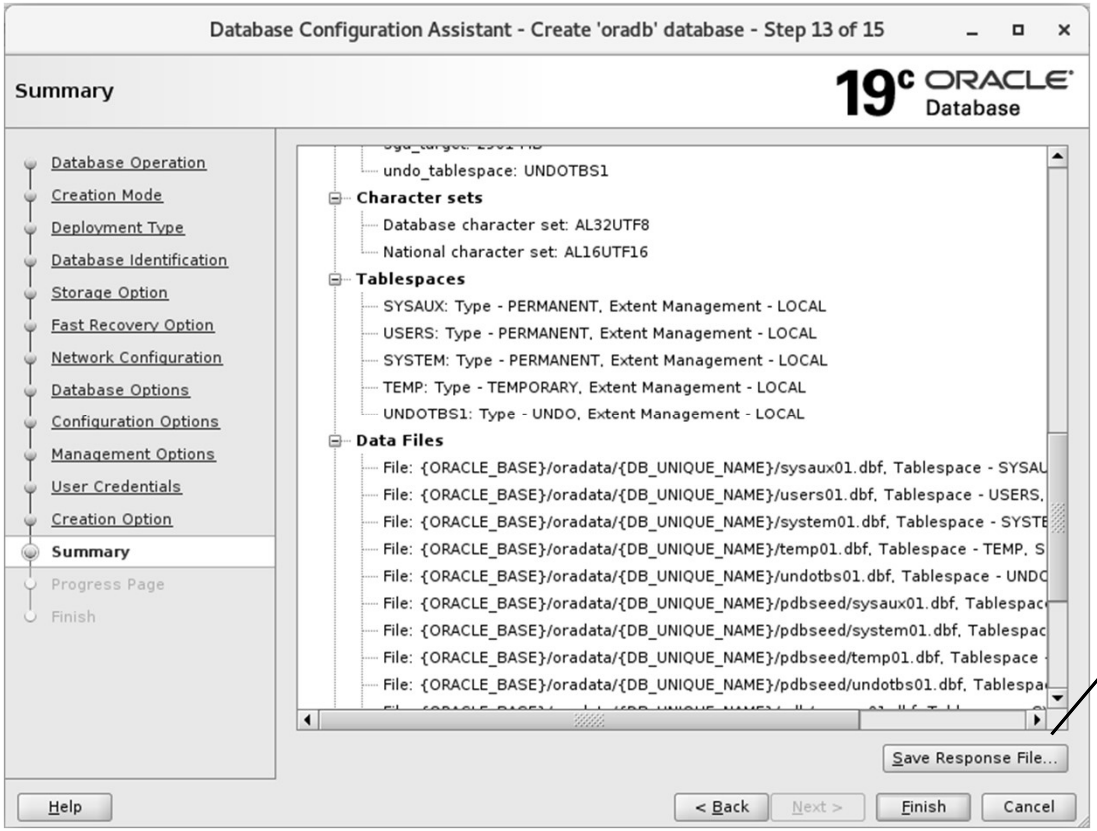
# Setting the Initialization Parameters



# Customize the Storage



# Creating Response File




**Create Response File to be used in silent mode**

# Running dbca in Silent Mode

- dbca can be invoked in silent mode to create a database
- Answers to the dbca questions cab be provided in response file:

```
dbca -createDatabase -silent -responseFile ./dbca.rsp
```

- Answers can be provided in the command line itself:

```
dbca -silent -createDatabase \
 -templateName General_Purpose.dbc \
 -gdbname cdb3 -sid cdb3 -responseFile NO_VALUE \
 -characterSet AL32UTF8 \
 -createAsContainerDatabase true \
 -numberOfPDBs 1 \
 -pdbName pdb3 \
 -pdbAdminPassword OraPasswd1 \
 ...
```

# Providing Database Options to the Command Line

- Database options (components) cannot be provided in the response file.
- They can be provided in the command line as follows:

```
dbca -createDatabase -silent -responseFile ./dbca.rsp
 -dbOptions
JSERVER:true,DV:false,APEX:false,OMS:false,SPATIAL:false,IMEDIA:false
,ORACLE_TEXT:false,CWMLITE:false
```

- If they are not provided, the **dbca** creates the database with all the options
- If you want to drop specific component, use the **chopt** tool:

  https://docs.oracle.com/en/database/oracle/oracle-database/19/ssdbi/chopt-tool.html

# dbca Capabilities in Silent Mode

| Command-line Parameter | Description |
|---|---|
| `createDatabase` | Creates a database |
| `createDuplicateDB` | Creates a duplicate of an Oracle database (19c) |
| `configureDatabase` | Configures a database |
| `createTemplateFromDB` | Creates a database template from an existing database |
| `createTemplateFromTemplate` | Creates a database template from an existing database template |
| `createCloneTemplate` | Creates a clone (seed) database template from an existing database |
| `deleteTemplate` | Deletes a database template |
| `generateScripts` | Generates scripts, which can be used to create a database |
| `deleteDatabase` | Deletes a database |
| `createPluggableDatabase` | Creates a pluggable database (PDB) in a multitenant container database (CDB) |

# dbca Capabilities in Silent Mode

| Command-line Parameter | Description |
|---|---|
| `unplugDatabase` | Unplugs a pluggable database (PDB) from a multitenant container database (CDB) |
| `deletePluggableDatabase` | Deletes a PDB |
| `relocatePDB` | Relocates a PDB from a remote CDB to a local CDB (19c) |
| `configurePluggableDatabase` | Configures a pluggable database (PDB) |
| `addInstance` | Adds a database instance to an administrator-managed Oracle RAC database |
| `deleteInstance` | Deletes a database instance from an administrator-managed Oracle RAC database |
| `executePrereqs` | Executes the prerequisites checks and reports the results. This command can be used to check the environment before running dbca to create a database. |

# Troubleshooting dbca in Silent Mode

- Refer to the following MOS document:
  - Issues Running DBCA in Silent Mode (Doc ID 164672.1)

# About Sample Schemas

- Based on a fictitious sample company

| Schema | Description |
|---|---|
| **HR** | Division Human Resources tracks information about the company employees and facilities. |
| **OE** | Division Order Entry tracks product inventories and sales of company products through various channels. |
| **PM** | Division Product Media maintains descriptions and detailed information about each product sold by the company. |
| **IX** | Division Information Exchange manages shipping through B2B applications. |
| **SH** | Division Sales tracks business statistics to facilitate business decisions. |
| **CO** | Division Customer Orders models a simple retail application consisting of customer, product, store and order data |

# About Sample Schemas

- Before 12c R2, they can be installed when creating the database
- Starting from 12c R2, when creating sample schemas is selected, only HR schema is created
- HR schema can be manually created by running the following script:

```
$ORACLE_HOME/demo/schema/human_resources/hr_main.sql
```

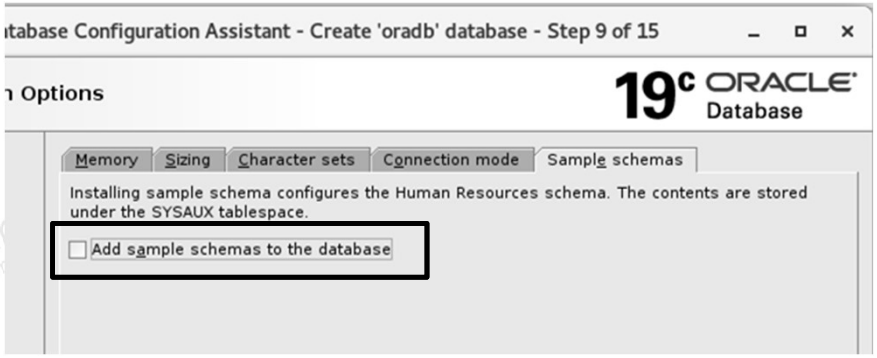
- The other schemas can be manually created from GitHub:
  - Obtain the required version from the following link: https://github.com/oracle/db-sample-schemas/releases/latest
  - Download the ZIP bundle from GitHub and extract the files
  - Follow the instructions in the README file

# Sample Schemas Documentation

- A separate documentation titled “**Database Sample Schemas**”
  - https://docs.oracle.com/en/database/oracle/oracle-database/19/comsc/index.html

# An Issue with HR Sample Schema

- In the dbca interactive mode, it is created by selecting the option below
- In silent mode, it is set using the parameter **sampleSchema**=true
- Does not work in silent mode




```
SELECT USERNAME FROM DBA_USERS
WHERE ORACLE_MAINTAINED='N'
ORDER BY 1;
```

- If you need to install the HR Sample Schema, use dbca in GUI mode or deploy the sample schema later after creating the database.

# Dropping an Oracle Database

- We can use **dbca** in interactive or silent modes:

```
dbca -silent -deleteDatabase -sourceDB ${ORACLE_SID} -sysDBAUserName
sys -sysDBAPassword <password>
```

- Using SQL:

```
DROP DATABASE;
```

# Database Creation Guideline

- For single db creation in a GUI system, use **`dbca`** in interactive mode
- For multiple db creations or command line systems, use **`dbca`** in silent mode
- If you are creating a database for a specific application, consult the vendor or developers for the required database specifications
- By the end of the course, you will be able to perform further customization based on the requirements
- Do not ignore the documentation
- Stick with the policies

# Summary

In this lecture, you should have learnt how to perform the following:

- Plan for database creation
- Response to the dbca windows
- Run dbca in silent mode
- Describe the sample schemas
- Drop Oracle databases
- Understand the guideline of creating Oracle databases