K J Somaiya Polytechnic, Mumbai-77

Batch: C1

Enrollment No: FCOG18120

Experiment No.: 01

Experiment Name: Installation of Oracle Database Software

K J Somaiya Polytechnic, Mumbai-77

Experiment No.01

Experiment Name: Installation of Oracle Database Software

Learning Outcome:

O13RA64.1:- Install Oracle and create database using DBCA tools.

Theory:

A] Oracle database:

Oracle database is the relational database management from Oracle Corporation. Originally developed in 1977 by Lawrence Ellison and other developers, Oracle DB is one of the most trusted and widely-used relational database engines.
The system is built around a relational database framework in which data objects may be directly accessed by users (or an application front end) through structured query language (SQL).

Oracle Database is the first database designed for enterprise grid computing, the most flexible and cost effective way to manage information and applications.
An Oracle database is a collection of data treated as a unit. The purpose of a database is to store and retrieve related information.
A database server is the key to solving the problems of information management. In general, a server reliably manages a large amount of data in a multiuser environment so that many users can concurrently access the same data. All this is accomplished while delivering high performance. A database server also prevents unauthorized access and provides efficient solutions for failure recovery.

The database has logical structures and physical structures. Because the physical and logical structures are separate, the physical storage of data can be managed without affecting the accessto logical storage structures.The Oracle database has its own network component to allow communications across networks.

B] Installation of Oracle

10g1.Prerequisites

Oracle 10g Minimum Windows System Requirements:

Architecture	32 bit or 64 bit
Windows OS	- Windows NT Server 4.0 - Windows NT Server Enterprise Ed. 4.0 - Windows NTTerminal Server Edition with SP 6 - Windows 2000 with SP 1 or higher - Windows Server 2003 - Windows XP Professional
Network protocol	- TCP/IP - TCP/IP with SSL - Named Pipes

2. Hardware components requirements

Various Hardware component requirements are as follow:

Physical memory (RAM)	512 MB recommended
Virtual memory	Double the amount of RAM
Temp disk space	Hard disk space 1.5 GB
Video adapter	256 colors
CPU Processor	200 MHz minimum

3. Steps for Installation :

We can download Oracle 10g database from www.oracle.com. You must registered and create anaccount before you can download the software. The example in this document uses Oracle
Database 10g Release 2 (10.2.0.1.0) for Microsoft Windows.

Below are some steps to download oracle database in your system:

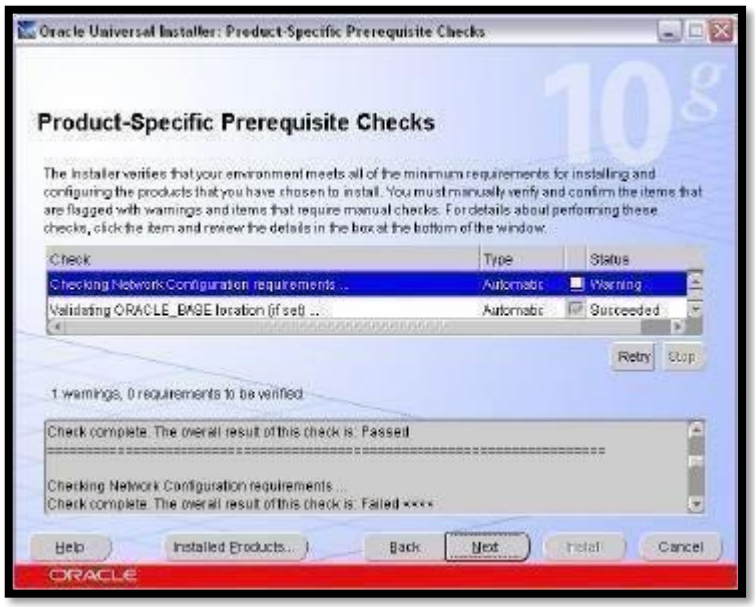
1. Insert Oracle CD , the autorun window opens automatically. If you are installing fromnetwork or hard disk, click setup.exe in the installation folder.
2. The Oracle Universal Installer (OUI) will run and display the Select Installation Method Window.

3.Choose Basic Installation:
Select this option to quickly install Oracle Database 10g. This method requires minimal user input. It installs the software and optionally creates a general-purpose database basedon the information you provide.

For basic installation, you specify the following:
Oracle Home Location — Enter the directory in which to install the Oracle Database 10gsoftware. You must specify a new Oracle home directory for each new installation of Oracle Database 10g.

Use the default value, which is :c:\oracle\product\10.2.0\db_1

Installation Type — Select Enterprise Edition :
If you have limited space, select standard edition. Personal edition installs the same software as the Enterprise Edition, but supports only a single-user development and deployment environment.
Create Starter Database — Check this box to create a database during installation. Oraclerecommends that you create a starter database for first Create Starter Database — time installations. Choose a Global Database Name, like cs157b, or just use the default value.Type a password. Don't lose this password, since you will need it to connect to the database server.
Click next

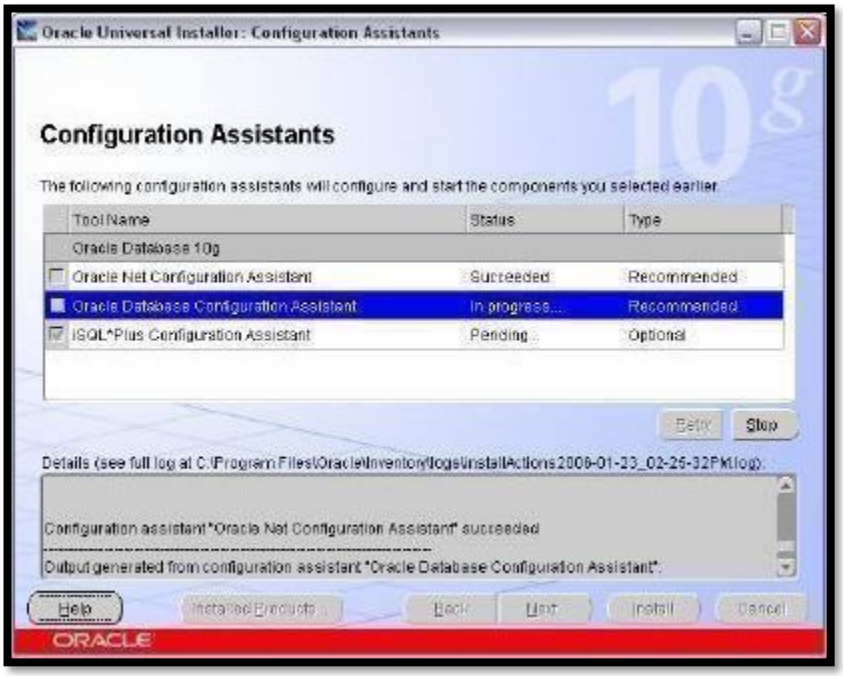


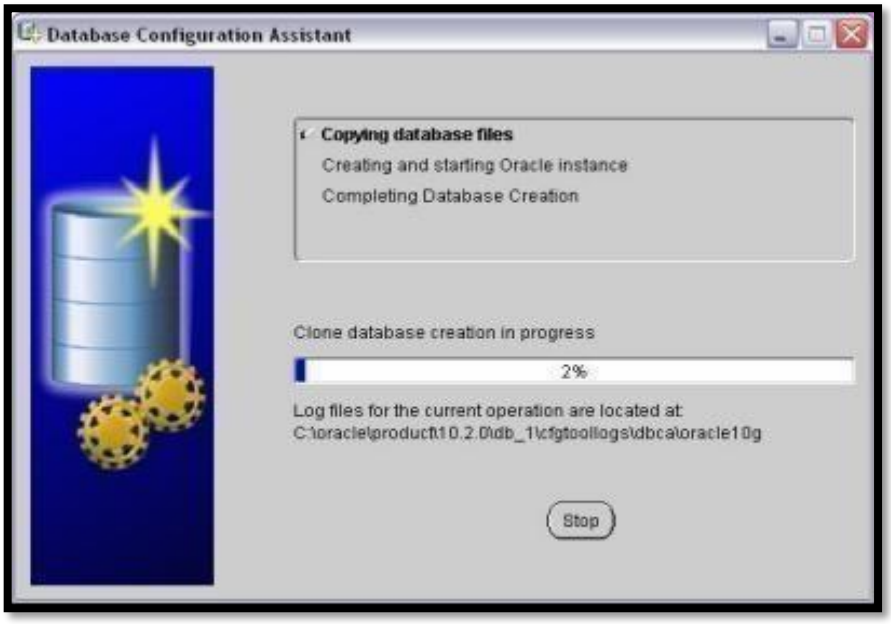
3. The Product-Specific Prerequisite Checks window appears: Click next

4. A summary screen appears showing information such as your global settings, spacerequirements and the new products to be installed. Click Install to start the installation.

5. The Install window appears showing installation progress.

At the end of the installation phase, the Configuration Assistants window appears.This window lists the configuration assistants that are started automatically.
If you are creating a database, then the Database Configuration Assistant starts automatically in a separate window.





At the end of database creation, you are prompted to unlock user accounts to make the accounts accessible. The SYS and SYSTEM accounts are already unlocked. Click OK to by pass password management.

Your installation and database creation is now complete. The End of Installation window displays several important URLs, one of which is for Enterprise Manager.

You can navigate to this URL in your browser and log in as the SYS user with the associated password, and connect as SYSDBA. You use Enterprise Manager to performcommon database administration tasks

Conclusion: Thus, we successfully install the oracle database.

Questions

1. **Define database and instance [CO1]**

A database instance is a set of memory structures that manage database files.
A database is a set of physical files on disk created by the CREATE DATABASE statement. The instance manages its associated data and serves the users of the database.

Every running Oracle database is associated with at least one Oracle database instance. Because an instance exists in memory and a database exists on disk, an instance can exist without a database and a database can exist without an instance.

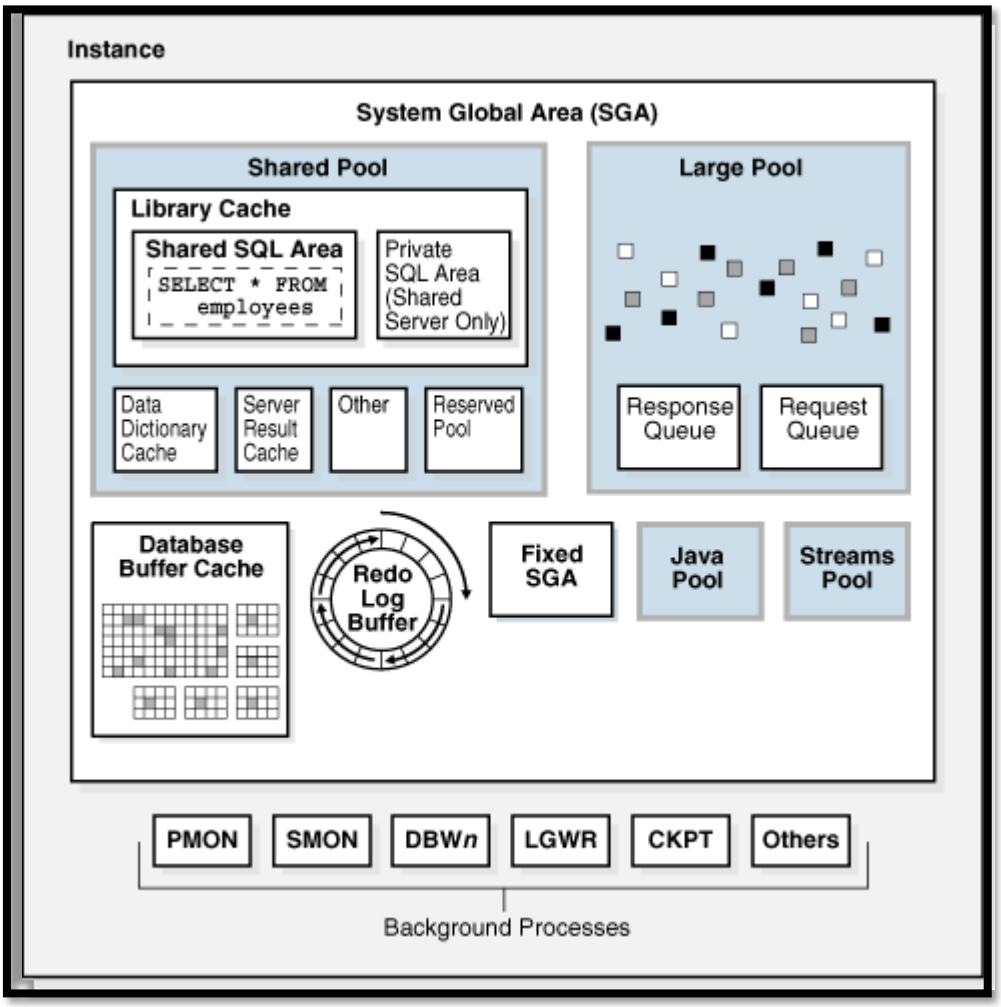
Database Instance Structure

When an instance is started, Oracle Database allocates a memory area called the system global area (SGA) and starts one or more background processes. The SGA serves various purposes, including the following:

- Maintaining internal data structures that are accessed by many processes and threads concurrently
- Caching data blocks read from disk
- Buffering redo data before writing it to the online redo log files
- Storing SQL execution plans

The SGA is shared by the Oracle processes, which include server processes and background processes, running on a single computer. The way in which Oracle processes are associated with the SGA varies according to operating system.

A database instance includes background processes. Server processes, and the process memory allocated in these processes, also exist in the instance. The instance continues to function when server processes terminate.



2. **List different components from physical database structure and logical storagestructure of oracle architecture? [CO1]**

Physical database structure:

One characteristic of an RDBMS is the independence of logical data structures such as tables, views, and indexes from physical storage structures. Because physical and logical structures are separate, you can manage physical storage of data without affecting access to logical structures. For example, renaming a database file does not rename the tables stored in it.

An **Oracle database** is a set of files that store Oracle data in persistent disk storage. This section discusses the database files generated when you issue a CREATE DATABASE statement:

Data files and temp files :

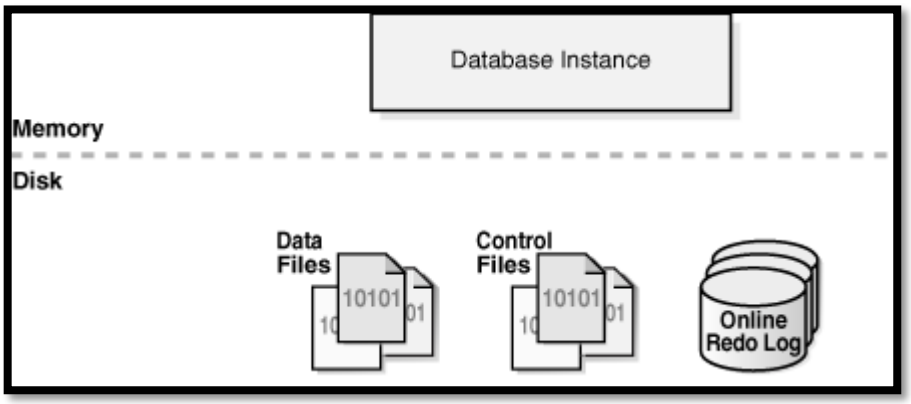
A data file is a physical file on disk that was created by Oracle Database and contains data structures such as tables and indexes. A temp file is a data file that belongs to a temporary tablespace. The data is written to these files in an Oracle proprietary format that cannot be read by other programs.

Control files :

A **control file** is a root file that tracks the physical components of the database.

Online redo log files :

The online redo log is a set of files containing records of changes made to data.
A database instance is a set of memory structures that manage database files.



Logical Database Structures

In addition to the physical files used by the database, Oracle maintains many types of logical structures. Some of the most important are summarized here:

Tablespaces :

The basic storage allocation in an Oracle database is a tablespace. Each tablespace is composed of one or more physical (operating system) files. Every database is created with the SYSTEM tablespace. Other tablespaces are created by the DBA. Note, however, that if you allow the Oracle Installer to create a database automatically, it will create additional tablespaces (see Chapter 2).

Schemas :

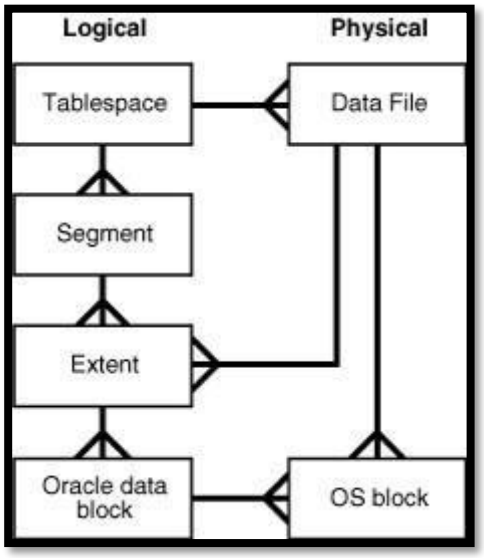
In Oracle, a schema is essentially the same as an account or a username. Each object in the database is owned by a schema. Every Oracle database is created with two initial schemas: SYS, which is used to store the data dictionary, and SYSTEM, which often stores some data dictionary extensions as well as critical tables for other tools. Other schemas are created by the DBA. Each schema can be granted quotas in any tablespace. There is no necessary relationship between a schema and a tablespace.

Segments :

Each object that takes up space is created as one or more segments. Each segment can be in one and only one tablespace.

Extents :

Each segment is composed of one or more extents. An extent is a contiguous allocation of space within a datafile of a tablespace. At the time a segment is created, you can specify the size of the initial and next extents, as well as the minimum and maximum number of extents.


Logical
Physical
Tablespace
Data File
Segment
Extent
Oracle data block
OS block

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