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Managing the Database Instance

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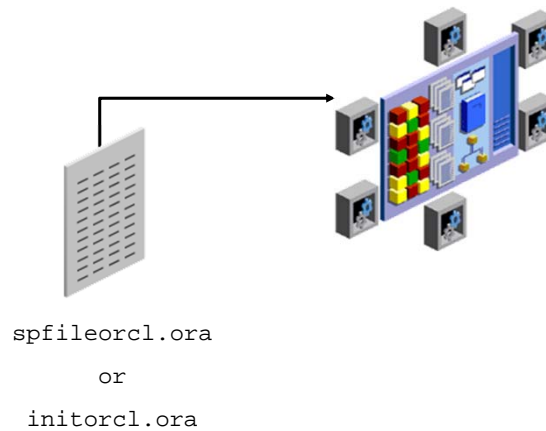
Objectives

After completing this lesson, you should be able to:

- Start and stop the Oracle database instance and components
- Modify database initialization parameters
- Describe the stages of database startup
- Describe database shutdown options
- View the alert log
- Access dynamic performance views

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Initialization Parameter Files



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Initialization Parameters: Examples

Parameter	Specifies
CONTROL_FILES	One or more control file names
DB_FILES	Maximum number of database files
PROCESSES	Maximum number of OS user processes that can simultaneously connect
DB_BLOCK_SIZE	Standard database block size used by all tablespaces
DB_CACHE_SIZE	Size of the standard block buffer cache

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Using SQL*Plus to View Parameters

```
SQL> SELECT name, value FROM V$PARAMETER;
NAME                                VALUE
-----
lock_name_space                     300
processes                           472
sessions                            TRUE
timed_statistics                     0
timed_os_statistics                  0
...

SQL> SHOW PARAMETER SHARED_POOL_SIZE
NAME                                TYPE            VALUE
-----
securefile_log_shared_pool_size    big integer     0
shared_pool_size                    big integer     0

SQL> show parameter para
NAME                                TYPE            VALUE
-----
cell_offload_parameters            string          LOW
fast_start_parallel_rollback       string          TRUE
parallel_adaptive_multi_user        boolean         FALSE
parallel_automatic_tuning           boolean         FALSE
...
```

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Changing Initialization Parameter Values

- Static parameters:
 - Can be changed only in the parameter file
 - Require restarting the instance before taking effect
- Dynamic parameters:
 - Can be changed while database is online
 - Can be altered at:
 - Session level
 - System level
 - Are valid for duration of session or based on SCOPE setting
 - Are changed by using ALTER SESSION and ALTER SYSTEM commands

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Changing Parameter Values: Examples

```
SQL> ALTER SESSION
      2 SET NLS_DATE_FORMAT = 'mon dd yyyy';
```

Session altered.

```
SQL> SELECT SYSDATE FROM dual;
```

```
SYSDATE
-----
oct 17 2012
```

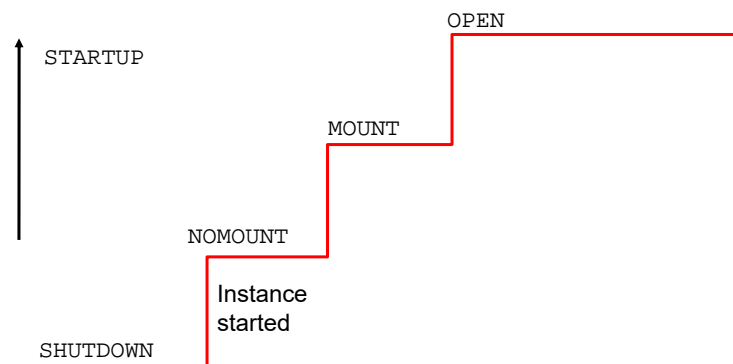
```
SQL> ALTER SYSTEM SET
      2 SEC_MAX_FAILED_LOGIN_ATTEMPTS=2
      3 COMMENT='Reduce for tighter security.'
      4 SCOPE=SPFILE;
```

System altered.

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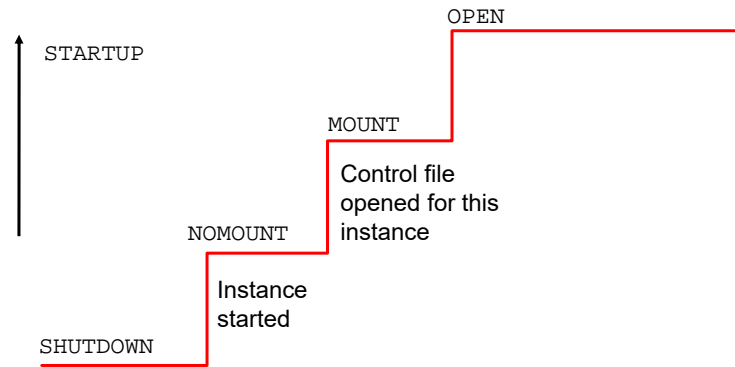
Starting Up an Oracle Database Instance: NOMOUNT



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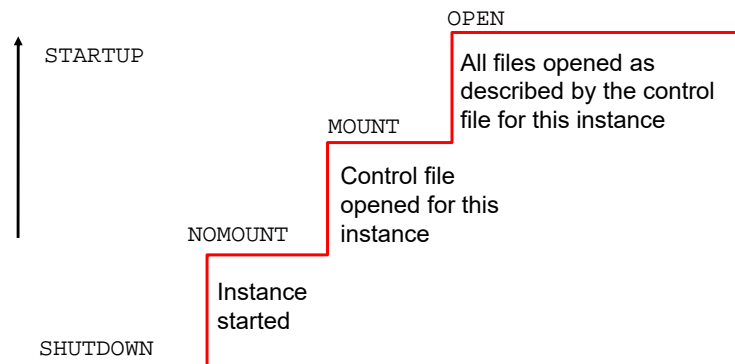
Starting Up an Oracle Database Instance: MOUNT



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Starting Up an Oracle Database Instance: OPEN



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Startup Options: Examples

- Using the SQL*Plus utility:

```
SQL> startup
```

1

```
SQL> startup nomount
```

2

```
SQL> alter database mount;
```

3

```
SQL> alter database open;
```

4

- Using the Server Control utility with Oracle Restart

```
$ srvctl start database -d orcl -o mount
```

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Shutdown Modes

Shutdown Modes	A	I	T	N
Allows new connections	No	No	No	No
Waits until current sessions end	No	No	No	Yes
Waits until current transactions end	No	No	Yes	Yes
Forces a checkpoint and closes files	No	Yes	Yes	Yes

Shutdown modes:

- A = ABORT
- I = IMMEDIATE
- T = TRANSACTIONAL
- N = NORMAL

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Shutdown Options

On the way down:

- Uncommitted changes rolled back, for IMMEDIATE
- Database buffer cache written to data files
- Resources released

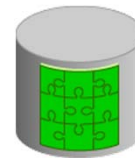
During:

SHUTDOWN
NORMAL
or
SHUTDOWN
TRANSACTIONAL
or
SHUTDOWN
IMMEDIATE

On the way up:

- No instance recovery

Consistent database



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Shutdown Options

On the way down:

- Modified buffers not written to data files
- Uncommitted changes not rolled back

During:

SHUTDOWN ABORT
or
Instance failure
or
STARTUP FORCE

On the way up:

- Online redo log files used to reapply changes
- Undo segments used to roll back uncommitted changes
- Resources released

Inconsistent database



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Shutdown Options: Examples

- Using SQL*Plus:

```
SQL> shutdown
```

1

```
SQL> shutdown transactional
```

2

```
SQL> shutdown immediate
```

3

```
SQL> shutdown abort
```

4

- Using the SRVCTL utility with Oracle Restart

```
$ srvctl stop database -d orcl -o abort
```

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Viewing the Alert Log

Oracle Enterprise Manager Cloud Control 12c

Enterprise Targets Favorites History

orcl

Oracle Database Performance Availability Schema Administration

Home Monitoring Control Job Activity Information Publisher Reports

Logs Provisioning Configuration Compliance Target Setup Target Information

Performance Activity Class

Active Sessions

Diagnostic data in directory=[cdmp_20121016221529], requested by (instance=1, o

Errors in file /u01/app/oracle/diag/rdbms/orcl/orcl/trace/orcl_j004_17702.trc (incident=12461):
ORA-04036: PGA memory used by the instance exceeds PGA_AGGREGATE_LIMIT
ORA-04036: PGA memory used by the instance exceeds PGA_AGGREGATE_LIMIT
Incident details in: /u01/app/oracle/diag/rdbms/orcl/orcl/incident/incdir_12461/orcl_j004_17702_i12461.trc
Dumping diagnostic data in directory=[cdmp_20121016221549], requested by (instance=1, osid=17702 (3904)),
opidrv aborting process 3004 ospid (17702)) as a result of ORA-28
Tue Oct 16 22:16:30 2012
Sweep [inc1][12461]: completed
Sweep [inc2][12461]: completed
Sweep [inc2][12460]: completed
Wed Oct 17 02:00:01 2012
Closing Resource Manager plan via scheduler window
Clearing Resource Manager plan via parameter
Wed Oct 17 10:32:56 2012
Thread 1 advanced to log sequence 23 (LGWR switch)
Current log# 2 seq# 23 mem# 0: /u01/app/oracle/oradata/orcl/redo02.log
Wed Oct 17 12:23:29 2012

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Using Trace Files

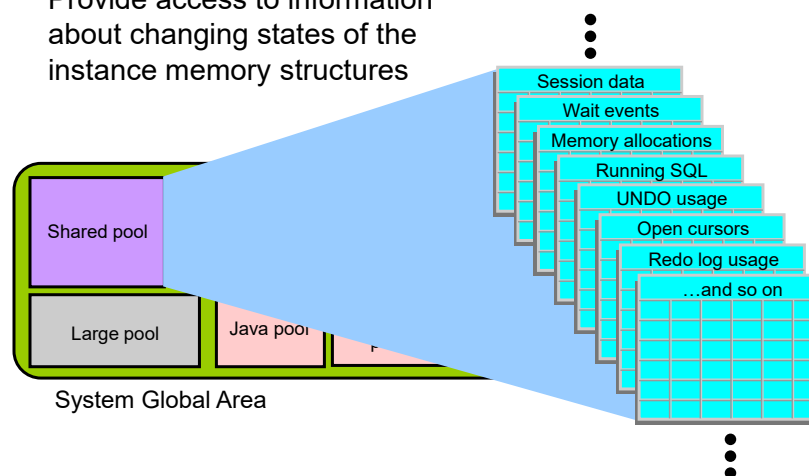
- Each server and background process can write to an associated trace file.
- Error information is written to the corresponding trace file.
- Automatic diagnostic repository (ADR)
 - Is a systemwide central tracing and logging repository
 - Stores database diagnostic data such as:
 - Traces
 - Alert log
 - Health monitor reports

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Using Dynamic Performance Views

Provide access to information about changing states of the instance memory structures



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Dynamic Performance Views: Usage Examples

1 `SELECT sql_text, executions FROM v$sql
WHERE cpu_time > 200000;`

2 `SELECT * FROM v$session
WHERE machine = 'EDXX9P1'
AND logon_time > SYSDATE - 1;`

3 `SELECT sid, ctime FROM v$lock
WHERE block > 0;`

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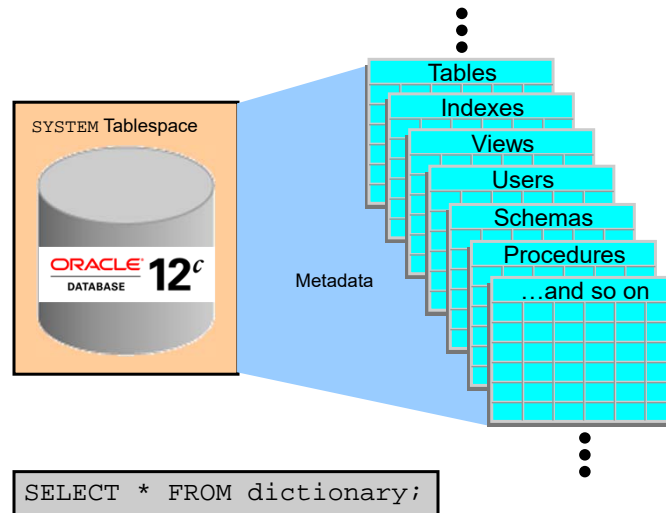
Dynamic Performance Views: Considerations

- These views are owned by the SYS user.
- Different views are available at different times:
 - The instance has been started.
 - The database is mounted.
 - The database is open.
- You can query V\$FIXED_TABLE to see all the view names.
- These views are often referred to as “v-dollar views.”
- Read consistency is not guaranteed on these views because the data is dynamic.

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Data Dictionary: Overview



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Data Dictionary Views

	Who Can Query	Contents	Subset of	Notes
DBA_	DBA	Everything	N/A	May have additional columns meant for DBA use only
ALL_	Everyone	Everything that the user has privileges to see	DBA_ views	Includes user's own objects and other objects that the user has been granted privileges to see
USER_	Everyone	Everything that the user owns	ALL_ views	Is usually the same as ALL_ except for the missing OWNER column. (Some views have abbreviated names as PUBLIC synonyms.)

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Data Dictionary: Usage Examples

1 `SELECT table_name, tablespace_name
FROM user_tables;`

2 `SELECT sequence_name, min_value, max_value,
increment_by
FROM all_sequences
WHERE sequence_owner IN ('MDSYS','XDB');`

3 `SELECT USERNAME, ACCOUNT_STATUS
FROM dba_users
WHERE ACCOUNT_STATUS = 'OPEN';`

4 `DESCRIBE dba_indexes`

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Summary

In this lesson, you should have learned how to:

- Start and stop the Oracle database instance and components
- Modify database initialization parameters
- Describe the stages of database startup
- Describe database shutdown options
- View the alert log
- Access dynamic performance views

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