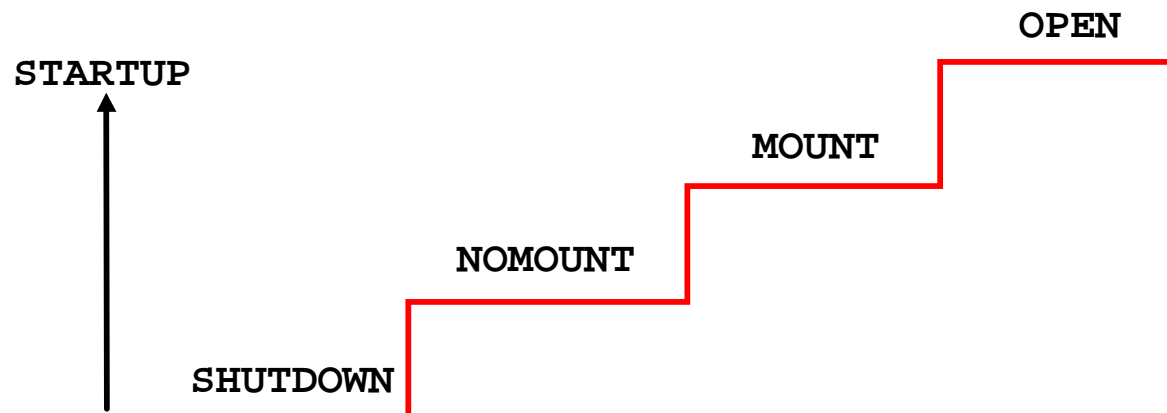# Database Recovery

Objectives

After completing this lesson you should be able to recover from loss of a:

- **Control file**
- **Redo log file**
- **Data file**

Opening a Database

To open a database:

- **All control files must be present and synchronized**
- **All online data files must be present and synchronized**
- **At least one member of each redo log group must be present**

```
                                                    OPEN
STARTUP                                      ┌─────────────
  ↑                                          │
  │                                   MOUNT  │
  │                              ┌───────────┘
  │                              │
  │                  NOMOUNT     │
  │             ┌───────────────┘
  │             │
  │  SHUTDOWN   │
  └─────────────┘
```

Changing Instance Status

Use Database Control to alter the instance's status:

Startup/Shutdown:Confirmation

Current Status **shutdown**

Operation **startup database in open mode**

Initialization Parameter **default**

Are you sure you want to perform this operation?

[Show SQL] [Advanced Options] [No] [Yes]

Database | Help

Startup/Shutdown:Advanced Startup Options

Startup mode

○ Start the instance

○ Mount the database

⊙ Open the database
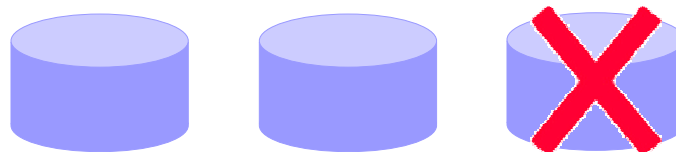
Keeping a Database Open

Once open, the instance fails with:

- **Loss of any control file**

- **Loss of a data file belonging to the system or undo tablespaces**

- **Loss of an entire redo log group. As long as at least one member of the group is available, the instance remains open.**

Loss of a Control File

If a control file is lost or corrupted:

1. The instance will normally abort. If it is still open, shut it down.

2. Restore the missing control file by copying an existing control file.

3. Start the instance.

Control files

ORACLE

Loss of a Redo Log File

If a member of a log file group is lost, as long as the group still has at least one member:
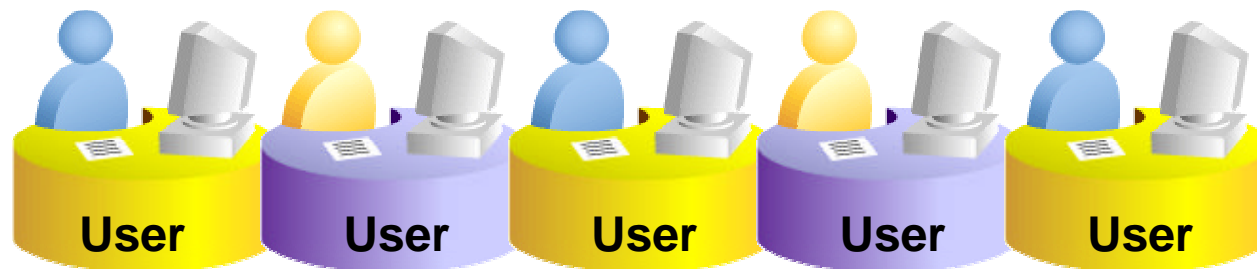
1. Normal operation of the instance will not be affected.

2. You will receive a message in the alert log notifying you that a member can not be found.

3. Restore the missing log file by copying one of the remaining files from the same group.

		Edit	View	Delete	Actions Clear logfile	⌄	Go

Select	Group	Status	# of Members	Archived	Size (KB)	Sequence	First Change#
⦿	1	Current	2	No	10240	185	2190750
○	2	Inactive	2	Yes	10240	183	2179358
○	3	Inactive	2	Yes	10240	184	2190746

Loss of a Data File in NOARCHIVELOG Mode

If the database is in NOARCHIVELOG mode, and any data file is lost:

1. Shut the instance down if it is not already down.
2. Restore the entire database, including all data and control files, from backup.
3. Open the database.
4. Have users reenter all changes made since the last backup.

User   User   User   User   User

Loss of a Noncritical Data File
in `ARCHIVELOG` Mode

If a data file is lost or corrupted, and that file does not belong to the `SYSTEM` or `UNDO` tablespace, then restore and recover the missing data file.

Type

Object Type | Datafiles

Operation Type | ⦿ Recover to current time or a previous point-in-time
Datafile will be restored as required.
○ Restore datafiles
Need to specify Time, SCN or log sequence. The backup taken at or prior to that time will be used.
○ Recover from previously restored datafiles
○ Block Recovery

Users

Loss of a System-Critical Data File
in `ARCHIVELOG` Mode

If a data file is lost or corrupted, and that file belongs to the `SYSTEM` or `UNDO` tablespace :

1. The instance may or may not shut down automatically. If it does not, use `SHUTDOWN ABORT` to bring the instance down.

2. Mount the database.

3. Restore and recover the missing data file.

4. Open the database.

Users

Summary

In this lesson you should have learned how to recover from loss of a:

- Control file
- Redo log file
- Data file

Practice Overview:
Database Recovery

This practice covers recovering from loss of a:

- **Control file**

- **Redo log file**

- **Noncritical data file**

- **System-critical data file**