

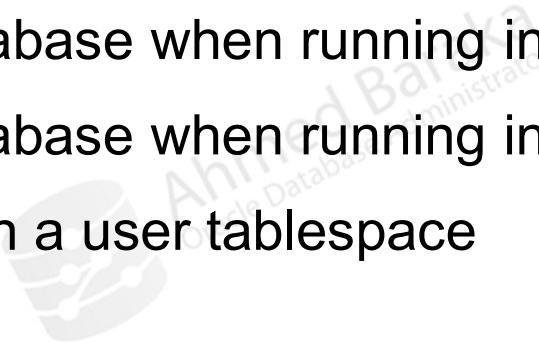
Performing Recovery Part I - Performing Full Recovery

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Objectives

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

- Perform the common pre-recovery actions
- Recover the whole database when running in NOARCHIVELOG mode
- Recover the whole database when running in ARCHIVELOG mode
- Perform full recovery on a user tablespace



When is Recovery Needed?

- Physical issues are usually known from the returned error. For example:

```
ORA-00205: error in identifying control file, check alert log
for more info
```

- Logical issues are normally reported by client users
- Identify lost data files with RMAN:

```
RMAN> VALIDATE DATABASE;
RMAN> VALIDATE PLUGGABLE DATABASE pdb1;
RMAN> VALIDATE TABLESPACE users;
RMAN> VALIDATE DATAFILE '...';

..
RMAN-06056: could not access datafile 5
..
```

Previewing Backups Used in Restoring

- To list the backup files that will be used in recovery:
 - **RESTORE . . . PREVIEW**
 - Accesses the RMAN repository to retrieve the list
 - **RESTORE . . . VALIDATE HEADER**
 - Validates the backup file headers and confirm their existence
- Examples:

```
RESTORE DATABASE PREVIEW;  
RESTORE DATABASE PREVIEW SUMMARY;
```

Validating Backups Before Restoring Them

- To validate that the backup files are usable for restore:
 - **RESTORE . . . VALIDATE**
 - **VALIDATE BACKUPSET**
- All blocks in the backup files are read



About Performing Recovery of the Whole Database

- Database running in **NOARCHIVELOG**:
 - No incremental backup available
 - database can be recovered only to the last taken consistent backup
 - Incremental backup available
 - Incremental backup can be applied if they are consistent
 - **RECOVER** command must be used with **NOREDO** option
- Database running in **ARCHIVELOG**:
 - If the online redo log groups and the archived redo log files are available, you can perform complete and incomplete recovery

Performing Complete Recovery of the Whole Database in NOARCHIVELOG Mode

- **Scenario:** one or more database datafiles are lost
- **Assumption:** database running in NOARCHIVELOG mode, no incremental backup is available
- **Solution:**

```
STARTUP MOUNT;  
RESTORE DATABASE;  
RECOVER DATABASE [UNTIL CANCEL];  
ALTER DATABASE OPEN RESETLOGS;
```

Notes:

- Temporary tablespaces will be automatically re-created when you open the database

Performing Complete Recovery of the Whole Database in ARCHIVELOG Mode

- **Scenario:** all or most database datafiles are lost
- **Assumption:** database is running in **ARCHIVELOG**, online redo log files are available
- **Solution:**

```
STARTUP MOUNT;  
RESTORE DATABASE;  
RECOVER DATABASE;  
ALTER DATABASE OPEN;
```



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Performing Complete Recovery of the Whole Database: to New Location

- **Scenario:**
 - All or most database datafiles are lost
 - Original datafiles destination is not available
- **Solution:**

```
RUN
{ SET NEWNAME FOR DATAFILE 2 TO '/disk2/df1.dbf';
  SET NEWNAME FOR DATAFILE 3 TO '/disk2/df2.dbf';
  SET NEWNAME FOR DATAFILE 4 TO '/disk2/df3.dbf';
  RESTORE DATABASE;
  SWITCH DATAFILE ALL;
  RECOVER DATABASE; }
..
RMAN> ALTER DATABASE OPEN;
```

Performing Complete Recovery of a User Tablespace Loss

- **Scenario:** one or more user tablespace datafiles are lost
- **Assumption:** the database is open
- **Solution:**

```
ALTER TABLESPACE hrtbs OFFLINE IMMEDIATE;  
RESTORE TABLESPACE hrtbs ;  
RECOVER TABLESPACE hrtbs ;  
ALTER TABLESPACE hrtbs ONLINE;
```

Performing Complete Recovery of a User Tablespace to New Location

- **Solution:**

```
ALTER TABLESPACE hrtbs OFFLINE IMMEDIATE;
RUN
{
  SET NEWNAME FOR DATAFILE '/disk1/hrtbs01.f' TO
                                '/disk2/hrtbs01.f';
  SET NEWNAME FOR DATAFILE '/disk1/hrtbs02.f' TO
                                '/disk2/hrtbs02.f';

  RESTORE TABLESPACE hrtbs;
  SWITCH DATAFILE ALL;
  RECOVER TABLESPACE hrtbs;
}

ALTER TABLESPACE hrtbs ONLINE;
```

Summary

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

- Perform the common pre-recovery actions
- Recover the whole database when running in NOARCHIVELOG mode
- Recover the whole database when running in ARCHIVELOG mode
- Perform full recovery on a user tablespace

