Introducing RESTORE and RECOVER Commands

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Objectives

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

- Describe the difference between non-critical and critical data loss
- Describe the actions performed by the **`RESTORE`** and **`RECOVER`** commands
- Describe the steps to prepare a database for a recovery procedure

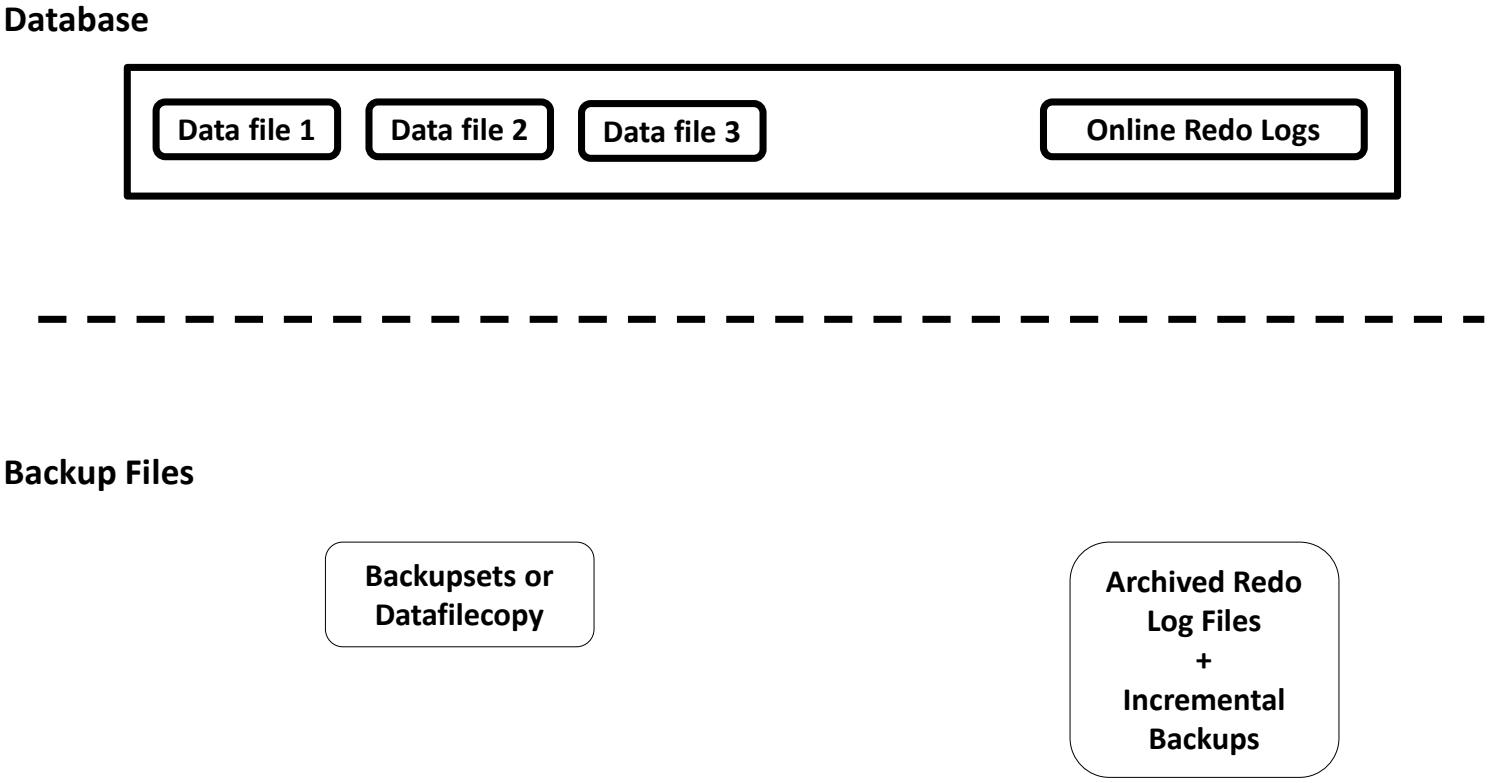
Data Loss Categories

- **Physical failure**
  - missing or corrupted data file
- **Logical failure**
  - application or user error

About Database File Loss

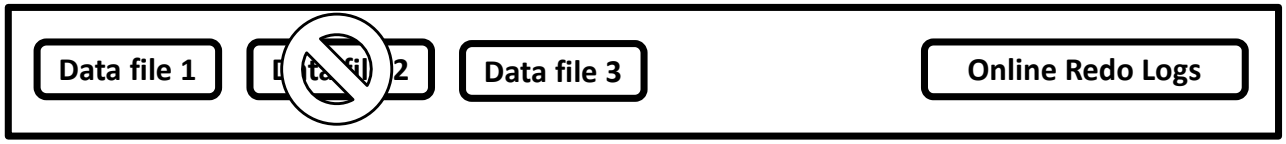
- Possible causes of database file loss:
  - Human error
  - Application error
  - Media failure
  - Hardware failure
- Database file categories:
  - **Non-critical**
    - Losing it does not stop the database
    - Losing it may have significant impact on the application
  - **Critical**
    - The database cannot run without it

RMAN Restore and Recover



RMAN Restore and Recover

Database

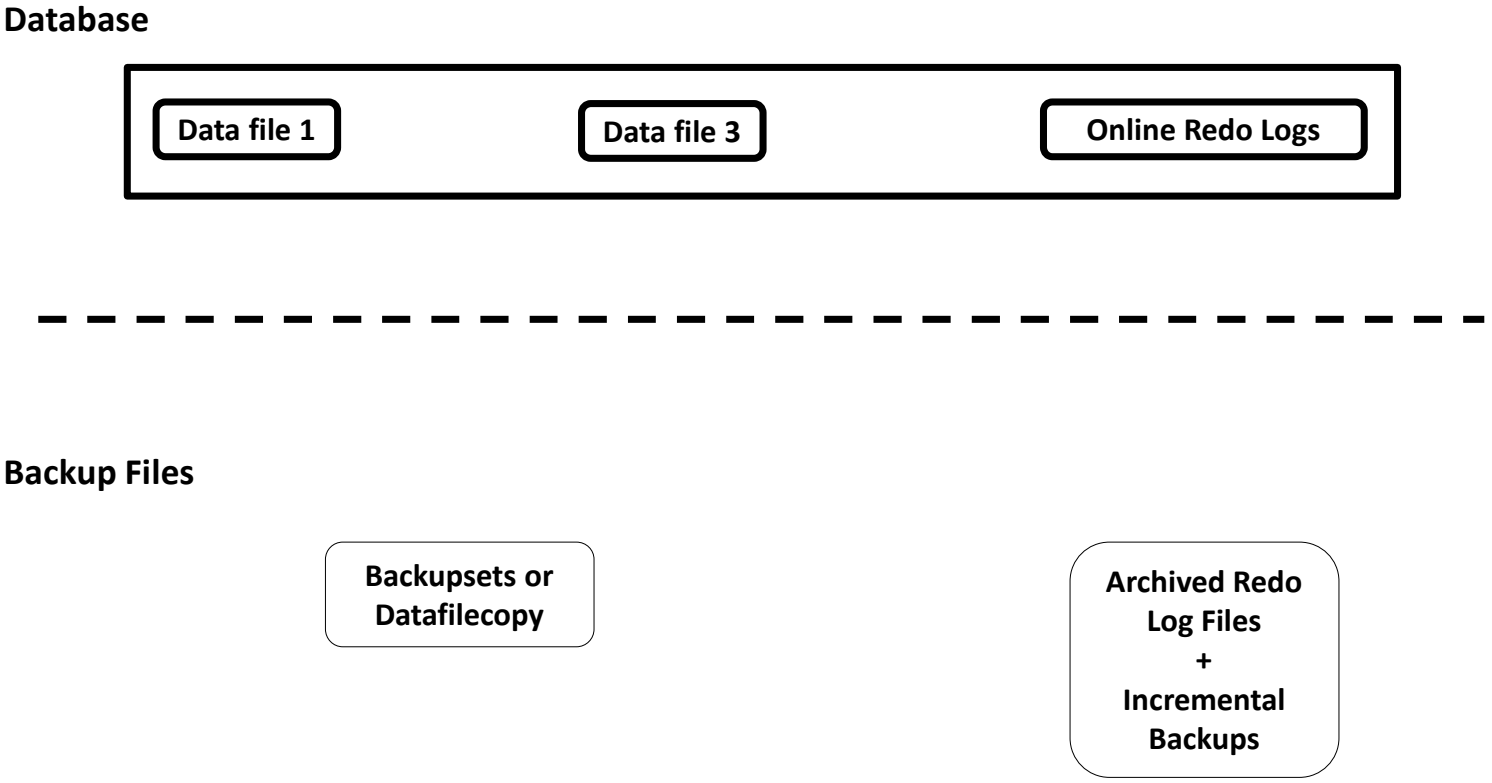


Backup Files

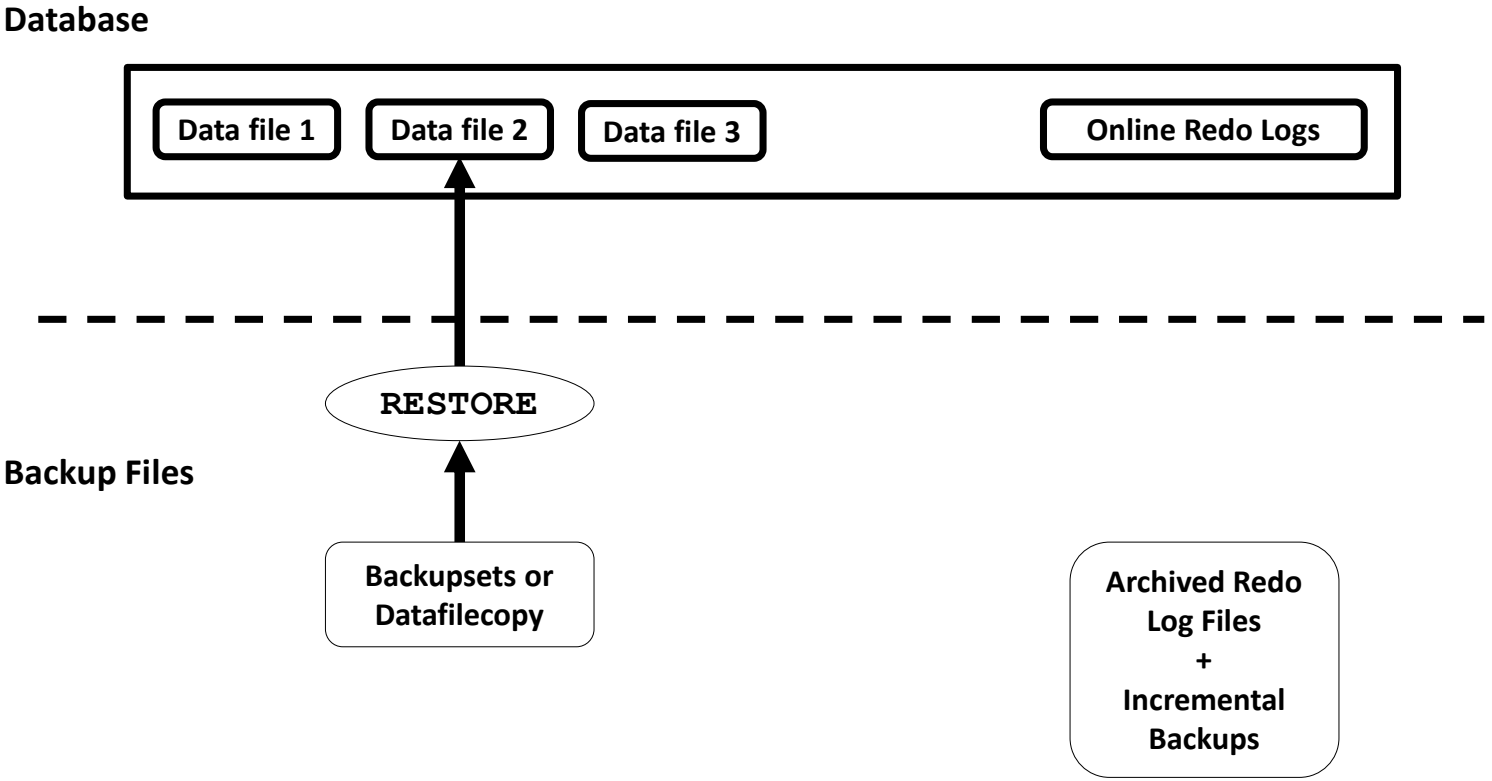
Backupsets or Datafilecopy

Archived Redo Log Files + Incremental Backups

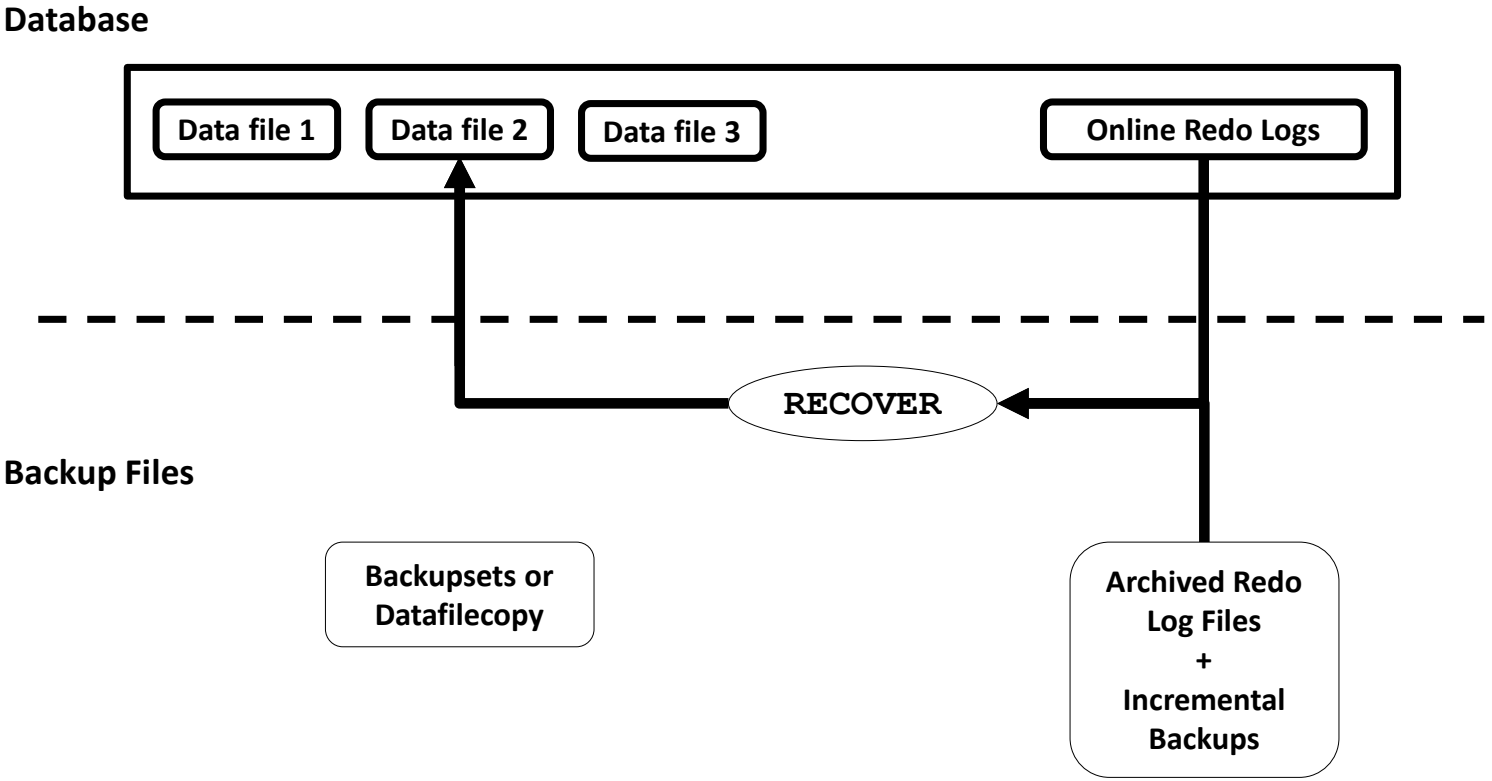
RMAN Restore and Recover



RMAN Restore and Recover



RMAN Restore and Recover



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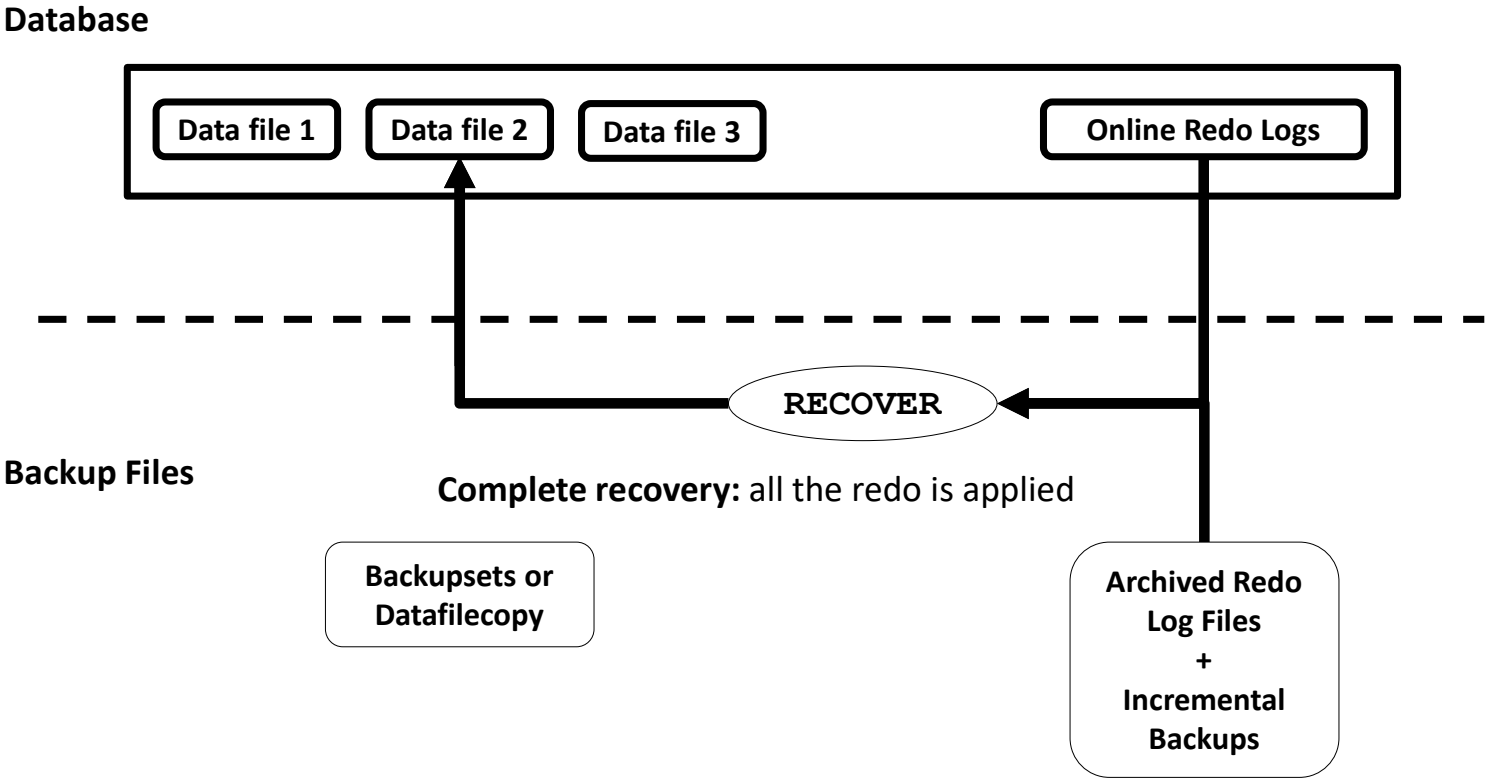
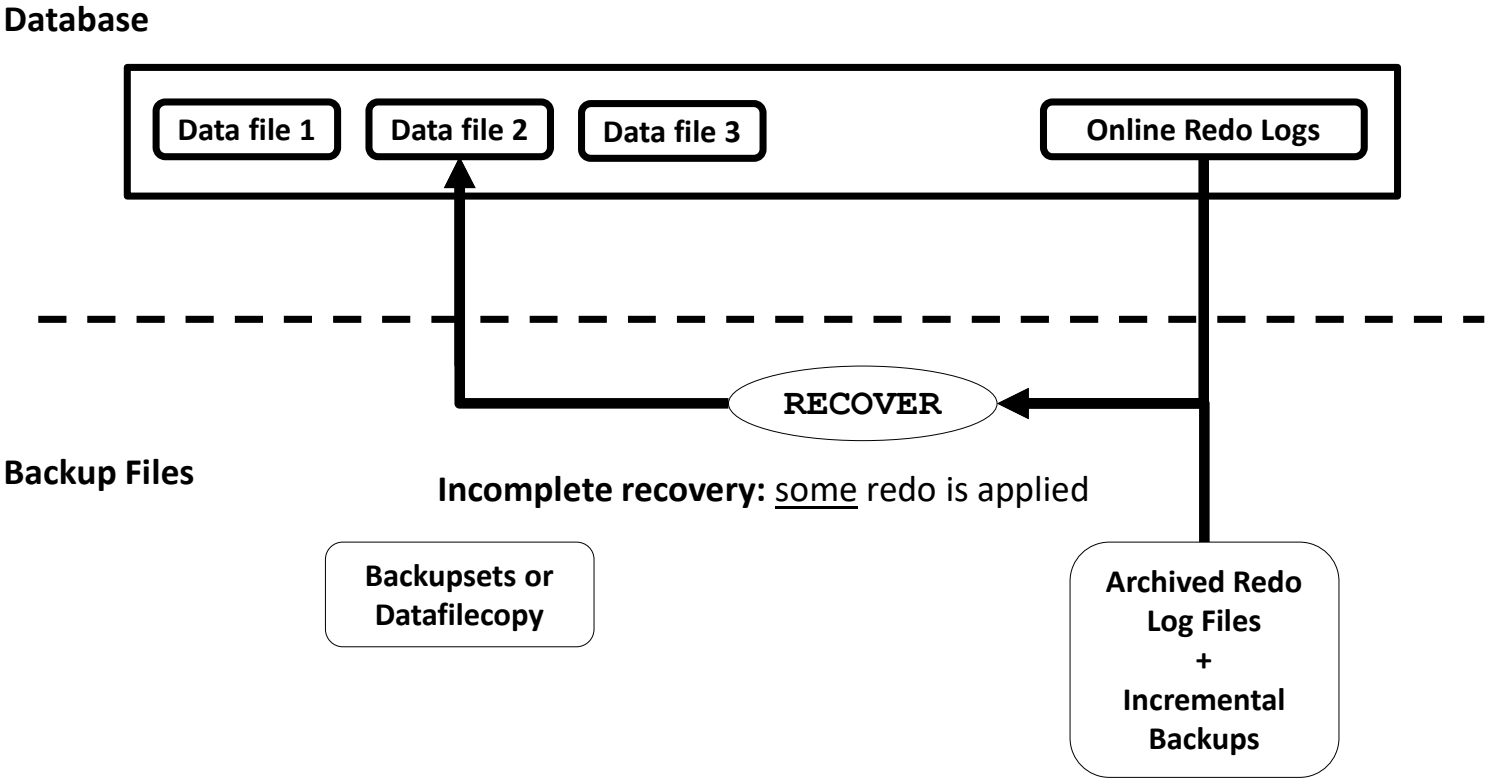


RMAN Restore and Recover



About Restoring and Recovering

- **`RESOTRE`** command:
  - Creating datafiles from backups (backupsets or datafile copies)
- **`RECOVER`** command:
  - Applying changes from redo logs and incremental backups to a restored data file to bring the data file forward to a desired point in time
- **Complete database recovery**:
  - Recovering to the failure time
  - Restoring lost files from backups and applying **all** the changes
- **Incomplete recovery or point-in-time recovery (PITR):**
  - Recovering the data to some point before the failure time
  - Restoring lost files from backup and applying **some** changes

More about `RESTORE` Command

- **Prerequisites**
  - The database must be started, mounted, or open with the tablespaces or data files to be restored offline
- **Capabilities**
  - Restore datafiles, archived logs, control file and SPFILE
  - Can restore files to their default location or to a different location
  - You can specify which backup files to use
  - Exclude specific tablespaces from restore
  - Check on block corruption in backup files
  - List the backup files that will be used without restoring the data files

About `RECOVER` Command

- **Prerequisites**
  - Required archived logs (and incremental backup) must exist
- **Capabilities**
  - Perform complete and incomplete recovery (PITR)
  - Apply incremental backups to a data file **copy**
  - Recover a corrupt blocks within a data file

Preparing for Recovery

- Identify the database files to restore or recover
- Determine the DBID of the database
- Validate backups before restoring them
- Restore archived redo logs needed for recovery
- Provide the password required to decrypt encrypted backups

Summary

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

- Describe the difference between non-critical and critical data loss
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- Describe the steps to prepare a database for a recovery procedure