SAP BASIS Introductory Training Program

Capgemini

Day 13 : Agenda

Additional features of BRTOOLS
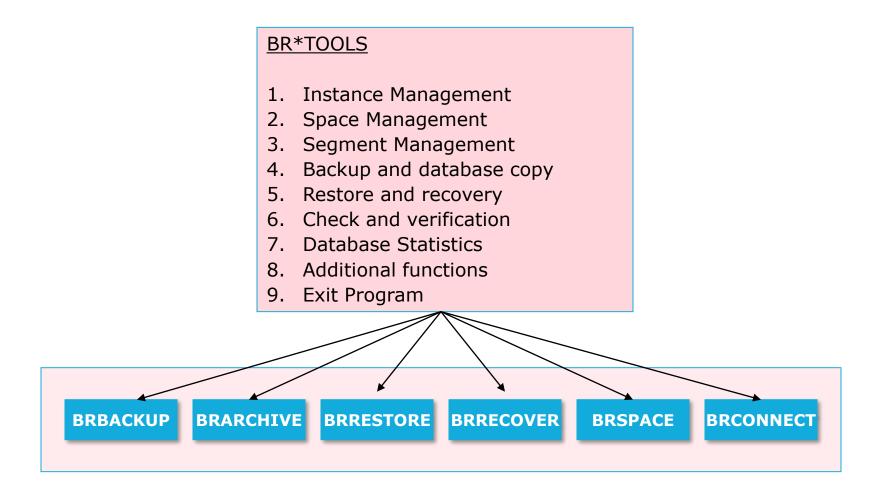
Break

Backup Methods

Lunch Break

Recovery Methods

Exercise & Break Out Session

Additional Features of BRTOOLS

SAP Database Administration Tools – BR*TOOLS

BR*TOOLS

1. Instance Management
2. Space Management
3. Segment Management
4. Backup and database copy
5. Restore and recovery
6. Check and verification
7. Database Statistics
8. Additional functions
9. Exit Program

BRBACKUP BRARCHIVE BRRESTORE BRRECOVER BRSPACE BRCONNECT

BR*TOOLS

BRTOOLS	Responsible Tools	Log Directory	Configuration file
1. Instance Management 2. Space Management 3. Segment Management 4. Backup and database copy 5. Restore and recovery 6. Check and verification 7. Database Statistics 8. Additional functions 9. Exit Program	Brspace Brspace Brspace Brbackup/Brarchive Brrecover Brconnect/Brbackup Brconnect Brconnect	Sapreorg Sapreorg Sapreorg Sapbackup/saparch Sapbackup Sapcheck/sapbackup Sapcheck Sapcheck	spfile<DBSID>.sap Init<DBSID>.sap

1=Database instance management

1. Startup database
2. Shutdown database
3. Alter database instance
4. Alter database parameters
5. Recreate database
6. Show instance status
7. Show database parameters
8. Show database owners

2=Database space management

1. Extend tablespace
2. Create tablespace
3. Drop tablespace
4. Alter tablespace
5. Alter data file
6. Move data file
7. Additional space functions

3=Database segment management

1. Reorganize tables
2. Rebuild indexes
3. Export tables
4. Import tables
5. Alter tables
6. Alter indexes
7. Additional segment functions

4=Backup and database copy

1. Database backup
2. Archive log backup
3. Database copy
4. Non-database backup
5. Backup of database disk backup
6. Verification of database backup
7. Verification of archive log backup
8. Additional functions

5=Restore and recovery

1. Complete database recovery
2. Database point-in-time recovery
3. Tablespace point-in-time recovery
4. Whole database rest
5. Restore of individual backup files
6. Restore and application of archivelog files
7. Disaster recovery

6=Database check and verification

1. Database system check
2. Validation of database structure
3. Verifiication of database blocks

7=Processing database statistics

1. Update database statistics
2. Collect missing statistics
3. Delete harmful statistics
4. Manage database statistics

8=Additional BR*Tools functions

1. Show profiles and logs
2. Clean up DBA logs and tables
3. Adapt NEXT extents
4. Change password of database user
5. Create/change synonyms for DBA tables

Database space management – BR*TOOLS

- Extend tablespace
- Create tablespace
- Drop tablespace
- Alter tablespace
- Alter data file
- Move data file
- Additional space functions
- Reset program status

2=Database space management

1. Extend tablespace
2. Create tablespace
3. Drop tablespace
4. Alter tablespace
5. Alter data file
6. Move data file
7. Additional space functions

Data Segment Management – BR*TOOLS

- Reorganize tables
- Rebuild Indexes
- Export tables
- Import tables
- Alter tables
- Alter Indexes
- Additional Segment functions
- Reset program status

3=Database segment management

1.Reorganize tables
2.Rebuild indexes
3.Export tables
4.Import tables
5.Alter tables
6.Alter indexes
7.Additional segment functions

Alter tablespace main menu – BR*TOOLS

- Set tablespace online

- Set tablespace offline

- Set backup status

- Reset backup status

- Coalesce free extents

- Rename tablespace

2=Database space management

1.Extend tablespace
2.Create tablespace
3.Drop tablespace
4.Alter tablespace
5.Alter data file
6.Move data file
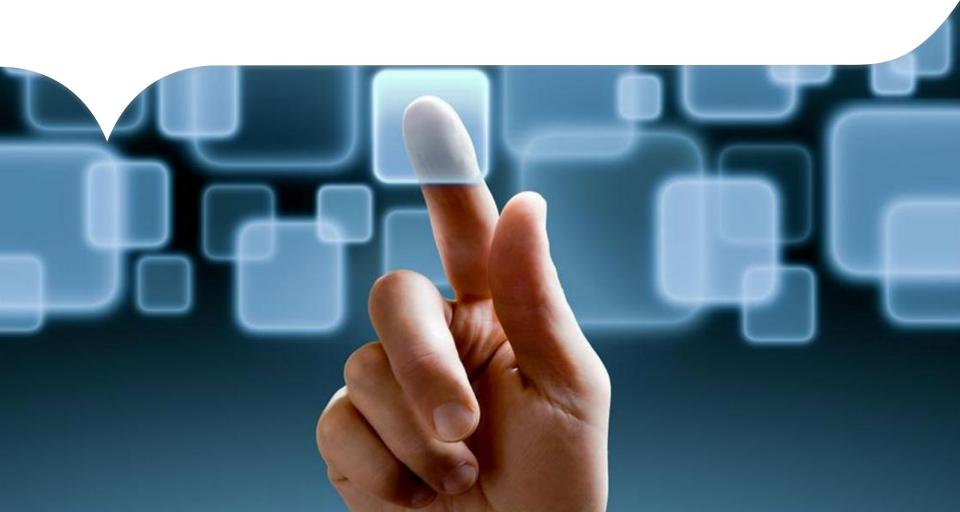7.Additional space functions

Alter Data file main menu – BR*TOOLS

- Set data file online

- Set data file offline

- Turn on and maintain autoextend

- Turn off autoextend

- Resize data file

- Rename data file

- Drop empty data file

2=Database space management

1.Extend tablespace
2.Create tablespace
3.Drop tablespace
4.Alter tablespace
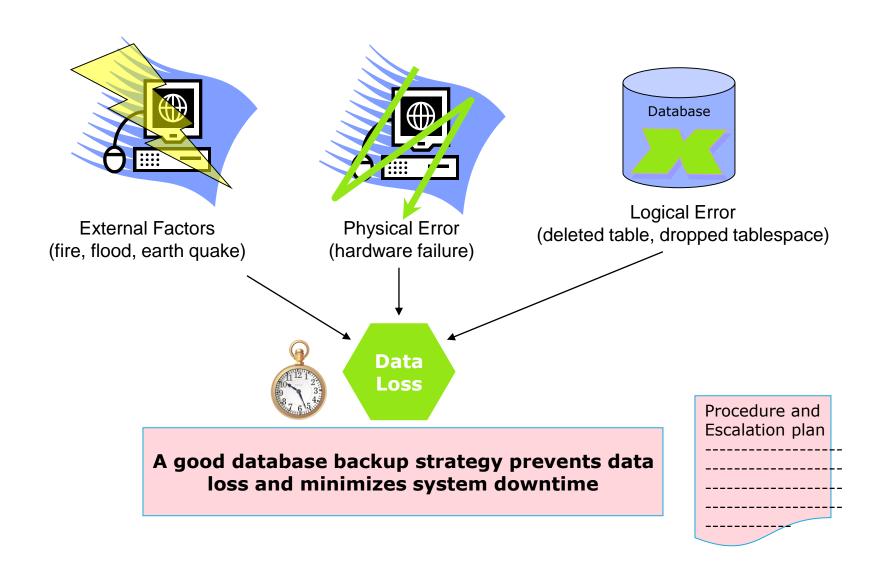5.Alter data file
6.Move data file
7.Additional space functions

BREAK

Backup Methods
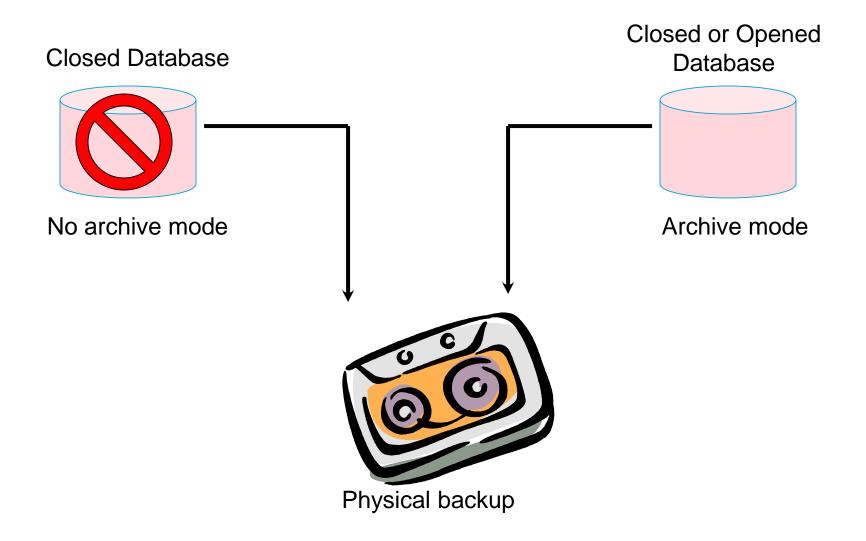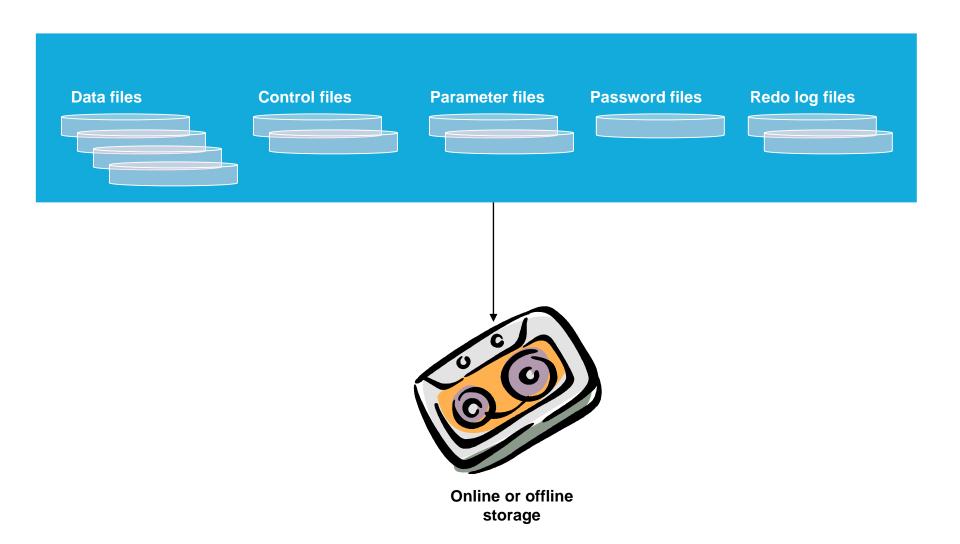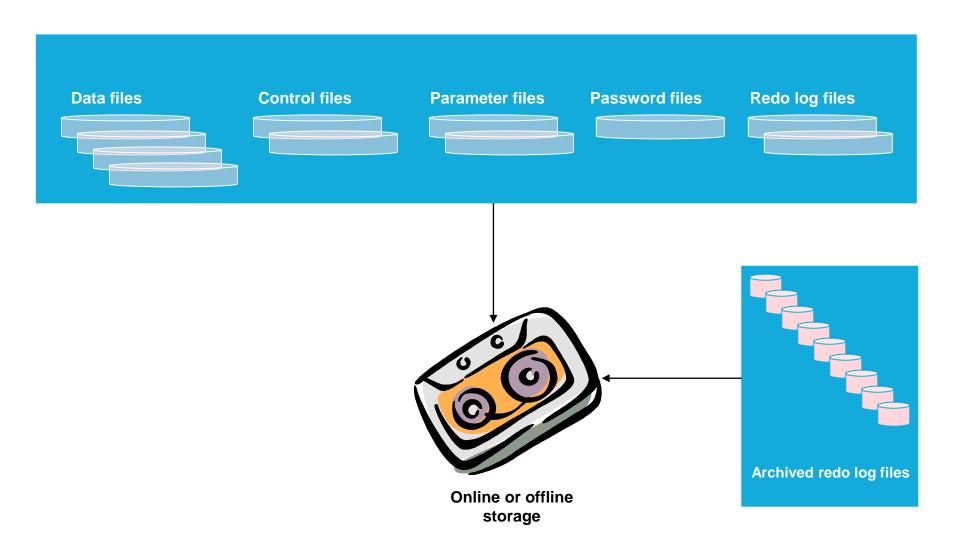
Backup & Recovery

External Factors
(fire, flood, earth quake)

Physical Error
(hardware failure)

Database

Logical Error
(deleted table, dropped tablespace)

Data Loss

A good database backup strategy prevents data loss and minimizes system downtime

Procedure and Escalation plan

Backup Methods

Closed Database

No archive mode

Closed or Opened
Database

Archive mode

Physical backup

Closed Database Backup

Data files	Control files	Parameter files	Password files	Redo log files

Online or offline storage

Open Database Backup

Data files

Control files

Parameter files

Password files

Redo log files

Online or offline storage

Archived redo log files

Backup Types

LUNCH BREAK

Recovery Methods

Media Failure & Recovery: Archivelog Mode

Failure: loss of disk, data file, or corruption

Recovery

- Data files for restore must be offline.
- Restore only lost or damaged data files.
- Do not restore the control files, redo log files, password files, or parameter files.
- Recover the data files

Advantages

- Only need to restore lost files
- Recovers all data to the time of failure
- Recovery time is the time it takes to restore lost files and apply all archived log files

Disadvantage

- Must have all archived log files since the backup from which you are restoring

Complete Recovery Methods

1. Closed database recovery for:
   - System data files
   - Rollback segment data files
   - Whole database
2. Opened database recovery, with database initially opened: for file loss
3. Opened database recovery with database initially closed: for hardware failure
4. Data file recovery with no data file backup

1. Closed database recovery

This method of recovery generally uses either the RECOVER DATABASE or RECOVER DATAFILE commands when:

- The database is not operational a 24 hour a day, 7 days a week.
- The recovered files belong to the system or rollback segment tablespace.
- The whole database, or a majority of the data files, need recovery.

2. Opened database recovery, with database initially opened

This method of recovery is generally used when:

- File corruption, accidental loss of file, or media failure has occurred, which has not resulted in the database being shut down.

- The database is operational a 24 hour a day, 7 days a week. Downtime for the database must be kept to a minimum.

- Recovered files do not belong to the system or rollback tablespaces.

3. Opened database recovery with database initially closed

This method of recovery is generally used when:

- A media or hardware failure has brought the system down.
- The database is operational a 24 hour a day, 7 days a week database. Down-time for the database must be kept to a minimum.
- The restored files do not belong to the system or rollback tablespace.

4. Data file recovery with no data file backup

This method of recovery is generally used when:

- – Media or user failure has resulted in loss of a data file that was never backed up.
- – All archived logs exist since the file was created.
- – The restored files do not belong to the system or rollback tablespace.

Note: During recovery, all archived logs files need to be available to the Oracle server on disk. If they are on a backup tape, you must restore them first.

Recover Syntax

Recover a mounted database:

- – SQL> recover database;
- – SQL> recover datafile '/disk1/data/df2.dbf';
- – SQL> alter database recover database;

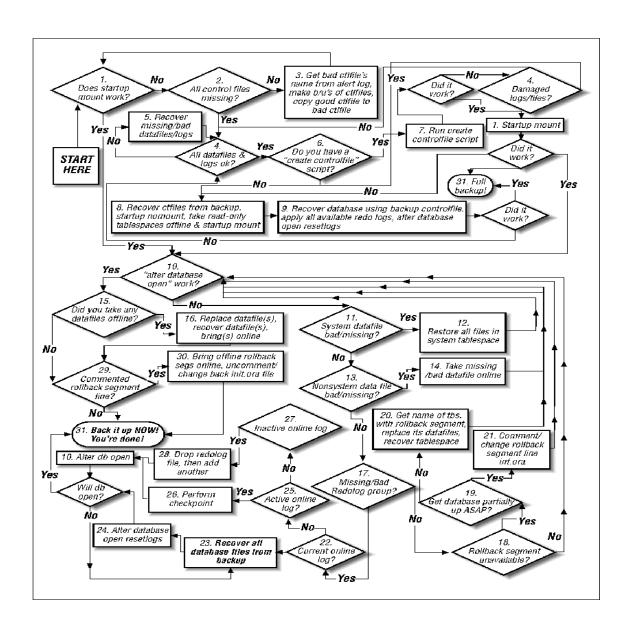Recover an opened database:

- – SQL> recover tablespace USER_DATA;
- – SQL> recover datafile 2;
- – SQL> alter database recover datafile 2;
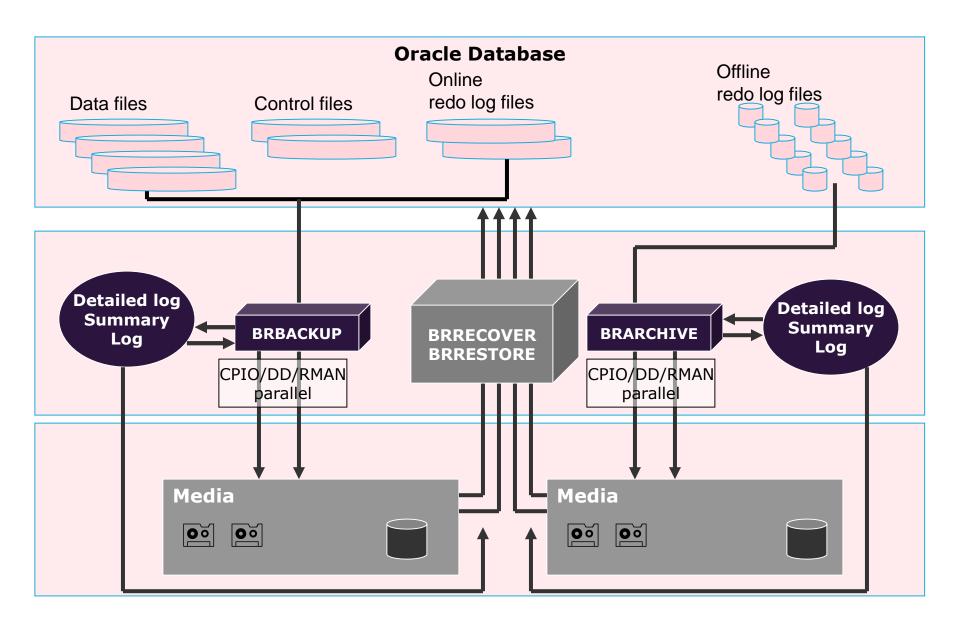
Locating Data files for recovery

Files Needed for Recovery
- – View V$RECOVER_FILE to locate data files needing recovery.
- – View V$LOG_HISTORY for a list of all archived logs for the database.
- – View V$RECOVERY_LOG for a list of all archived logs required for recovery.

Oracle Recovery

SAP Tools: Backup, Restore, Recovery

Summary

Database Monitoring
- DBA Cockpit
- BR*TOOLS

Backup & Recovery
- Backup methods
- Recovery methods
- SAP Tools for Backup & Recovery

Exercise & Break Out Session

Exercise

Logon to the operating system level with the userid/password provided by the instructor

Instructor Steps

- Start the BRTOOLS from command line
- Demonstrate how to switch from ArchiveLog Mode to Non-ArchiveLog mode
- Stop the SAP instance
- Perform an offline backup of the database
- Note the directories involved : sapbackup , oraarch & saparch
- Explain the difference between oraarch and saparch
- Restart the Oracle and SAP instance
- Return to BRTOOLS
- Demonstrate how to check the status of extents for non auto extensible tablespaces
- Add an extent
- Show the commands involved in the process
- Finally , explain the differences between various types of database startup modes : NOMOUNT , MOUNT & OPEN
- Explain the differences between shutdown modes : NORMAL , IMMEDIATE & ABORT