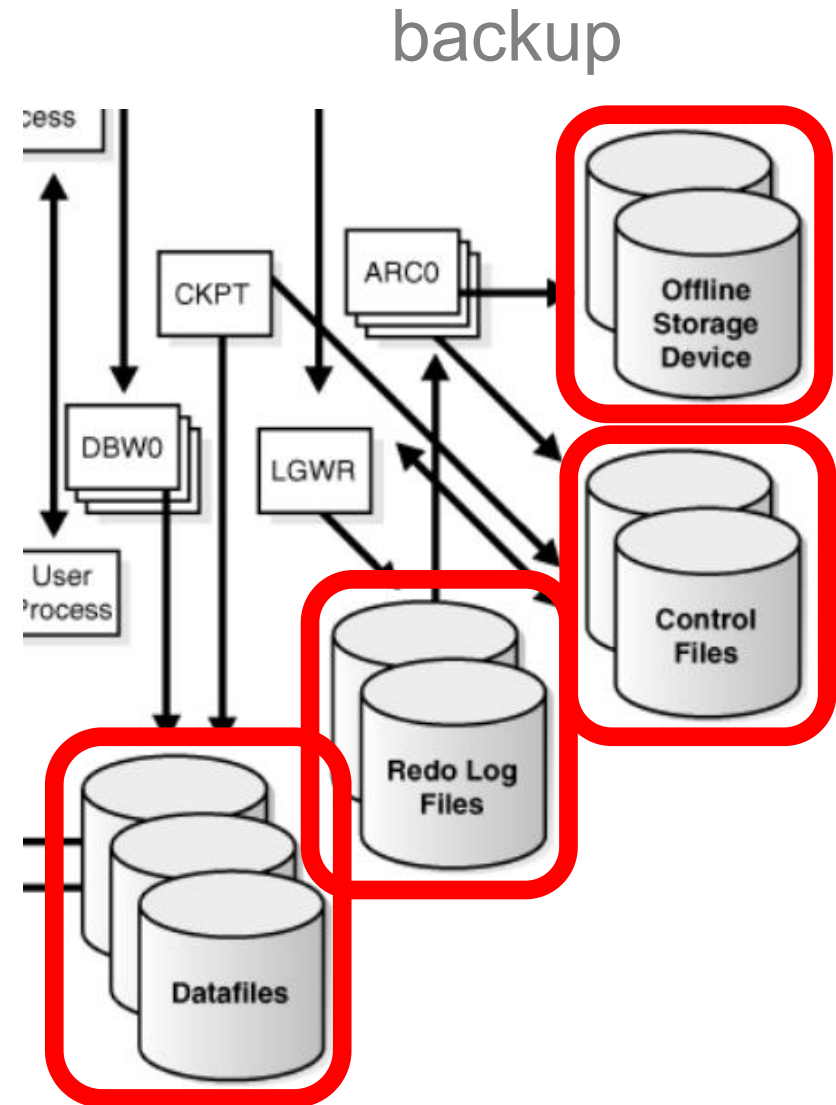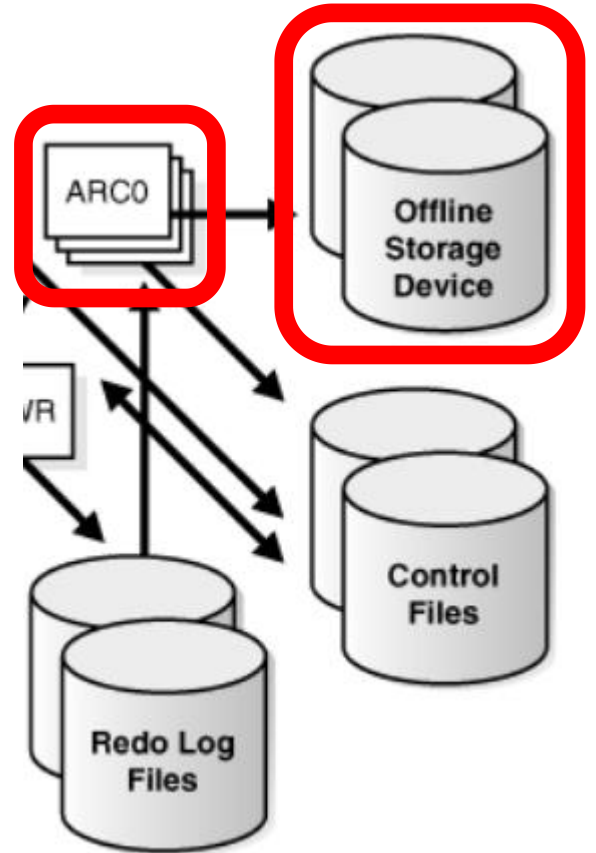# Backup

Mag. Thomas Griesmayer

backup

- Oracle Recovery Manager (RMAN) is the method preferred by Oracle for efficiently backing up and recovering your Oracle database.

- To back up a database means to copy:
  - Datafiles
  - Control Files
  - Online Redo Log Files
  - Archived Redo Log Files
  - Automatic Managed Undo

- Changes made to the database after the backup, typically can be restored using redo log files.

- To run a consistent backup, the database must have been shut down cleanly and remain closed for the duration of the backup. Restoring a consistent backup the database is available immediately.

- To run an inconsistent backup, the database has to be in the `ARCHIVELOG` mode. After restoring the inconsistent backup, the redo log files needs to be rerunned.

```
$ sqlplus sys/oracle as sysdba
SQL> SHUTDOWN IMMEDIATE;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> STARTUP MOUNT;
ORACLE instance started.
SQL> ALTER DATABASE ARCHIVELOG;
Database altered.
SQL> ALTER DATABASE OPEN;
Database altered.
SQL> SELECT NAME,
            LOG_MODE
     FROM   V$DATABASE;
ORCL        ARCHIVELOG
SQL> exit;
```
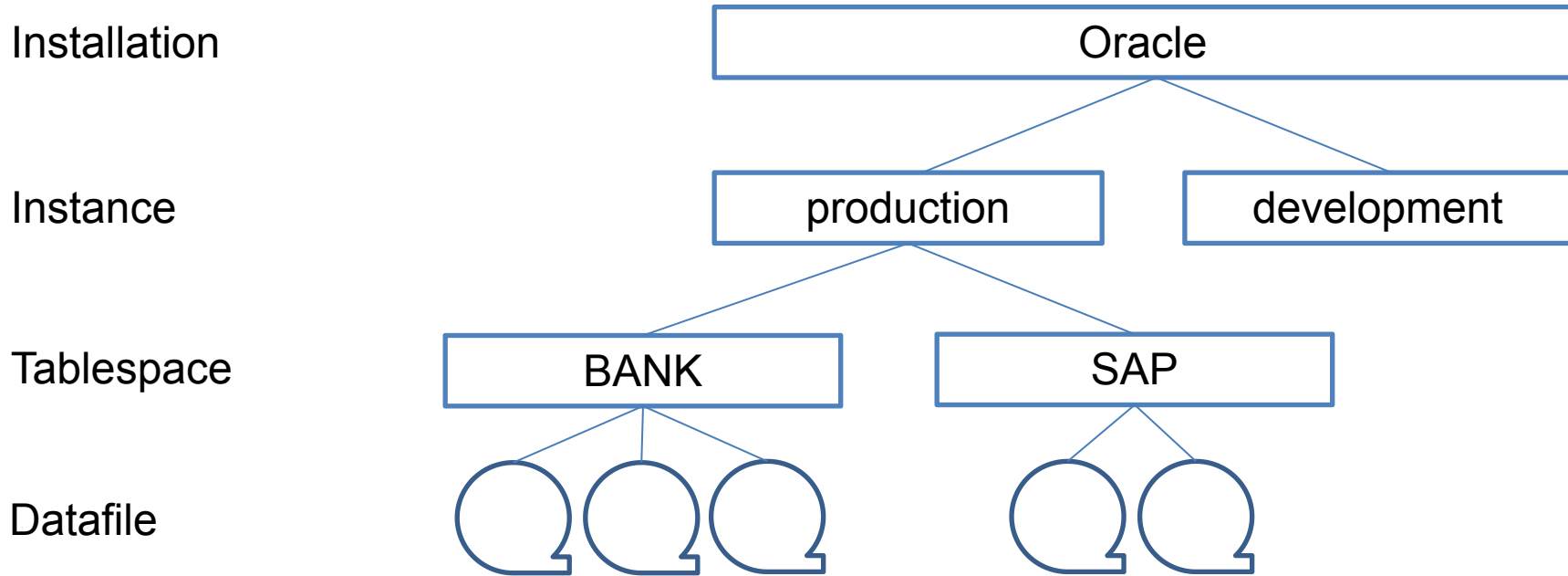
```
$ sqlplus sys/oracle
CREATE SMALLFILE TABLESPACE BANK
DATAFILE '/home/oracle/.../bank1.dbf' SIZE 10M
AUTOEXTEND ON NEXT 1M MAXSIZE UNLIMITED
LOGGING EXTENT MANAGEMENT LOCAL SEGMENT SPACE MANAGEMENT AUTO;
```

Installation	Oracle
Instance	production development
Tablespace	BANK SAP
Datafile	

```
$ sqlplus sys/oracle
CREATE USER BANK PROFILE "DEFAULT" IDENTIFIED BY "oracle"
DEFAULT TABLESPACE BANK
TEMPORARY TABLESPACE TEMP
ACCOUNT LOCK;
CREATE USER GRIESMAYER PROFILE "DEFAULT" IDENTIFIED BY "oracle"
DEFAULT TABLESPACE BANK
TEMPORARY TABLESPACE TEMP
ACCOUNT UNLOCK;
```
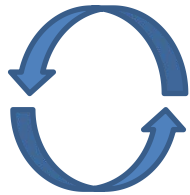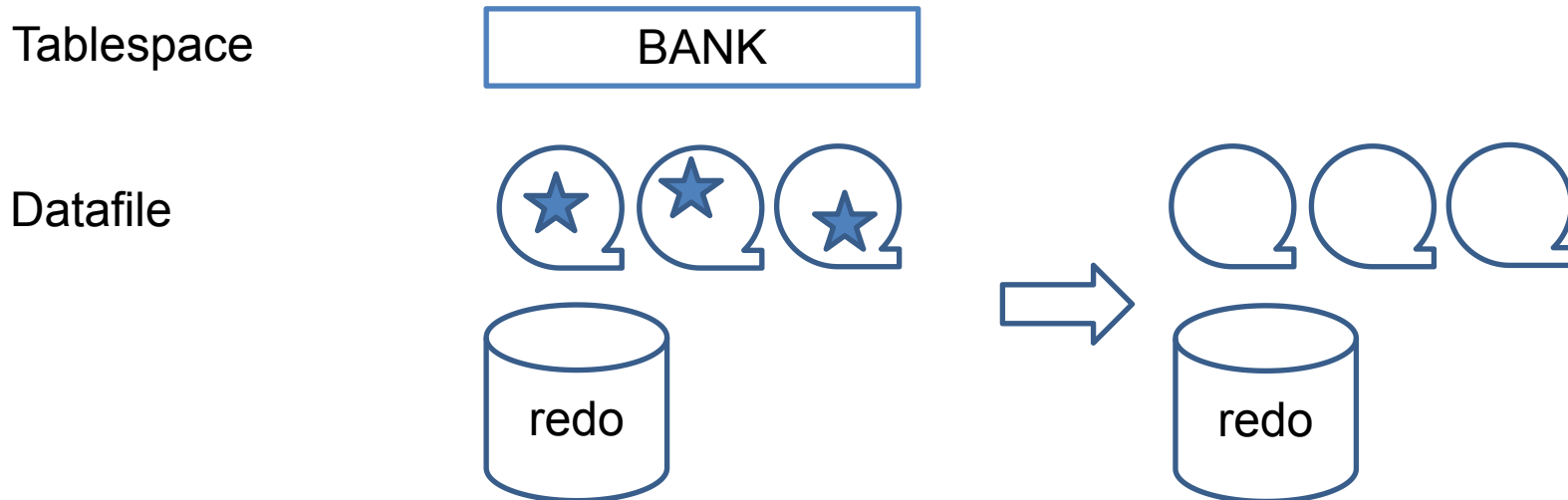
Tablespace   BANK

Datafile

```
INSERT INTO BANK.CUSTOMER VALUES (NULL, 'Thomas', 500, -1000);
UPDATE BANK.CUSTOMER SET AMOUNT=AMOUNT-100 WHERE CUSTOMER_ID=5;
DELETE FROM BANK.CUSTOMER WHERE CUSTOMER_ID=100;
```

```
$ sqlplus sys/oracle as sysdba
SQL> ALTER TABLESPACE BANK BEGIN BACKUP;
SQL> host
cp /home/oracle/app/oracle/oradata/orcl/bank*dbf ~/backup
cp /home/oracle/app/oracle/oradata/orcl/control*ctl ~/backup
cp /home/oracle/app/oracle/oradata/orcl/redo*dbf ~/backup
cp /home/oracle/app/oracle/oradata/orcl/undotbs*dbf ~/backup
cp /home/oracle/app/oracle/oraarch/* ~/backup
exit
SQL> ALTER TABLESPACE BANK END BACKUP;
```
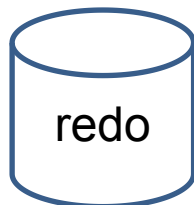
Tablespace

BANK

Datafile

redo

redo

```
$ sqlplus sys/oracle as sysdba
SQL> SHUTDOWN ABORT;
SQL> HOST
rm /home/oracle/app/oracle/oradata/orcl/bank*dbf
exit;
SQL> STARTUP
exit;
```

Tablespace

BANK

Datafile

redo

```
$ sqlplus sys/oracle as sysdba
SQL> host
cp ~/backup/bank.dbf /home/oracle/app/oracle/oradata/orcl/
exit;
SQL> ALTER DATABASE OPEN;
SQL> RECOVER DATABASE;
SQL> ALTER DATABASE OPEN;
SQL> exit;
```

Tablespace

BANK

Datafile

redo