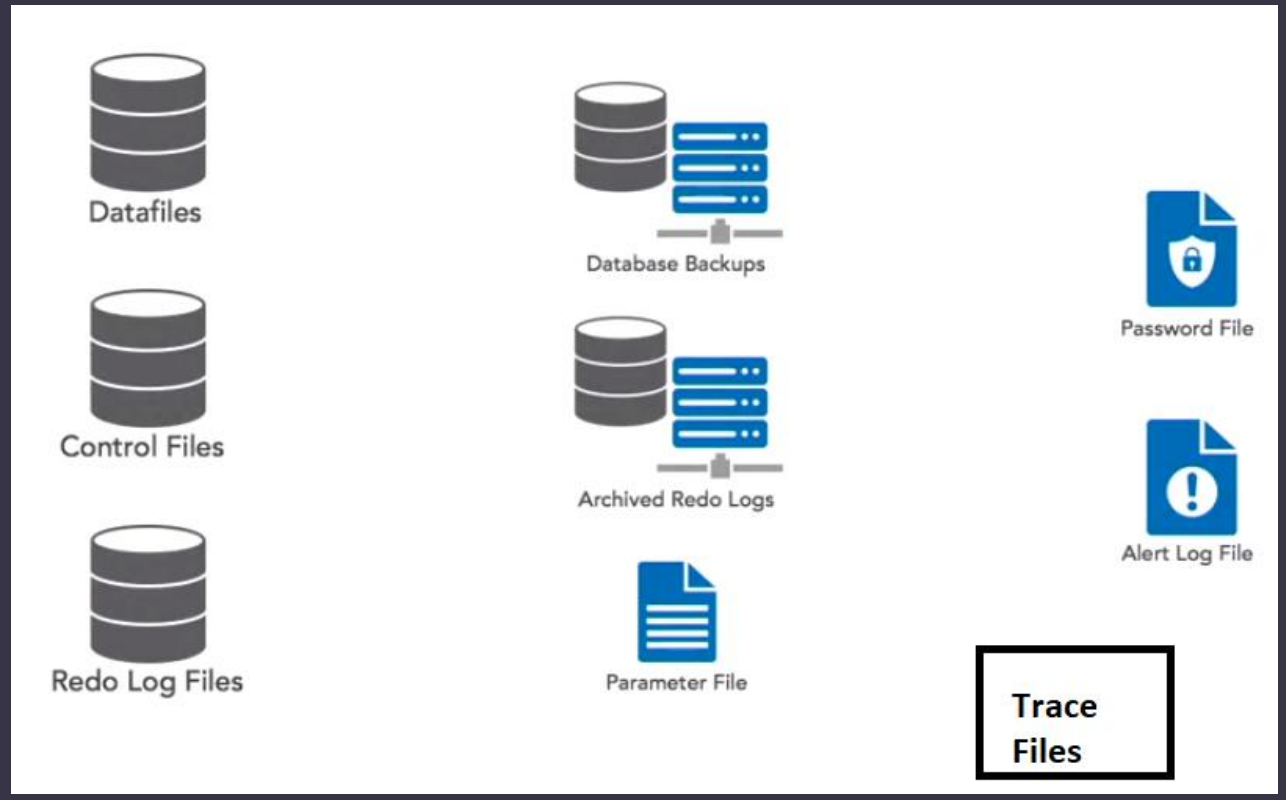
Database Files

Database: Organized collection of information.
It contains collection of database files stored in disk storage. (physical)



Datafiles

contains the actual users data, applications data, metadata.
(Tables, Rows, indexes ,procedures, views…)
Note: If you lose Datafiles, you lose your database.
The extension for datafiles is *.dbf*

Control files

Stores metadata about the datafiles and online redo log files (like names ,locations and statuses) and this info is required by the database instance to open the database.
Note: If you lose control files, you lose your database.
The extension for Control files is *.ctl*

Redo log files

stores changes to the database as they occur and are used for data recovery.
Note: If you lose Redo log files, you lose your database.
The extension for redo log file is *.log*

Database backups files

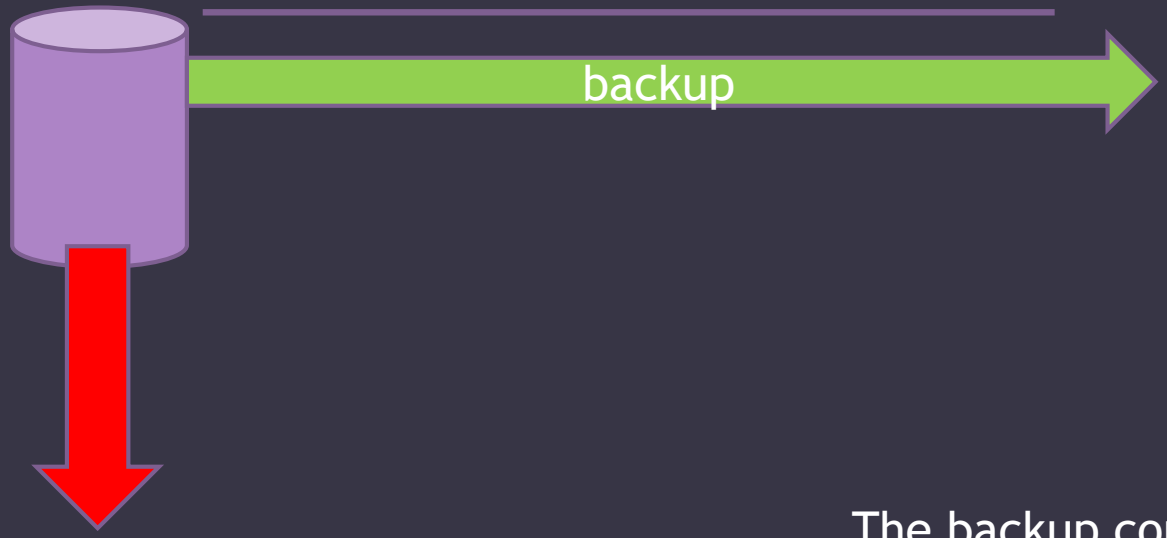
include any backups of your database that you have taken and placed somewhere safe
Note: it should include the datafiles, control files, redo log files

Archived redo log files (groups of redo log files)

Contains ongoing history of the data changes .
Using these files + backups files you can recover your database

8:00 am

The backup contains data as 8:00 AM



DB crashed at 10:00 AM

The backup contains data as 8:00 AM

Parameter file (spfile, pfile)

This file defines how the database instance is configured when it starts up.
Example: the PGA size PGA_AGGREGATE_TARGET
Note: spfile is binary file, you can not edit directly, it should by oracle commands.
If you lose the spfile no issue, you can recreate it again

Password file

stores **passwords** for users with administrative privileges (sys user) in order to connect remotely.
Note: DBA password cannot be stored in the database, because Oracle cannot access the database before the instance is started , Therefore, the authentication of the DBA must happen outside of the database

Alert Log File

is a chronological log of messages and errors written out by an Oracle Database.
so this is your go-to file in case you're trying to troubleshoot a problem with your database.
Example: You can see when the database was started and stopped.

Trace File

Each server and background process writes to a trace file.

When a process detects an internal error, it writes information about the error to its trace file.

Thank You