Practice

Performing RMAN Backups - Part II

Practice Target

In this practice you will learn more fundamentals about taking backups in RMAN.

Practice Overview

In high level, in this practice, you will perform the following tasks:

- Use multiple options to take backup of the control files.
- Produce backups as image copies
- Use tags in the produced RMAN backups

Assumptions

- This practice assumes that you have `srv1` up and running from the **non-CDB** snapshot.

A. Taking Backup of the Control Files

In the following steps you will study the different ways of taking backup of the control file.

1. Open Putty and login to `srv1` as `oracle`

2. Invoke SQL*Plus and login to the database as `SYS`.

```
sqlplus / as sysdba
```

3. Display the control files configured in the database.

Control files are defined in an Oracle database using the initialization parameter `CONTROL_FILES`. The parameter value may point to more than one multiplexed files. In our environment, the database has two multiplexed control files. One in the directory `/u01/app/oracle/oradata/ORADB` and the other one in the FRA destination.

```
show parameter CONTROL_FILES
```

4. Exit from SQL*Plus.

```
exit
```

5. Invoke RMAN and connect to the local database as target.

```
rman target "'/ as SYSBACKUP'"
```

6. Make sure the control file `AUTOBACKUP` is turned on.

```
SHOW CONTROLFILE AUTOBACKUP;
```

- How does this setting affect RMAN behavior?

With every `BACKUP` command executed, a backup of the control file is automatically taken.

7. Take backup of the `USERS` tablespace.

Examine the command output. Make sure that a backup of the control file has automatically been taken.

```
BACKUP TABLESPACE users;
```

8. Display list of the backupsets taken for the control file. Examine the location where the control file backup has been saved.

```
LIST BACKUP OF CONTROLFILE;
```

9. Execute the following command.

The `AUTOBACKUP` includes taking backup of the SPFILE.

```
LIST BACKUPSET OF SPFILE;
```

10. Take explicitly two backups of the control file into locations that are different from the default FRA location. One backup as backupset and one backup as image copy.

```
BACKUP CURRENT CONTROLFILE FORMAT '/media/sf_staging/control01.bk';
BACKUP AS COPY CURRENT CONTROLFILE FORMAT '/media/sf_staging/control01.ctl';
```

11. Display list of the backupsets and image copies for the control file.

```
LIST BACKUP OF CONTROLFILE;
LIST COPY OF CONTROLFILE;
```

12. Delete the produced backupsets and image copies.

```
DELETE BACKUPSET;
DELETE COPY OF CONTROLFILE;
```

13. Retrieve the location and file name of the snapshot control file.

Note: Snapshot control file is not a backup of the control file.

```
SHOW SNAPSHOT CONTROLFILE NAME;
```

14. Check if there is such a file in the file system.

Observe the OS-level permissions assigned to the file.

```
host 'ls -ahl $ORACLE_HOME/dbs/snapcf_oradb.f';
```

- Which event triggered RMAN to create this file?

15. Execute the following command:

```
ALTER DATABASE BACKUP CONTROLFILE TO TRACE;
```

16. Obtain the full name of the generated trace file from the alertlog file.

```
host 'tail /u01/app/oracle/diag/rdbms/oradb/oradb/trace/alert_oradb.log';
```

17. Examine the contents of the file.

The trace file contains instructions to re-create the control file from SQL. This should be our last recovery option for restoring control files.

```
host 'cat /u01/app/oracle/diag/rdbms/oradb/oradb/trace/oradb_ora_***.trc';
```

B. Taking Backup as Image Copies

In this section of the practice, you will learn how to use RMAN to produce and manage backups as image copies.

18. Take backup of the entire database as image copies.

```
BACKUP AS COPY DATABASE;
```

19. List the files produced by the backup command above.

Observe that `LIST COPY` does not display the image copy file sizes. OS commands can be used to obtain their sizes.

```
LIST COPY OF DATABASE;
host 'ls -lh /u01/app/oracle/fast_recovery_area/ORADB/datafile/';
```

20. Delete the image copies generated by the command above.

```
DELETE COPY OF DATABASE;
```

21. Make image copies of the tablespace `users` in the shared folder and add a tag to it.

Using the same command form, you can make a copy of the entire database datafiles in external disks.

```
BACKUP AS COPY TABLESPACE users FORMAT '/media/sf_staging/%U' TAG 'users2022';
```

22. List the image copies of the same tag used above.

Observe that tag value is case-insensitive.

```
LIST COPY TAG 'USERS2022';
```

23. Delete the image copy using the `TAG` option.

The `TAG` option is provided in nearly all the RMAN commands that need access to the backup sets or image copies.

```
DELETE COPY TAG 'users2022';
```

Summary

In high level, in this practice, you learnt how to perform the following tasks:

- Use multiple options to take backup of the control file.
- Produce backups as image copies
- Use tags in the produced RMAN backups