

## Practice

# Introducing RMAN

## Practice Target

In this practice you will get familiar with starting and configuring RMAN.

## Practice Overview

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

- Examine the options to start RMAN and connect to a target database
- Set the date and time format that RMAN uses to display timestamps
- Examine the commands to display and change RMAN persistent settings
- Set the `CONTROL_FILE_RECORD_KEEP_TIME` parameter

## Assumptions

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



## A. Starting RMAN

In the following steps you will learn about the available options to start RMAN.

1. Open Putty and login to `srv1`.

2. Check out from which directory the RMAN executable is run.

RMAN runs from the current `ORACLE_HOME`. If you have more than one Oracle home installed in the system, make sure you set `ORACLE_HOME` to the required Oracle home directory and `ORACLE_SID` to the correct Oracle database instance before starting RMAN.

```
which rman
```

3. Invoke RMAN without connecting to the database.

```
rman
```

4. Use the `CONNECT TARGET` command to connect to the local database as `SYSDBA`.

With this method, you are connecting to the local instance that is pointed by the environment variable `ORACLE_SID`. This method uses the operating system authentication method for connecting to the database.

In multitenant environments, this command connects to the root container.

Also, observe that after connecting to the target database, the `DBID` of the database is displayed.

```
CONNECT TARGET /
```

5. Exit from RMAN

```
exit
```

6. Start RMAN again and login as target to `oradb` using the RMAN command line.

```
rman target /
```

7. Exit from RMAN and connect to the target database using username and password authentication.

Observe that we do not include the "`as sysdba`" in the connection.

```
rman target sys/ABcd##1234@ORADB
```

8. Invoke SQL\*Plus and login to the database as `SYS` and create a common user named as `C##BACKUOPER`. Grant `SYSBACKUP` privilege to the user.

```
sqlplus / as sysdba
CREATE USER C##BACKUOPER IDENTIFIED BY ABcd##1234;
GRANT SYSBACKUP TO C##BACKUOPER;
GRANT CREATE SESSION TO C##BACKUOPER;
```

- 9.** Start RMAN and login as target to the local database using `SYSDG` privileges and the account `C##BACKUOPER`.

`C##BACKUOPER` user has only the privileges required to perform backup operations. In an environment where roles separation is enforced, this privilege is granted to the individual who is on charge of taking backups.

```
rman target "'C##BACKUOPER/ABcd##1234@ORADB as sysbackup'"
```

- 10.** Start RMAN and use the `log` command line argument.

```
rman target / log=/tmp/rman.log append
```

- 11.** Issue the following command then exit from RMAN.

The command output is not sent to the standard output. It has gone to the log file.

```
SHOW ALL;
```

- 12.** Have a look at the contents of the log file.

Observe that the output of the command executed in the previous step is stored in the file. We normally use this option when running `rman` from batch or script files.

```
cat /tmp/rman.log
```

- 13.** Delete the generated log file.

```
rm /tmp/rman.log
```

- 14.** Drop the created user.

```
sqlplus / as sysdba  
DROP USER C##BACKUOPER;
```

## B. Making Some Configurations for RMAN Operation

In this section of the practice, you will make some configurations to facilitate RMAN operations.

15. Open the `oracle` user profile file and make sure the environment variable `NLS_DATE_FORMAT` value contains the time part.

The target of this setting is to set the date/time format that RMAN uses for displaying timestamps. The default format does not include the time part of the date information.

```
# open the oracle user profile:
vi ~/.bash_profile
```

```
# make sure the variable NLS_DATE_FORMAT is set as follows:
NLS_DATE_FORMAT="YYYY-MM-DD:HH24:MI:SS"; export NLS_DATE_FORMAT
```

16. Enable the automatic backup of control file in RMAN settings.

- a. Start RMAN and login to the local database instance as target database

```
rman target /
```

- b. Issue the following command to display all the RMAN persistent settings.

Observe that all the settings are set to their default values.

```
SHOW ALL;
```

- c. Display the value of the configuration setting `CONTROLFILE AUTOBACKUP`.

This setting makes RMAN automatically takes backup of the control file and SPFILE every time you issue a `BACKUP` command. You will learn more details about it later in the course.

Observe that `CONTROLFILE AUTOBACKUP` is set to `ON`. This is the default value in release 12.2 onwards. In earlier releases, its default value is `OFF` and you need to manually set it to `ON`.

```
SHOW CONTROLFILE AUTOBACKUP;
```

- d. Just to demonstrate using the `CONFIGURE` command, issue the following command to explicitly set `CONTROLFILE AUTOBACKUP` to `ON`.

**TIP:** you can copy and paste the command from the output of the previous command.

```
CONFIGURE CONTROLFILE AUTOBACKUP ON;
```

- e. Display the value of the setting `CONTROLFILE AUTOBACKUP` again.

Observe that the "default" keyword does not appear now.

```
SHOW CONTROLFILE AUTOBACKUP;
```

- f. Clear the value of the `CONTROLFILE AUTOBACKUP`

```
CONFIGURE CONTROLFILE AUTOBACKUP CLEAR;
```

- g. Display the value of the setting `CONTROLFILE AUTOBACKUP` again.

Observe that the "default" appears again now.

```
SHOW CONTROLFILE AUTOBACKUP;
```

### C. Setting CONTROL\_FILE\_RECORD\_KEEP\_TIME Parameter

If you do not use a recovery catalog database, RMAN keeps record of its produced backup files in the control file. By default, Oracle deletes the entries from the control file that are older than 7 days. If your recovery window is longer than this period, you have to increase the value of CONTROL\_FILE\_RECORD\_KEEP\_TIME parameter to accommodate your recovery target.

- 17.** Using SQL\*Plus utility, connect to ORADB as sysdba and set the CONTROL\_FILE\_RECORD\_KEEP\_TIME parameter to 60 days.

```
sqlplus / as sysdba
SHOW PARAMETER CONTROL_FILE_RECORD_KEEP_TIME
ALTER SYSTEM SET CONTROL_FILE_RECORD_KEEP_TIME=60 SCOPE=BOTH;
```

- 18.** Save the current state of srv1 in the CDB snapshot.

Take a snapshot of srv1 and name it as "oradb CDB database". Delete the old snapshot of the same name.



## Summary

In this practice, you learnt how to perform the following:

- Start RMAN and connect to target databases using multiple options
- Set the date and time format that RMAN uses to display time stamps
- Display and change RMAN persistent settings
- Set the `CONTROL_FILE_RECORD_KEEP_TIME` parameter

