**1. Objetivos**

Manual con ejemplos básicos de uso de RMAN.

**1. Conectarse al catalogo de RMAN de una BBDD determinada**

[ora11g@prueba ~]$ rman target / catalog rman@rman  
  
Recovery Manager: Release 11.2.0.1.0 - Production on Tue Feb 1 10:00:45 2011  
  
Copyright (c) 1982, 2009, Oracle and/or its affiliates.  All rights reserved.  
  
connected to target database: DBA11G (DBID=337560195)  
recovery catalog database Password: \*\*\*\*\*  
connected to recovery catalog database

**2. Crear y Configurar un catálogo de recuperación.**

**2.1. Configurar el catálogo de recuperación de la Base de datos**

Conectarse a la BBDD para crear un tablespace nuevo

$ sqlplus /nolog  
SQL> connect /as sysdba    
Conectado.  
Crear un tablespace  
SQL> create tablespace nuevo datafile '/database/dba11g/nuevo.dbf' size 2M autoextend on;  
Tablespace creado.

**2.2. Crear el propietario del catálogo de recuperación.**

SQL> create user rman     
2  identified by rman     
3  default tablespace nuevo    
4  quota unlimited on nuevo;

SQL> grant connect to rman  
SQL> grant recovery\_catalog\_owner to rman;

**2.3. Crear el catálogo de recuperación**

$ rman target / catalog rman@rman  
rman> create catalog;

**3. Sincronizar el catálogo de recuperación**

**3.1. Registrar una BBDD**

$ rman target / catalog rman@rman  
RMAN> register database;

**3.2. Desregistrar una BBDD**

$ Rman target / catalog rman@rman  
RMAN> unregister database;

**4. Borrar catalog de recuperación**

RMAN> connect catalog rman/rman@rman  
RMAN> drop catalog;  
RMAN> drop catalog;

**5. Actualización de versión del catálogo de recuperación.**

RMAN> upgrade catalog;

**6. Crear y usar un catálogo virtual privado**

**6.1. Crear el propietario del catálogo virtual privado.**

$ sqlplus /nolog  
SQL> connect /as sysdba  
SQL> create user user\_virtual    
2  identified by uservirtual    
3  default tablespace users    
4  quota unlimited on users;

**6.2. Otorgar permisos al propietario del catálogo virtual privado.**

SQL> grant recovery\_catalog\_owner to user\_virtual;  
SQL> grant catalog for database dba11g to user\_virtual;  
SQL> grant register database to user\_virtual;

**6.3 Crear un catálogo virtual privado.**

$ rman target / catalog user\_virtual/uservirtual@rman  
RMAN> create virtual catalog;

**Nota:** Si la versión del cliente rman es anterior a Oracle Database 11g se debe ejecutar la siguiente sentencia:

RMAN> exe rman.dbms\_rcvcat.create\_virtual\_catalog;

**6.4 Usar el catálogo virtual privado.**

Registramos una base de datos para este catálogo

$ rman target / catalog user\_virtual/uservirtual@rman  
RMAN> register database;

VIsualizamos las bases de datos registradas

$ sqlplus  user\_virtual/user\_virtual@rman  
SQL> Select distict db\_name from dbinc;

**7. Backups ( ejemplo con base de datos dba11g )**

Nos conectamos a la base de datos contra el catálogo

$ export ORACLE\_SID=dba11g$   
rman target / catalog rman/rman@rman  
Recovery Manager: Release 11.2.0.1.0 - Production on Fri Feb 4 09:55:30 2011  
Copyright (c) 1982, 2009, Oracle and/or its affiliates. All rights reserved.  
connected to target database: DBA11G (DBID=337560195)  
connected to recovery catalog database

**7.1 Backup completo de la BBDD (Whole Database Backup)**

RMAN> backup as copy database spfile plus archivelog;

**7.2 Full Backups**

RMAN> backup database spfile plus archivelog;

**7.3. Incremental Backups**

Level 0 Incremental Backups

RMAN> backup incremental level 0 tablespace users;

Differential Incremental Backups

RMAN> backup incremental level 1 tablespace users;

**7.4 Cumulative Incremental Backups**

RMAN> backup incremental level 1 cumulative tablespace users;

**7.5 Comprimir backups**

RMAN> backup as compressed backupset format ‘/ubicacion/ rman\_%d\_s%\_t%\_%p.bkupset’ tablespace users;

RMAN> backup as compressed backupset users;

**7.6 Borrar todos los backups**

RMAN> delete backup

**7.7 Eliminar los backups obsoletos**

RMAN> delete obsolete;  
RMAN retention policy will be applied to the command  
RMAN retention policy is set to recovery window of 1 days  
using channel ORA\_DISK\_1  
Deleting the following obsolete backups and copies:  
-----  
Deleted 17 objects

**7.8 Más tipos de backup con RMAN**

Backup de toda la base de datos

RMAN> backup database;

Backup de un tablespace

RMAN> backup tablespace tbs\_name;

Backup de un usuario

RMAN> backup user username;

**8. Recover/ Recuperación con RMAN**

**8.1 Recuperación total de una base de datos**

Partimos de un ‘Whole Database Backup’ y se ha borrado toda la base de datos

 RMAN> backup as copy database spfile plus archivelog;

La recuperación se realiza de la siguiente forma:

La base de datos tiene que estar en modo nomount$sqlplus /nolog

SQL> connect /as sysdba  
SQL> shutdown abort;    
SQL> startup nomount;

Recuperar la BBDD

RMAN> restore database;    
RMAN> recover database;

Montar la BBDD y abrir la base de datos con un resetlogs

SQL> alter database mount;  
SQL> alter database open resetlogs;

**8.2 Recuperación de los controlfile**

$ export ORACLE\_SID=dba11g  
$ rman target/ catalog  rman/rman@rman  
RMAN> restore controlfile;

**8.3 Comandos generales para recuperar la BBDD**

RMAN> restore database;    
RMAN> recover database;

**8.4 Comandos para la recuperación a tener en cuenta**

recover database until cancel  
recover database until time '2004-03-21:22:59:04'  
recover database until change 123456  
  
recover datafile 'filename' until cancel  
recover datafile 'filename' until time '2004-03-21:22:59:04'  
recover datafile 'filename' until change 123456  
  
recover tablespace ts\_name until cancel  
recover tablespace ts\_name until time '2004-03-21:22:59:04'  
recover tablespace ts\_name until change 123456  
  
recover database using backup controlfile

**9. Listar los backups**

RMAN> list backup;

[inShare](javascript:void(0);)

|  |  |  |
| --- | --- | --- |
| [**< Prev**](http://www.orasite.com/backup-de-base-de-datos/export-oracle-10g/11g) |  | [**Próximo >**](http://www.orasite.com/backup-de-base-de-datos/rman-ora-02291-restriccion-de-integridad-rmanrlh_f1-violada-clave-principal-no-encontrada) |

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1. Start SQL\*Plus and connect as a user with administrator privileges to the database containing the recovery catalog. For example, enter:

CONNECT SYS/oracle@catdb AS SYSDBA

2. Create a user and schema for the recovery catalog. For example, enter:

CREATE USER rman IDENTIFIED BY cat  
  TEMPORARY TABLESPACE temp   
  DEFAULT TABLESPACE tools   
  QUOTA UNLIMITED ON tools;

3. Grant the recovery\_catalog\_owner role to the user. This role provides all of the privileges required to maintain and query the recovery catalog:

SQL> GRANT RECOVERY\_CATALOG\_OWNER TO rman;

Once the owner user is created, the RMAN recovery catalog schema can be added:

1. Connect to the database that contains the catalog owner. For example, using the RMAN user from the above example, enter the following from the operating system command line.  The use of the CATALOG keyword tells Oracle this database contains the repository:

% rman CATALOG rman/cat@catdb

2. It is also possible to connect from the RMAN utility prompt:

% rman

RMAN> CONNECT CATALOG rman/cat@catdb

3. Now, the CREATE CATALOG command can be run to create the catalog. The creation of the catalog may take several minutes. If the catalog tablespace is this user's default tablespace, the command would look like the following:

CREATE CATALOG;

While the RMAN catalog can be created and used from either a 9i or 10g database, the Enterprise Manager Grid Control database must be a 9i database.  This is true at least for release 1, although this may change with future releases.

Each database that the catalog will track must be registered.

Registering a Database with RMAN

The following process can be used to register a database with RMAN:

1. Make sure the recovery catalog database is open.

2. Connect RMAN to both the target database and recovery catalog database. For example, with a catalog database of RMANDB and user RMAN, owner of the catalog schema, and the target database, AULT1, which is the database to be backed up, database user SYS would issue:

% rman TARGET sys/oracle@ault1 CATALOG rman/cat@rmandb

3. Once connected, if the target database is not mounted, it should be opened or mounted:

RMAN> STARTUP;

--or--

RMAN> STARTUP MOUNT;

4. If this target database has not been registered, it should be registered it in the connected recovery catalog:

RMAN> REGISTER DATABASE;

The database can now be operated on using the RMAN utility.

Example RMAN Operations

The following is an example of the command line connection to a RAC environment, assuming the RAC instances are AULT1 and AULT2:

$ rman TARGET SYS/kr87m@ault2 CATALOG rman/cat@rmandb

The connection string, in this case AULT2, can only apply to a single instance, so the entry in the tnsnames.ora for the AULT2 connection would be:

ault2 =  
  (DESCRIPTION =  
    (ADDRESS\_LIST =  
    (LOAD\_BALANCE = OFF)  
    (FAILOVER = ON)  
      (ADDRESS = (PROTOCOL = TCP)(HOST = aultlinux2)(PORT = 1521))  
    )  
    (CONNECT\_DATA =  
      (SERVICE\_NAME = ault)  
      (INSTANCE\_NAME = ault2)  
    )

If the instances use archive logs, RAC requires that a channel connection be specified for each instance that will resolve to only one instance. For example, using the AULT1 and AULT2 instances from the previous example:

CONFIGURE DEFAULT DEVICE TYPE TO sbt;  
CONFIGURE DEVICE TYPE TO sbt PARALLELISM 2;  
CONFIGURE CHANNEL 1 DEVICE TYPE sbt CONNECT = 'SYS/kr87m@ault1';  
CONFIGURE CHANNEL 2 DEVICE TYPE sbt CONNECT = 'SYS/kr87m@ault2';

This configuration only has to be specified once for a RAC environment. It should be changed only if nodes are added or removed from the RAC configuration. For this reason, it is known as a persistent configuration, and it need never be changed for the life of the RAC system. This configuration requires that each of the specified nodes be open, the database is operational, or closed, the database shutdown. If one specified instance is not in the same state as the others, the backup will fail.

RMAN is also aware of the node affinity of the various database files. The node with the greatest access will be used to backup those datafiles that the instance has greatest affinity for. Node affinity can, however, be overridden with manual commands, as follows:

BACKUP  
            #Channel 1 gets datafiles 1,2,3  
            (DATAFILE 1,2,3 CHANNEL ORA\_SBT\_TAPE\_1)  
            #Channel 2 gets datafiles 4,5,6,7  
            (DATAFILE 4,5,6,7 CHANNEL ORA\_SBT\_TAPE2)

The nodes chosen to backup an Oracle RAC cluster must have the ability to see all of the files that require backup. For example:

BACKUP DATABASE PLUS ARCHIVELOG;

The specified nodes must have access to all archive logs generated by all instances. This could entail some special considerations when configuring the Oracle RAC environment.