

Oracle® Tutor™



Section 1 服务器配置 (Server Configuration)

时间最长场景

1.Create the database

```
mkdir -p /u01/app/oracle/admin/PROD1/adump
mkdir -p /u01/app/oracle/flash_recovery_area
orapwd file=orapwPROD1 password=oracle entries=10
sudo vim /etc/oratab
添加 PROD1:/u01/app/oracle/product/11.2.0/dbhome_1:N
```

```
initPROD1.ora:
db_name='PROD1'
memory_target=1G
processes = 1500
audit_file_dest='/u01/app/oracle/admin/PROD1/adump'
audit_trail ='db'
db_block_size=8192
db_domain=''
```

```

db_recovery_file_dest='/u01/app/oracle/flash_recovery_area'
db_recovery_file_dest_size=6G
diagnostic_dest='/u01/app/oracle'
open_cursors=300
remote_login_passwordfile='EXCLUSIVE'
undo_tablespace='UNDOTBS1'
control_files =
('/u01/app/oracle/oradata/PROD1/disk1/control01.ctl','/u01/app/oracle/oradata/PROD
1/disk2/control02.ctl','/u01/app/oracle/oradata/PROD1/disk3/control03.ctl')
compatible = '11.2.0'

```

Administrator's Guide p73 建库命令

p84 bigfile tablespace 命令

```

CREATE DATABASE PROD1
  USER SYS IDENTIFIED BY oracle
  USER SYSTEM IDENTIFIED BY oracle
  SET DEFAULT BIGFILE TABLESPACE
  LOGFILE GROUP 1
    ('/u01/app/oracle/oradata/PROD1/disk1/redo01a.log', '/u01/app/oracle/oradata/PROD
1/disk2/redo01b.log') SIZE 100M BLOCKSIZE 512,
    GROUP 2
    ('/u01/app/oracle/oradata/PROD1/disk2/redo02a.log', '/u01/app/oracle/oradata/PROD
1/disk3/redo02b.log') SIZE 100M BLOCKSIZE 512,
    GROUP 3
    ('/u01/app/oracle/oradata/PROD1/disk3/redo03a.log', '/u01/app/oracle/oradata/PROD
1/disk4/redo03b.log') SIZE 100M BLOCKSIZE 512
  MAXLOGFILES 50
  MAXLOGMEMBERS 5
  MAXLOGHISTORY 1
  MAXDATAFILES 100
  CHARACTER SET AL32UTF8
  NATIONAL CHARACTER SET AL16UTF16
  EXTENT MANAGEMENT LOCAL
  DATAFILE '/u01/app/oracle/oradata/PROD1/disk1/system01.dbf' SIZE 500M REUSE
  autoextend on
  SYSAUX DATAFILE '/u01/app/oracle/oradata/PROD1/disk2/sysaux01.dbf' SIZE 325M
  REUSE autoextend on
  DEFAULT TABLESPACE users
    DATAFILE '/u01/app/oracle/oradata/PROD1/disk4/users01.dbf'
    SIZE 50M REUSE AUTOEXTEND ON MAXSIZE UNLIMITED
  smallfile DEFAULT TEMPORARY TABLESPACE temp
    TEMPFILE '/u01/app/oracle/oradata/PROD1/disk5/temp01.dbf'
    SIZE 20M REUSE autoextend on

```

```
UNDO TABLESPACE undotbs1
```

```
DATAFILE '/u01/app/oracle/oradata/PROD1/disk3/undotbs1.dbf'
```

```
SIZE 20M REUSE AUTOEXTEND ON MAXSIZE UNLIMITED;
```

```
conn sys/oracle
```

```
@?/rdbms/admin/catalog.sql #创建数据库字典文件
```

```
@?/rdbms/admin/catproc.sql #创建数据库字典所有的包和过程
```

```
conn system/oracle
```

```
@?/sqlplus/admin/pupbld.sql
```

执行完成后 optional:

```
connect /as sysdba
```

```
@?/rdbms/admin/catblock.sql
```

```
@?/rdbms/admin/catotck.sql
```

```
@?/rdbms/admin/owminst.plb
```

2.Determine and set sizing parameters for database structures

```
show parameter ddl_lock_timeout
```

11g 以前，DDL 语句是不会等待 DML 语句的，当 DDL 语句访问的对象正在执行的 DML 语句，会立即报错 ORA-00054: 资源正忙，但指定以 NOWAIT 方式获取资源，或者超时失效。而在 11g 以后，DDL_LOCK_TIMEOUT 参数可以修改这一状态，当 DDL_LOCK_TIMEOUT=0 时，DDL 不等待 DML，当 DDL_LOCK_TIMEOUT 为 N（秒）时，DDL 等待 DML N 秒！

3.Create and manage temporary, permanent, and undo tablespaces

4.Stripe data files across multiple physical devices and locations

5.Configure the database environment to support optimal data access performance

```
FILESYSTEMIO_OPTIONS
```

6.Create and manage database configuration files

7.Create and manage bigfile tablespaces

8.Create and Manage a tablespace that uses NFS mounted file system file

In Mos (Metalink) there is a note with details to set up direct NFS on Linux (11g)

- > "Step by step – Configure direct NFS client (DNFs) on Linux (11g)ID 762374.1]".

Step by Step - Configure Direct NFS Client (DNFS) on Linux [ID 762374.1]

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References

Applies to:

Oracle Server - Enterprise Edition - Version: 11.1.0.6 to 11.2.0.1 - Release: 11.1 to 11.2
Generic Linux

Goal

The purpose of this document is to provide information about the Direct NFS client and Step by Step to configure Direct NFS client.

Note :-The following steps are purely provided for evaluative and educational purpose only.Any issues with configuring the NFS server/client on Linux ie PART A ,you need to contact your Vendor.Oracle will not provide support/troubleshoot PART A.

WARNING:

The DNFS Guide says to enable the init.ora param filesystem_io to enable direct I/O support.

Doing this, all DB access to all files will be via DIO.

There is no way to only enable direct IO for certain files and exclude others.

So ensure ALL the places where are located your database files (including pfile/spfile, logs,....) are configured to accept Direct IO.

Solution

Step by Step

To use Direct NFS Client, the NFS file systems must first be mounted and available over regular NFS mounts.

PART A -- SETTING UP THE NFS SERVER ON LINUX

Preparing NFS server for Oracle Direct NFS mount filesystem.

If you are already setup the NFS ,skip this step and go to PART B :-'Setup DNFS'

i) For setting up the NFS server we need to know the UID of the software owner and GID of the DBA group. The UID and GID should also be the same on all the cluster nodes.

To find out the UID and GID issue the id command as the Oracle software owner (e.g. oracle) on one of the cluster nodes,

```
# id uid=500(oracle) gid=500(dba) groups=500(dba)
```

In this case the UID is 500 and the GID is also 500.

ii) As root, create the directory for the oracle files on the NFS server and set the ownership of this directory to this UID and the GID,

```
# mkdir /oraclenfs  
# chown 500:500 /oraclenfs
```

iii) Add this directory to the NFS exports file /etc/exports.

This file should now contain a line like this

```
/oraclenfs *(rw,sync,all_squash,anonuid=500,anongid=500)
```

The anonuid and anongid should contain the UID and GID we found for the oracle user and dba group on the cluster nodes; in this case 500 and 500.

iv) Make sure the NFS server will get started during boot of this server. I.E. for RedHat Linux this could be done like this;

```
chkconfig --level 345 nfs on
```

v) Now start the NFS server process on the NFS server. On RedHat Linux this could be done like this;

```
service nfs start
```

vi) If the new export directory is added to the `/etc/exports` file while the NFS server process was already running, restart the NFS server or re-export with the command `"exportfs -a"`. Check if the `oraclefs` directory is exported correctly by issuing the `exportfs -v` command.

This command should return a line like this;

```
# [root@stgasm ~]# exportfs -v
/oraclenfs *(rw,wdelay,root_squash,all_squash,anonuid=500,anongid=500)
```

MOUNTING NFS ON THE CLIENT NODE / CLUSTER NODES ON LINUX

i) To be able to mount the NFS export, as the root user create an empty directory on each cluster node named `/oradata1`

ii) Make sure the NFS export is mounted on the cluster nodes during boot time by adding the following line to the `/etc/fstab` file on each cluster node;

```
stgasm:/oraclenfs /oradata1 nfs
rw,bg,hard,nointr,rsize=32768,wsiz=32768,tcp,actimeo=0,vers=3,timeo=600 0 0
```

iii) Mount the NFS export by executing the `mount /oradata1` command on each server.

iv) Check if the NFS export is correctly mounted with the `mount` command.

This should return a line like this;

```
# mount
stgasm:/oraclenfs on /oradata1 type nfs
(rw,bg,hard,intr,rsize=32768,wsiz=32768,tcp,noac,nfsvers=3,
timeo=600,addr=10.177.52.158)
```

PART B -- Configure Direct NFS Client (DNFS)

i) Configure `oranfstab` file

Direct NFS Client can use a new configuration file '`oranfstab`' or the mount tab file (`/etc/mtab` on Linux) to determine the mount point settings for NFS storage devices.

This file is required only for configuring the Direct NFS for load balancing and specific to single database. You can still enable the Direct NFS without configuring oranfstab file. DNFS will take mount point settings for NFS from /etc/mtab on Linux

In RAC, the oranfstab must be configured on all nodes and keep /etc/oranfstab file synchronized on all nodes.

(When the oranfstab file is placed in \$ORACLE_HOME/dbs, the entries in the file are specific to a single database. In this case, all nodes running an Oracle RAC database use the same ORACLE_HOME/dbs/oranfstab file.

When the oranfstab file is placed in /etc, then it is globally available to all Oracle databases, and can contain mount points used by all Oracle databases running on nodes in the cluster, including single-instance databases. However, on Oracle RAC systems, if the oranfstab file is placed in /etc, then you must replicate the file /etc/oranfstab file on all nodes, and keep each /etc/oranfstab file synchronized on all nodes, just as you must with the /etc/fstab file.

For reference, Direct NFS searches for mount entries in the following order:

1. \$ORACLE_HOME/dbs/oranfstab
2. /etc/oranfstab
3. /etc/mtab

configure the oranfstab as like below

```
$ORACLE_HOME/dbs/oranfstab
server: stgasm <=== NFS server Host name
path: 10.177.52.158 <--- First path to NFS server ie NFS server NIC
local: 10.177.52.151 <--- First client-side NIC
path: 10.177.52.159 <--- Second path to NFS server ie NFS server NIC (For load balance
purpose)
local: 10.177.52.151 <--- Second client-side NIC (For load balance purpose)
export: /oraclenfs mount: /oradata1
```

ii) Enable the Direct NFS Client ODM Library

```
cd $ORACLE_HOME/lib
```

```
mv libodm11.so libodm11.so_bak
```

ln -s libnfsodm11.so libodm11.so

iii) Re-start the Database instance.

alert log shows Direct NFS client is enabled by checking the below message

Oracle instance running with ODM: Oracle Direct NFS ODM Library Version 2.0

iv) Connect to DB instance and move existing datafiles to NFS drive or create tablespace on NFS drive to check DNFS is working or not

SQL> select * from v\$dnfs_servers;

ID	SVRNAME	DIRNAME	MNTPORT	NFSPORT	WTMAX	RTMAX
1	10.177.52.158	/oraclenfs		700	2049	0

PART C -- DNFS Workshop.

DNFS Workshop is located at: dnfs_workshop.pdf

References

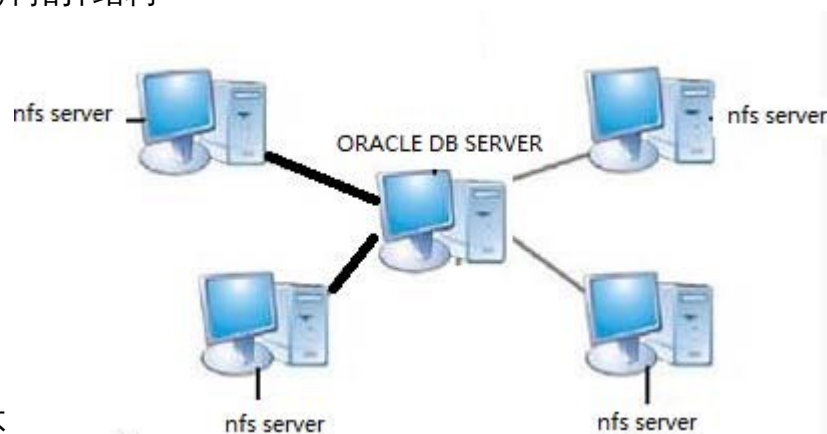
http://www.oracle.com/technology/deploy/performance/pdf/directnfsclient_11gr1_twp.pdf

[http://st-doc.us.oracle.com/11/111/install.111/b28263/stor_rac.htm?](http://st-doc.us.oracle.com/11/111/install.111/b28263/stor_rac.htm?term=direct+nfs#BABFDIDE)

term=direct+nfs#BABFDIDE

注意 : service nscd start

Direct NFS 数据库拓扑结构



所有 NFS 配置不

是靠操作系统而是靠 oracle 自己的配置，考场上在做本题时可能网络会有问题请注意。

挂接 NFS 文件系统，这个在考场上已经挂载好了，不用考生去做。

- **挂接 NFS 文件系统:**

修改 /etc/fstab :

```
192.168.0.38:/dnfsdata /dnfsdata          nfs
rw,bg,hard,nointr,rsiz=32768,wsiz=32768,tcp,actimeo=0,vers=3,timeo=600  0 0
mount -a
```

Enable Direct NFS Client

- 1、进入以下路径:

/u01/app/oracle/product/11.2.0/dbhome_1/rdbms/lib/

- 2、重新编译文件:

```
make -f ins_rdbms.mk dnfs_on
```

- 3、以后数据库启动在警告日志文件会有如下信息:

```
grep ODM /u01/app/oracle/diag/rdbms/prod1/PROD1/trace/alert_PROD1.log :
```

Oracle instance running with ODM: Oracle Direct NFS ODM Library Version 3.0

在 NFS 文件系统上创建数据文件

```
SQL>create tablespace nfs_tb1 datafile '/nfs_df/nfs_tb101.dbf' size 10m;
```

警告日志出现如下错误:

Direct NFS: please check that oradism is setuid

解决办法:

- 1、先把 oradism 文件修改为 root 属主:

```
chown root /u01/app/oracle/product/11.2.0/dbhome_1/bin/oradism
```

- 2、再把这个文件加上 setuid 的权限:

```
chmod u+s /u01/app/oracle/product/11.2.0/dbhome_1/bin/oradism
```

Oracle 直接客户端扫描顺序

1.\$ORACLE_HOME/dbs/oranfstab

2./etc/oranfstab

3./etc/mtab

Oranfstab 内容格式

– Server: The NFS server name.

– Local: Up to four paths on the database host, specified by IP address or by name, as displayed using the ifconfig command run on the database host.

– Path: Up to four network paths to the NFS server, specified either by IP address, or by name, as displayed using the ifconfig command on the NFS server.

– Export: The exported path from the NFS server.

– Mount: The corresponding local mount point for the exported volume.

Oranfstab 内容案例

```
server: db
```

```
local: 192.168.18.0
```

```
path: 192.168.18.95
```

```
export: /nfs_df mount: /nfs_df
```

最多可以写四个 NFS 服务器路径

最多可以写四个不同网络的路径

Direct NFS Client 的性能问题

1、测量当前网络、服务器和每个客户端的执行效率。

#nfsstat -s

Xdcall 是否有错误,如果有错误出现意味着网络过载。

2、UDP and TCP

可以手动进行设置。UDP 有着传输速度快,非连接传输的便捷特性,但是不保证数据的可靠性,在使用过程中数据的可靠性要求是最高的。

3、wsize, rsize 参数来优化 NFS 的执行效能。

wsize、rsize 对于 NFS 的效能有很大的影响。

用于测试的 WSIZE,RSIZE 最好是 1024 的倍数,对于 NFS V2 来说 8192 是 RSIZE 和 WSIZE 的最大数值。

举例：

/u01/app/oracle/product/11.2.0/dbhome_1/dbs/oranfstab:

server:mynfs

local:192.168.0.0

path:192.168.0.38

export:/dnfsdata mount:/dnfsdata

SQL> select * from v\$dnfs_servers;

ID	SVRNAME	DIRNAME	MNTPORT	NFSPORT	WTMAX	RTMAX
1	mynfs	/dnfsdata	759	2049	0	0

也可以这样写：

server:yournfs

local:station37

path:station38

export:/dnfsdata mount:/dnfsdata

9.Create and manage multiple network configuration files

1526 端口的监听器也要进行动态注册：

PROD1 =

(DESCRIPTION= (ADDRESS_LIST= (load_balance=yes)(FAILOVER=on)

(ADDRESS=(PROTOCOL=tcp)(HOST=edu1)(PORT=1522))

(ADDRESS=(PROTOCOL=tcp)(HOST=edu1)(PORT=1526)))

(CONNECT_DATA=(SERVICE_NAME=prod))

STDBY=

(DESCRIPTION=

(ADDRESS=(PROTOCOL=tcp)(HOST=station38.example.com)(PORT=1521))

(CONNECT_DATA=(SERVICE_NAME=STDBY)))

```

EMREP =
  (DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = station38.example.com)(PORT = 1521))
    )
    (CONNECT_DATA =
      (SERVICE_NAME = EMREP)
    )
  )

```

```

FORLSNR =
  (DESCRIPTION=
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL=tcp)(HOST= station37.example.com)(PORT=1521))
      (ADDRESS = (PROTOCOL=tcp)(HOST= station37.example.com)(PORT=1526))
    )
  )

```

SQL> show parameter local

NAME	TYPE	VALUE
local_listener	string	FORLSNR

10.Create and configure a listener

listener.ora: Network Reference p132

tnsnames.ora: Network Reference p117

```

LISTENER=
  (DESCRIPTION=
    (ADDRESS_LIST=
      (ADDRESS=(PROTOCOL=tcp)(HOST=sale-server)(PORT=1521))
      (ADDRESS=(PROTOCOL=ipc)(KEY=extproc)))
    )

```

```

LISTENER1526=
  (DESCRIPTION=
    (ADDRESS_LIST=
      (ADDRESS=(PROTOCOL=tcp)(HOST=sale-server)(PORT=1521))
      (ADDRESS=(PROTOCOL=ipc)(KEY=extproc1)))
    )

```

```

SID_LIST_LISTENER=
  (SID_LIST=
    (SID_DESC=
      (GLOBAL_DBNAME=sales.us.example.com)
    )
  )

```

```
(ORACLE_HOME=/oracle11g)
(SID_NAME=sales))
(SID_DESC=
(SID_NAME=plsextproc)
(ORACLE_HOME=/oracle11g)
(PROGRAM=extproc)))
```

```
SID_LIST_LISTENER1526=
(SID_LIST=
(SID_DESC=
(GLOBAL_DBNAME=sales.us.example.com)
(ORACLE_HOME=/oracle11g)
(SID_NAME=sales))
(SID_DESC=
(SID_NAME=plsextproc)
(ORACLE_HOME=/oracle11g)
(PROGRAM=extproc)))
```

11.Configure the database instance to support shared server connections

12.Set up network tracing

可能不会考

ocm1 Set up network tracing

<http://shenh.tripod.com/Oracleblog/index.blog/1824912/ocm1set-up-network-tracing/>

To enable tracing at the server, find the sqlnet.ora file for the server and

create the following lines in it:

```
$ORACLE_HOME/network/admin/listener.ora
```

```
-----
```

```
TRACE_LEVEL_LISTENER=admin
```

```
TRACE_LEVEL_L2=user
```

off (equivalent to 0) provides no tracing

user (equivalent to 4) traces to identify user-induced error conditions

admin (equivalent to 10) traces to identify installation-specific problems

support (equivalent to 16) provides trace information for troubleshooting information for Oracle Support Services

```
mkdir -p /u01/app/oracle/trace/server
```

```
DIAG_ADR_ENABLED_LISTENER=OFF
```

```
TRACE_LEVEL_LISTENER=admin
```

```
TRACE_DIRECTORY_LISTENER=/home/oracle/server
```

```
TRACE_LEVEL_L2=user
```

13.Manage Oracle network processes

14.Configure the network environment to allow connections to multiple databases

15.Use configurationless connections

sqlnet.ora 会考如何 ezconnect

sqlnet.ora :

NAMES.DIRECTORY_PATH= (EZCONNECT,TNSNAMES)

16.Use OPatch to install a patch

vim /etc/oraInst.loc:检查或添加

inventory_loc=/u01/app/oraInventory

inst_group=oinstall

cat /etc/oraInst.loc	<?xml version="1.0" standalone="yes" ?>
inventory_loc=/ora/oraInve	<!-- Copyright (c) 2009 Oracle Corporation. All
ntory	rights Reserved -->
inst_group=oinstall	<!-- Do not modify the contents of this file by
	hand. -->
	<INVENTORY>
	<COMPOSITEHOME_LIST>
	</COMPOSITEHOME_LIST>
	<VERSION_INFO>
	<SAVED_WITH>10.2.0.5.0</SAVED_WITH>
	<MINIMUM_VER>2.1.0.6.0</MINIMUM_VER>
	</VERSION_INFO>
	<HOME_LIST>
	<HOME NAME="OraDb11g_home1"
	LOC="/ora/db/11g" TYPE="O" IDX="1"/>
	<HOME NAME="db10g" LOC="/ora/GC/db10g"
	TYPE="O" IDX="2"/>
	<HOME NAME="oms10g"
	LOC="/ora/GC/oms10g" TYPE="O" IDX="3"/>
	<HOME NAME="agent10g"
	LOC="/ora/GC/agent10g" TYPE="O" IDX="4"/>
	</HOME_LIST>
	</INVENTORY>

热补丁

[oracle@station37 5943776]\$

/u01/app/oracle/product/11.2.0/dbhome_1/OPatch/patch query -is_online_patch

Invoking OPatch 11.2.0.1.7

Oracle Interim Patch Installer version 11.2.0.1.7

Copyright (c) 2011, Oracle Corporation. All rights reserved.

Oracle Home : /u01/app/oracle/product/11.2.0/dbhome_1

Central Inventory : /u01/app/oraInventory

from : /etc/orainst.loc

OPatch version : 11.2.0.1.7

OUI version : 11.2.0.3.0

Log file location :

/u01/app/oracle/product/11.2.0/dbhome_1/cfgtoollogs/opatch/opatch2015-04-08_11-08-50AM.log

Patch is an online patch: true

OPatch succeeded.

[oracle@station37 5943776]\$

/u01/app/oracle/product/11.2.0/dbhome_1/OPatch/**opatch apply -connectString
PROD1:::**

\$ORACLE_HOME/OPatch/opatch rollback -id 5555555 -connectString PROD1:::

17.Use Enterprise Manager Configuration Assistant(EMCA) utility

不是考题，自我帮助

alter user db snmp identified by oracle account unlock;

emca -deconfig dbcontrol db -repos create

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Section 2 管理数据库可用性 (Managing Database Availability)

时间最短场景。题目很少，但要做的事情很多，如果做不全，后面会遇到很多问题，可能做不完题。

本 Section 开始会有多个实例，建议每次登录临时更改 sqlprompt，以便做区分：set sqlprompt "_user@PROD1>"

1.Maintain recovery catalogs

2.Configure Recovery Manager

```
LIST SCRIPT NAMES;
```

```
LIST GLOBAL SCRIPT NAMES;
```

```
LIST ALL SCRIPT NAMES;
```

```
CREATE SCRIPT full_backup
```

```
{
```

```
BACKUP DATABASE PLUS ARCHIVELOG;
```

```
DELETE OBSOLETE;
```

```
}
```

```

RUN { EXECUTE SCRIPT full_backup; }

PRINT SCRIPT full_backup;
PRINT SCRIPT full_backup TO FILE 'my_script_file.txt';

REPLACE SCRIPT full_backup
{
BACKUP DATABASE PLUS ARCHIVELOG;
}

DELETE SCRIPT 'full_backup';

```

3. Use Recovery Manager to perform database backups

backup incremental level 1 for recover of copy with tag 'T1' database;

2.1.2 Set your default channel to write to /home/oracle/backup (you may have to create this directory)

channel 直接控制备份去向：以下命令需单独记忆：不配的话默认去闪回区。

```

RMAN>CONFIGURE CHANNEL 1 DEVICE TYPE DISK FORMAT '/home/oracle/bakup/%d_%T_%U.bak';

```

2.1.3 Turn on controlfile autobackup to write to /home/oracle/backup/control (you may have to create this directory)

```

RMAN> CONFIGURE CONTROLFILE AUTOBACKUP ON;
RMAN>CONFIGURE CONTROLFILE AUTOBACKUP FORMAT FOR DEVICE TYPE DISK TO
'/home/oracle/backup/control/%F';

```

2.2.1 Perform a backup using your default channel, with compression

2.2.2 Include all datafiles in the backup

2.2.3 Include your current control file and spfile

2.2.4 Include all archive logs, then remove the originals

```

RMAN>backup as compressed backupset database include current controlfile plus
archivelog delete all input;

```

2.2.5 Make sure per hour one archive log file.

```

Alter system set ARCHIVE_LAG_TARGET=3600;

```

```

Alter system set log_archive_min_succeed_dest=1;

```

```

CONFIGURE ARCHIVELOG BACKUP COPIES FOR DEVICE TYPE DISK TO 1;

```

4. Use Recovery Manager to perform complete database restore and recovery operations

5. Configure RMAN

6.Create different types of RMAN backups to cater for different performance and retention requirements

强制备份忽略掉优化备份

backup database force

change backup tag 'TAG20150411T120920' keep forever;

BACKUP ARCHIVELOG FROM SEQUENCE 121 UNTIL SEQUENCE 125;

backup section size 200M datafile 1 format '/ora/backup/%U_.bk';

7.Set Flashback Database parameters

8.Configure a Fast Recovery Area

9.Perform various recovery operations using Flashback technology

闪回查询考很多

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升级考试 Section 1 数据库、RMAN、EM 和网络配置 (Database, RMAN, EM and Network Configuration)

1. Configure server-side network

2. Configure client-side network

3. Create and Manage encrypted tablespaces

Administrator's Guide=> 13 Managing Tablespaces=> [Creating Tablespaces](#)

Net Services Reference=> 5 Parameters for the sqlnet.ora File

#创建 wallet

```
mkdir -p /ora/db11g/admin/PROD/wallet
```

vi sqlnet.ora # 最后一行添加

```
WALLET_LOCATION=(SOURCE=(METHOD=FILE)
```

```
(METHOD_DATA=(DIRECTORY=/ora/db11g/admin/PROD/wallet/)))
```

```
ALTER SYSTEM SET ENCRYPTION KEY IDENTIFIED BY "welcome1";
```

#创建加密表空间

```

CREATE TABLESPACE securespace DATAFILE
'/u01/app/oracle/oradata/orcl/secure01.dbf' SIZE 10M
ENCRYPTION DEFAULT STORAGE(ENCRYPT);
#创建使用 3DES168 进行加密的表空间
CREATE TABLESPACE securespace DATAFILE
'/u01/app/oracle/oradata/orcl/secure01.dbf' SIZE 10M
ENCRYPTION USING '3DES168' DEFAULT STORAGE(ENCRYPT);
#Check
SELECT t.name, e.encryptionalg algorithm FROM v$tablespace t,
v$encrypted_tablespaces e WHERE t.ts# = e.ts#;
NAME                ALGORITHM
SECURESPACE          3DES128

```

4.Create and Manage a tablespace that uses NFS mounted file system file

与两天考试不同的步骤：

```

cd /u01/app/oracle/product/11.1.0/dnfs/lib
mv libodm11.so libodm11.so_stub
ln -s libnfsodm11.so libodm11.so

```

5.Set up ADR file based repository

```

SELECT NAME, VALUE FROM V$DIAG_INFO;

```

6.Perform cold database backup

和 10g 一样会出现需要恢复的场景

7.Manage user accounts and use case sensitive passwords

密码复杂性函数

8.Use OPatch to install a patch

9.Install and configure EM Agent

10.Create Base Recovery Catalog

11.Configure RMAN

```

#加密备份 Backup and Recovery Advanced User's Guide
CONFIGURE ENCRYPTION FOR DATABASE ON; -- 开启加密备份功能
set encryption on identified by '111111' only; --设置加密密码
backup tablespace tbs1; --备份
set decryption identified by '111111'; --设置解密密码
restore tablespace tbs1 -- 恢复加密备份

```

enable fast incremental backup

alter database enable block change tracking using file

'/ora/oradata/PROD.block.trace';

alter database disable block change tracking;

SELECT * FROM v\$block_change_tracking;

Backup Settings

Device	Backup Set	Policy
Backup Policy		
<input checked="" type="checkbox"/> Automatically backup the control file and server parameter file (SPFILE) with every backup and database structural change		
Autobackup Disk Location <input type="text"/> <small>An existing directory or diskgroup name where the control file and server parameter file will be backed up. If you do not specify a location, the flash recovery area location.</small>		
<input type="checkbox"/> Optimize the whole database backup by skipping unchanged files such as read-only and offline datafiles that have been backed up		
<input type="checkbox"/> Enable block change tracking for faster incremental backups		
Block Change Tracking File <input type="text"/> <small>Specify a location and file; otherwise an Oracle managed file will be created in the database area.</small>		

12.Perform multisection backup of a datafile

13.Create an Archival Backup