OCM 考试指南

概述：
第一天：
section 0:创建一个数据库 45 分钟
120 分钟

section 2:Gridcontrol 安装配置 120 分钟
section 3:数据库备份恢复 60 分钟
section 4:数据仓库 90 分钟
第二天：
section 5:数据库管理 120 分钟
120 分钟

section 7:部署Oracle RAC 数据库 90 分钟
sectoin 8:部署 Dataguard 数据库 60 分钟

奇数机（edsir5p1）与偶数机（edsir5p2）:在真正考试时，每个人面前会有两台机器，一台称为奇数机（ODD），一台称为偶数机（EVEN），要你在ODD 机器上做什么或者在 EVEN 机器上做什么，偶数还是奇数是依靠机器的hostname 最后一位或者两位数字来定的，通常会要求你在奇数机上创建数据库，在偶数机上安装Grid Control 的OMS。偶数机上是没有Oracle 软件的，因此OMS 需要的Repository 这个数据库也需要创建在奇数机上，再加上之后第二天会要求创建的Standby 实例。

Oracle_home
/u01/app/oracle/product/10.2.0/db_1

/u01/app/oracle/oradata/PROD/disk1……disk5

文档路径
/stage/doc/english/

Gridcontrol安装文件
/stage/gc/Disk1/

除rac外都在奇数机edsir5p1和偶数机edsir5p2上完成，并且root密码不告诉你，oracle用户密码ocm123
Rac用奇数机上的虚拟机host1和host2，root用户和oracle用户密码都是oracle
使用Sudo命令

Section 0 :创建数据库(即手动建库)【在 odd 机】

1. Create a database the sid name is PROD
2. Don't run the Script catalog.sql and catproc.sql

步骤：
1、搞参数文件
2、搞 spfile
3、启动数据库到 nomount
4、搞生成数据库命令并执行之

参考联机文档：
Reference ==> Basic Initialization Parameters
Administrator's Guide ==> Step 7: Issue the CREATE DATABASE Statement

考试的时候有个参数文件，但是有些参数有问题是低版本的参数，最好不要用

Section 1：数据库和网络的配置【在 odd 机操作】

1. Database setup and undo management
   1.1 Run the minimum required scripts to complete the basic configuration of the PROD Database.
   1.2 Setup automatic undo management in the PROD database to support the following requirements
      1.2.1 Avoid ORA-01555 Snapshot too old errors for queries running up to 90 minutes on average.
      1.2.2 The number or concurrent OLTP users will be approximately 120 during normal business hours.
      1.2.3 The number or concurrent batch process that will run in the evenings will approximately 12 to 15.

```
@?/rdbms/admin/catalog
@?/rdbms/admin/catproc
@?/rdbms/admin/dbmspool
alter system set undo_retention=5400;
alter system set processes=135 scope=spfile;
alter system set job_queue_processes=15;
shutdown immediate;
startup;
```

2. Server-side Network configuration
   2.1 Create a listener using the default listener name.
      2.1.1 The TCP/IP protocol will be used for all connections.Use the machine (not the IP address) for host.
      2.1.2 This listener will listen on the default port.
   2.2 Add a second listener, named LSNR2, which will listen on port 1526.configure this listener to support only automatic instance registrations.
      2.2.1 Set up the PROD instance to automatically register with the LSNR2.
   2.3 Start Both listeners.

参考联机文档：

Net Services Reference ==> 7 Listener Parameters (listener.ora)

3. Shared Server configuration
   3.1 Configure the PROD database to support up to 300 sessions, reserving 100 for decicated connections.
   3.2 Configure the PROD database to support:
      3.2.1 Default of 3 TCP dispatchers

3.2.2 Maximum of 10 dispatchers

3.3 Configure the PROD database to support:

3.3.1 Minimum of 10 shared server processes

3.3.2 Maximum of 30 shared server processes

```
alter system set processes=300 scope=spfile;
alter system set shared_server_sessions=200 scope=spfile;

alter system set dispatchers = '(PROTOCOL=TCP)(DISPATCHERS=3)';
alter system set max_dispatchers = 10;

alter system set shared_servers = 10;
alter system set max_shared_servers = 30;

shutdown immediate;
startup
```

参考联机文档：

Reference ==> DISPATCHERS
Reference ==> SESSIONS
Reference ==> SHARED_SERVERS

4. Client-side Network configuration

4.1 Create the client-side network configuration files providing connect descriptors to your database using local naming and easy connect methods.

4.1.1 The prod alias should connect to the PROD instance using the default listener and always use a dedicated server connection.

4.1.2 The prod _s alias should connect to the PROD instance using LSNR2 and use a shared server connection.

4.2 The racdb alias should connect to the RACDB service (created later) with a dedicated server conncection.

4.2.1 The RACDB service will be running on your RAC cluster

4.3 The emrep alias should connect to the EMREP instance (created later) with a dedicated server connection.

创建 sqlnet.ora，内容如下：

```
NAMES.DIRECTORY_PATH= (TNSNAMES, EZCONNECT)
```

参考联机文档：

Net Services Reference ==> 6 Local Naming Parameters (tnsnames.ora)

5. Tablespace creation and configuration

Note: tablespaces must be named as specified in each task to receive credit.

5.1 Create a temporary tablespace group that contains two temporary tablespaces to support batch processing, the creation of large indexes,and analyzing tables,use the following specifications:

5.1.1 Temporary tablespace group named TEMP_GRP containing temporary tablespaces TEMP1 and TEMP2.

5.1.2 Make TEMP_GRP the default temporary tablespace for all new users.

5.2 Create a permanent tablespace to store sample test data. Use the following specifications:

5.2.1 Tablespace name of EXAMPLE

5.2.2 Initial datafile size of 400MB with the file expected to grow to 4TB.

5.2.3 Initial extent size of 1MB

5.2.4 Next extent size of 1MB

5.3 Create a permanent tablespace to store indexes , use the following specifications:

5.3.1 Tablespace name of INDX

5.3.2 File size of 40MB

5.4 Create a permanent tablespace to store data from vaious Oracle tools,use the following specifitions:

5.4.1 Tablespace name of TOOLS

5.4.2 File size of 10MB

5.5 Create a default permanent tablespace using the following specifications:

5.5.1 Tablespace name of USERS

5.5.2 File size of 48MB

5.5.3 Initial extent size of 4MB

5.5.4 Next extent size of 4MB

5.6 Create a permanent tablespace for storing segments associated with online transaction processing with high insert rates. Due to the potential high volume of concurrent inserts,every effort should be taken to reduce contention for each of the talbes that will be stored in this tablespace .use the following specifications:

5.6.1 Tablespace name of OLTP

5.6.2 File size of 48MB

5.6.3 Initial extent size of 2MB

5.6.4 Next extent size of 2MB

```
create temporary tablespace temp1 tempfile '/u01/app/oracle/oradata/PROD/Disk1/temp11.dbf'
size 64m autoextend on next 10m maxsize 2g
extent management local uniform size 1m
segment space management manual
tablespace group temp_grp;

create temporary tablespace temp2 tempfile '/u01/app/oracle/oradata/PROD/Disk2/temp22.dbf'
size 64m autoextend on next 10m maxsize 2g
extent management local uniform size 1m
```

segment space management manual
tablespace group temp_grp;

alter database default temporary tablespace temp_grp;

CREATE BIGFILE TABLESPACE EXAMPLE DATAFILE '/u01/app/oracle/oradata/PROD/Disk1/EXAMPLE01.dbf' SIZE 400M AUTOEXTEND ON NEXT 1M MAXSIZE 4t EXTENT MANAGEMENT LOCAL UNIFORM SIZE 1M ;

CREATE TABLESPACE INDX DATAFILE '/u01/app/oracle/oradata/PROD/Disk1/INDX01.dbf' SIZE 40M ;

CREATE TABLESPACE TOOLS DATAFILE '/u01/app/oracle/oradata/PROD/Disk1/TOOLS01.dbf' SIZE 10M ;

CREATE TABLESPACE USERS DATAFILE '/u01/app/oracle/oradata/PROD/Disk1/USERS01.dbf'
SIZE 48M EXTENT MANAGEMENT LOCAL UNIFORM SIZE 4M;

CREATE TABLESPACE OLTP DATAFILE '/u01/app/oracle/oradata/PROD/Disk1/OLTP01.dbf'
SIZE 48M EXTENT MANAGEMENT LOCAL UNIFORM SIZE 2M SEGMENT SPACE MANAGEMENT AUTO;

参考联机文档：
Administrator's Guide ==> CREATE TEMPORARY TABLESPACE
Administrator's Guide ==> CREATE TABLESPACE

6. Log file management
   6.1 Due to the expected high volume of transactions. The database should have the following configuration:
      6.1.1 A minimum of 5 redo log groups.
      6.1.2 Each redo log group should not be a single point of failure.
      6.1.3 File size of 100MB
      6.1.4 Specify the location such that it minimizes contention and reduces the risk of a single point of failure in the case of disk driver failure
   6.2 Triplex the controlfile to minimize recovery in case of disk drive failure.

1、
select a.group#,member,bytes/1024/1024 from v$logfile a,v$log b where a.group#=b.group#;
查询结果有 10 行，每个 GROUP#有两行，BYTES 是 100M
alter database add logfile group 4 (‘’,’’) size 100m,group 5 (‘’,’’) size 100m;

2、
select name from v$controlfile;
查询结果有三行，分别在 DISK1 至 DISK5 的其中的三个　　中。

参考联机文档：
Administrator's Guide ==> ALTER DATABASE ADD LOGFILE

7. schema creation
   7.1 As user SYS, run the script /home/oracle/scripts/create_bishhr.sql Ignore any errors concerning OE. But do not ignore any other errors.

8. Schema statistics and parameter file configuration
   8.1 Compute statistics for the various schemas in the database as necessary for use with cost based optimization.
   8.2 Investigate the parameter file for reasonable sizes for each parameter listed .add additional parameters as you deem necessary to support an optimal database environment. In addition, modify or add the following listed parameters:
   UTL_FILE_DIR=('/home/oracle','/home/oracle/temp','/home/oracle/scripts')
   Note: Applications that use Oracle 10g features will be running therefore, ensure the database and instance are appropriately configured.

execute dbms_stats.gather_database_stats(degree => 5);
alter system set utl_file_dir='/home/oracle','/home/oracle/temp','/home/oracle/scripts' scope=spfile;

参考联机文档：
PL/SQL Packages and Types Reference ==> 103 DBMS_STATS ==>

9. Database backup and availability
   9.1 Backup the database to prepare for complete recovery under all circumstances.
   9.2 Open the database.

1、
rman target /
backup database format '...';

2、sqlplus / as sysdba
select open_mode from v$database;
open_mode 是 read wirte

1.startup nomount;

2.restore controlfile from autobackup;
3.alter database mount;
4.restore database;
5.recover database;

随机删除控制文件或者 1 号数据文件 system　　第一天要特别注意

控制文件丢失，从另外两个中拷贝一个过来。

System 表空间丢失还原

RMAN>restore datafile 1 validate;

Section 2：Gridcontrol 安装配置【在 even 机操作】

1. Grid control installation
   1.1 Create a database for your repository on your database server
      1.1.1 Use EMREP for database name and instance name.
   1.2 Install grid control on your management server using the installation media found under /stage/gc/disk1.
   1.3 Deploy an Oracle management agent on your database server.

步骤

1、dbca 产生数据库(选项)(修改字符集与 prod 数据库一致)

2、执行 dbmspool.sql 包，dbsnmp 用户解锁

@?/rdbms/admin/dbmspool

Alter user dbsnmp identified by oracle account unlock;

3、修改数据库参数 session_cached_cursors
aq_tm_processes
undo_retention
dispatchers

4、配置监听 listener.ora 并启动之

5、安装 GC

2. Using grid control
   2.1 Using grid control, change the PGA_AGGREGATE_TARGET on your PROD server to 500MB so that it will revert when the instance is restarted.
   2.2 Using grid control, configure the instance to ensure that it will take up to five(5) minutes to recover your instance following an instance failure.
   2.3 Configure an alert on the SYSTEM tablespace of the PROD database. The alert should register as a warning at 87% and critical at 95% full.
   2.4 Setup notifications to be sent to the email address 'dba@ocm.com' Notification messages should be sent to this address at any time.
   2.5 Using grid control, create a new tablespace in then PROD database called REGISTRATION
      2.5.1 create with one 90MB datafile
      2.5.2 make sure this datafile can grow to 120MB if need be
      2.5.3 configure the tablespace for optimal block space utilization

3. Implementing schedules and jobs
   3.1 Using grid control, create a schedule for the PROD database.
      3.1.1 Call this schedule DAILYREBUILD.

3.1.2 Configure it to run at 2PM every day.

3.2 Create a program for the PROD database called EMP_IND_REBUILD that rebuilds all indexes on the HR.EMPLOYEES table.

3.3 Create a window that utilizes the DAILYREBUILD schedule and SYSTEM_PLAN resource manager plan.

3.4 Create a job called REBUILD_JOB that users the DAILYREBUILD schedule and EMP_IND_REBUILD program.

```
declare
  v_sql varchar2(100);
begin
  for c in (select index_name from dba_indexes where owner='HR' and table_name='EMPLOYEES')
loop
     v_sql:='alter index hr.'||c.index_name||' rebuild';
     execute immediate v_sql;
  end loop;
end;
```

再 sqlplus 中执行验证语句块是否正确，并查看执行效果

```
select object_name,last_ddl_time from dba_objects where type='INDEX' and owner='HR';
```

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