HOW TO RESIZE THE ONLINE REDOLOGS ON A RAC ENVIRONMENT

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Introduction

This is a step-by-step example showing how to resize the online redologs on a RAC environment. Although the procedure is quite simple it is always convenient to be careful, because the online redologs are a critical structure that in case of being damaged may affect the whole database.
In addition we will review also a little bit some concepts related to the redo logs on RAC.

Make a Full Backup

Before starting this procedure on a production database make a full backup, or validate you last available backup.

Understand The Redolog Configuration of your Database

This is the list of the resources of this RAC database

```
A Resource                                 Target     State
----------                                  ------     -----
ora.rac1.ASM1.asm                           ONLINE     ONLINE on rac1
ora.rac1.LISTENER_RAC1.lsnr                 ONLINE     ONLINE on rac1
ora.rac1.gsd                                ONLINE     ONLINE on rac1
ora.rac1.ons                                ONLINE     ONLINE on rac1
ora.rac1.vip                                ONLINE     ONLINE on rac1
ora.rac2.ASM2.asm                           ONLINE     ONLINE on rac2
ora.rac2.LISTENER_RAC2.lsnr                 ONLINE     ONLINE on rac2
ora.rac2.gsd                                ONLINE     ONLINE on rac2
ora.rac2.ons                                ONLINE     ONLINE on rac2
ora.rac2.vip                                ONLINE     ONLINE on rac2
ora.sati.db                                 ONLINE     ONLINE on rac2
ora.sati.dbserv.cs                          ONLINE     ONLINE on rac2
ora.sati.dbserv.sati1.srv                   ONLINE     ONLINE on rac1
ora.sati.dbserv.sati2.srv                   ONLINE     ONLINE on rac2
ora.sati.sati1.inst                         ONLINE     ONLINE on rac1
ora.sati.sati2.inst                         ONLINE     ONLINE on rac2
```

Review of the redolog related parameters on both instances, in this case instance 1 has assigned thread 1 and instance 2 thread 2

```
[oracle@rac2 ~/av]$ sqlplus 'sys/oracle@sati1 as sysdba' ;


SQL> show parameters instance

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
cluster_database_instances           integer     2
instance_name                        string      sati1
instance_number                      integer     1

SQL> show parameters "thread"

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
thread                               integer     1



[oracle@rac2 ~/av]$ sqlplus 'sys/oracle@sati2 as sysdba' ;

SQL> show parameters instance

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
cluster_database_instances           integer     2
instance_name                        string      sati2
instance_number                      integer     2

SQL> show parameters thread;

NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------------------
thread                               integer     2
```

Check which are the redolog members and groups.

In this case we have 5 groups with 2 members each, located on two different ASM diskgroups, +datadg and +recodg.

Note that each group appear as available for both instances, as an example look at the highlighted group 2 member 1, the same happen with each member.

This is because we are using public threads.

```
SQL> select inst_id,group#,status,type,member from gv$logfile;

   INST_ID     GROUP# STATUS  TYPE    MEMBER
---------- ---------- ------- ------- ------------------------------------------------
         2          2         ONLINE  +DATADG/sati/onlinelog/group_2.303.646839827
         2          2         ONLINE  +RECODG/sati/onlinelog/group_2.258.646839831
         2          3         ONLINE  +DATADG/sati/onlinelog/group_3.299.646840037
         2          3         ONLINE  +RECODG/sati/onlinelog/group_3.257.646840041
         2          4         ONLINE  +DATADG/sati/onlinelog/group_4.297.646840047
         2          4         ONLINE  +RECODG/sati/onlinelog/group_4.261.646840051
         2          5         ONLINE  +DATADG/sati/onlinelog/group_5.295.647564931
         1          2         ONLINE  +DATADG/sati/onlinelog/group_2.303.646839827
         1          2         ONLINE  +RECODG/sati/onlinelog/group_2.258.646839831
         1          3         ONLINE  +DATADG/sati/onlinelog/group_3.299.646840037
         1          3         ONLINE  +RECODG/sati/onlinelog/group_3.257.646840041
         1          4         ONLINE  +DATADG/sati/onlinelog/group_4.297.646840047
         1          4         ONLINE  +RECODG/sati/onlinelog/group_4.261.646840051
         1          5         ONLINE  +DATADG/sati/onlinelog/group_5.295.647564931

14 rows selected.
```

Looking into gv$log we can see again that groups 2 and 3 are current for both instances.

Group 2 is assigned to thread 1 and keeps the redolog activity of instance 1; group 2 is assigned to thread 2 and it keeps the redolog activity of instance 2.

Still both groups appears to be ‘Current’ for the other instance also, that is because in the case of a crash they will need to perform recovery from the current of the other instance.

```
SQL> select inst_id,group#,thread#,sequence#,bytes,members,status from gv$log
```

```
/

   INST_ID     GROUP#    THREAD#  SEQUENCE#      BYTES    MEMBERS STATUS
---------- ---------- ---------- ---------- ---------- ---------- ----------------
         2          2          1         15   52428800          2 CURRENT
         2          3          2         27   52428800          2 CURRENT
         2          4          2         26   52428800          2 INACTIVE
         2          5          1         13   52428800          1 INACTIVE
         1          2          1         15   52428800          2 CURRENT
         1          3          2         27   52428800          2 CURRENT
         1          4          2         26   52428800          2 INACTIVE
         1          5          1         13   52428800          1 INACTIVE

8 rows selected.
```

Add New Redolog Members

When adding the new redologs you need to take into account the following items: Thread, Location, and Number of Members.

In this example I'm adding 6 new redolog groups of 250M each, three of them are assigned to thread 2 and the other 3 to thread 1, I'm also creating only one member per group on ASM diskgroup +datadg

If you have more than 2 instances you will need to more groups, assigned to other threads up to the number of instances on your configuration.

Its is convenient to have at least three groups per instance/thread; the minimum is two groups per instance/thread.

```
SQL> alter database add logfile thread 2 group 10 '+DATADG' size 250M;

Database altered.

SQL> alter database add logfile thread 2 group 11 '+DATADG' size 250M;

Database altered.

SQL> alter database add logfile thread 2 group 12 '+DATADG' size 250M;
```

```
Database altered.

SQL> alter database add logfile thread 1 group 13 '+DATADG' size 250M;

Database altered.

SQL> alter database add logfile thread 1 group 14 '+DATADG' size 250M;

Database altered.

SQL> alter database add logfile thread 1 group 15 '+DATADG' size 250M;

Database altered.
```

Note that if you want to create 2 or more members you can use the following sintax:

```
alter database add logfile thread 1 group 15 ('+DATADG','+DATADG') size 250M;
```

If you want to create three members on two different ASM diskgroups you may use the following sintax:

```
alter database add logfile thread 1 group 15 ('+DATADG','+RECODG','+DATADG') size 250M;
```

Check the new Redologs

```
SQL> select inst_id,group#,thread#,sequence#,bytes,members,status from gv$log
/

   INST_ID     GROUP#    THREAD#  SEQUENCE#      BYTES    MEMBERS STATUS
---------- ---------- ---------- ---------- ---------- ---------- ----------------
         2          2          1         15   52428800          2 CURRENT
         2          3          2         27   52428800          2 CURRENT
         2          4          2         26   52428800          2 INACTIVE
         2          5          1         13   52428800          1 INACTIVE
         2         10          2          0  262144000          1 UNUSED
         2         11          2          0  262144000          1 UNUSED
         2         12          2          0  262144000          1 UNUSED
         2         13          1          0  262144000          1 UNUSED
         2         14          1          0  262144000          1 UNUSED
         2         15          1          0  262144000          1 UNUSED
         1          2          1         15   52428800          2 CURRENT
         1          3          2         27   52428800          2 CURRENT
         1          4          2         26   52428800          2 INACTIVE
         1          5          1         13   52428800          1 INACTIVE
         1         10          2          0  262144000          1 UNUSED
         1         11          2          0  262144000          1 UNUSED
         1         12          2          0  262144000          1 UNUSED
         1         13          1          0  262144000          1 UNUSED
         1         14          1          0  262144000          1 UNUSED
         1         15          1          0  262144000          1 UNUSED

20 rows selected.
```

Switch logfiles until the current is located on the new groups.

To be able to remove the old logfiles you need to switch the redologs for each instance until all current online redologs are located on the new groups.

Switch logfiles on instance 1, then connect to instance 2 and repeat, if there is more instances switch on them also,

```
SQL> alter system switch logfile;

System altered.

SQL> select inst_id,group#,thread#,sequence#,bytes,members,status from gv$log
where status='CURRENT'
/

   INST_ID     GROUP#    THREAD#  SEQUENCE#      BYTES    MEMBERS STATUS
---------- ---------- ---------- ---------- ---------- ---------- ----------------
         1         10          2         33  262144000          1 CURRENT
         1         14          1         22  262144000          1 CURRENT
         2         10          2         33  262144000          1 CURRENT
         2         14          1         22  262144000          1 CURRENT
```

Remove the Old Redologs

Before removing the old redolog groups confirm that none of them have a status of 'ACTIVE'

```
SQL> select inst_id,group#,thread#,sequence#,bytes,members,status from gv$log
/

   INST_ID     GROUP#    THREAD#  SEQUENCE#      BYTES    MEMBERS STATUS
---------- ---------- ---------- ---------- ---------- ---------- ----------------
         1          2          1         20   52428800          2 INACTIVE
         1          3          2         32   52428800          2 ACTIVE
         1          4          2         31   52428800          2 INACTIVE
         1          5          1         19   52428800          1 INACTIVE
         1         10          2         33  262144000          1 ACTIVE
         1         11          2         34  262144000          1 CURRENT
         1         12          2         30  262144000          1 INACTIVE
         1         13          1         21  262144000          1 ACTIVE
         1         14          1         22  262144000          1 CURRENT
         1         15          1         18  262144000          1 INACTIVE
         2          2          1         20   52428800          2 INACTIVE
         2          3          2         32   52428800          2 ACTIVE
         2          4          2         31   52428800          2 INACTIVE
```

```
         2          5          1         19   52428800          1 INACTIVE
         2         10          2         33  262144000          1 ACTIVE
         2         11          2         34  262144000          1 CURRENT
         2         12          2         30  262144000          1 INACTIVE
         2         13          1         21  262144000          1 ACTIVE
         2         14          1         22  262144000          1 CURRENT
         2         15          1         18  262144000          1 INACTIVE

20 rows selected.
```

To ensure all non current groups are inactive execute a global checkpoint.

```
SQL> alter system checkpoint global;

System altered.

SQL> select inst_id,group#,thread#,sequence#,bytes,members,status from gv$log
/

   INST_ID     GROUP#    THREAD#  SEQUENCE#      BYTES    MEMBERS STATUS
---------- ---------- ---------- ---------- ---------- ---------- ----------------
         1          2          1         20   52428800          2 INACTIVE
         1          3          2         37   52428800          2 INACTIVE
         1          4          2         36   52428800          2 INACTIVE
         1          5          1         19   52428800          1 INACTIVE
         1         10          2         38  262144000          1 CURRENT
         1         11          2         34  262144000          1 INACTIVE
         1         12          2         35  262144000          1 INACTIVE
         1         13          1         21  262144000          1 INACTIVE
         1         14          1         22  262144000          1 INACTIVE
         1         15          1         23  262144000          1 CURRENT
         2          2          1         20   52428800          2 INACTIVE
         2          3          2         37   52428800          2 INACTIVE
         2          4          2         36   52428800          2 INACTIVE
         2          5          1         19   52428800          1 INACTIVE
         2         10          2         38  262144000          1 CURRENT
         2         11          2         34  262144000          1 INACTIVE
         2         12          2         35  262144000          1 INACTIVE
         2         13          1         21  262144000          1 INACTIVE
         2         14          1         22  262144000          1 INACTIVE
         2         15          1         23  262144000          1 CURRENT
```

```
20 rows selected.
```

Now that all old members are inactive you can drop them.

```
SQL> alter database drop logfile group 2;

Database altered.

SQL> alter database drop logfile group 3;

Database altered.

SQL> alter database drop logfile group 4;

Database altered.

SQL> alter database drop logfile group 5;

Database altered.


SQL>  select inst_id,group#,status,type,member from gv$logfile
order by member
/

   INST_ID     GROUP# STATUS  TYPE    MEMBER
---------- ---------- ------- ------- ------------------------------------------------
         2         10         ONLINE  +DATADG/sati/onlinelog/group_10.293.647967703
         1         10         ONLINE  +DATADG/sati/onlinelog/group_10.293.647967703
         2         11         ONLINE  +DATADG/sati/onlinelog/group_11.286.647967857
         1         11         ONLINE  +DATADG/sati/onlinelog/group_11.286.647967857
         1         12         ONLINE  +DATADG/sati/onlinelog/group_12.256.647968587
         2         12         ONLINE  +DATADG/sati/onlinelog/group_12.256.647968587
         2         13         ONLINE  +DATADG/sati/onlinelog/group_13.289.647968765
         1         13         ONLINE  +DATADG/sati/onlinelog/group_13.289.647968765
         1         14         ONLINE  +DATADG/sati/onlinelog/group_14.288.647968793
         2         14         ONLINE  +DATADG/sati/onlinelog/group_14.288.647968793
         1         15         ONLINE  +DATADG/sati/onlinelog/group_15.290.647968821
         2         15         ONLINE  +DATADG/sati/onlinelog/group_15.290.647968821

12 rows selected.
```

Add a new member to each redolog group

If you did create the redologs with only one member you can add more members later

```
SQL> alter database add logfile member '+DATADG' to group 11;

Database altered.

SQL> alter database add logfile member '+DATADG' to group 12;

Database altered.

SQL> alter database add logfile member '+DATADG' to group 13;

Database altered.

SQL> alter database add logfile member '+DATADG' to group 14;

Database altered.

SQL> alter database add logfile member '+DATADG' to group 15;

Database altered.

QL> select thread#,status,enabled,groups,inst_id,instance,current_group# from gv$thread;

   THREAD# STATUS ENABLED      GROUPS    INST_ID INSTANCE   CURRENT_GROUP#
---------- ------ -------- ---------- ---------- ---------- --------------
         1 OPEN   PUBLIC            3          2 sati1                  13
         2 OPEN   PUBLIC            3          2 sati2                  11
         1 OPEN   PUBLIC            3          1 sati1                  13
         2 OPEN   PUBLIC            3          1 sati2                  11

SQL> select inst_id,group#,thread#,sequence#,bytes,members,status from gv$log order by
status,inst_id,thread#
  2  /

   INST_ID     GROUP#    THREAD#  SEQUENCE#      BYTES    MEMBERS STATUS
---------- ---------- ---------- ---------- ---------- ---------- ----------------
         1         13          1         24  262144000          2 CURRENT
         1         11          2         39  262144000          2 CURRENT
```

```
         2         13          1         24  262144000          2 CURRENT
         2         11          2         39  262144000          2 CURRENT
         1         14          1         22  262144000          2 INACTIVE
         1         15          1         23  262144000          2 INACTIVE
         1         12          2         35  262144000          2 INACTIVE
         1         10          2         38  262144000          2 INACTIVE
         2         14          1         22  262144000          2 INACTIVE
         2         15          1         23  262144000          2 INACTIVE
         2         10          2         38  262144000          2 INACTIVE
         2         12          2         35  262144000          2 INACTIVE

  1* select inst_id,group#,status,type,member from gv$logfile order by 1,2
SQL> /

   INST_ID     GROUP# STATUS  TYPE    MEMBER
---------- ---------- ------- ------- ------------------------------------------------
         1         10         ONLINE  +DATADG/sati/onlinelog/group_10.293.647967703
         1         10         ONLINE  +DATADG/sati/onlinelog/group_10.295.647971813
         1         11         ONLINE  +DATADG/sati/onlinelog/group_11.286.647967857
         1         11         ONLINE  +DATADG/sati/onlinelog/group_11.297.647978737
         1         12         ONLINE  +DATADG/sati/onlinelog/group_12.256.647968587
         1         12         ONLINE  +DATADG/sati/onlinelog/group_12.299.647978953
         1         13         ONLINE  +DATADG/sati/onlinelog/group_13.303.647979135
         1         13         ONLINE  +DATADG/sati/onlinelog/group_13.289.647968765
         1         14         ONLINE  +DATADG/sati/onlinelog/group_14.291.647979159
         1         14         ONLINE  +DATADG/sati/onlinelog/group_14.288.647968793
         1         15         ONLINE  +DATADG/sati/onlinelog/group_15.283.647979553
         1         15         ONLINE  +DATADG/sati/onlinelog/group_15.290.647968821
         2         10         ONLINE  +DATADG/sati/onlinelog/group_10.295.647971813
         2         10         ONLINE  +DATADG/sati/onlinelog/group_10.293.647967703
         2         11         ONLINE  +DATADG/sati/onlinelog/group_11.286.647967857
         2         11         ONLINE  +DATADG/sati/onlinelog/group_11.297.647978737
         2         12         ONLINE  +DATADG/sati/onlinelog/group_12.256.647968587
         2         12         ONLINE  +DATADG/sati/onlinelog/group_12.299.647978953
         2         13         ONLINE  +DATADG/sati/onlinelog/group_13.289.647968765
         2         13         ONLINE  +DATADG/sati/onlinelog/group_13.303.647979135
         2         14         ONLINE  +DATADG/sati/onlinelog/group_14.288.647968793
         2         14         ONLINE  +DATADG/sati/onlinelog/group_14.291.647979159
         2         15         ONLINE  +DATADG/sati/onlinelog/group_15.283.647979553
         2         15         ONLINE  +DATADG/sati/onlinelog/group_15.290.647968821
```

End of the procedure