ORACLE 11G AUTOMATIC DIAGNOSTIC REPOSITORY – PART 1

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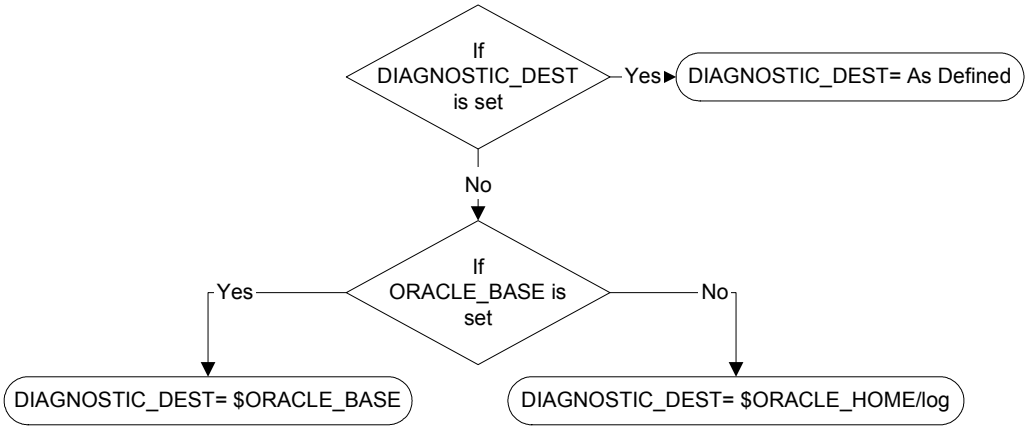
INTRODUCTION

Oracle 11g has introduced new fault diagnostic framework to detect, maintain and handle diagnostic data. Automatic Diagnostic Repository (ADR) is the core of this framework and considered as Black box for the Database error handling. It is central, file-based repository created outside of the database so that it can be accessed even when database is not available. This file-based repository can be accessed with new command line utilities ADRCI and Enterprise Manager.

AUTOMATIC DIAGNOSTIC REPOSITORY (ADR)

ADR contains diagnostic data like alert log, trace files, incident dumps, health monitor reports, core dumps and more. Whenever there is a critical error in the database, it is automatically tracked in the ADR. Oracle 11g ignore and has deprecated the old `[BACKGROUND|USER|CORE]_DUMP_DEST` initialization parameters and is replaced by new initialization parameter named `DIAGNOSTIC_DEST` which identifies the location of ADR. By default `DIAGNOSTIC_DEST` will be set as follows



WHAT HAPPEN IF WE CHANGE THE DIAGNOSTIC_DEST DYNAMICALLY

```
SQL> show parameter diag
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------
diagnostic_dest                      string      /home/oracle/app

SQL> !mkdir /home/oracle/app/indy

SQL> alter system set diagnostic_dest='/home/oracle/app/indy';
System altered.

SQL> show parameter diagnostic
NAME                                 TYPE        VALUE
------------------------------------ ----------- ------------------
diagnostic_dest                      string      /home/oracle/app/indy

You will see that Oracle has created all Subdirectory automatically
SQL> !ls -ltR /home/oracle/app/indy
total 4
drwxr-xr-x  3 oracle oinstall 4096 Aug 14 13:38 diag

/home/oracle/app/indy/diag:
total 4
drwxr-xr-x  3 oracle oinstall 4096 Aug 14 13:38 rdbms

/home/oracle/app/indy/diag/rdbms:
total 4
drwxr-xr-x  3 oracle oinstall 4096 Aug 14 13:38 orcl

/home/oracle/app/indy/diag/rdbms/orcl:
total 4
-rw-r-----   1 oracle oinstall    0 Aug 14 13:38 i_1.mif
drwxr-xr-x  13 oracle oinstall 4096 Aug 14 13:38 orcl

/home/oracle/app/indy/diag/rdbms/orcl/orcl:
total 44
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 alert
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 lck
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 metadata
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 trace
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 cdump
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 hm
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 incident
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 incpkg
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 ir
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 stage
drwxr-xr-x  2 oracle oinstall 4096 Aug 14 13:38 sweep
and so on…
```

ADR HIERARCHY

DIAGNOSTIC_DEST is considered as ADR Base and it can have multiple ADR Homes based on Oracle Instances running on the Server.

Below figure shows the actual location and components of ADR.

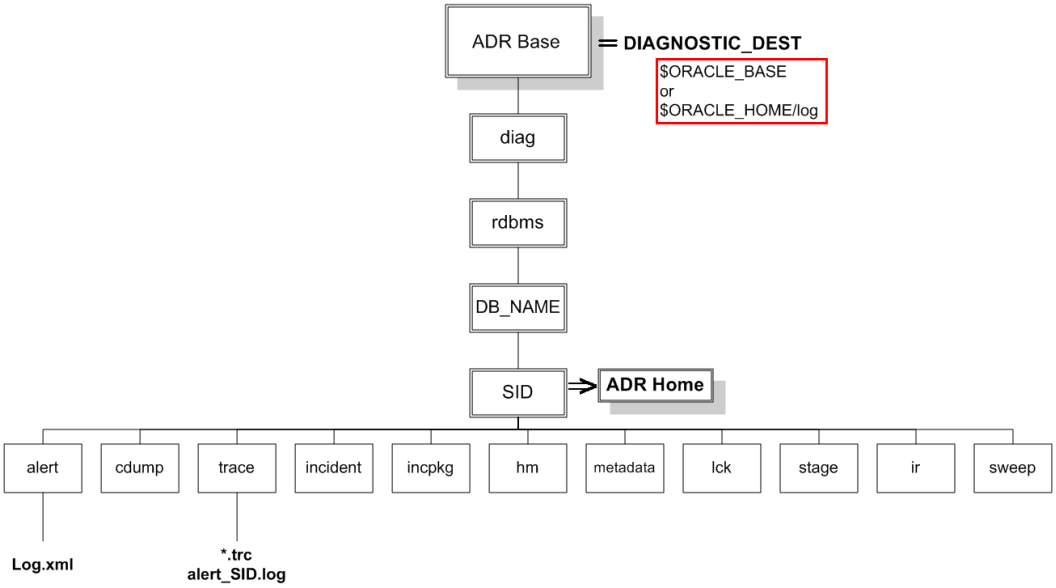


Fig 1.

HOW TO CHECK THE ADR LOCATION FROM THE DATABASE

The V$DIAG_INFO view lists all important ADR locations:

```
SQL> select * from v$diag_info;

   INST_ID NAME                 VALUE
---------- -------------------- ----------------------------------------------------------------
         1 Diag Enabled         TRUE
         1 ADR Base             /home/oracle/app
         1 ADR Home             /home/oracle/app/diag/rdbms/orcl/orcl
         1 Diag Trace           /home/oracle/app/diag/rdbms/orcl/orcl/trace →new [Background|User]_DUMP_DEST
         1 Diag Alert           /home/oracle/app/diag/rdbms/orcl/orcl/alert →XML Version of Alert Log
         1 Diag Incident        /home/oracle/app/diag/rdbms/orcl/orcl/incident
         1 Diag Cdump           /home/oracle/app/diag/rdbms/orcl/orcl/cdump →new CORE_DUMP_DEST
         1 Health Monitor       /home/oracle/app/diag/rdbms/orcl/orcl/hm
         1 Default Trace File   /home/oracle/app/diag/rdbms/orcl/orcl/trace/orcl_ora_27427.trc
         1 Active Problem Count 0
         1 Active Incident Count 0
```

ADRCI

Oracle 11g has introduced a new command line utility ADRCI, to view diagnostic data collected in the ADR. It can perform all of the tasks performed by GUI enterprise manager in EM Support Workbench. We don't need any logon Id to use ADRCI to access ADR data. ADR data is not a secured data and can only be protected by OS permission on the ADR directories.

```
$ adrci
ADRCI: Release 11.1.0.6.0 - Beta on Thu Aug 16 14:21:04 2007
Copyright (c) 1982, 2007, Oracle.  All rights reserved.

ADR base = "/home/oracle/app"  → Base Directory

adrci> help

 HELP [topic]
   Available Topics:
        CREATE REPORT
        ECHO
        EXIT
        HELP
        HOST
        IPS
        PURGE
        RUN
        SET BASE
        SET BROWSER
        SET CONTROL
        SET ECHO
        SET EDITOR
        SET HOMES | HOME | HOMEPATH
        SET TERMOUT
        SHOW ALERT
        SHOW BASE
        SHOW CONTROL
        SHOW HM_RUN
        SHOW HOMES | HOME | HOMEPATH
        SHOW INCDIR
        SHOW INCIDENT
        SHOW PROBLEM
        SHOW REPORT
        SHOW TRACEFILE
        SPOOL

 There are other commands intended to be used directly by Oracle, type
 "HELP EXTENDED" to see the list
```

```
adrci> HELP EXTENDED

 HELP [topic]
   Available Topics:
        BEGIN BACKUP
        CD
        DDE
        DEFINE
        DESCRIBE
        END BACKUP
        LIST DEFINE
        MERGE ALERT
        MERGE FILE
        QUERY
        SET COLUMN
        SHOW CATALOG
        SHOW DUMP
        SHOW SECTION
        SHOW TRACE
        SHOW TRACEMAP
        SWEEP
        UNDEFINE
        VIEW

adrci> help show homes

  Usage: SHOW HOMES | HOME | HOMEPATH
         [-ALL | -base <base_str> | homepath_str1 ... ]

  Purpose: Show the ADR homes in the current ADRCI session.

  Options:
    [-ALL]: If it is specified, the ADR homes under the current base
    setting will be displayed.
    [-base <base_str>]: It is for showing all the homes under <base_str>,
    where <base_str> is a system-dependent directory path string.
    <homepath_str1 ...>: The paths of the home, relative to the ADR base.

  Examples:
    show homes -all
    show homes -base /temp
    show homes rdbms
    show homes
```

I am going to use lots of ADRCI command in the coming pages that will give more practical knowledge as how it will be helpful. Check Oracle Utility manual for detailed description about each command

ADR RETENTION POLICY

As ADR is recording diagnostic data for incidents, which can be from small file to big core dumps, and so a time will come when we need to purge the old data from the ADR. Prior to Oracle 11g, we have to manually maintain the growth of Oracle Background/User/Core destination but Oracle 11g allows you to specify the retention policy to control the diagnostic data stored in the ADR. There are two policies available in Oracle 11g as follows:

1. The **incident metadata retention policy** – It controls how long the metadata is kept in ADR. Default setting is **one Year**
2. The **incident files and dumps retention policy** – It controls how long generated dump files are kept in ADR. Default setting is **one Month**.

You can change the default setting for the above policies using the Incident Package Configuration link on the EM Support Workbench page or using the ADRCI as shown below

Oracle Background process MMON is responsible for automatically purging the expired ADR data

```
adrci> show control

ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl:
*************************************************************************
ADRID       SHORTP_POLICY  LONGP_POLICY  LAST_MOD_TIME                            LAST_AUTOPRG_TIME
LAST_MANUPRG_TIME   ADRDIR_VERSION   ADRSCHM_VERSION      ADRSCHMV_SUMMARY      ADRALERT_VERSION
CREATE_TIME
----------- -------------- ------------ ------------------------------------  -------------------
---------------    ---------------- -------------------- -------------------- ---------------
-----------------------------------
1335663986   720->30days   8760->1yr  2007-08-13 10:39:52.325010 -04:00
                                      1                    2                    0                   1
2007-08-13 10:39:52.325010 -04:00
1 rows fetched

adrci> set control (SHORTP_POLICY = 168)
adrci> set control (LONGP_POLICY = 720)
adrci> show control

ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl:
*************************************************************************
ADRID       SHORTP_POLICY  LONGP_POLICY  LAST_MOD_TIME                            LAST_AUTOPRG_TIME
LAST_MANUPRG_TIME   ADRDIR_VERSION   ADRSCHM_VERSION      ADRSCHMV_SUMMARY      ADRALERT_VERSION
CREATE_TIME
----------- -------------- ------------ ------------------------------------  -------------------
---------------    ---------------- -------------------- -------------------- ---------------
-----------------------------------
1335663986   168->7days  720->30days  2007-08-15 11:46:04.886562 -04:00
                                      1                    2                    0                   1
2007-08-13 10:39:52.325010 -04:00
1 rows fetched
```

ADR COMPONENTS

ADR Key components discussed in this paper are

1. Alert Log
2. Trace files
3. Incidents
4. Incpkg
5. Health Monitor
6. Metadata

ALERT LOG

As shown in Fig 1, Oracle 11g now has two alert files :

1. **ADR Home/alert/log.xml** → XML Format alert log file
2. **ADR Home/trace/alert_SID.log** → Traditional alert Log file

Oracle 11g has introduced a new XML format for alert log to store chronological logs of all database messages and errors. This file is used by Oracle Enterprise Manager and ADRCI utility to provide text output to you.

Sample Alert log.xml

```
<msg time='2007-08-13T10:41:06.668-04:00' org_id='oracle' comp_id='rdbms'
 client_id='' type='UNKNOWN' level='16'
 module='' pid='18527'>
 <txt>Stopping background process VKTM:
 </txt>
</msg>
```

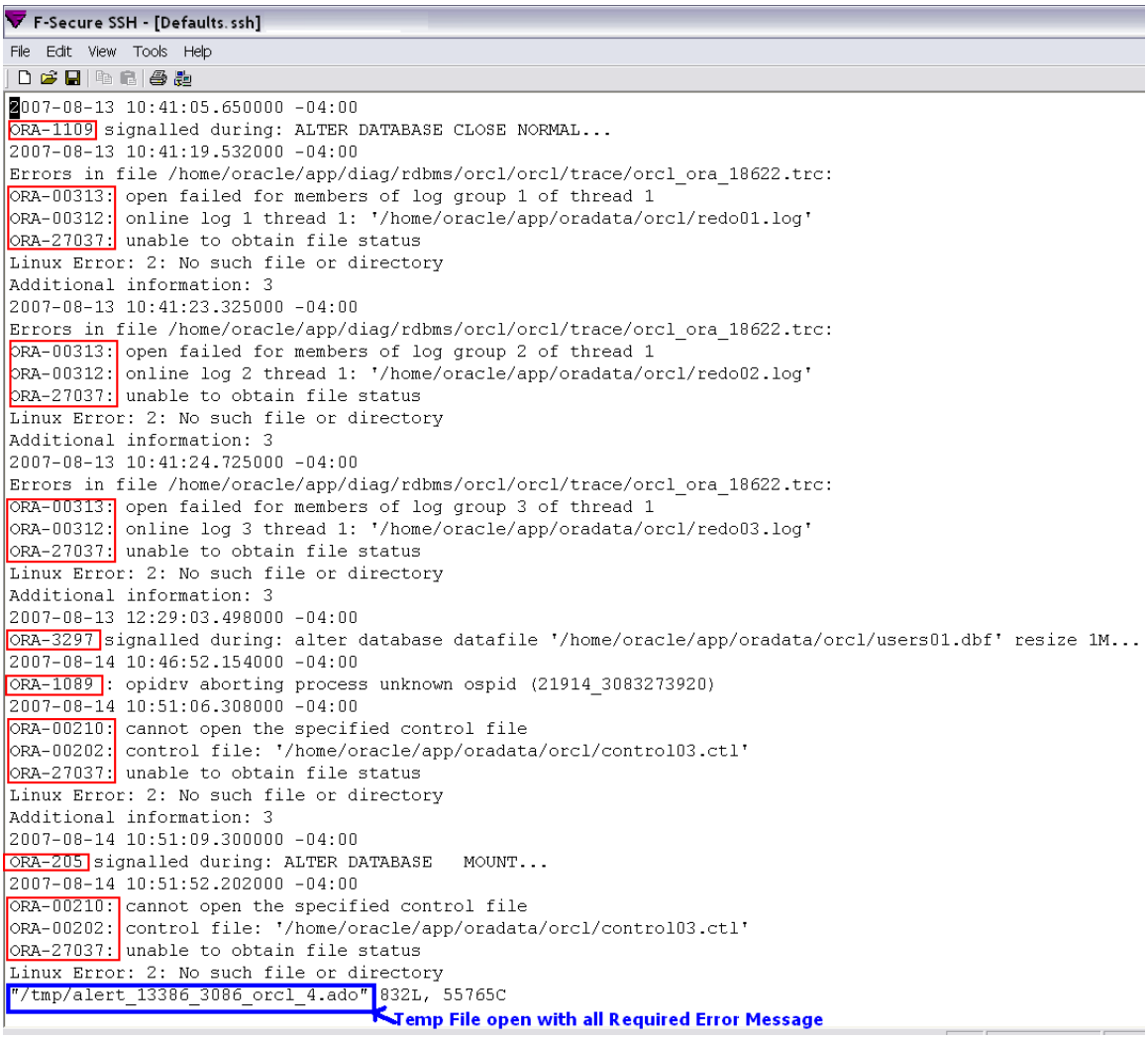
How to see the content of Alert Log

We can see Oracle 11g Alert Log file contents with the following methods

1. ADRCI – Automatic Diagnostic Repository Command Line Utility
2. Enterprise Manager
3. Text Editor like vi in Unix

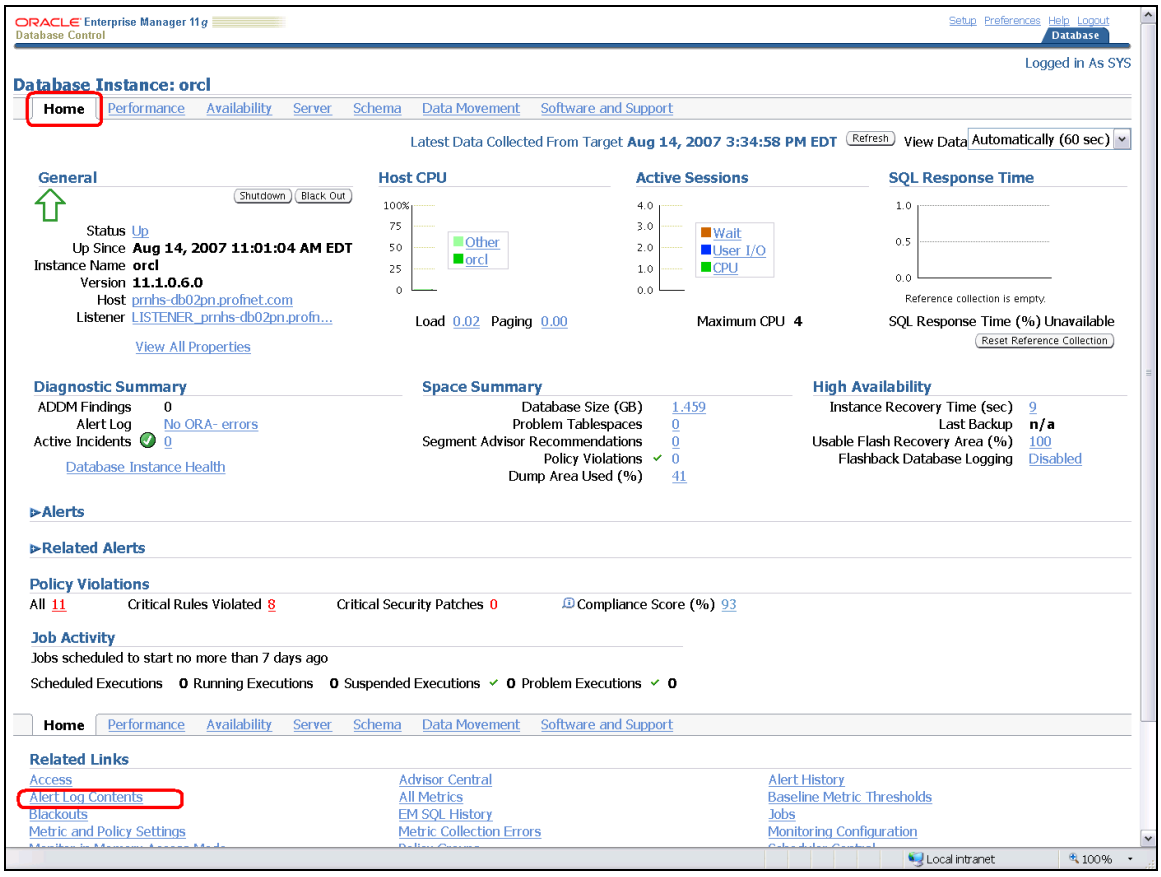
Using ADRCI

```
$ adrci
ADRCI: Release 11.1.0.6.0 - Beta on Tue Aug 14 15:18:19 2007
Copyright (c) 1982, 2007, Oracle.  All rights reserved.
ADR base = "/home/oracle/app/indy"

adrci> show home
ADR Homes:
diag/rdbms/orcl/orcl                → for orcl Instance
diag/rdbms/11gtest/11gtest          → for 11gtest Instance

adrci> set homepath diag/rdbms/orcl/orcl

adrci> show alert
This will open the Alert Log in "vi" editor, if Editor is set else use the following

adrci> set editor vi
adrci> show alert

adrci> show alert -tail             →Display last 10 entries of Alert Log.
adrci> show alert -tail 50          →Display last 50 entries of Alert Log.
adrci> show alert -tail -f          →Work like Unix "tail -f" command

adrci> show alert -p "message_text like '%ORA-1507%'"
ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl:
*************************************************************************
Output the results to file: /tmp/alert_627_308637_orcl_1.ado

2007-08-14 11:01:00.885000 -04:00
ORA-1507 signalled during: ALTER DATABASE CLOSE NORMAL...

adrci> show alert -p "message_text like '%ORA%'"  → will open Vi editor with all ORA error
                                                    listed in temp file as shown below
```

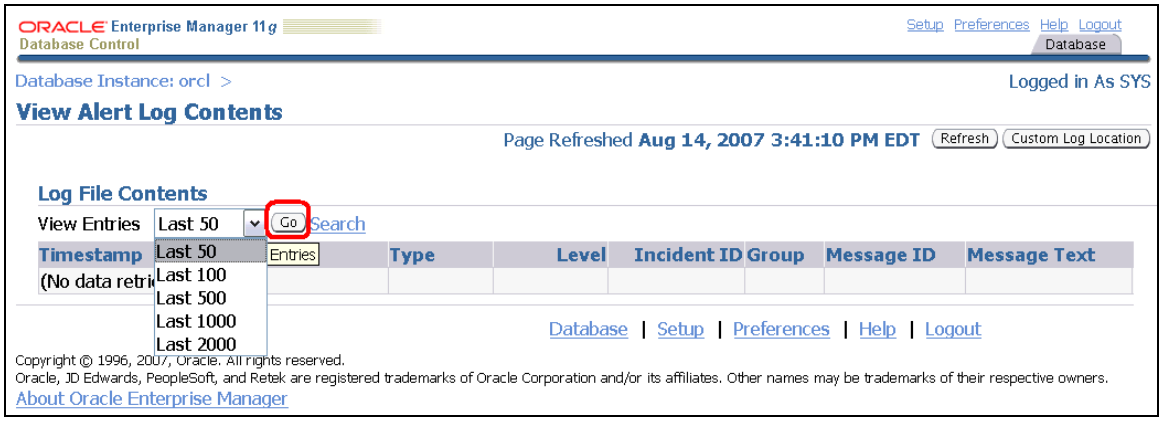

F-Secure SSH - [Defaults.ssh]
File Edit View Tools Help
2007-08-13 10:41:05.650000 -04:00
ORA-1109 signalled during: ALTER DATABASE CLOSE NORMAL...
2007-08-13 10:41:19.532000 -04:00
Errors in file /home/oracle/app/diag/rdbms/orcl/orcl/trace/orcl_ora_18622.trc:
ORA-00313: open failed for members of log group 1 of thread 1
ORA-00312: online log 1 thread 1: '/home/oracle/app/oradata/orcl/redo01.log'
ORA-27037: unable to obtain file status
Linux Error: 2: No such file or directory
Additional information: 3
2007-08-13 10:41:23.325000 -04:00
Errors in file /home/oracle/app/diag/rdbms/orcl/orcl/trace/orcl_ora_18622.trc:
ORA-00313: open failed for members of log group 2 of thread 1
ORA-00312: online log 2 thread 1: '/home/oracle/app/oradata/orcl/redo02.log'
ORA-27037: unable to obtain file status
Linux Error: 2: No such file or directory
Additional information: 3
2007-08-13 10:41:24.725000 -04:00
Errors in file /home/oracle/app/diag/rdbms/orcl/orcl/trace/orcl_ora_18622.trc:
ORA-00313: open failed for members of log group 3 of thread 1
ORA-00312: online log 3 thread 1: '/home/oracle/app/oradata/orcl/redo03.log'
ORA-27037: unable to obtain file status
Linux Error: 2: No such file or directory
Additional information: 3
2007-08-13 12:29:03.498000 -04:00
ORA-3297 signalled during: alter database datafile '/home/oracle/app/oradata/orcl/users01.dbf' resize 1M...
2007-08-14 10:46:52.154000 -04:00
ORA-1089: opidrv aborting process unknown ospid (21914_3083273920)
2007-08-14 10:51:06.308000 -04:00
ORA-00210: cannot open the specified control file
ORA-00202: control file: '/home/oracle/app/oradata/orcl/control03.ctl'
ORA-27037: unable to obtain file status
Linux Error: 2: No such file or directory
Additional information: 3
2007-08-14 10:51:09.300000 -04:00
ORA-205 signalled during: ALTER DATABASE MOUNT...
2007-08-14 10:51:52.202000 -04:00
ORA-00210: cannot open the specified control file
ORA-00202: control file: '/home/oracle/app/oradata/orcl/control03.ctl'
ORA-27037: unable to obtain file status
Linux Error: 2: No such file or directory
"/tmp/alert_13386_3086_orcl_4.ado" 832L, 55765C
Temp File open with all Required Error Message

USING ENTERPRISE MANAGER TO VIEW ALERT LOG CONTENT

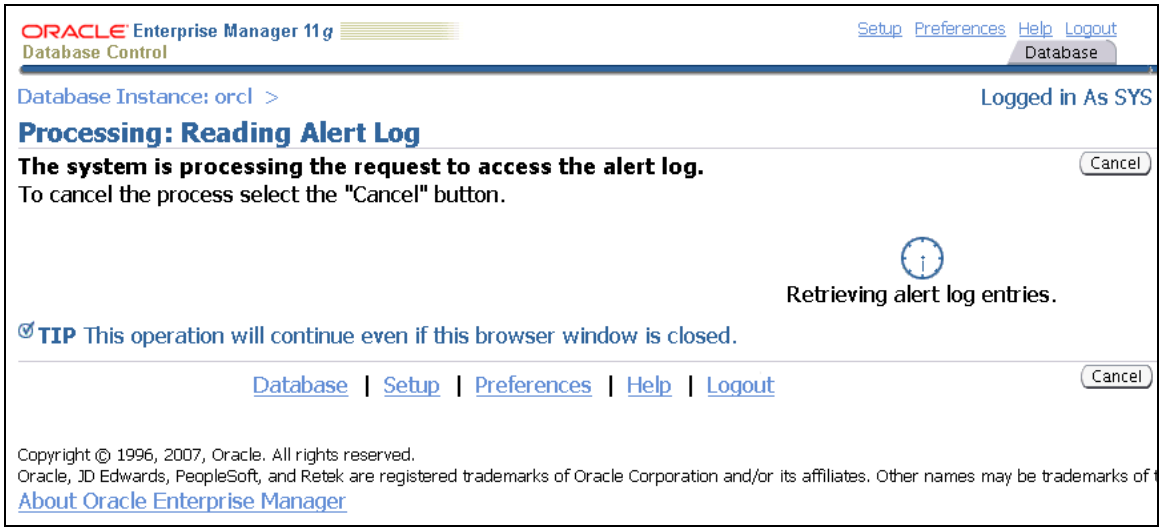
1. Logon to EM Database console Home Page and click on Alert Log Contents as shown below



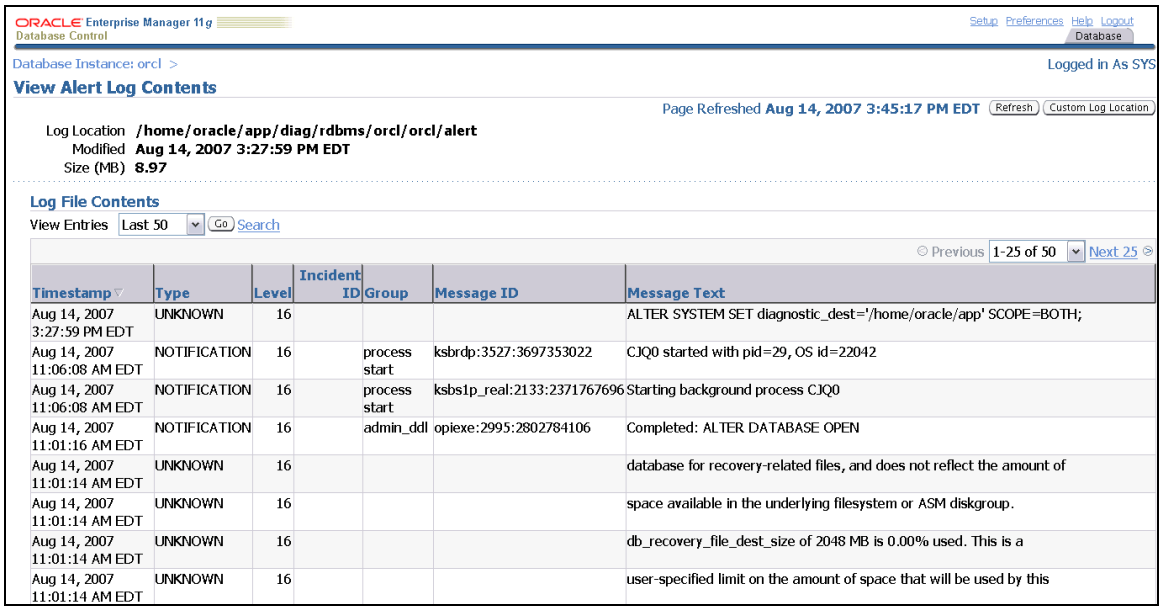
2. Now we select any option from the List box like Last 50 lines or so. Click Go to see the contents



3. EM is accessing the alert log from the Database server



4. You can now see the content of Alert Log as shown below.



Timestamp	Type	Level	Incident ID	Group	Message ID	Message Text
Aug 14, 2007 3:27:59 PM EDT	UNKNOWN	16				ALTER SYSTEM SET diagnostic_dest='/home/oracle/app' SCOPE=BOTH;
Aug 14, 2007 11:06:08 AM EDT	NOTIFICATION	16		process start	ksbrdp:3527:3697353022	CJQ0 started with pid=29, OS id=22042
Aug 14, 2007 11:06:08 AM EDT	NOTIFICATION	16		process start	ksbs1p_real:2133:2371767696	Starting background process CJQ0
Aug 14, 2007 11:01:16 AM EDT	NOTIFICATION	16		admin_ddl	opiexe:2995:2802784106	Completed: ALTER DATABASE OPEN
Aug 14, 2007 11:01:14 AM EDT	UNKNOWN	16				database for recovery-related files, and does not reflect the amount of
Aug 14, 2007 11:01:14 AM EDT	UNKNOWN	16				space available in the underlying filesystem or ASM diskgroup.
Aug 14, 2007 11:01:14 AM EDT	UNKNOWN	16				db_recovery_file_dest_size of 2048 MB is 0.00% used. This is a
Aug 14, 2007 11:01:14 AM EDT	UNKNOWN	16				user-specified limit on the amount of space that will be used by this

Using Text Editor like VI

We can continue to use the approach used in the earlier release as Oracle 11g still has traditional Alert log created in the following destination

DIAGNOSTIC_DEST/diag/rdbms/DB_NAME/SID/trace/alert_$ORACLE_SID.log

e.g
/home/oracle/diag/rdbms/orcl/orcl/trace/alert_orcl.log

TRACE FILES

Prior to Oracle 11g, all Background process trace files are created in BACKGROUND_DUMP_DEST while Users trace files are generated in USER_DUMP_DEST. In 11g, all Background and foreground process trace files are created in ADR_HOME/trace directory. This directory also holds the traditional Alert log file.

INCIDENT

Oracle 11g Fault Diagnostic framework has added two new terms to handle the critical errors occurred in the database. These are

1. Problems

Problem is a critical error in the database that is tracked in the ADR and few common critical errors are

- ORA-00600 – Internal Errors
- ORA-07445 – Operating System Exception
- ORA-4020 – Deadlock on Library object
- ORA-1578 – Data block Corruption
- ORA-353 – Log Corruption
- ORA-4030 – Out of Process Memory
- ORA-8103 – Object no Longer exists

Each problem is assigned a unique number called **Problem Id** and text string called **problem key**. This problem Key is made of

- Oracle Error Number like ORA600
- Error Parameter Value like Arguments with ORA-600 error

You can look for the Problem ID and associated Problem Key using ADCRI utility.
e.g

```
adrci> show problem

ADR Home = /home/oracle/app/diag/rdbms/test11g/test11g:
*************************************************************************
0 rows fetched

ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl:
*************************************************************************
PROBLEM_ID   PROBLEM_KEY          LAST_INCIDENT        LASTINC_TIME
------------ -------------------- -------------- ----------------------------------------
1            ORA 1578             14775                2007-08-15 09:08:54.202548 -04:00
1 rows fetched
```

2. Incidents

An incident is a single occurrence of a problem. It is created as soon as soon as problem is detected in the Database. There can be several incident assigned to same problem. Each incident is assigned a unique number called Incident Id in each ADR Home. Incidents are time stamped and tracked in the ADR.

In the Previous ADCRI example, you can see that a Unique Incident ID is assigned to the problem. Here is more detailed example to check the Incident information in ADR using ADRCI utility

```
adrci> show incident

ADR Home = /home/oracle/app/diag/rdbms/test11g/test11g:
*************************************************************************
0 rows fetched

ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl:
*************************************************************************
INCIDENT_ID    PROBLEM_KEY                     CREATE_TIME
-------------- ------------------------------ ---------------------------------
14773          ORA 1578                       2007-08-15 09:08:51.749759 -04:00
14772          ORA 1578                       2007-08-15 09:08:41.329081 -04:00
14771          ORA 1578                       2007-08-15 09:08:39.554096 -04:00
14770          ORA 1578                       2007-08-15 09:08:38.027391 -04:00
14769          ORA 1578                       2007-08-15 09:05:38.961166 -04:00
5 rows fetched

adrci> show incdir

ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl:
*************************************************************************
diag/rdbms/orcl/orcl/incident/incdir_14771/orcl_ora_13914_i14771.trc
diag/rdbms/orcl/orcl/incident/incdir_14770/orcl_ora_13914_i14770.trc
diag/rdbms/orcl/orcl/incident/incdir_14769/orcl_ora_13914_i14769.trc
diag/rdbms/orcl/orcl/incident/incdir_14772/orcl_ora_13914_i14772.trc
diag/rdbms/orcl/orcl/incident/incdir_14773/orcl_ora_13914_i14773.trc
```

Whenever there is a critical error in the database, it is tracked in the ADR. If the same critical error is flooded in the database, then ADR will use Incident Flood Control process so as to control the new incident overloading diagnostic data like Core dumps and trace files in ADR. Flood controlled incident is the incident that is

- Recorded in alert.log
- Recorded in ADR
- Does not generate incident Dump in ADR

An incident will be considered as Flood Control incident :

1. If the same incident occurred more than 5 times in an hour. Normal recording for this incident start again after One hour.

   Now if you compare the output for Problem and Incident as shown below, you can see that "show Problem" shows the Incident ID as 14775 while in "show incident", this Incident id is not visible in Incident example. This is due to the reason that same incident for ORA-1578 occurred more than 5 times in an hour. Oracle continue to record this in Alert Log as well as in ADR [as shown by show problem] but it will no longer generate the dump for incident diagnosis.

```
adrci> show problem
PROBLEM_ID   PROBLEM_KEY         LAST_INCIDENT  LASTINC_TIME
------------ ------------------- -------------- ------------------------------------
1            ORA 1578             14775         2007-08-15 09:08:54.202548 -04:00

adrci> show incident
INCIDENT_ID    PROBLEM_KEY                     CREATE_TIME
-------------- ------------------------------- ----------------------------------
14773          ORA 1578                        2007-08-15 09:08:51.749759 -04:00
14772          ORA 1578                        2007-08-15 09:08:41.329081 -04:00
14771          ORA 1578                        2007-08-15 09:08:39.554096 -04:00
14770          ORA 1578                        2007-08-15 09:08:38.027391 -04:00
14769          ORA 1578                        2007-08-15 09:05:38.961166 -04:00
5 rows fetched
```

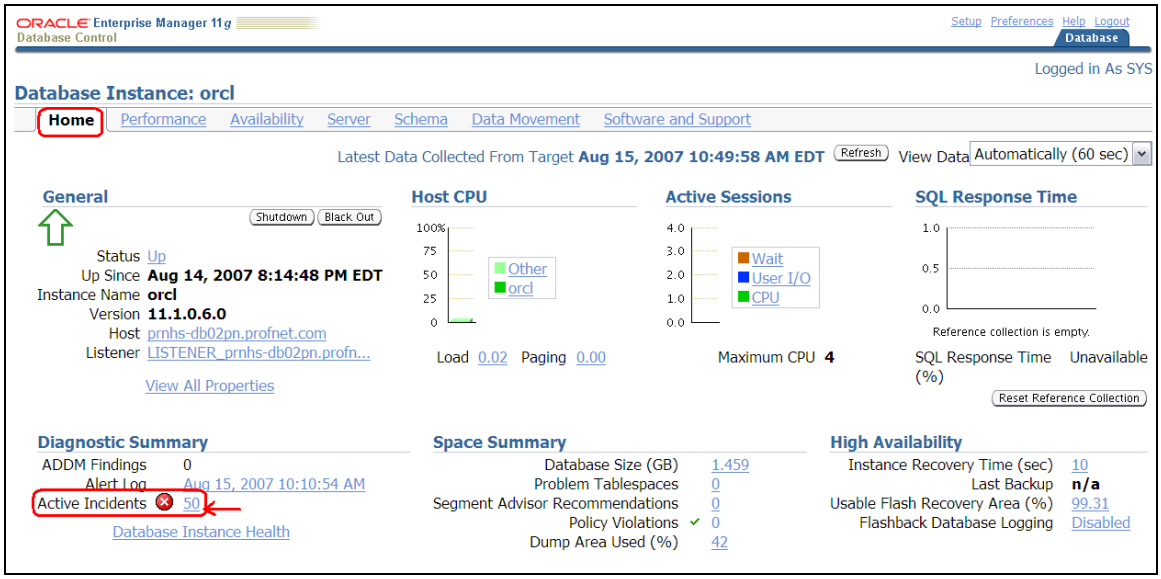
Sample from alert.log showing all Incident including 14776

```
2007-08-15 09:09:01.921000 -04:00
Sweep Incident[14775]: completed
2007-08-15 09:37:52.873000 -04:00
Errors in file /home/oracle/app/diag/rdbms/orcl/orcl/trace/orcl_ora_13914.trc  (incident=14776):
ORA-01578: ORACLE data block corrupted (file # 4, block # 27)
ORA-01110: data file 4: '/home/oracle/app/oradata/orcl/users01.dbf'
Hex dump of (file 4, block 1) in trace file /home/oracle/app/diag/rdbms/orcl/orcl/trace/orcl_ora_13914.trc
Corrupt block relative dba: 0x00000001 (file 4, block 1)
Completely zero block found during validating datafile for block range
Reread of blocknum=1, file=/home/oracle/app/oradata/orcl/users01.dbf. found same corrupt data
Reread of blocknum=1, file=/home/oracle/app/oradata/orcl/users01.dbf. found same corrupt data
Reread of blocknum=1, file=/home/oracle/app/oradata/orcl/users01.dbf. found same corrupt data
Reread of blocknum=1, file=/home/oracle/app/oradata/orcl/users01.dbf. found same corrupt data
Reread of blocknum=1, file=/home/oracle/app/oradata/orcl/users01.dbf. found same corrupt data
Errors in file /home/oracle/app/diag/rdbms/orcl/orcl/trace/orcl_ora_13914.trc:
ORA-19563: datafile header validation failed for file /home/oracle/app/oradata/orcl/users01.dbf
ORA-01251: Unknown File Header Version read for file number 4
ORA-01578: ORACLE data block corrupted (file # 4, block # 27)
ORA-01110: data file 4: '/home/oracle/app/oradata/orcl/users01.dbf'
Sweep Incident[14776]: completed
```

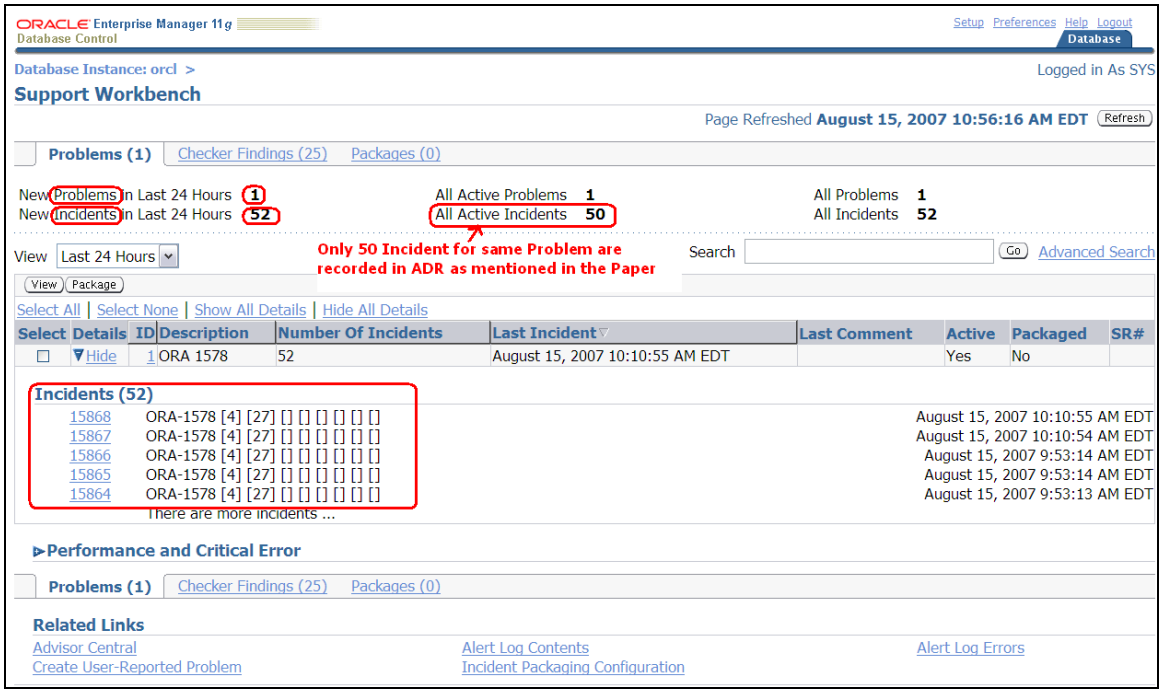
2. If the same incident occurred more than 25 times a day, then further incidents for this problem key is flood controlled. Normal recording for such incident restart again next day. Alert log continue to report the incident.

If the same Problem key occurred more than 50 times in one hour or 250 times in a day, then subsequent incidents are no longer recorded in the ADR [as earlier done for Flood controlled incidents] and alert log will show that no further incidents will be recorded. See below EM slide for reference, where an incident occurred 52 times but ADR has record for only 50 incidents marked as Active incident

Go to EM Database Console Home page and Click on Active Incidents

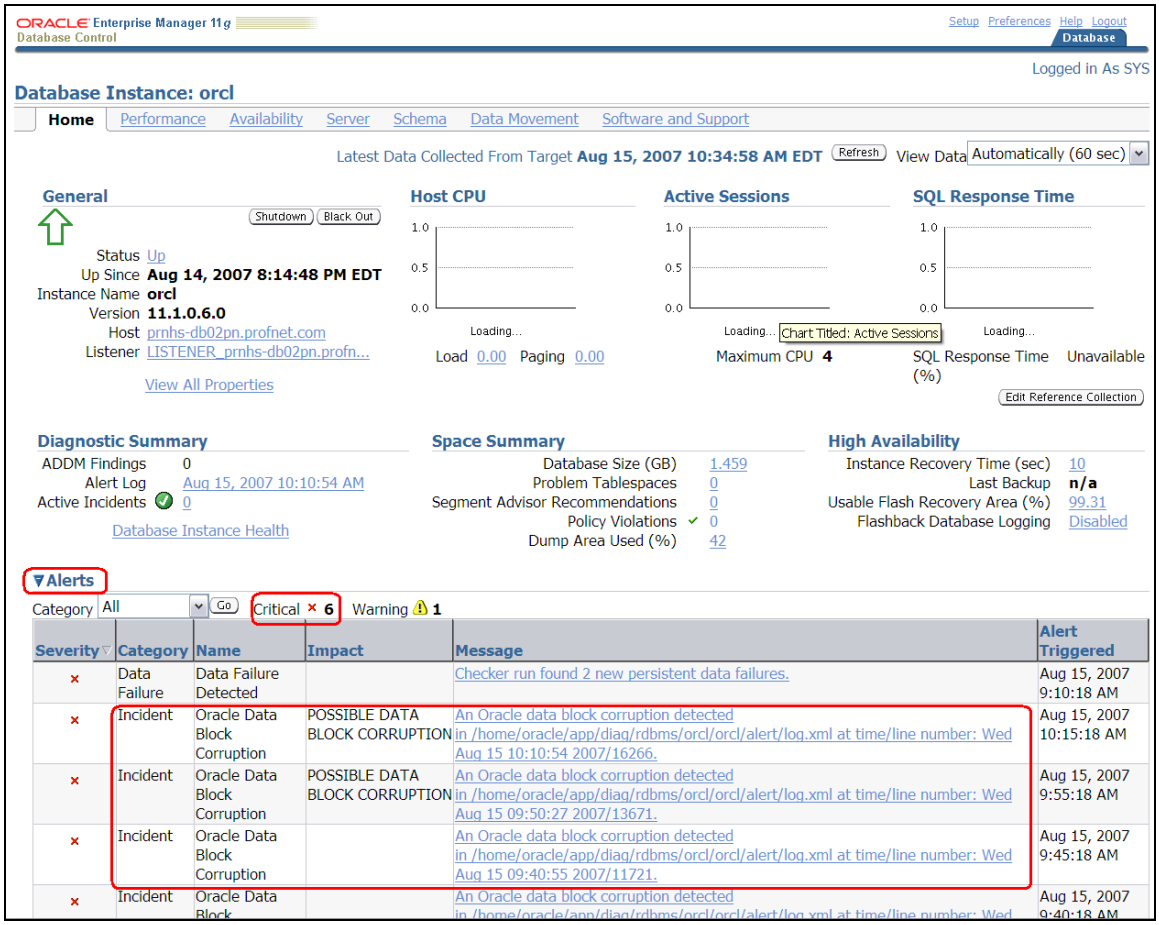


This page will show that there are 52 incident for same problem like "ORA-1578" in this case but only 50 are marked as Active Incident which are recorded in ADR.

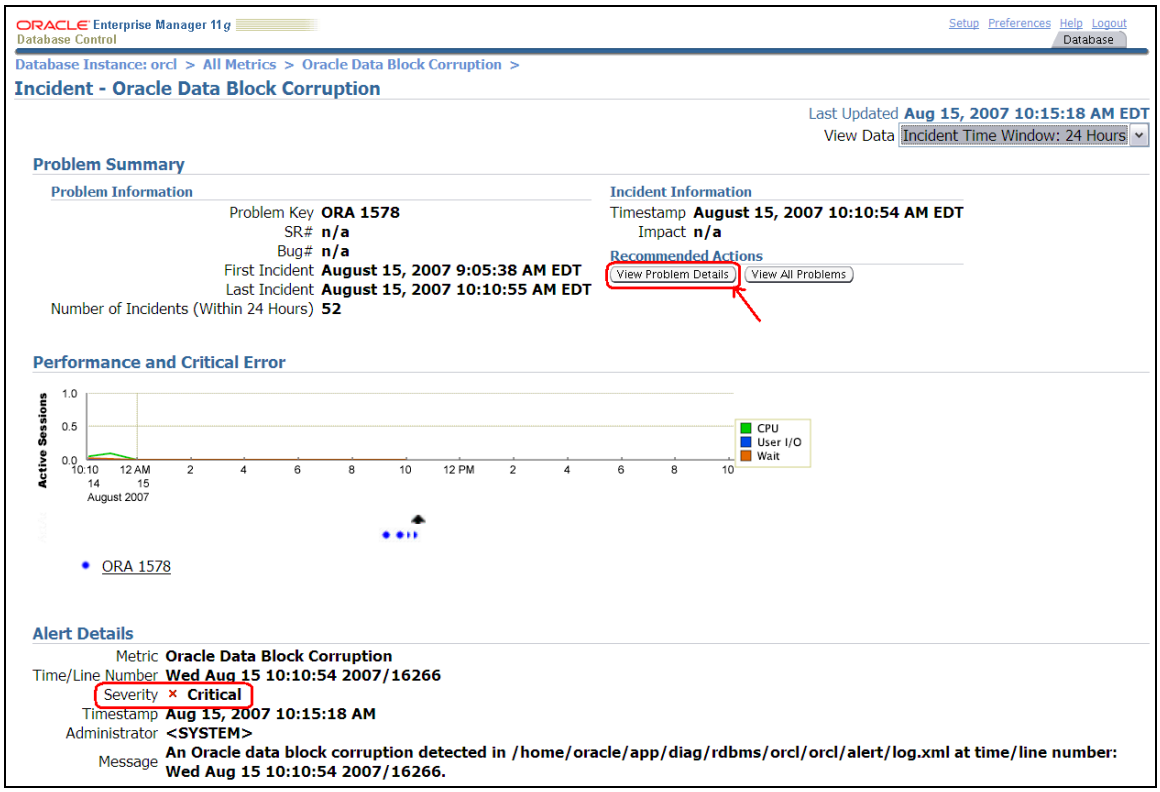


HOW TO VIEW CRITICAL ERRORS OR INCIDENT USING EM

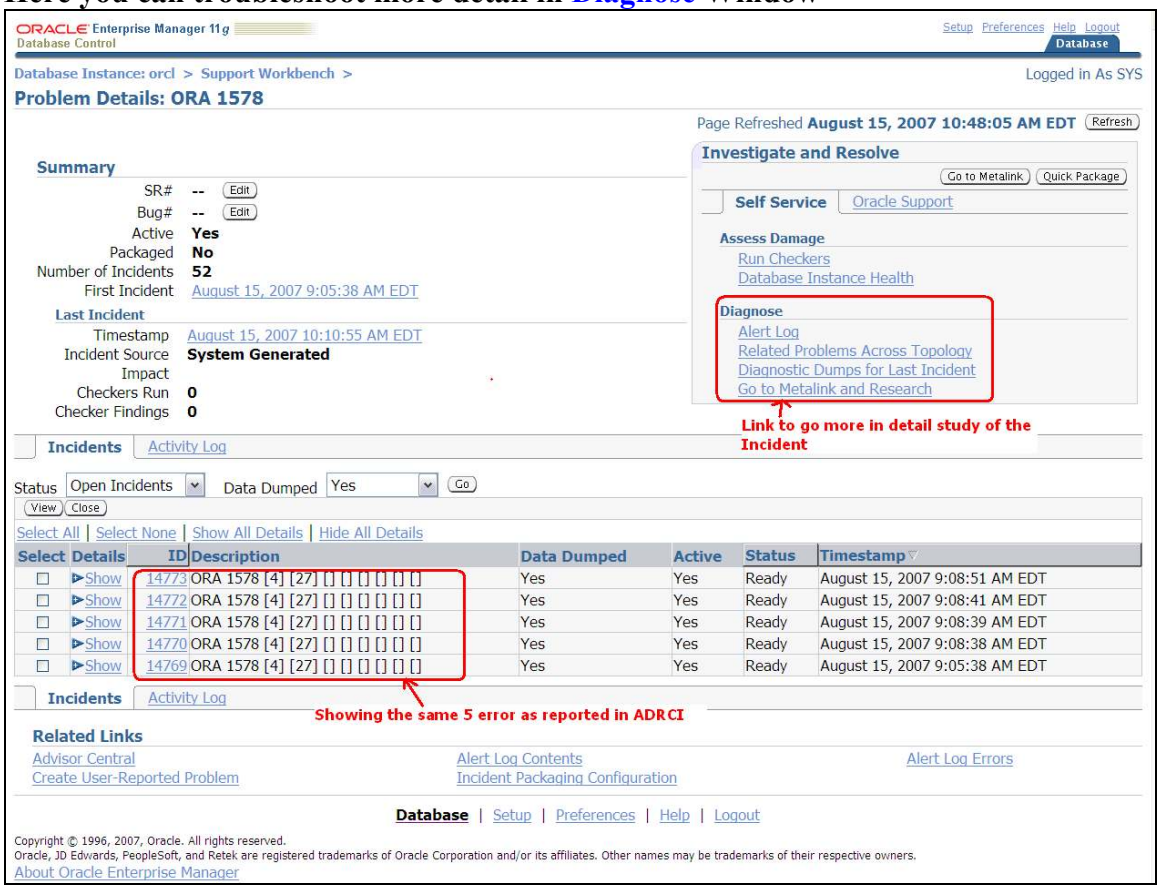
Go to EM Database Console Home Page and select any of **Critical Error Message**



Click on View Problem Details to see the details of this Critical error or incident



Here you can troubleshoot more detail in Diagnose Window



STEPS PERFORMED BY THE DATABASE TO HANDLE THE CRITICAL ERRORS

Whenever a problem occurs, the database performs the following steps

1. Add an entry in the alert.log
2. Deliver the incident alert to EM Home Page
3. Gather Diagnostic data like trace files etc. about the incident
4. Tag an Incident Id to the collected Diagnostic Data
5. Stores all the Gathered data in $ADR_HOME/incident/Incident_Id subdirectory. Here Incident_Id is the unique ID assigned to the Incident

Below Output is from Alert Log file that supports the above points