Nov. 3rd, 2007

ORACLE 11g Automatic Diagnostic Repository
Fault Management Infrastructure

Inderpal S. Johal, President
Agenda

- 11g Fault Management Framework Overview
- 11g Fault Management Framework Components
- ADR Overview
- ADR location
- ADR Layout
- ADRCI command Line utility
- Alert Logs in ADR
- Trace & Dump files in ADR
- OEM Support Workbench
- Q&A
### 11g Fault Management Framework

- Prevent, detect, diagnose and resolve database problems
- Main goal is to Reduce TIME of Resolution
- Prevention
  - Change Assurance - Lower the risk of change
  - Automatic Health Check - using Oracle Configuration Manager and is part of Metalink service
- Resolution
  - Reduce Diagnostic Time
  - Reduce Resolution Time
  - Proactive Patching
Oracle Configuration Manager Registration

Enable Oracle Configuration Manager

Oracle Configuration Manager allows you to associate your configuration information with your Metalink account. When you log your service request with Oracle, you will be able to link your request with the pre-collected configuration data in this ORACLE_HOME.

Customer Identification Number (CSI):

Metalink Account Username:

Country Code: UNITED STATES

Provide your CSI Number, Metalink Account and Country Code associated with your service agreement. To verify your information, press "Test Registration" button.

If a connection from your network to the public internet requires you to connect through a Proxy, use "Connection Settings".

If you choose not to enable Oracle Configuration Manager at this time, you may refer to the Oracle Configuration Manager Installation and Administration Guide to complete the configuration at anytime in the future.
Important Notice for All Configuration Support Manager Users

We are consolidating configuration types to simplify the user input process. Manual entry of configurations will no longer be required. You may continue to create and use manually entered configurations until we cut over to automated configurations only. At that time, manual configurations will no longer be accessible via MetaLink. Please check News & Notes on your MetaLink Headlines page for details on the timeframe for this change. For more information on Oracle's automated configuration collection using Oracle Configuration Manager (OCM), click here.

**Configuration Support Manager**

On TIP Configuration Support Manager allows you to define computer configurations that describe your Oracle environment, and milestones for projects involving Oracle products. Providing this information will allow you to log SRs with less data entry, track issues more effectively, and will allow Oracle to proactively suggest solutions and resolve issues faster. Learn more.

Launch the Configuration Support Manager Portal Beta Now! (and check out the "Getting Started, Tips & Tricks" section)

Features:
- Rich Interactive User Interface
- Dashboard View of Configurations, SRs, and Health
- Smart Recommendations for Patching
- Customized to Your Interests
- Quick Access to Major Features

Try this portal using your configurations (all results will be saved!), explore new features, provide us feedback, and watch the beta mature with your input.

Login Now! (and check out the "Getting Started, Tips & Tricks" section)
11g Fault Mgmt. Framework - Prevention

Dashboard

System Health
- Critical: 0
- Warning: 0
- Informational: 0

Total: 29

Service Requests

Configurations

Projects

Headlines

- Configuration Support Manager (CSM): Configuration Changes Pending
- New Customers Start Here - Information Now Available for Anyone New to MetaLink or Oracle Support
- Attend the Advanced MetaLink Seminar: November 14, 2007
- Advisor Webcasts: Support Tools and Processes - Register for Free Web Seminars
- Oracle Critical Patch Update - October 2007
- Test Drive the Next Generation of Configuration Support Manager (CSM)
- Oracle Announces the Support Diagnostics Patch for eBusiness Suite Release 11i - September Release
Reduce Diagnostic Time

Critical Error

Stored in

Automatic Diagnostic Repository

Sent to

Package Incident Diagnostic Files

ADRCI OEM

Is it Known Bug

Yes

No

Apply Patches

DBA

Oracle 11g ADR
11g Fault Mgmt. Framework Components

- Automatic Diagnostic Repository (ADR)
- ADRCI Command Line Utility
- Alert Log
- Trace Files, Dumps, and Core Files
- Enterprise Manager Support Workbench
Automatic Diagnostic Repository - Overview

- ADR is the core of 11g Fault Management Framework
- Black box for Database error handling
- File-based repository for database diagnostic data
  - Alert Log
  - Core Dumps and Traces and more

```
-bash-3.00$ cd $ORACLE_BASE/diag
-bash-3.00$ ls -ltr

total 36
-rw-rw-r-- 2 oracle oinstall 4096 Sep 20 11:40 ofm
-rw-rw-r-- 2 oracle oinstall 4096 Sep 20 11:40 netcman
-rw-rw-r-- 2 oracle oinstall 4096 Sep 20 11:40 lsnrctl
-rw-rw-r-- 2 oracle oinstall 4096 Sep 20 11:40 diagtool
-rw-rw-r-- 2 oracle oinstall 4096 Sep 20 11:40 crs
-rw-rw-r-- 2 oracle oinstall 4096 Sep 20 11:40 clients
-rw-rw-r-- 3 oracle oinstall 4096 Sep 21 11:24 tnslsnr
-rw-rw-r-- 3 oracle oinstall 4096 Sep 21 11:26 asm
-rw-rw-r-- 4 oracle oinstall 4096 Oct  3 14:36 rdbms
```
Automatic Diagnostic Repository - Location

- 11g Deprecated old initialization parameters
  
  ```
  [BACKGROUND | USER | CORE]_DUMP_DEST
  ```

- 11g new initialization parameter
  
  DIAGNOSTIC_DEST
Automatic Diagnostic Repository - Location

If DIAGNOSTIC_DEST is set

YES

DIAGNOSTIC_DEST=As Defined

NO

If ORACLE_BASE is set

YES

DIAGNOSTIC_DEST=ORACLE_BASE

NO

DIAGNOSTIC_DEST=ORACLE_HOME/log
**Oracle 11g ADR**

**Automatic Diagnostic Repository - Location**

```sql
SQL> show parameter diag
NAME                                 TYPE        VALUE
------------------------------------ ------------------------------------ ------------------------------------... ------------------------------ ------------------------------ ------------------------------
diagnostic_dest diagnostic_dest diagnostic_dest diagnostic_dest string      /oracle string      /oracle string      /oracle string      /oracle
```

```sql
SQL> alter system set diagnostic_dest='/oracle/III';
alter system set diagnostic_dest='/oracle/III'
*
ERROR at line 1:
ORA-02097: parameter cannot be modified because specified value is invalid
ORA-48108: invalid value given for the diagnostic_dest init.ora parameter
ORA-48140: the specified ADR Base directory does not exist [/oracle/III]
ORA-48187: specified directory does not exist
Linux Error: 2: No such file or directory
Additional information: 1
```

```sql
SQL> !mkdir /oracle/III
SQL> alter system set diagnostic_dest='/oracle/III';
```
Automatic Diagnostic Repository - Layout

ADR Base = DIAGNOSTIC_DEST
$ORACLE_BASE
$ORACLE_HOME/log

crs asm clients rdbms ofm tnslsnr lsnrctl diagtool

+asm racdb hostname

+ASM1 racdb1 listener

stage hm cdump alert trace incident incpkg metadata

= ADR Home
$ adrci
ADRCI: Release 11.1.0.6.0 - Beta on
Copyright (c) 2007, Oracle. All rights reserved.
ADR base = "/oracle"
adrci>

```
SELECT * FROM V$DIAG_INFO
```

Oracle 11g ADR
### Automatic Diagnostic Repository - Layout

```sql
SQL> select * from v$diag_info order by name;
```

<table>
<thead>
<tr>
<th>INST_ID</th>
<th>NAME</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>ADR Base</td>
<td>/oracle</td>
</tr>
<tr>
<td>2</td>
<td>ADR Home</td>
<td>/oracle/diag/rdbms/sunny/sunny2</td>
</tr>
<tr>
<td>2</td>
<td>Active Incident Count</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Active Problem Count</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Default Trace File</td>
<td>/oracle/diag/rdbms/sunny/sunny2/trace/sunny2_ora_18868.trc</td>
</tr>
<tr>
<td>2</td>
<td>Diag Alert</td>
<td>/oracle/diag/rdbms/sunny/sunny2/alert</td>
</tr>
<tr>
<td>2</td>
<td>Diag Cdump</td>
<td>/oracle/diag/rdbms/sunny/sunny2/cdump</td>
</tr>
<tr>
<td>2</td>
<td>Diag Enabled</td>
<td>TRUE</td>
</tr>
<tr>
<td>2</td>
<td>Diag Incident</td>
<td>/oracle/diag/rdbms/sunny/sunny2/incident</td>
</tr>
<tr>
<td>2</td>
<td>Diag Trace</td>
<td>/oracle/diag/rdbms/sunny/sunny2/trace</td>
</tr>
<tr>
<td>2</td>
<td>Health Monitor</td>
<td>/oracle/diag/rdbms/sunny/sunny2/hm</td>
</tr>
</tbody>
</table>

11 rows selected.
11g Fault Mgmt. Framework Components

- Automatic Diagnostic Repository (ADR)
- ADRCI Command Line Utility
- Alert Log
- Trace Files, Dumps, and Core Files
- Enterprise Manager Support Workbench
- ADRCI Command Line Utility
ADR – ADRCI utility

$ adrci
Copyright (c) 1982, 2007, Oracle. All rights reserved.
ADR base = "/oracle"

adrci> show base
ADR base is "/oracle"

adrci> show home
ADR Homes:
diag/rdbms/wdp/wdp
diag/rdbms/wdp/WDP
diag/rdbms/sunny/sunny2
diag/asm/+asm/+ASM2
diag/tnslsnr/prnhs-db01pn/sunny_prnhs-db01pn
diag/tnslsnr/prnhs-db01pn/listener_prnhs-db01pn
**ADR – ADRCI utility**

```
adrci> help
HELP [topic]

Available Topics:

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATE REPORT</td>
<td></td>
</tr>
<tr>
<td>EXIT</td>
<td></td>
</tr>
<tr>
<td>HOST</td>
<td></td>
</tr>
<tr>
<td>PURGE</td>
<td></td>
</tr>
<tr>
<td>SET BASE</td>
<td></td>
</tr>
<tr>
<td>SET CONTROL</td>
<td></td>
</tr>
<tr>
<td>SET EDITOR</td>
<td></td>
</tr>
<tr>
<td>SET TERMOUT</td>
<td></td>
</tr>
<tr>
<td>SHOW BASE</td>
<td></td>
</tr>
<tr>
<td>SHOW HM_RUN</td>
<td></td>
</tr>
<tr>
<td>SHOW INCDIR</td>
<td></td>
</tr>
<tr>
<td>SHOW PROBLEM</td>
<td></td>
</tr>
<tr>
<td>SHOW TRACEFILE</td>
<td></td>
</tr>
<tr>
<td>ECHO</td>
<td></td>
</tr>
<tr>
<td>HELP</td>
<td></td>
</tr>
<tr>
<td>IPS</td>
<td></td>
</tr>
<tr>
<td>RUN</td>
<td></td>
</tr>
<tr>
<td>SET BROWSER</td>
<td></td>
</tr>
<tr>
<td>SET ECHO</td>
<td></td>
</tr>
<tr>
<td>SHOW ALERT</td>
<td></td>
</tr>
<tr>
<td>SHOW BASE</td>
<td></td>
</tr>
<tr>
<td>SHOW HM_RUN</td>
<td></td>
</tr>
<tr>
<td>SHOW INCDIR</td>
<td></td>
</tr>
<tr>
<td>SHOW PROBLEM</td>
<td></td>
</tr>
<tr>
<td>SHOW TRACEFILE</td>
<td></td>
</tr>
<tr>
<td>SHOW ALERT</td>
<td></td>
</tr>
<tr>
<td>SHOW BASE</td>
<td></td>
</tr>
<tr>
<td>SHOW HM_RUN</td>
<td></td>
</tr>
<tr>
<td>SHOW INCDIR</td>
<td></td>
</tr>
<tr>
<td>SHOW PROBLEM</td>
<td></td>
</tr>
<tr>
<td>SHOW TRACEFILE</td>
<td>SPOOL</td>
</tr>
</tbody>
</table>
```
**ADR – ADRCI utility**

- Data in ADR is not intended to be secure - No Login Id is required
- Data in ADR can be secure using OS permission on ADR directories
11g Fault Mgmt. Framework Components

- Automatic Diagnostic Repository (ADR)
- ADRCI Command Line Utility
- Alert Log
  - Trace Files, Dumps, and Core Files
  - Enterprise Manager Support Workbench
  - ADRCI Command Line Utility

ADR Home/alert/log.xml ➔ XML Format alert log file
ADR Home/trace/alert_SID.log ➔ Traditional alert Log file
ADR – Alert Logs

ADR Base

= DIAGNOSTIC_DEST

$ORACLE_BASE
$ORACLE_HOME/log

diag

ADR Base

= ADR Home

crs asm clients rdbms ofm tnslsnr lsnrctl diagtool

crs asm clients rdbms ofm tnslsnr lsnrctl diagtool

crs asm clients rdbms ofm tnslsnr lsnrctl diagtool

racdb

racdb

racdb

race

race

race

stage hm cdump alert trace incident incpkg metadata

stage hm cdump alert trace incident incpkg metadata

stage hm cdump alert trace incident incpkg metadata

log.xml alert_racdb2.log

log.xml alert_racdb2.log

log.xml alert_racdb2.log

Oracle 11g ADR
$ adrci
Copyright (c) 1982, 2007, Oracle. All rights reserved.
ADR base = "/oracle"

adrci> show alert
Choose the alert log from the following homes to view:

1:  diag/rdbms/wdp/wdp
2:  diag/rdbms/wdp/WDP
3:  diag/rdbms/sunny/sunny2
4:  diag/asm/+asm/+ASM2
5:  diag/tnslsnr/prnhs-db01pn/sunny_prnhs-db01pn
6:  diag/tnslsnr/prnhs-db01pn/listener_prnhs-db01pn
Q: to quit

Please select option:
Please select option: 3

2007-09-21 12:51:37.107000 -04:00
Starting ORACLE instance (normal)
2007-09-21 12:51:38.209000 -04:00
LICENSE_MAX_SESSION = 0
LICENSE_SESSIONS_WARNING = 0
Interface type 1 eth0 172.30.106.0 configured from OCR for use as a public interface
Shared memory segment for instance monitoring created
Picked latch-free SCN scheme 2
Using LOG_ARCHIVE_DEST_1 parameter default value as /oracle/apps/11.1.0/db/dbs/arch
Autotune of undo retention is turned on.
LICENSE_MAX_USERS = 0
SYS auditing is disabled
Starting up ORACLE RDBMS Version: 11.1.0.6.0.
Using parameter settings in server-side spfile +SUNNYDG/sunny/spfilesunny.ora
System parameters with non-default values:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>processes</td>
<td>= 150</td>
</tr>
<tr>
<td>spfile</td>
<td>= &quot;+SUNNYDG/sunny/spfilesunny.ora&quot;</td>
</tr>
<tr>
<td>memory_target</td>
<td>= 6496M</td>
</tr>
<tr>
<td>control_files</td>
<td>= &quot;+SUNNYDG/sunny/controlfile/current.260.633875941&quot;</td>
</tr>
<tr>
<td>db_block_size</td>
<td>= 8192</td>
</tr>
<tr>
<td>compatible</td>
<td>= &quot;11.1.0.0.0&quot;</td>
</tr>
<tr>
<td>cluster_database</td>
<td>= TRUE</td>
</tr>
<tr>
<td>cluster_database_instances</td>
<td>= 2</td>
</tr>
<tr>
<td>&quot;/tmp/alert_22473_3086_sunny2_1.ado&quot;</td>
<td>= 1442L, 60098C</td>
</tr>
</tbody>
</table>
adrci> show alert
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...

Will open Vi editor with all ORA error listed in temp file as shown below
adrci> show alert -p "message_text like '%ORA%'")
**Database Instance: orcl**

**General**
- Status: Up
- Up Since: Aug 14, 2007 11:01:04 AM EDT
- Host: pnhs-db02pn.profnet.com
- Version: 11.1.0.6.0
- Listener: LISTENER_pnhs-db02pn.prof...

**Diagnostic Summary**
- ADDM Findings: 0
- Alert Log: No ORA- errors
- Active Incidents: 0

**Host CPU**

<table>
<thead>
<tr>
<th>%</th>
<th>Other</th>
<th>orcl</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Active Sessions**

<table>
<thead>
<tr>
<th></th>
<th>Wait</th>
<th>User</th>
<th>CPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Load** 0.02  Paging 0.00

**Space Summary**

- Database Size (GB): 1.459
- Problem Tablespaces: 0
- Segment Advisor Recommendations: 0
- Policy Violations: 0
- Dump Area Used (%): 41

**Policy Violations**

- All: 11
- Critical Rules Violated: 8
- Critical Security Patches: 0
- Compliance Score (%): 93

**Job Activity**

- Jobs scheduled to start no more than 7 days ago

**Scheduled Executions:** 0  **Running Executions:** 0  **Suspended Executions:** 0  **Problem Executions:** 0

**Related Links**

- Alert Log Contents
- Blackouts
Sample Alert log.xml

```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>
```
11g Fault Mgmt. Framework Components

- Automatic Diagnostic Repository (ADR)
- ADRCI Command Line Utility
- Alert Log
- Trace Files, Dumps, and Core Files
- Enterprise Manager Support Workbench
ADR – Trace and Dump files

ADR Base

- DIAGNOSTIC_DEST
- $ORACLE_BASE
- $ORACLE_HOME/log

```
andr_base
  diag
  crs
  asm
  clients
  rdbms
  ofm
  tnslsnr
  lsnrctl
  diagtool
  racdb
  racdb1
  stage
  hm
  cdbmp
  alert
  trace
  incident
  incpkg
  metadata
```

- Core Dump Files
- *.trc

Oracle 11g ADR
$ adrci
Copyright (c) 1982, 2007, Oracle. All rights reserved.
ADR base = "/oracle"

adrci> show tracefile
diag/rdbms/wdp/wdp/trace/wdp_diag_21872.trc
diag/rdbms/wdp/wdp/trace/wdp_ping_30092.trc
...
...
### 11g ADR – Trace and Dump files

<table>
<thead>
<tr>
<th>DIAGNOSTIC Data Types</th>
<th>USER_DUMP_DEST</th>
<th>ADR_HOME/trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreground Process Traces</td>
<td>USER_DUMP_DEST</td>
<td>ADR_HOME/trace</td>
</tr>
<tr>
<td>Background Process Traces</td>
<td>BACKGROUND_DUMP_DEST</td>
<td>ADR_HOME/trace</td>
</tr>
<tr>
<td>Core Dumps files</td>
<td>CORE_DUMP_DEST</td>
<td>ADR_HOME/cdump</td>
</tr>
<tr>
<td>Alert Log Data</td>
<td>BACKGROUND_DUMP_DEST</td>
<td>ADR_HOME/trace &amp; alert</td>
</tr>
<tr>
<td>Incident Dumps</td>
<td>USER</td>
<td>BACKGROUND_DUMP_DEST</td>
</tr>
</tbody>
</table>

Here    ADR_HOME is not a variable but meant for ADR Base / diag / rdbms / db_name / ORACLE_SID
11g Fault Mgmt. Framework Components

- Automatic Diagnostic Repository (ADR)
- ADRCI Command Line Utility
- Alert Log
- Trace Files, Dumps, and Core Files
- Enterprise Manager Support Workbench
### EM Support Workbench

---

**Database Instance: orcl**

<table>
<thead>
<tr>
<th>Software</th>
<th>Software and Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td></td>
</tr>
<tr>
<td>Collection Status</td>
<td>Patch Advisor</td>
</tr>
<tr>
<td>Clone Oracle Home</td>
<td>View Patch Cache</td>
</tr>
<tr>
<td>Host Configuration</td>
<td>Patch Prerequisites</td>
</tr>
<tr>
<td>Oracle Home Inventory</td>
<td>Stage Patch</td>
</tr>
<tr>
<td></td>
<td>Apply Patch</td>
</tr>
<tr>
<td><strong>Real Application Testing</strong></td>
<td></td>
</tr>
<tr>
<td>Database Replay</td>
<td>Deployment Procedure Manager</td>
</tr>
<tr>
<td>SQL Performance Analyzer</td>
<td>Getting Started with Deployment Procedure Manager</td>
</tr>
<tr>
<td></td>
<td>Deployment Procedures</td>
</tr>
<tr>
<td></td>
<td>Procedure Completion Status</td>
</tr>
<tr>
<td></td>
<td>Deployment and Provisioning Software Library</td>
</tr>
</tbody>
</table>

---

**Support**

- Support Workbench
11g introduced two new terms to critical errors in the database

- Problem
- Incident
Problem

- It is critical error in the database tracked in ADR
- 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 has
  - Unique Number called Problem Id
  - Text String called Problem Key like “ORA 600 [xxxxx]” along with some argument [if any]

- You can look for Problem ID and Problem Key using ADRCI utility
adrci> show problem

ADR Home = /home/oracle/app/diag/rdbms/test11g/test11g:

****************************************************************
0 rows fetched

ADR Home = /home/oracle/app/ ADR Home = /home/oracle/app/ ADR Home = /home/oracle/app/ ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl diag/rdbms/orcl/orcl diag/rdbms/orcl/orcl diag/rdbms/orcl/orcl::

****************************************************************

<table>
<thead>
<tr>
<th>PROBLEM_ID</th>
<th>PROBLEM_KEY</th>
<th>LAST_INCIDENT</th>
<th>LASTINC_TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ORA 1578</td>
<td>14775</td>
<td>2007-08-15</td>
</tr>
</tbody>
</table>

1 rows fetched
**Incident**

- It is single occurrence of the problem.
- It is created as soon as problem is detected in the database.
- Each Incident is assigned a unique number called incident Id in ADR.
- Incidents are time stamped and tracked in the ADR along with Problem Key.
- If the same problem or critical error occurred several times, each one will have unique Incident ID.
adrci> show incident
ADR Home = /home/oracle/app/diag/rdbms/test11g/test11g:
*******************************************************************************
0 rows fetched
ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl:
*******************************************************************************

<table>
<thead>
<tr>
<th>INCIDENT_ID</th>
<th>PROBLEM_KEY</th>
<th>CREATE_TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>14773</td>
<td>ORA 1578</td>
<td>2007-08-15 09:08:51.749759 -04:00</td>
</tr>
<tr>
<td>14772</td>
<td>ORA 1578</td>
<td>2007-08-15 09:08:41.329081 -04:00</td>
</tr>
<tr>
<td>14771</td>
<td>ORA 1578</td>
<td>2007-08-15 09:08:39.554096 -04:00</td>
</tr>
</tbody>
</table>
3 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
Flood Controlled Incident

- As Incident is created for each critical error in the database, 11g controlled the flood of files in ADR.

- Flood controlled incident are
  - Recorded in alert.log
  - Recorded in ADR
  - Does not generate incident dump in ADR

- An incident is considered as Flood controlled incident
  - If same incident occurred 5 times in an hour. Normal recording begins after an hour
  - If same incident occurred more than 25 times in a day. Normal recording restart again next day

- If same incident occurred more than 50 times in an hour OR 250 times in a day, it will no longer recorded in ADR
Monitoring Incident using OEM

### Incident - Oracle Data Block Corruption

**Problem Summary**

<table>
<thead>
<tr>
<th>Problem Information</th>
<th>Incident Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Problem Key</strong></td>
<td><strong>Timestamp</strong></td>
</tr>
<tr>
<td>ORA 1578</td>
<td>August 15, 2007 10:10:54 AM EDT</td>
</tr>
<tr>
<td><strong>SR#</strong></td>
<td><strong>Impact</strong></td>
</tr>
<tr>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Bug#</strong></td>
<td><strong>Recommended Actions</strong></td>
</tr>
<tr>
<td>n/a</td>
<td><strong>View Problem Details</strong></td>
</tr>
<tr>
<td><strong>First Incident</strong></td>
<td></td>
</tr>
<tr>
<td>August 15, 2007 9:05:38 AM EDT</td>
<td></td>
</tr>
<tr>
<td><strong>Last Incident</strong></td>
<td></td>
</tr>
<tr>
<td>August 15, 2007 10:10:55 AM EDT</td>
<td></td>
</tr>
<tr>
<td><strong>Number of Incidents (Within 24 Hours)</strong></td>
<td>52</td>
</tr>
</tbody>
</table>

**Alert Details**

- **Metric**: Oracle Data Block Corruption
- **Time/Line Number**: Wed Aug 15 10:10:54 2007/16266
- **Severity**: Critical
- **Timestamp**: Aug 15, 2007 10:15:18 AM
- **Administrator**: <SYSTEM>
Monitoring Incident using OEM

Oracle 11g ADR

Problem Details: ORA 1578

Summary
- SR#: --
- Bug#: --
- Active: Yes
- Packaged: No
- Number of Incidents: 52
- First Incident: August 15, 2007 9:05:38 AM EDT
- Last Incident: August 15, 2007 10:10:55 AM EDT

In the table below, the selected incidents show the same error as reported in ADRCI.

Link to go more in detail study of the Incident
Flood Controlled Incident

Whenever a problem occurs, the database performs the following

- Add an entry in the alert.log
- Deliver the incident alert to EM Home Page
- Gather Diagnostic data like trace files etc. about the incident
- Tag an Incident Id to the collected Diagnostic Data
- Stores all the Gathered data in

$ADR_HOME/incident/Incident_Id subdirectory.

Here Incident_Id is the unique ID assigned to the Incident
Flood Controlled Incident

An Entry to Alert Log is Started

2007-08-15 09:05:38.925000 -04:00
Hex dump of (file 4, block 27) in trace file /home/oracle/app.diag/rdbms/orcl/orcl_trace/orcl_ora_13914.trc
Corrupt block relative dba: 0x0100001b (file 4, block 27)
Completely zero block found during buffer read
Reread of dba: 0x0100001b (file 4, block 27) found same corrupted data

Errors in file /home/oracle/app.diag/rdbms/orcl/orcl_trace/orcl_ora_13914.trc [incident=14769]:
ORA-01578: ORACLE data block corrupted (file # 4, block # 27)
ORA-01110: data file 4: '/home/oracle/app/oradata/orcl/users01.dbf'

Gather Diagnostic Data like Trace file
Tag an Incident ID to collected Trace data
Incident details in: /home/oracle/app.diag/rdbms/orcl/orcl/incident/incdir_14769/orcl_ora_13914_i14769.trc
Corrupt Block Found

TSN = 4, T$NAME = USERS
RN = 4, BLK = 27, RDBA = 16777243
OBJSN = 69515, OBJD = 69515, OBJECT = EMP, SUBOBJECT =
SEGMENT OWNER = SCOTT, SEGMENT TYPE = Table Segment

Checker run found 2 new persistent data failures
2007-08-15 09:05:04.530000 -04:00
Hex dump of (file 4, block 1) in trace file /home/oracle/app.diag/rdbms/orcl/orcl/incident/incdir_14769/orcl_ora_13914_i14769.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
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/incident/incdir_14769/orcl_ora_13914_i14769.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'
Trace dumping is performing id=[cdmp_20070815090540]
2007-08-15 09:05:42.942000 -04:00
Sweep Incident[14769]: completed
**ADR Retention Policy**

No More manual deletion of Trace and Core dumps files in 11g.

- **The incident metadata retention policy** - It controls how long the metadata is kept in ADR. **Default setting is one Year**

- **The incident files and dumps retention policy** - It controls how long generated dump files are kept in ADR. **Default setting is one Month.**
Incident

```sql
adrci> show control
ADR Home = /home/oracle/app/diag/rdbms/orcl/orcl:
******************************************************************************
<table>
<thead>
<tr>
<th>ADRID</th>
<th>SHORTP_POLICY</th>
<th>LONGP_POLICY</th>
<th>LAST_MOD_TIME</th>
<th>LAST_AUTOPRG_TIME</th>
<th>LAST_MANUPRG_TIME</th>
<th>ADRAIDR_VERSION</th>
<th>ADRSCHM_VERSION</th>
<th>ADRSCHMV_SUMMARY</th>
<th>ADRALERT_VERSION</th>
<th>CREATE_TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1335663986</td>
<td>720-&gt;30days</td>
<td>8760-&gt;1yr</td>
<td>2007-08-13 10:39:52.325010 -04:00</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2007-08-13</td>
</tr>
<tr>
<td></td>
<td>10:39:52.325010 -04:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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:
******************************************************************************
<table>
<thead>
<tr>
<th>ADRID</th>
<th>SHORTP_POLICY</th>
<th>LONGP_POLICY</th>
<th>LAST_MOD_TIME</th>
<th>LAST_AUTOPRG_TIME</th>
<th>LAST_MANUPRG_TIME</th>
<th>ADRAIDR_VERSION</th>
<th>ADRSCHM_VERSION</th>
<th>ADRSCHMV_SUMMARY</th>
<th>ADRALERT_VERSION</th>
<th>CREATE_TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1335663986</td>
<td>168-&gt;7days</td>
<td>720-&gt;30days</td>
<td>2007-08-13 11:46:04.886562 -04:00</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2007-08-13</td>
</tr>
<tr>
<td></td>
<td>10:39:52.325010 -04:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1 rows fetched
```
Create Incident package for Oracle support

```
adrci> show incident
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

adrci> ips add incident 14772 package 1
Added incident 14769 to package 1

adrci> host "ls -ltr /home/oracle/app/diag/rdbms/orcl/orcl/incident/incdir_14773"
total 2068
-rw-r---- 1 oracle oinstall 52536 Aug 15 09:08 orcl_ora_13914_i14773.trm
-rw-r---- 1 oracle oinstall 2053004 Aug 15 09:08 orcl_ora_13914_i14773.trc

adrci> ips add file <ADR_HOME>/trace/alert_orcl.log package 1
Added file <ADR_HOME>/trace/alert_orcl.log to package 1

adrci> ips generate package 1 in /tmp
Generated package 1 in file /tmp/ORA1578_20070815125445_COM_1.zip, mode complete
```
ADR – Health Monitor Report

- \$ADR_HOME/hm contains report generated by health monitor
- Health Monitor examine following database components
  - DB Structure Integrity Check
  - Data Block Integrity Check
  - Redo Integrity Check
  - Logical Block Check
  - Dictionary Integrity Check etc

You can get the complete list using the below query

```
Select name from v$hm_check;
```
ADR – Health Monitor Report

adrci> show hm_run
ADR Home = /home/oracle/app/diag/rdbms/test11g/test11g:
************************************************************************************
HM RUN RECORD 1
************************************************************************************
...
************************************************************************************
RUN RECORD 30
************************************************************************************

<table>
<thead>
<tr>
<th>RUN_ID</th>
<th>RUN_NAME</th>
<th>CHECK_NAME</th>
<th>NAME_ID</th>
<th>MODE</th>
<th>START_TIME</th>
<th>RESUME_TIME</th>
<th>END_TIME</th>
<th>MODIFIED_TIME</th>
<th>TIMEOUT</th>
<th>FLAGS</th>
<th>STATUS</th>
<th>SRC_INCIDENT_ID</th>
<th>NUM_INCIDENTS</th>
<th>ERR_NUMBER</th>
<th>REPORT_FILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>621</td>
<td>HM_RUN_621</td>
<td>DB Structure Integrity Check</td>
<td>2</td>
<td>2</td>
<td>2007-08-15 13:40:26.219314 -04:00</td>
<td>&lt;NULL&gt;</td>
<td>2007-08-15 13:40:26.246310 -04:00</td>
<td>2007-08-15 13:40:26.246310 -04:00</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>&lt;NULL&gt;</td>
</tr>
</tbody>
</table>

30 rows fetched
ADR – Health Monitor Report

```
adrci> create report hm_run HM_RUN_621
adrci> show report hm_run HM_RUN_621
<?xml version="1.0" encoding="US-ASCII"?>
<HM-REPORT REPORT_ID="HM_RUN_661">
  <TITLE>HM Report: HM_RUN_661</TITLE>
  <RUN_INFO>
    <CHECK_NAME>DB Structure Integrity Check</CHECK_NAME>
    <RUN_ID>661</RUN_ID>
    <RUN_NAME>HM_RUN_661</RUN_NAME>
    <RUN_MODE>REACTIVE</RUN_MODE>
    <RUN_STATUS>COMPLETED</RUN_STATUS>
    <RUN_ERROR_NUM>0</RUN_ERROR_NUM>
    <SOURCE_INCIDENT_ID>0</SOURCE_INCIDENT_ID>
    <NUM_INCIDENTS_CREATED>0</NUM_INCIDENTS_CREATED>
    <RUN_START_TIME>2007-08-15 13:43:22.215671 -04:00</RUN_START_TIME>
    <RUN_END_TIME>2007-08-15 13:43:22.240171 -04:00</RUN_END_TIME>
  </RUN_INFO>
  <RUN_PARAMETERS/>
  <RUN-FINDINGS/>

adrci> host "ls -ltr /home/oracle/app/diag/rdbms/orcl/orcl/hm/HMREPORT_HM_RUN_621.hm"
-rw-r----- 1 oracle oinstall 711 Aug 15 13:50 /home/oracle/app/diag/rdbms/orcl/orcl/hm/HMREPORT_HM_RUN_661.hm
```
THANKS

indy.johal@datasoftech.com