

Nov. 3<sup>rd</sup>, 2007



DATA SOFTECH INC.  
Complete Database Solution Provider

# ORACLE 11g Automatic Diagnostic Repository

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## Fault Management Infrastructure



**Inderpal S. Johal,**  
President

# Agenda

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- 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

Oracle Universal Installer: Oracle Configuration Manager Registration

ORACLE 11g  
DATABASE

## 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:

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.



# 11g Fault Mgmt. Framework - Prevention

**ORACLE**  
METALINK

Bookmarks Admin Profile Feedback

Headlines Knowledge Service Request **Configuration Support Manager** Patches & Updates

My Favorites All Configurations All Projects All Computers Download Collector

Quick Find Knowledge Base  Go Secure Enterprise Search Advanced Search

My Favorite Configurations

**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 cutover 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

**TIP** Configuration Support Manager allows you to define computer configurations that describe your Oracle environment, and milestones for projects involving Oracle products. Providing this 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, SR's, 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)**

Ignore Details

Service Requests (45)

System Health	ID	Severity
200 Total	328747	1
Critical <b>11</b>	key 298582	1
2 New	ying 582822	1
Warning <b>23</b>	he f. 258281	2

Favorites (23)

Name	Last Collection	Issue
11i10 - 10G	★	6 (6 Crit
marketing Online	★	17 (5 Cr
Peopleoft Application S	★ 1 Week	5



# 11g Fault Mgmt. Framework - Prevention

**BETA ORACLE METALINK**

Dashboard | Reports | Collectors | Knowledge | Service Requests | Patches & Updates | Forums | Certify

### Dashboard

**System Health** 29 Total

Critical	0	
Warning	0	
Informational	0	

**Patch Advice** 0 Total

Critical	0	
Warning	0	
Informational	0	

**Service Requests**

**Configurations**

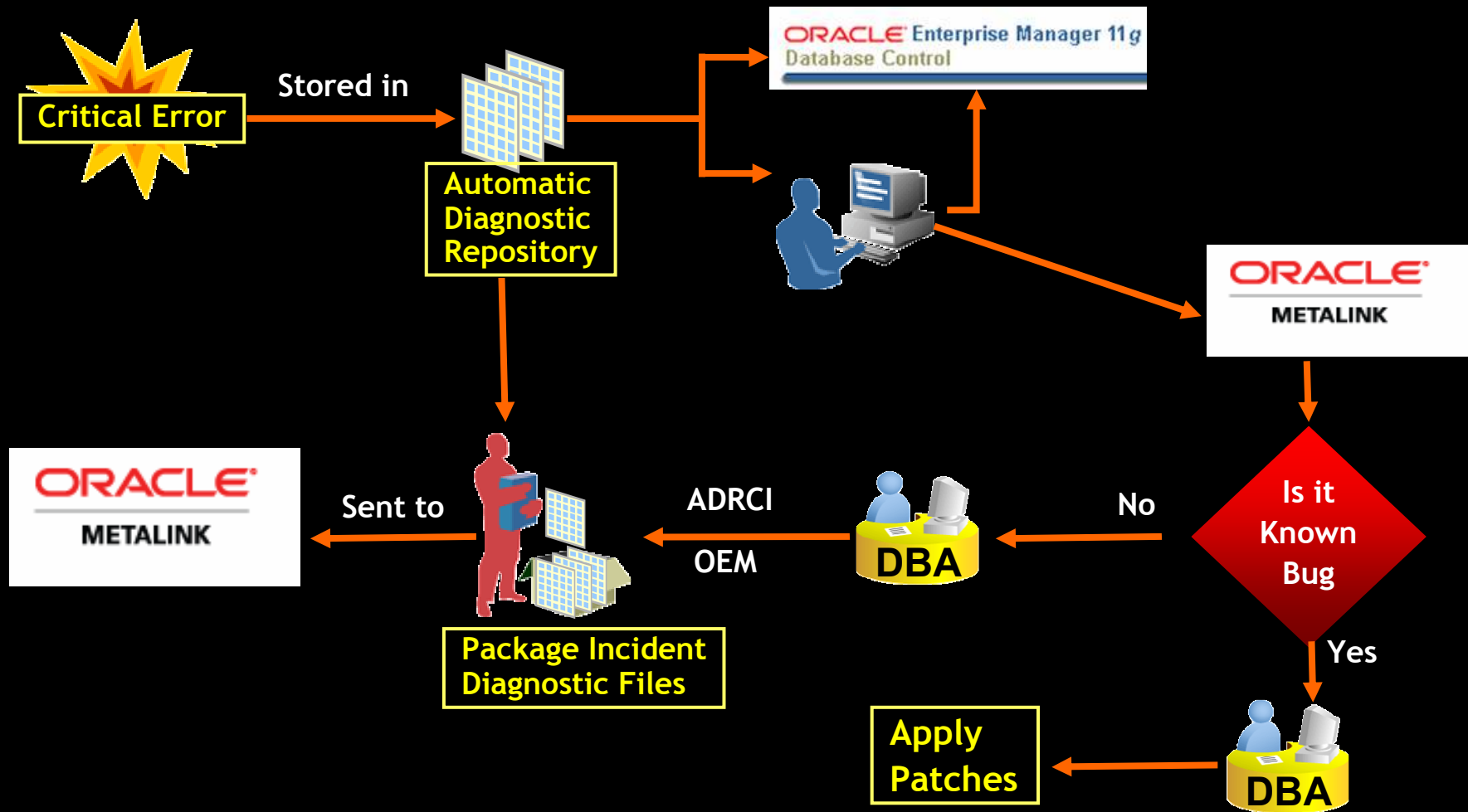
**Projects**

**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

# 11g Fault Mgmt. Framework - Prevention

- Reduce Diagnostic Time



# 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
drwxrwxr-x  2 oracle oinstall 4096 Sep 20 11:40 ofm
drwxrwxr-x  2 oracle oinstall 4096 Sep 20 11:40 netcman
drwxrwxr-x  2 oracle oinstall 4096 Sep 20 11:40 lsnrctl
drwxrwxr-x  2 oracle oinstall 4096 Sep 20 11:40 diagtool
drwxrwxr-x  2 oracle oinstall 4096 Sep 20 11:40 crs
drwxrwxr-x  2 oracle oinstall 4096 Sep 20 11:40 clients
drwxrwxr-x  3 oracle oinstall 4096 Sep 21 11:24 tnslnsr
drwxrwxr-x  3 oracle oinstall 4096 Sep 21 11:26 asm
drwxrwxr-x  4 oracle oinstall 4096 Oct  3 14:36 rdbms
```



# Automatic Diagnostic Repository - Location

- 11g Deprecated old initialization parameters

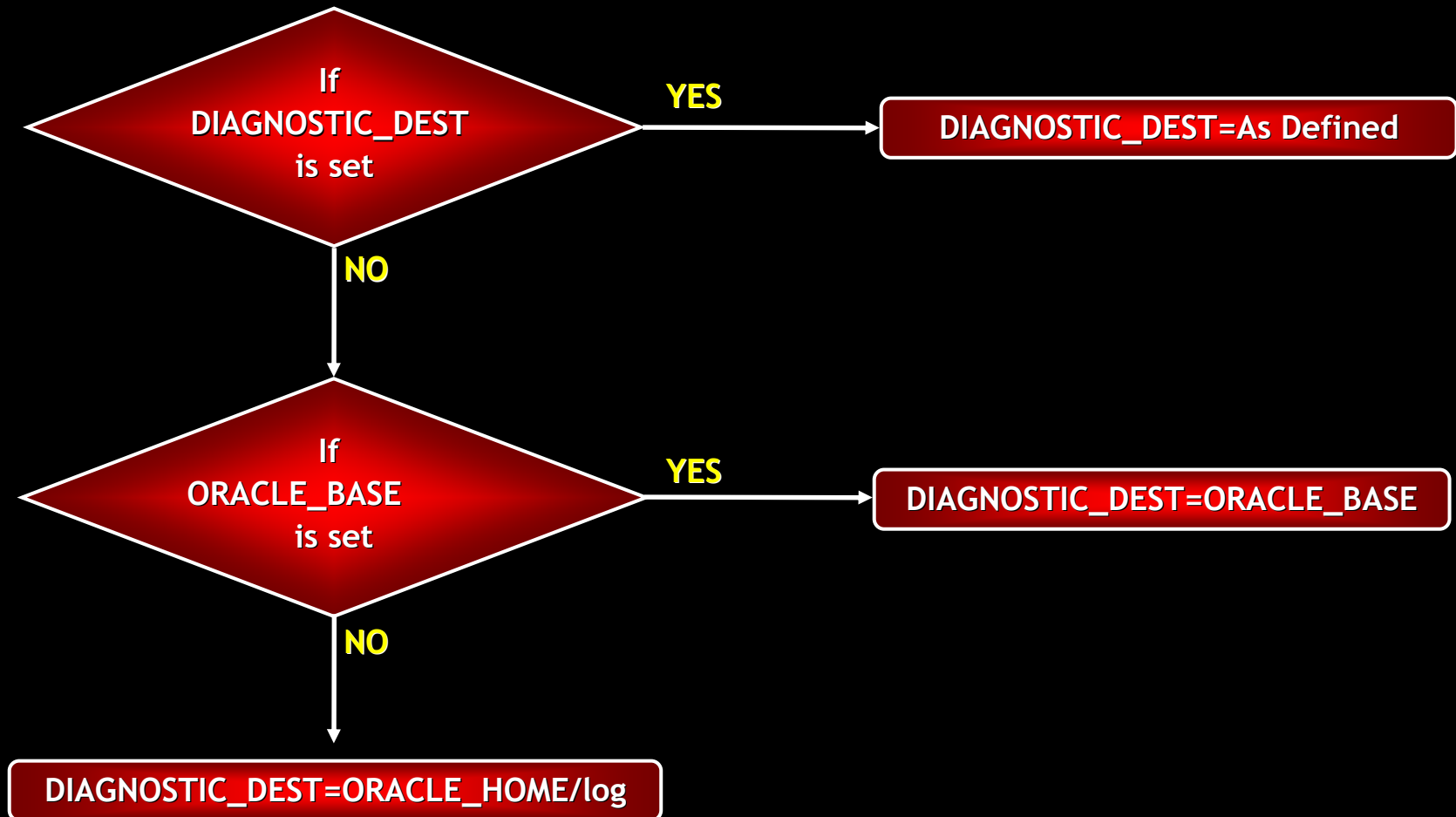
[BACKGROUND | USER | CORE]\_DUMP\_DEST

- 11g new initialization parameter

DIAGNOSTIC\_DEST



# Automatic Diagnostic Repository - Location



# Automatic Diagnostic Repository - Location

```
SQL> show parameter diag
```

NAME	TYPE	VALUE
diagnostic_dest	string	/oracle

```
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
```

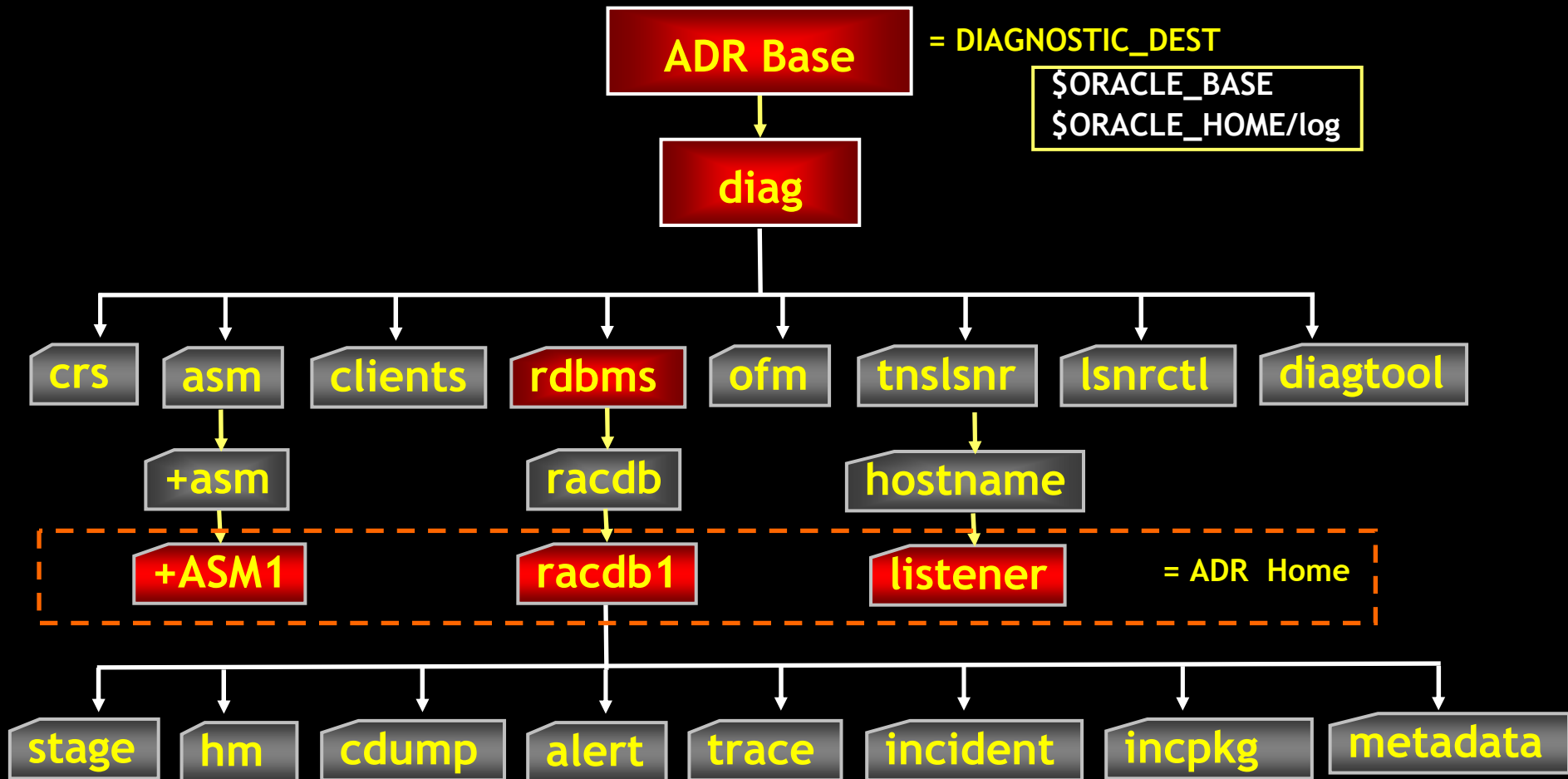
```
Additional information: 1
```

```
SQL> !mkdir /oracle/III
```

```
SQL> alter system set diagnostic_dest='/oracle/III' ;
```



# Automatic Diagnostic Repository - Layout



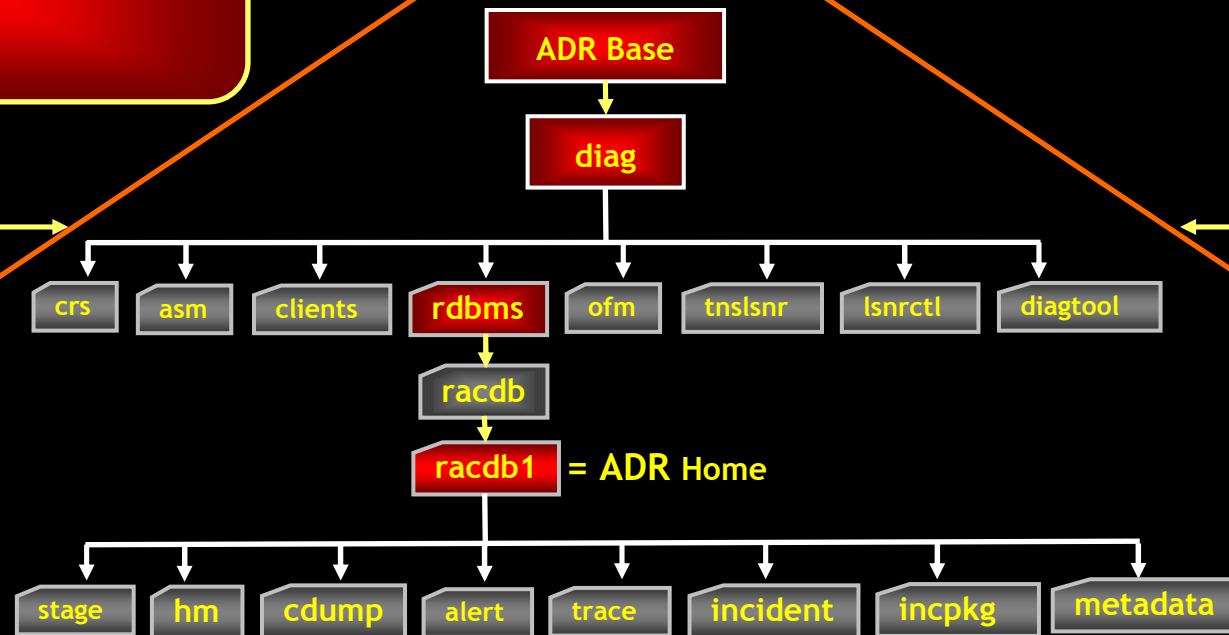
# Automatic Diagnostic Repository - Layout

## \$ adrci

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

adrci>

ORACLE Enterprise Manager 11g  
Database Control  
Database Instance: orcl > Support Workbench



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



ORACLE 11g  
DATABASE



DATA SOFTECH INC.  
Complete Database Solution Provider

Oracle 11g ADR



# Automatic Diagnostic Repository - Layout

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

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

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
```

```
ADRCI: Release 11.1.0.6.0 – Beta on Wed Oct 31 13:16:53 2007
```

```
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:
```

```
CREATE REPORT
```

```
EXIT
```

```
HOST
```

```
PURGE
```

```
SET BASE
```

```
SET CONTROL
```

```
SET EDITOR
```

```
SET TERMOUT
```

```
SHOW BASE
```

```
SHOW HM_RUN
```

```
SHOW INCDIR
```

```
SHOW PROBLEM
```

```
SHOW TRACEFILE
```

```
ECHO
```

```
HELP
```

```
IPS
```

```
RUN
```

```
SET BROWSER
```

```
SET ECHO
```

```
SET HOMES | HOME | HOMEPATH
```

```
SHOW ALERT
```

```
SHOW CONTROL
```

```
SHOW HOMES | HOME | HOMEPATH
```

```
SHOW INCIDENT
```

```
SHOW REPORT
```

```
SPOOL
```



# 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

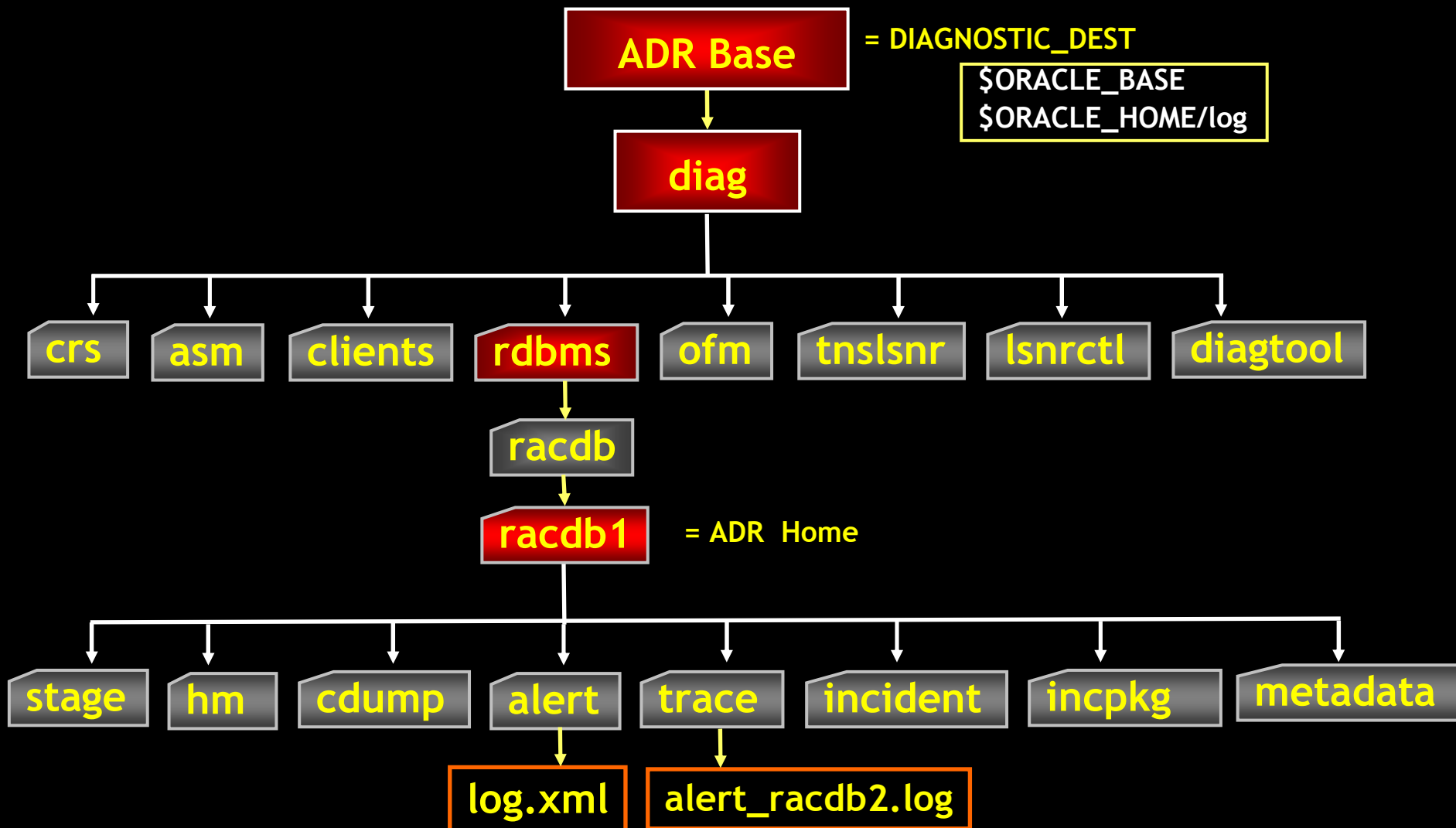
- ✓ Automatic Diagnostic Repository (ADR)
- ✓ ADRCI Command Line Utility
- ✓ Alert Log
  - Trace Files, Dumps, and Core Files
  - Enterprise Manager Support Workbench
  - ADRCI Command Line Utility

ADR Home/alert/log.xml → XML Format alert log file  
ADR Home/trace/alert\_SID.log → Traditional alert Log file





# ADR – Alert Logs



# ADR – Alert Logs

alert

log.xml

```
$ adrci
```

```
ADRCI: Release 11.1.0.6.0 – Beta on Wed Oct 31 13:16:53 2007
```

```
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:
```



# ADR – Alert Logs

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:
  processes                = 150
  spfile                    = "+SUNNYDG/sunny/spfilesunny.ora"
  memory_target             = 6496M
  control_files              = "+SUNNYDG/sunny/controlfile/current.260.633875941"
  db_block_size              = 8192
  compatible                 = "11.1.0.0.0"
  cluster_database           = TRUE
  cluster_database_instances= 2
"/tmp/alert_22473_3086_sunny2_1.ado" 1442L, 60098C
```



# ADR – Alert Logs

alert

log.xml

```
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%'"
```



# ADR – Alert Logs – OEM


ORACLE Enterprise Manager 11g Database Control

## Database Instance: orcl

[Home](#) [Performance](#) [Availability](#) [Server](#) [Schema](#) [Data Movement](#) [Software and Support](#)

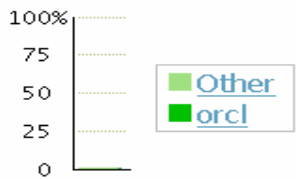
Latest Data Collected From Target **Aug 14, 2007 3:34**

### General

 [Shutdown](#) [Black Out](#)

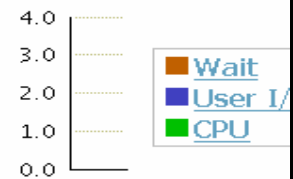
Status [Up](#)  
Up Since **Aug 14, 2007 11:01:04 AM EDT**  
Instance Name **orcl**  
Version **11.1.0.6.0**  
Host [prnhs-db02pn.profnet.com](#)  
Listener [LISTENER\\_prnhs-db02pn.profn...](#)  
[View All Properties](#)

### Host CPU




Load [0.02](#) Paging [0.00](#) Maximum


### Active Sessions



### Diagnostic Summary

ADDM Findings **0**  
Alert Log [No ORA- errors](#)  
Active Incidents  **0**  
[Database Instance Health](#)


### Space Summary

Database Size (GB)	<a href="#">1.459</a>
Problem Tablespaces	<a href="#">0</a>
Segment Advisor Recommendations	<a href="#">0</a>
Policy Violations	 <a href="#">0</a>
Dump Area Used (%)	<a href="#">41</a>

### Alerts



#### Related Alerts

#### 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**

[Home](#) [Performance](#) [Availability](#) [Server](#) [Schema](#) [Data Movement](#) [Software and Support](#)

### Related Links

<a href="#">Access</a>	<a href="#">Advisor Central</a>
<a href="#">Alert Log Contents</a>	<a href="#">All Metrics</a>
<a href="#">Blackouts</a>	<a href="#">EM SQL History</a>



# ADR – Alert Logs – XML format



## 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>
```



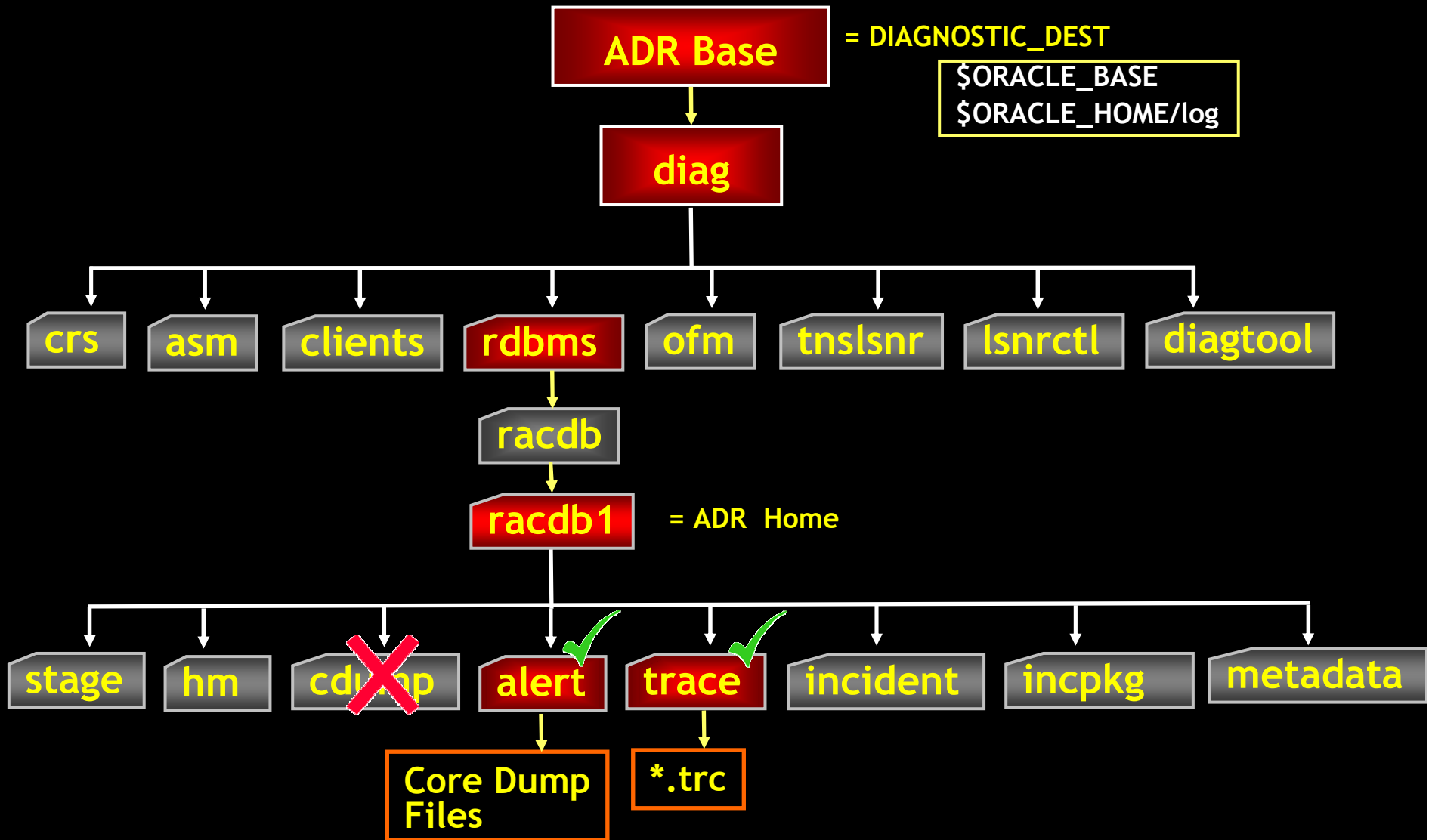


# 11g Fault Mgmt. Framework Components

- ✓ 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 – Trace and Dump files

```
$ adrci
```

```
ADRCI: Release 11.1.0.6.0 – Beta on Wed Oct 31 13:16:53 2007
```

```
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

DIAGNOSTIC Data Types	ORACLE DATABASE 10 <sup>g</sup>	ORACLE DATABASE 11 <sup>g</sup>
Foreground Process Traces	USER_DUMP_DEST	ADR_HOME/trace
Background Process Traces	BACKGROUND_DUMP_DEST	ADR_HOME/trace
Core Dumps files	CORE_DUMP_DEST	ADR_HOME/cdump
Alert Log Data	BACKGROUND_DUMP_DEST	ADR_HOME/trace & alert
Incident Dumps	USER   BACKGROUND_DUMP_DEST	ADR_HOME/incident/incdir_n

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

ORACLE Enterprise Manager 11g Database Control Setup Preferences Help Logout

Database

Logged in As SYS

**Database Instance: orcl**

[Home](#) [Performance](#) [Availability](#) [Server](#) [Schema](#) [Data Movement](#) **[Software and Support](#)**

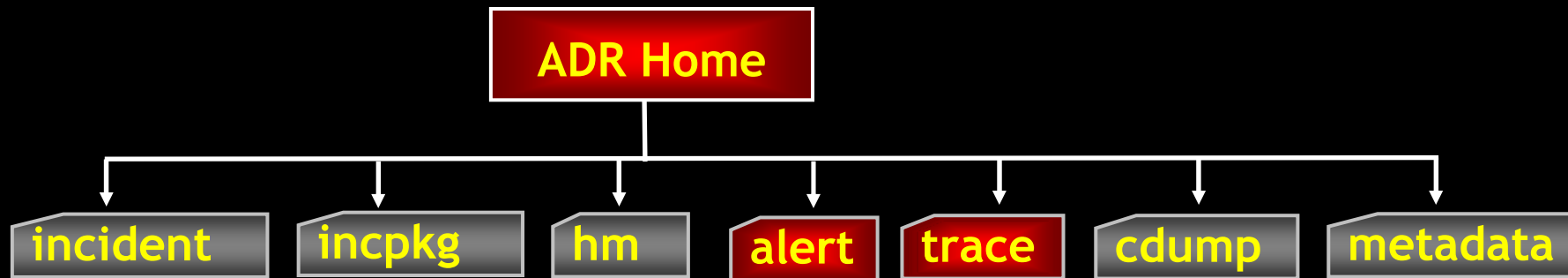
**Software**

<b>Configuration</b> <a href="#">Collection Status</a> <a href="#">Clone Oracle Home</a> <a href="#">Host Configuration</a> <a href="#">Oracle Home Inventory</a>	<b>Database Software Patching</b> <a href="#">Patch Advisor</a> <a href="#">View Patch Cache</a> <a href="#">Patch Prerequisites</a> <a href="#">Stage Patch</a> <a href="#">Apply Patch</a>
<b>Real Application Testing</b> <a href="#">Database Replay</a> <a href="#">SQL Performance Analyzer</a>	<b>Deployment Procedure Manager</b> <a href="#">Getting Started with Deployment Procedure Manager</a> <a href="#">Deployment Procedures</a> <a href="#">Procedure Completion Status</a> <a href="#">Deployment and Provisioning Software Library</a>

**Support**

[Support Workbench](#)

# Problem and Incident



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

ADR Home

incident



# Problem

```
adrci> show problem
```

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

```
*****
```

```
0 rows fetched
```

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

```
*****
```

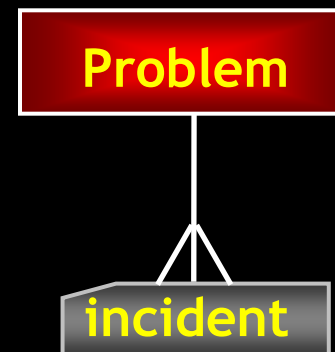
PROBLEM_ID	PROBLEM_KEY	LAST_INCIDENT	LASTINC_TIME
1	ORA 1578	14775	2007-08-15 09:08:54.202548 -04:00

```
1 rows fetched
```



# 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



# Incident

```
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

```
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

ORACLE Enterprise Manager 11g Database Control Setup Prefere

**Database Instance: orcl**

Home Performance Availability Server Schema Data Movement Software and Support

Latest Data Collected From Target **Aug 15, 2007 10:34:58 AM EDT** Refresh View Data Automati

**General**

Status [Up](#)  
 Up Since **Aug 14, 2007 8:14:48 PM EDT**  
 Instance Name **orcl**  
 Version **11.1.0.6.0**  
 Host [prnhs-db02pn.profnet.com](#)  
 Listener [LISTENER\\_prnhs-db02pn.profn...](#)

[View All Properties](#)

**Diagnostic Summary**

ADDM Findings 0  
 Alert Log [Aug 15, 2007 10:10:54 AM](#)  
 Active Incidents 0

[Database Instance Health](#)

**Host CPU**

1.0  
0.5  
0.0

Loading...

Load [0.00](#) Paging [0.00](#)

**Active Sessions**

1.0  
0.5  
0.0

Loading... Chart Titled: Active Sessions Loading..

Maximum CPU **4**

**SQL Response**

1.0  
0.5  
0.0

Loading...

SQL Response Time (%)

**Space Summary**

Database Size (GB) [1.459](#)  
 Problem Tablespaces [0](#)  
 Segment Advisor Recommendations [0](#)  
 Policy Violations [0](#)  
 Dump Area Used (%) [42](#)

**High Availability** Edit

Instance Recovery Time (se  
 Last Back  
 Usable Flash Recovery Area (9  
 Flashback Database Loggi

**Alerts**

Category All Go **Critical x 6** Warning **1**

Severity	Category	Name	Impact	Message
x	Data Failure	Data Failure Detected		<a href="#">Checker run found 2 new persistent data failures.</a>
x	Incident	Oracle Data Block Corruption	POSSIBLE DATA BLOCK CORRUPTION	<a href="#">An Oracle data block corruption detected in /home/oracle/app/diag/rdbms/orcl/orcl/alert/log.xml at time/line number: Wed Aug 15 10:10:54 2007/16266.</a>
x	Incident	Oracle Data Block Corruption	POSSIBLE DATA BLOCK CORRUPTION	<a href="#">An Oracle data block corruption detected in /home/oracle/app/diag/rdbms/orcl/orcl/alert/log.xml at time/line number: Wed Aug 15 09:50:27 2007/13671.</a>

# Monitoring Incident using OEM

ORACLE Enterprise Manager 11g  
Database Control

Set

Database Instance: orcl > All Metrics > Oracle Data Block Corruption >

## Incident - Oracle Data Block Corruption

### Problem Summary

#### Problem Information

Problem Key **ORA 1578**  
SR# **n/a**  
Bug# **n/a**  
First Incident **August 15, 2007 9:05:38 AM EDT**  
Last Incident **August 15, 2007 10:10:55 AM EDT**  
Number of Incidents (Within 24 Hours) **52**

#### Incident Information

Timestamp **August 15, 2007 10:10:54 AM EDT**  
Impact **n/a**

#### Recommended Actions

[View Problem Details](#) [View All Problems](#)

### 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>**  
Message **An Oracle data block corruption detected in /home/oracle/app/diag/rdbms/orcl/orcl/alert/log.xml at Wed Aug 15 10:10:54 2007/16266.**



DATA SOFTECH INC.  
Complete Database Solution Provider

# Monitoring Incident using OEM

Database Instance: orcl > Support Workbench >

## 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

Timestamp [August 15, 2007 10:10:55 AM EDT](#)  
 Incident Source **System Generated**  
 Impact  
 Checkers Run **0**  
 Checker Findings **0**

Page Refreshed **August 15, 2007 10:48:05 AM**

### Investigate and Resolve

[Oracle Support](#)

#### Assess Damage

[Run Checkers](#)  
[Database Instance Health](#)

#### Diagnose

[Alert Log](#)  
[Related Problems Across Topology](#)  
[Diagnostic Dumps for Last Incident](#)  
[Go to Metalink and Research](#)

**Link to go more in detail study of the Incident**

Status  Data Dumped

[Select All](#) | [Select None](#) | [Show All Details](#) | [Hide All Details](#)

Select	Details	ID	Description	Data Dumped	Active	Status	Timestamp
<input type="checkbox"/>	<a href="#">Show</a>	14773	ORA 1578 [4] [27] [] [] [] [] [] []	Yes	Yes	Ready	August 15, 2007 9:08:51 AM EDT
<input type="checkbox"/>	<a href="#">Show</a>	14772	ORA 1578 [4] [27] [] [] [] [] [] []	Yes	Yes	Ready	August 15, 2007 9:08:41 AM EDT
<input type="checkbox"/>	<a href="#">Show</a>	14771	ORA 1578 [4] [27] [] [] [] [] [] []	Yes	Yes	Ready	August 15, 2007 9:08:39 AM EDT
<input type="checkbox"/>	<a href="#">Show</a>	14770	ORA 1578 [4] [27] [] [] [] [] [] []	Yes	Yes	Ready	August 15, 2007 9:08:38 AM EDT
<input type="checkbox"/>	<a href="#">Show</a>	14769	ORA 1578 [4] [27] [] [] [] [] [] []	Yes	Yes	Ready	August 15, 2007 9:05:38 AM EDT

**Showing the same 5 error as reported in ADRCI**

# 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

```
F-Secure SSH - [Defaults.ssh]
File Edit View Tools Help
2007-08-15 09:05:38.925000 -04:00 → An Entry to Alert Log is Started
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 rdba: 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'
Incident details in: /home/oracle/app/diag/rdbms/orcl/orcl/incident/incdir_14769/orcl_ora_13914_i14769.trc
Corrupt Block Found
  TSN = 4, TSNAME = USERS
  RFN = 4, BLK = 27, RDBA = 16777243
  OBJN = 69515, OBJD = 69515, OBJECT = EMP, SUBOBJECT =
  SEGMENT OWNER = SCOTT, SEGMENT TYPE = Table Segment
Checker run found 2 new persistent data failures
2007-08-15 09:05:40.530000 -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
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
```

Gather Diagnostic Data like Trace file

Tag an Incident ID to collected Trace data

Stores all the Gathered data in  
**\$ADR\_HOME/incident/Incident\_Id**  
Where  
**ADR\_HOME=/home/oracle/app/diag/rdbms/orcl/orcl**  
**Incident\_ID=incdir\_14769**

# 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

```
adrci> show control
```

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

```
*****
```

<u>ADRID</u>	<u>SHORTP POLICY</u>	<u>LONGP POLICY</u>	<u>LAST MOD TIME</u>	<u>ADRSCHM</u>	<u>VERSION</u>
<u>LAST AUTOPRG TIME</u>	<u>LAST MANUPRG TIME</u>	<u>ADRDIR VERSION</u>	<u>ADRSCHM</u>	<u>VERSION</u>	
<u>ADRSCHMV SUMMARY</u>	<u>ADRALERT VERSION</u>	<u>CREATE TIME</u>			
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				

```
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:
```

```
*****
```

<u>ADRID</u>	<u>SHORTP POLICY</u>	<u>LONGP POLICY</u>	<u>LAST MOD TIME</u>	<u>ADRSCHM</u>	<u>VERSION</u>
<u>LAST AUTOPRG TIME</u>	<u>LAST MANUPRG TIME</u>	<u>ADRDIR VERSION</u>	<u>ADRSCHM</u>	<u>VERSION</u>	
<u>ADRSCHMV SUMMARY</u>	<u>ADRALERT VERSION</u>	<u>CREATE TIME</u>			
1335663986	168->7days	720->30days	2007-08-13 11:46:04.886562	-04:00	
	1	2	0	1	2007-08-13
	10:39:52.325010				

```
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/test1lg/test1lg:
```

```
*****
```

```
HM RUN RECORD 1
```

```
*****
```

```
...
```

```
*****
```

```
RUN RECORD 30
```

```
*****
```

RUN_ID	621
RUN_NAME	HM_RUN_621
CHECK_NAME	DB Structure Integrity Check
NAME_ID	2
MODE	2
START_TIME	2007-08-15 13:40:26.219314 -04:00
RESUME_TIME	<NULL>
END_TIME	2007-08-15 13:40:26.246310 -04:00
MODIFIED_TIME	2007-08-15 13:40:26.246310 -04:00
TIMEOUT	0
FLAGS	0
STATUS	5
SRC_INCIDENT_ID	0
NUM_INCIDENTS	0
ERR_NUMBER	0
REPORT_FILE	<NULL>

```
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
```

**QUESTIONS**  
**ANSWERS**





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*THANKS*

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