

Help with Automatic Diagnostic Repository (ADR)

Michael Nelson

Senior DBA

Oracle OCP

Northrop Grumman

kb7yss@gmail.com

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Who am I?

- Senior Oracle DBA at Northrop Grumman Corp.
- Since Oracle 7
- Oracle Certified OCP
- Speaker
 - IOUG-2000, Collaborate 08 ,14, 15, 16, 17
 - Utah's UTOUG
 - Welcom World
- Enjoy being in the outdoors, ski, hike, hunt, camp and canoe
- Have unique way of troubleshoot (Divide and conquer)
- Love games of strategy and skill, games of chance don't interest me

So why am I here?

Who wants to be a Millionaire?



Agenda

- **Introduction**
- **Terminology and Concepts**
- **What is ADR and what does it do?**
- **What are the commands**
- **How do I use it?**
 - **Step by Step example of how to troubleshoot a problem**
- **How to create a package to send to Oracle Support**
- **Conclusion**
- **Questions**

What is the Automatic Diagnostic Repository

- Fault Diagnosability Infrastructure
 - Aids in Problem :
 - Preventing
 - Detecting
 - Limiting damage
 - Reducing diagnostic and resolution time

(Oracles goals with the tool)

- ADR (Automatic Diagnostic Repository)
 - File-base repository for diagnostic data
 - Available when database is down
 - Directory structure outside of the database

What is the Automatic Diagnostic Repository

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Automatic Diagnostic Repository (ADR)

- This is a file-base repository for the database diagnostic data with includes the following:
 - Trace files
 - Dump files
 - Alert log
 - Health monitor reports

Keys to achieving these goals are:

- Automatic capture of diagnostic data upon first failure
- Standardized trace formats
- Health checks
- Incident packaging service (IPS) and incident packages

Definitions with new tool

- Problem
- Problem Key
- Incident
- Incident Package
- IPS
- ADR Home
- ADR Base

What is a problem

- A problem is a critical error that occurs in the database.

Example:

ORA-600, ORA-7445, ORA-04031, etc

ADRCI> SHOW PROBLEM

OR

ADRCI> SELECT * FROM PROBLEM

- **Problem Key**
A problem key is a short text string that correlates to the problem.

Example:

```
ADRCI> Select problem_key from problem
```

```
-----  
ORA 600 [FILE:jsks.c LINE:2388 ID:OCIKCallPush]
```

```
ORA 600 [rworupo.2]
```

```
ORA 7445 [PGOSF648_smboQbNxt()+19]
```

```
ORA 600 [kgh_heap_sizes:ds]
```

```
ORA 7445 [PGOSF648_smboQbNxt()+112]
```

What is a Incident

- An Incident is a single occurrence of a problem.
 - It is a one to many relationship
 - So now each occurrence of a problem is called an incident.

Example:

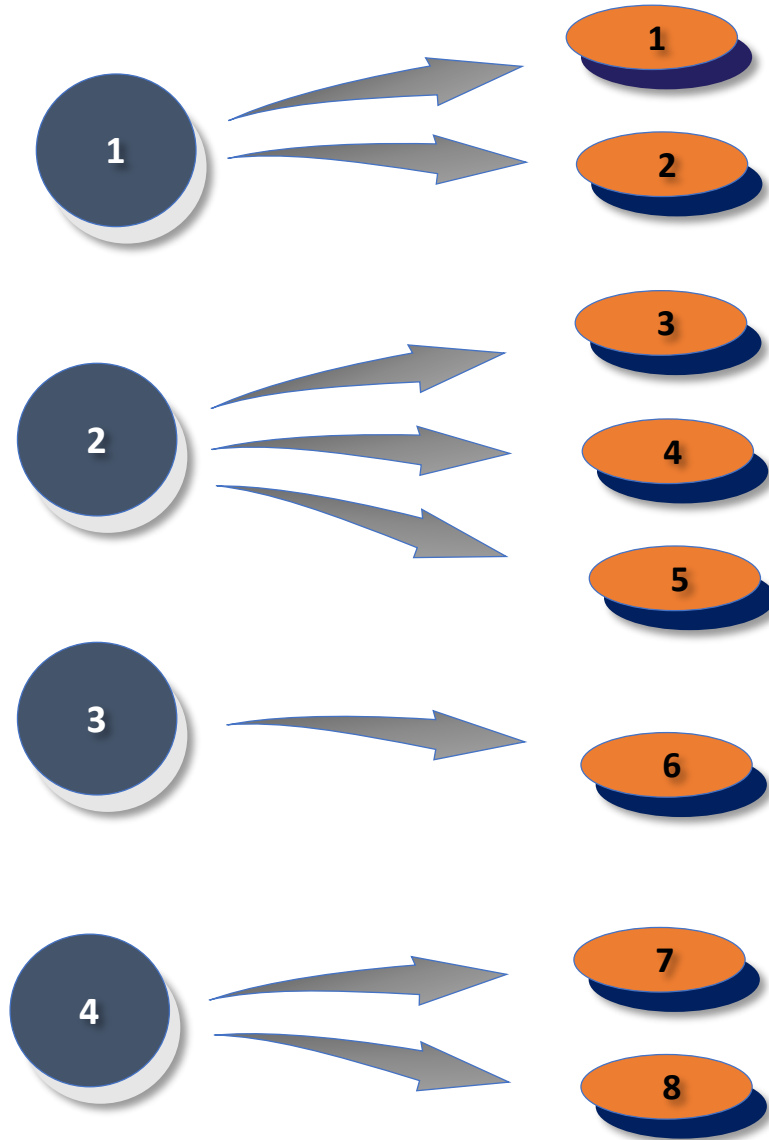
ADRCI> Show incident

Or

ADRCI> select * from incident

Problem

Incident



**One to many
relationship**

Where are files store

- We don't have background_dump, core_dump, user_dump destinations anymore.
- Init.ora parameter
 - DIAGNOSTIC_DEST – which is either set to ORACLE_BASE or ORACLE_HOME/log

Diagnostic Data	Previous Location	ADR Location
Foreground process tracefiles	USER_DUMP_DEST	\$ADR_HOME/trace
Background process traces	BACKGROUND_DUMP_DEST	\$ADR_HOME/trace
Alert log data	BACKGROUND_DUMP_DEST	\$ADR_HOME/alert&trace
Core dumps	CORE_DUMP_DEST	\$ADR_HOME/cdump
Incident dumps	USER BACKGROUND_DUMP_DEST	\$ADR_HOME/incident/incdir_#

ADR Command Interpreter (ADRCI)

ADRCI is a command line utility used to access ADR

There is no need to log in with ADRCI, because the data is not intended to be secure

ADR data is secured by the operating system

With ADRCI you can:

View diagnostic data within ADR

View Health Monitor Reports

Package incident into a zip file for transmission to Oracle

Oracle Support uses ADRCI to unpack the zip file

ADRCI>

C:\Documents and Settings\user\temp> adrci

ADRCI: Release 11.2.0.3.0 - Production on Wed Feb 5 15:20:47 2018 Copyright (c)
1982, 2011, Oracle and/or its affiliates. All rights reserved.

ADR base = "D:\oracle"

ADRCI>

ADRCI> help

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

ADRCI>

ADRCI> show problem

ADRCI> show problem -p "problem_id = 5"

ADRCI> show incident

ADRCI> show incident -mode detail -p "problem_id = 5"

ADRCI>

ADRCI> show tracefile

ADRCI> show tracefile %mmon%

ADRCI> show tracefile -path /home/temp

ADRCI> show tracefile -RT -- means reverse timestamp

ADRCI> show tracefile -l 2156

Adrci>

ADRCI> show alert tail

SQLPLUS>

SQLPLUS> select * from v\$diag_info;

-- Very good information

- Location of all file locations, and all homes
- Count number of problems
- Count number of incidents

SQLPLUS>

SQLPLUS> select * from v\$diag_info;

<u>INST ID</u>	<u>NAME</u>	<u>VALUE</u>
1	Diag Enabled	TRUE
1	ADR Base	D:\ORACLE
1	ADR Home	D:\ORACLE\diag\rdbms\siidev\siidev
1	Diag Trace	D:\ORACLE\diag\rdbms\siidev\siidev\trace
1	Diag Alert	D:\ORACLE\diag\rdbms\siidev\siidev\alert
1	Diag Incident	D:\ORACLE\diag\rdbms\siidev\siidev\incident
1	Diag Cdump	D:\ORACLE\ADMIN\SIIDEV\CDUMP
1	Health Monitor	D:\ORACLE\diag\rdbms\siidev\siidev\hm
1	Default Trace File	D:\ORACLE\diag\rdbms\siidev\siidev\trace\siidev_ora_2652.trc
1	Active Problem Count	8
1	Active Incident Count	115

Batch commands

```
C:\ adrci exec='show homes; show problems'
```

- Show homes
- Show the problems

- Commands are seperated with “;”

Running Health Checks

- By using the DBMS_HM PL/SQL package
- By using Enterprise Manager interface, found on the Checkers subpage of the Advisor Central page

```
BEGIN
```

```
    DBMS_HM.RUN_CHECK('Dictionary Integrity Check', 'my_run');
```

```
END;
```

```
/
```

Other health check names from the following query:

```
Select name from v$hm_check where internal_check = 'N';
```

DB Structure Integrity Check

CF Block Integrity Check

Data Block Integrity Check

Redo Integrity Check

Transaction Integrity Check

Undo Segment Integrity Check

Dictionary Integrity Check

ASM Allocation Check

Create a package

Use IPS to create a logical package

```
ADRCI> IPS create package problem 53
```

```
Creates package # base on problem 53      -- 8
```

Add files to package

```
ADRCI> IPS add incident 1062 package 8
```

```
ADRCI> IPS add file
```

```
  D:\oracle\product\11.2.0\db_home\database\spfilesiidev.ora package 8
```

Generate Physical package

```
ADRCI> IPS generate package 8 in d:\temp
```

Without generating logical package first

```
ADRCI> IPS pack problem 61 in d:\temp
```

ADR Retention

To avoid too filling the disk drive with too many tracefiles, and dumps. ADR has flood control.

After 5 incident of the same problem_key in an hour, additional incidents will not be recorded.

ADR Retention Policy

There are two policies that control how long files are kept around.

`SHORTP_POLICY` -- Incident Files and Dumps

Default is 720 hour (30 days)

`LONGP_POLICY` -- Incident Metadata Retention

Default is 8760 hours (365 days)

`ADRCI> show control` -- to see retention policies

`ADRCI> set control (SHORTP_POLICY = 360)`

- Files become eligible for purge

.

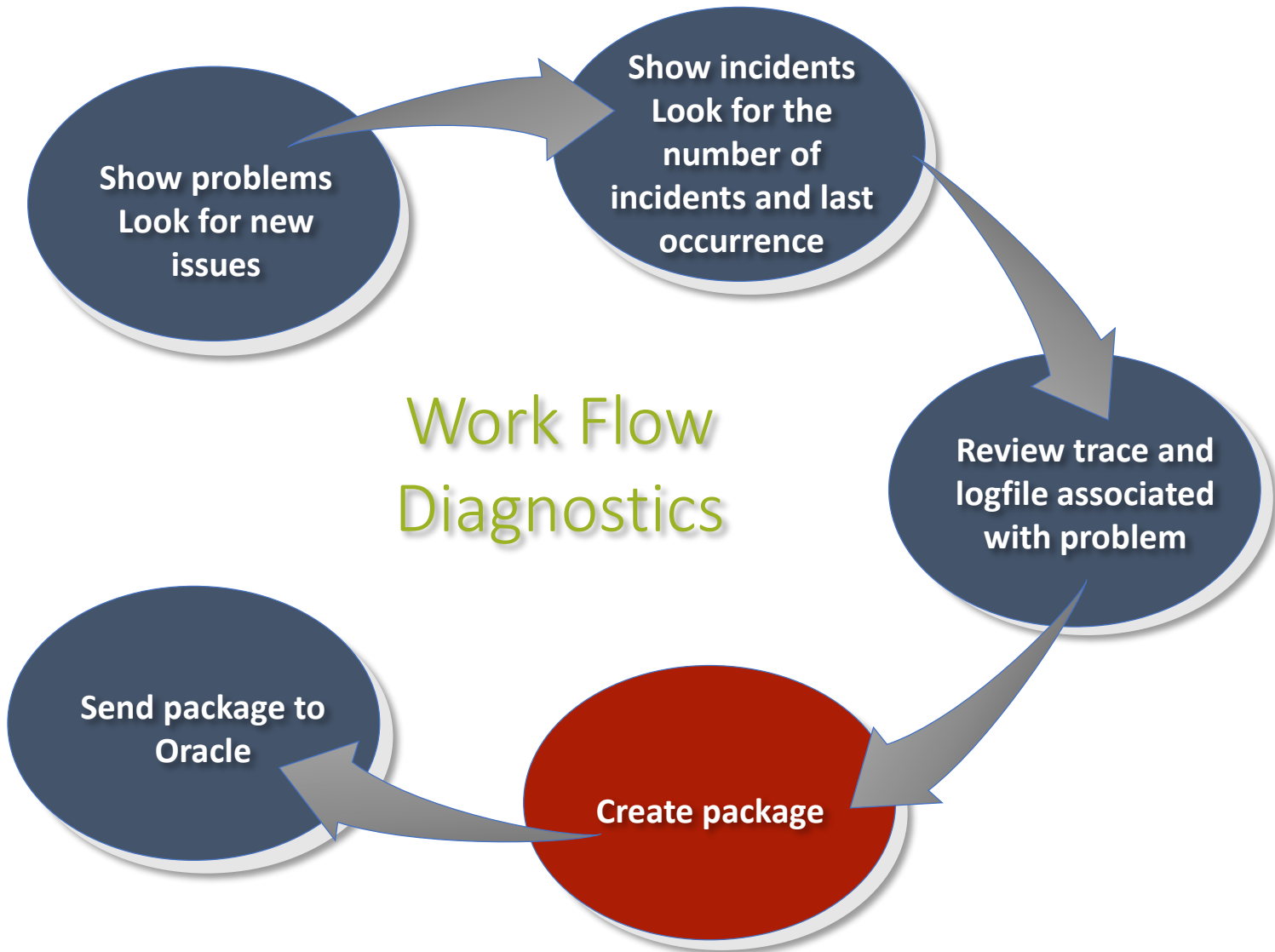
Purging Tracefiles Manually

- We can also manually purge information from the ADR using the 'purge' command from ADRCI (**note this is defined in minutes and not hours!**).
- In this example we are purging all trace files older than 6 days.

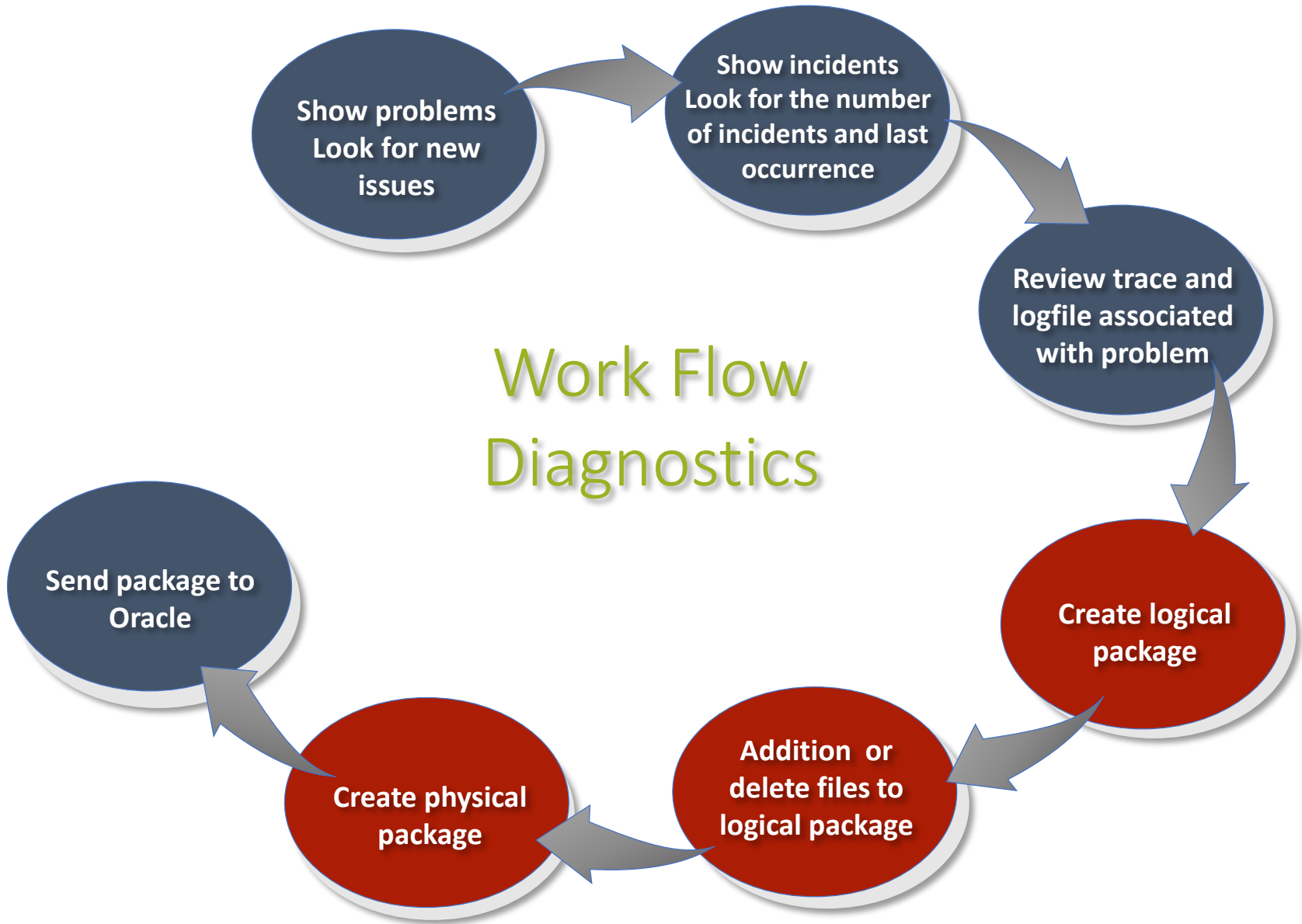
```
adrci> purge -age 8640 -type TRACE
```

```
adrci> show control
```

.



Work Flow Diagnostics



ADR new features with 12c

- **DDL Log**
- **Debug Log**
- **New ADRCI command to show logs**

Enable_DDL_LOGGING to TRUE

All DDL statement will be log in plain text into log files and additional into xml files

ADR new features with 12c

```
ALTER SYSTEM SET ENABLE_DDL_LOGGING=TRUE;  
CONN test/test@pdb1  
CREATE TABLE test1 (id NUMBER);  
ALTER TABLE test1 ADD CONSTRAINT test1_pk PRIMARY KEY (id);  
DROP TABLE test1 PURGE;
```

```
$ cd /u01/app/oracle/diag/rdbms/cdb1/cdb1/log
```

```
$ ls ddl ddl_cdb1.log debug test
```

```
$ cat ddl_cdb1.log
```

```
Wed Jan 25 10:11:11 2018
```

```
diag_adl:CREATE TABLE test1 (id NUMBER)
```

```
diag_adl:ALTER TABLE test1 ADD CONSTRAINT test1_pk PRIMARY KEY (id)
```

```
diag_adl:DROP TABLE test1 PURGE
```

```
$
```


Demo

How this will effect you and others?



Questions and Answers

Items learned in this session

- Terminology and Concepts
- What is ADR and what does it do?
- What are the commands
- How do I use it?
 - Step by Step example of how to troubleshoot a problem
- How to create a package to send to Oracle Support

Now I want you to go home and use create a package to send to Oracle as part of an SR.

- **You won't have to install anything, it is already available.**
- **This is also part of OEM.**

A tip for living well

- **Find out what rejuvenates you; then take time for it. It will refresh you and make you younger. We get older because we forget how to play.**

- **Me; I love just throwing a baseball in the backyard.**

Thanks,

Michael Nelson