ORACLE

Cloud at Customer Academy 3.0

Exadata Cloud - Troubleshooting Tools

Marcel Lamarca

Licenses and Systems

Alexandre Fagundes

OCI Databases & App's DBA

LAD Partner Enablement Knowledge Team

August, 2023

Agenda

- Oracle Database *AHF*
- Oracle Database - *TFA*
- Exadata C@C - *ExaWatcher*
- Exadata Cloud - *Huge Pages*
- Oracle Linux *S.O.S Report*
- Demo – Create an Exachk Report
- Demo – Managing *ExaWatcher*
- Demo – Managing Linux *Huge Pages*

Oracle Database AHF

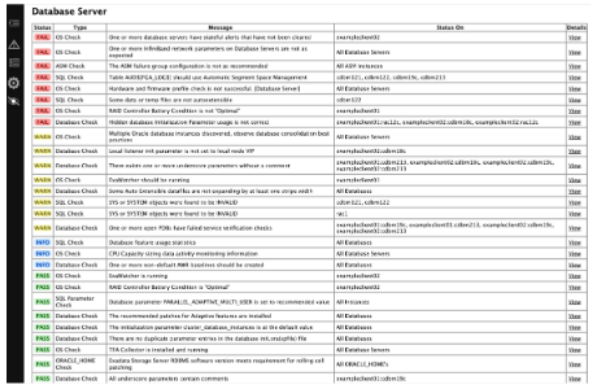
Autonomous Health Framework (AHF) - Including TFA and ORAchk/EXAchk (Doc ID 2550798.1)

START HERE | INSTALLATION | WHAT'S INCLUDED | WHAT'S NEW | USER GUIDE | FAQ | SUPPORT

Autonomous Health Framework (AHF)

The Diagnostic Framework Every Good DBA Needs

Proactively check if your system drifts from best practice configuration and how to fix it again with automatic health checks



$ ahfctl compliance

Get notified as problems occur, or run on-demand to collect everything Oracle Support needs to help you resolve problems

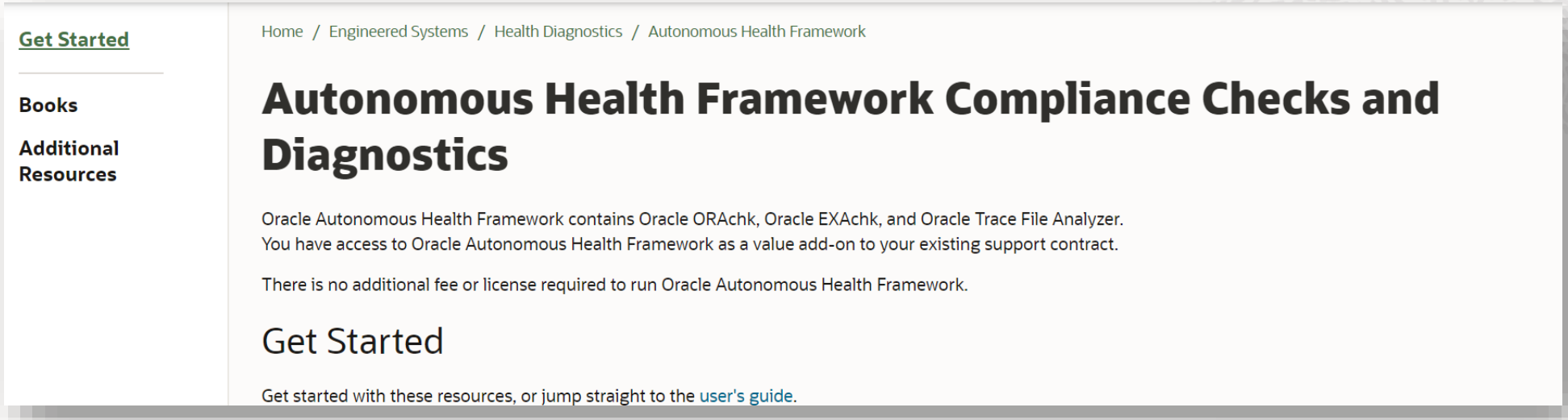
$ tfactl diagcollect

Get a bird's eye view of your entire system, spot problems, drill into the root cause and understand how to resolve

$ ahf analysis create --type insights

Autonomous Health Framework manual

SCAN ME



Get Started

Books

Additional Resources

Home / Engineered Systems / Health Diagnostics / Autonomous Health Framework

Autonomous Health Framework Compliance Checks and Diagnostics

Oracle Autonomous Health Framework contains Oracle ORAchk, Oracle EXAchk, and Oracle Trace File Analyzer.
You have access to Oracle Autonomous Health Framework as a value add-on to your existing support contract.

There is no additional fee or license required to run Oracle Autonomous Health Framework.

Get Started

Get started with these resources, or jump straight to the user's guide.

Getting Started

Procedures that describe how to get started using Oracle Autonomous Health Framework. Oracle ORAchk, Oracle EXAchk, and Oracle Trace File Analyzer share a common installation framework and a large portion of their features and tasks are common.

- Installing and Upgrading Oracle Autonomous Health Framework
- Running Health Checks with Oracle ORAchk or Oracle EXAchk
- Collecting Diagnostics
- Analyzing Diagnostics
- Uploading Diagnostics to Oracle Support

Running Checks with Oracle ORAchk or Oracle EXAchk

Procedures that describe the tasks that you can perform using Oracle ORAchk and Oracle EXAchk to run health checks.

- Understanding and Managing Reports and Output
- Running Checks On-Demand
- Running Checks on Subsets of the Oracle Stack
- Running Profile Checks
- Running Upgrade Readiness Checks
- Viewing Available Checks with the Health Check Catalog
- Integrating Check Results with Other Tools
- Running Checks Through REST

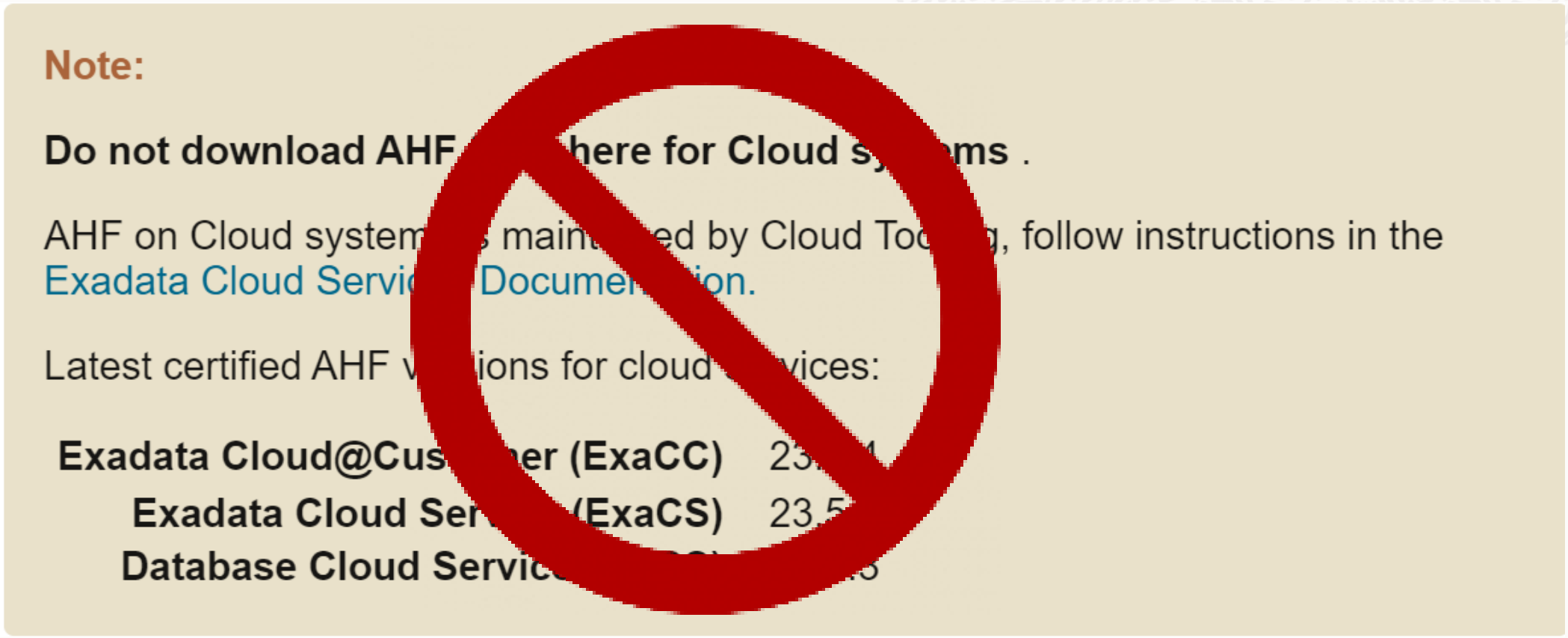
Collecting and Analyzing Diagnostics

Oracle Trace File Analyzer monitors your logs for significant problems, such as internal errors like ORA-00600, or node evictions.

- Collecting Diagnostics Automatically
- Collecting Diagnostics On-Demand
- Analyzing Diagnostic Collections
- Customizing Diagnostic Collections
- Oracle Trace File Analyzer Service Request Data Collections (SRDCs)

Click Here

Never update AHF using traditional metods | Cloud Tooling will do that



Oracle Linux S.O.S Report

Oracle Linux S.O.S Report

- The ***sosreport*** collects system information from an Oracle Linux system by capturing various log files, configuration files and command outputs that help in diagnosing a problem faster;
- Since this collects the information most commonly needed while troubleshooting problems, sosreport helps reduce the number of iterations of data requests from the customer;
- The logs, configuration files and related command outputs provide a better picture about the system environment, and thus it is very helpful for cases requiring root cause analysis and for debugging ongoing issues
- The SOS Report **must be executed as root user**;

How To Collect Sosreport on Oracle Linux (Doc ID 1500235.1)

SOLUTION

Main Content

To run sosreport, the package "sos" must be installed. This is usually installed by default, unless the system was installed with a custom package set. If it is not installed, it can be installed from ULN with up2date, the public Oracle Linux repository or from installation media. It is also a good idea to make sure it is up to date.

```
# yum install sos
```

or

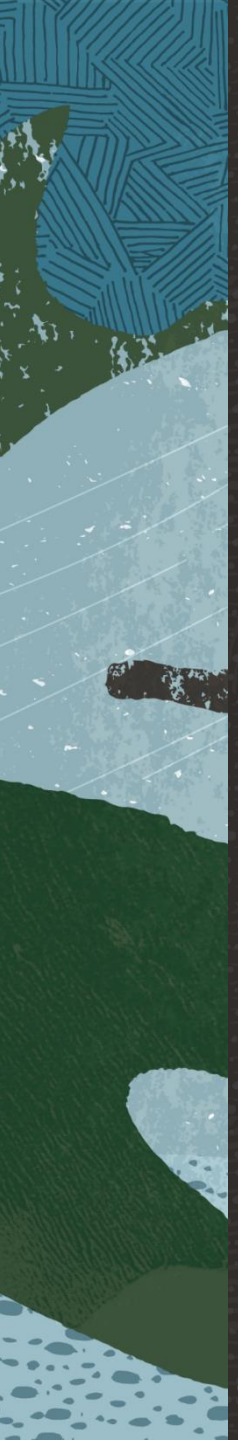
```
# yum update sos
```

To create the sosreport can be as simple as running the command in a terminal, without arguments, as root:

```
# sosreport
```

It will ask for some information related to a support case:

```
# sosreport

sosreport (version 1.7)

This utility will collect some detailed  information about the
hardware and  setup of your  Enterprise Linux  system.
The information is collected and an archive is  packaged under
/tmp, which you can send to a support representative.
This information will be used for diagnostic purposes ONLY
and it will be considered confidential information.

This process may take a while to complete.
No changes will be made to your system.

Press ENTER to continue, or CTRL-C to quit.
Please enter your first initial and last name [testsystem-2]: jdoe
Please enter the case number that you are generating this report for: 3-1234567890
```



Oracle Database TFA

Oracle Database Trace File Analyzer

SCAN ME

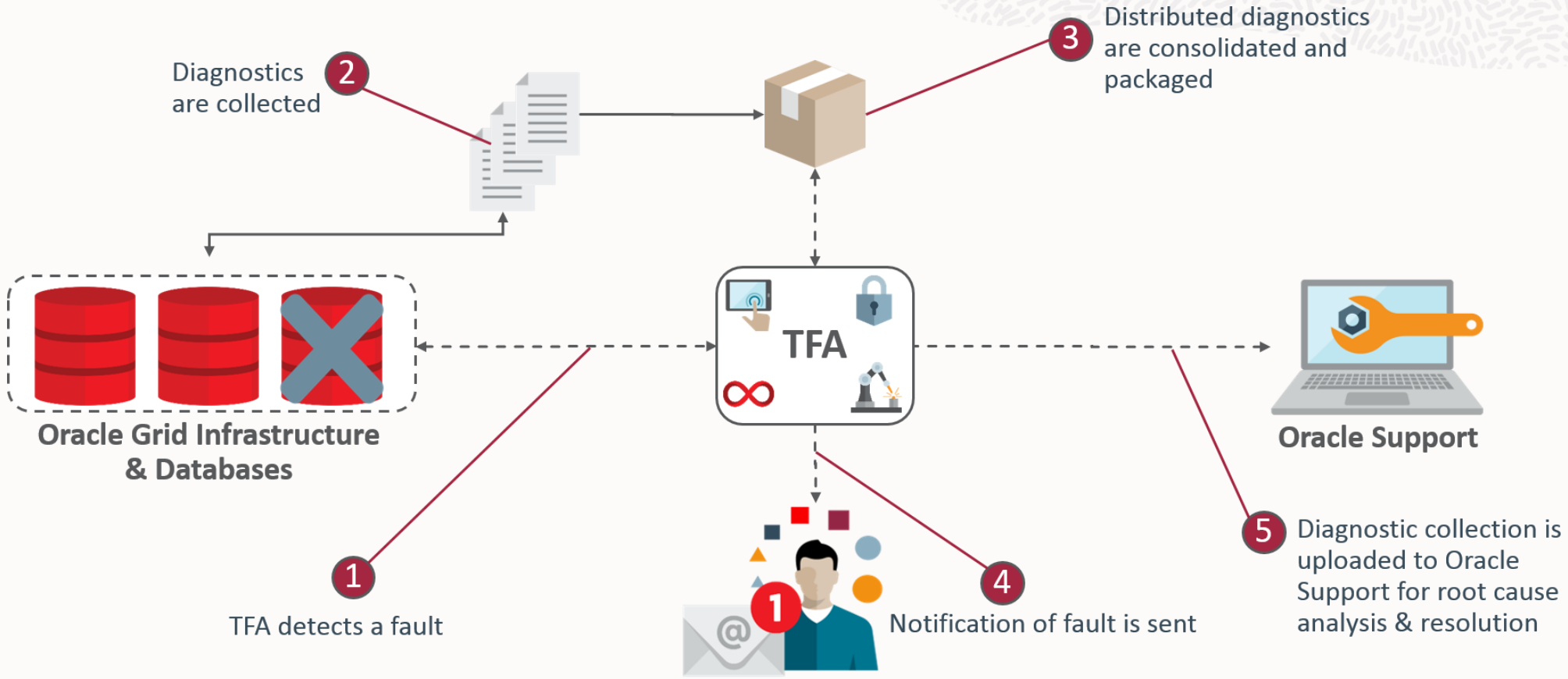
- Invoke any necessary diagnostics and collect all relevant log data at the time of a problem

- Store the collection in the repository
- Trim log files around the time of the problem, so it only collects what is necessary for diagnosis
- Send you email notification of the problem and details of diagnostic collection, ready for upload to Oracle Support

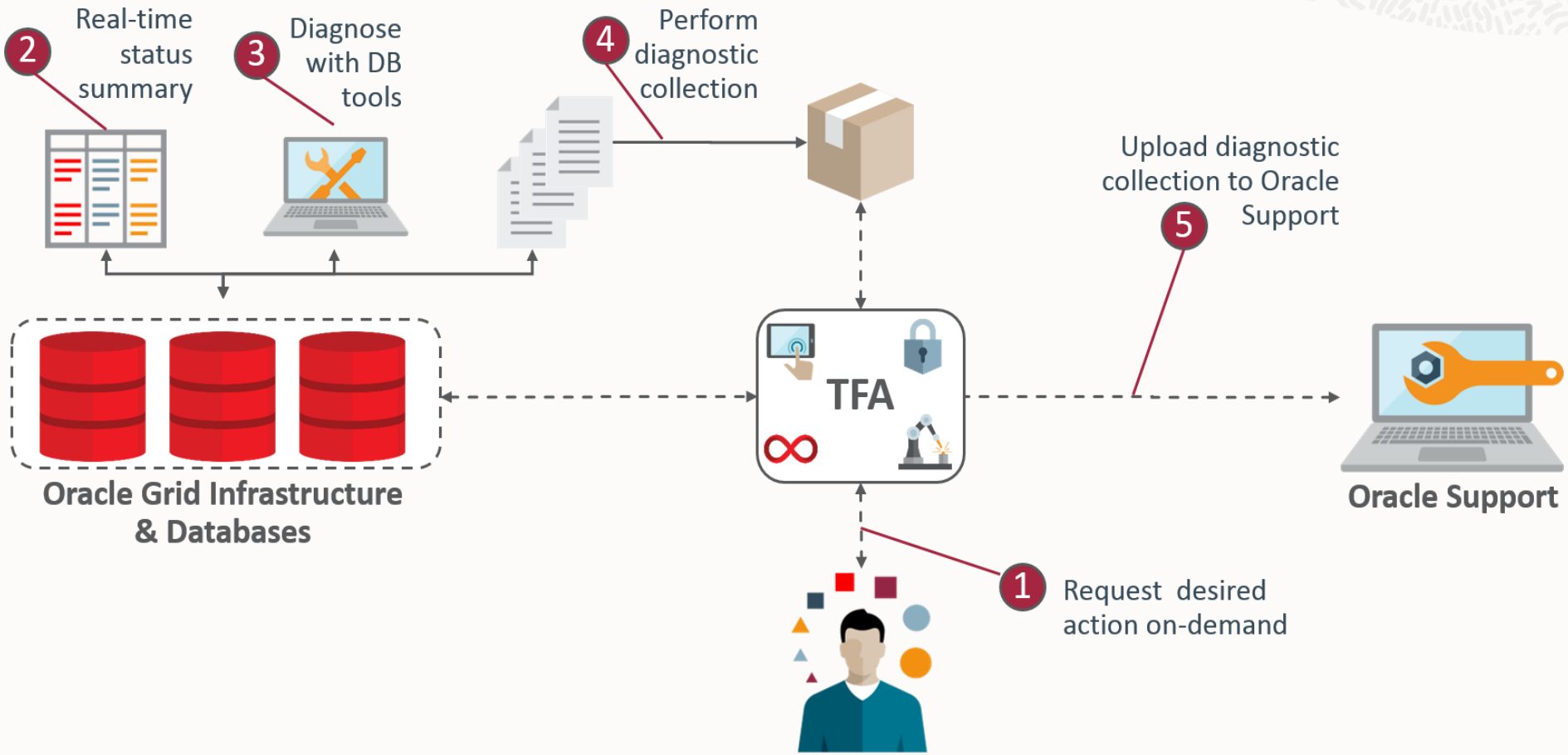
- You can then either use TFA to upload the collection to Oracle Support, if you can make a connection from that environment, or transfer the collection somewhere else for upload

Click Here

TFA automatic collector diagram | TFA open SR and inform DBA



TFA Collector on demand diagram | DBA request action



TFA Command Interfaces

Command line

- Specify all command options at the command line

```
tfactl <command>
```

Shell

1. Set and change context
2. Run commands from within the shell

```
tfactl
tfaclt > database MyDB
MyDB tfactl > oratop
```

Menu

1. Select menu navigation options then choose the command you want to run

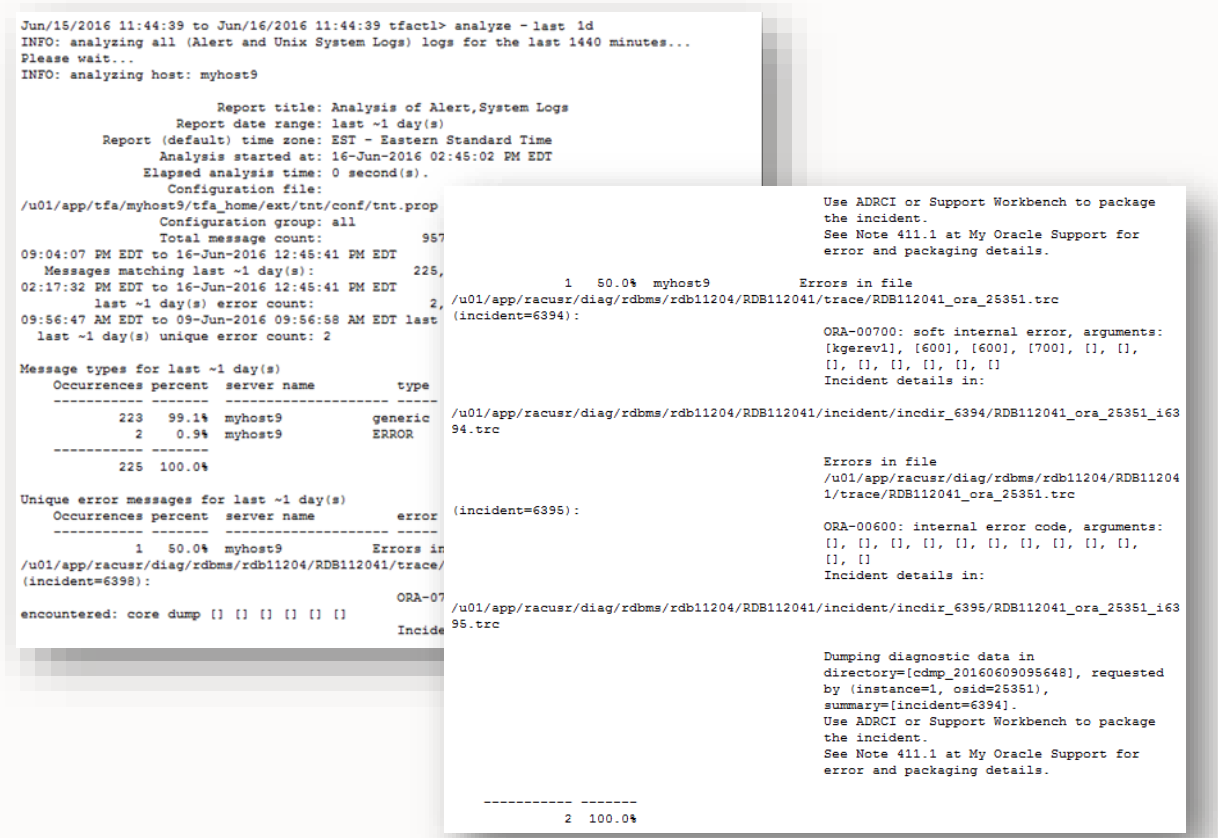
```
tfactl menu
```

```
Trace File Analyzer Collector Menu System
=========================================

TFA Main Menu


      The Oracle Trace File Analyzer Menu provides a simple
      interface to the TFA tools.


      Select one of the following categories:

        1.  System Analysis
        2.  Collections
        3.  Administration



    (B)ack   (M)ain   (H)elp   E(x)it

    Please enter your selection :
```

Real-time status summary | Drew down

- Analyze all important recent log entries:

```
tfactl analyze -last 1d
```



```
Jun/15/2016 11:44:39 to Jun/16/2016 11:44:39 tfactl> analyze -last 1d
INFO: analyzing all (Alert and Unix System Logs) logs for the last 1440 minutes...
Please wait...
INFO: analyzing host: myhost9

                    Report title: Analysis of Alert,System Logs
                  Report date range: last ~1 day(s)
          Report (default) time zone: EST - Eastern Standard Time
                Analysis started at: 16-Jun-2016 02:45:02 PM EDT
              Elapsed analysis time: 0 second(s).
                 Configuration file:
/u01/app/tfa/myhost9/tfa_home/ext/tnt/conf/tnt.prop
                 Configuration group: all
                 Total message count:              957
09:04:07 PM EDT to 16-Jun-2016 12:45:41 PM EDT
   Messages matching last ~1 day(s):              225,
02:17:32 PM EDT to 16-Jun-2016 12:45:41 PM EDT
         last ~1 day(s) error count:                2,
09:56:47 AM EDT to 09-Jun-2016 09:56:58 AM EDT last
  last ~1 day(s) unique error count: 2

Message types for last ~1 day(s)
    Occurrences percent  server name          type
    ----------- -------  -------------------- -----
            223   99.1%  myhost9              generic
              2    0.9%  myhost9              ERROR
    ----------- -------
            225  100.0%

Unique error messages for last ~1 day(s)
    Occurrences percent  server name          error
    ----------- -------  -------------------- -----
              1   50.0%  myhost9              Errors in
/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/trace/
(incident=6398):
                                              ORA-07
encountered: core dump [] [] [] [] [] []
                                              Incide
                                              Use ADRCI or Support Workbench to package
                                              the incident.
                                              See Note 411.1 at My Oracle Support for
                                              error and packaging details.

              1   50.0%  myhost9              Errors in file
/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/trace/RDB112041_ora_25351.trc
(incident=6394):
                                              ORA-00700: soft internal error, arguments:
                                              [kgerev1], [600], [600], [700], [], [],
                                              [], [], [], [], [], []
                                              Incident details in:

/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/incident/incdir_6394/RDB112041_ora_25351_i63
94.trc

                                              Errors in file
                                              /u01/app/racusr/diag/rdbms/rdb11204/RDB11204
                                              1/trace/RDB112041_ora_25351.trc
(incident=6395):
                                              ORA-00600: internal error code, arguments:
                                              [], [], [], [], [], [], [], [], [], [],
                                              [], []
                                              Incident details in:

/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/incident/incdir_6395/RDB112041_ora_25351_i63
95.trc

                                              Dumping diagnostic data in
                                              directory=[cdmp_20160609095648], requested
                                              by (instance=1, osid=25351),
                                              summary=[incident=6394].
                                              Use ADRCI or Support Workbench to package
                                              the incident.
                                              See Note 411.1 at My Oracle Support for
                                              error and packaging details.

    ----------- -------
              2  100.0%
```

- Search recent log entries :

```
tfactl analyze -search "ora-006" -last 8h
```

```
Jun/16/2016 03:44:39 to Jun/16/2016 11:44:39 tfactl>
<9 to Jun/16/2016 11:44:39 tfactl> analyze -search "ORA-006" -last 8h
INFO: analyzing all (Alert and Unix System Logs) logs for the last 20160 minutes...  Please
wait...
INFO: analyzing host: myhost9

                    Report title: Analysis of Alert,System Logs
                  Report date range: last ~8 hours(s)
          Report (default) time zone: EST - Eastern Standard Time
                Analysis started at: 16-Jun-2016 02:50:04 PM EDT
              Elapsed analysis time: 0 second(s).
                 Configuration file:
/u01/app/tfa/myhost9/tfa_home/ext/tnt/conf/tnt.prop
                 Configuration group: all
                        Parameter: ORA-006
                 Total message count:              957, from 15-May-2016
09:04:07 PM EDT to 16-Jun-2016 12:45:41 PM EDT
Messages matching last ~8 hours(s):              225, from 16-Jun-2016
03:17:32 PM EDT to 16-Jun-2016 12:45:41 PM EDT
                    Matching regex: ORA-006
                    Case sensitive: false
                       Match count: 1

[Source:
/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/trace/alert_RDB112041.log,
Line: 2909]
Jun 16 09:56:47 2016
Errors in file
/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/trace/RDB112041_ora_25351.trc
(incident=6394):
ORA-00700: soft internal error, arguments: [kgerev1], [600], [600], [700], [], [], [], [],
[], [], [], [] Incident details in:

/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/incident/incdir_6394/RDB112041_ora_25351_i6394.
trc
Errors in file
/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/trace/RDB112041_ora_25351.trc
(incident=6395):
ORA-00600: internal error code, arguments: [], [], [], [], [], [], [], [], [], [], [], []
Incident details in:

/u01/app/racusr/diag/rdbms/rdb11204/RDB112041/incident/incdir_6395/RDB112041_ora_25351_i6395.
trc
Dumping diagnostic data in directory=[cdmp_20160609095648], requested by (instance=1,
osid=25351), summary=[incident=6394].
Use ADRCI or Support Workbench to package the incident.
See Note 411.1 at My Oracle Support for error and packaging details.
```

Real-time status summary | Drew down

```
tfactl_summary_asm_overview>

  ASM_INSTANCE   HOSTNAME        ASM_DISK_SIZE_STATUS              ASM_BLOCK_STATUS   ASM_CHAIN_STATUS   ASM_INCIDENTS   ASM_PROBLEMS
+--------------+---------------+---------------------------------+------------------+------------------+---------------+--------------+
  +ASM1          myserver01      WARNING - Available Size < 20%    PASS               PASS               FAIL            FAIL
  +ASM2          myserver02      WARNING - Available Size < 20%    PASS               PASS               PASS            PASS
+--------------+---------------+---------------------------------+------------------+------------------+---------------+--------------+

  Status Type: Select Status Type - select [status_type_number|status_type_name]
    1 => asm_myserver01
    2 => asm_myserver02


tfactl_summary_asm_overview>1

    =====> asm_problems

  ADR_EVENTS
+-----------------------------------------------------------------------------------------------------------------------------------------+
  .-------------------------------------------------------------------------------------------------------------------------------------.
  | STATUS_TYPE          | DETAILS                                                                                                      |
  +----------------------+--------------------------------------------------------------------------------------------------------------+
  | ADR_HOME             | /u01/app/grid/diag/asm/+asm/+ASM1                                                                            |
  | ORACLE_HOME          | /u01/app/12.1.0.2/grid                                                                                       |
  | PROBLEM_STATUS_CHECK | ASM1:FAIL                                                                                                    |
  | PROBLEMS             | .-----------------------------------------------------------------------------------------------------------. |
  |                      | | LAST_INCIDENT | LASTINC_TIME                      | PROBLEM_ID | PROBLEM_KEY                | |
  |                      | +---------------+-----------------------------------+------------+----------------------------+ |
  |                      | |        140993 | 2017-07-26 10:33:59.207000 -07:00 |          1 | ORA 700 [kfzUserAuth_beq] | |
  |                      | '---------------+-----------------------------------+------------+----------------------------' |
  '----------------------+--------------------------------------------------------------------------------------------------------------'

+-----------------------------------------------------------------------------------------------------------------------------------------+
```

```
    =====> asm_instancefiles

 file_number   compound_index   bytes          block_size   name            modification_date   creation_date   striped   incarnation   group_number
+-------------+---------------+--------------+------------+---------------+-------------------+---------------+---------+-------------+--------------+
         256        16777472          7680          512   PASSWORD        28-APR-16           28-APR-16       COARSE      910378595              1
         257        16777473        167329792        16384   CONTROLFILE     28-APR-16           28-APR-16       FINE        910378603              1
         258        16777474       4294967808          512   ONLINELOG       28-APR-16           28-APR-16       COARSE      910378605              1
         259        16777475       4294967808          512   ONLINELOG       28-APR-16           28-APR-16       COARSE      910378607              1
         260        16777476      17179877376         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378609              1
         261        16777477       5153972224         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378609              1
         262        16777478      17179877376         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378613              1
         263        16777479       5153972224         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378613              1
         264        16777480      17179877376         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378613              1
         265        16777481          7680          512   PASSWORD        28-APR-16           28-APR-16       COARSE      910378849              1
         266        16777482        167329792        16384   CONTROLFILE     28-APR-16           28-APR-16       FINE        910378855              1
         267        16777483       4294967808          512   ONLINELOG       28-APR-16           28-APR-16       COARSE      910378857              1
         268        16777484       4294967808          512   ONLINELOG       28-APR-16           28-APR-16       COARSE      910378859              1
         269        16777485      17179877376         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378861              1
         270        16777486       5153972224         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378861              1
         271        16777487      17179877376         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378863              1
         272        16777488       5153972224         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378865              1
         273        16777489      17179877376         8192   DATAFILE        28-APR-16           28-APR-16       COARSE      910378865              1
         274        16777490          7680          512   PASSWORD        28-APR-16           28-APR-16       COARSE      910384849              1
         275        16777491        167395328        16384   CONTROLFILE     28-OCT-17           28-APR-16       FINE        910384857              1
         276        16777492       4294967808          512   ONLINELOG       28-OCT-17           28-APR-16       COARSE      910384859              1
         277        16777493       4294967808          512   ONLINELOG       28-OCT-17           28-APR-16       COARSE      910384861              1
         278        16777494      17179877376         8192   DATAFILE        28-OCT-17           28-APR-16       COARSE      910384863              1
```

```
    =====> asm_status_summary

  STATUS_TYPE                  STATUS
+------------------------------+-----------------------------------------------------------------------------------------+
  SYSTEM_DATE                  Wed Nov  1 02:26:44 PDT 2017
  ASM_HOME                     /u01/app/12.1.0.2/grid
  ASM_VERSION
  ASM_INSTANCE                 +ASM1
  ASM_DIAGNOSTICS_TRACE_FOLDER /u01/app/grid/diag/asm/+asm/+ASM1/trace
  ASM_CHAIN_STATUS             PASS
  ASM_BLOCK_STATUS             PASS
  ASM_DISK_SIZE_STATUS         WARNING - Available Size < 20%
  ASM_DISK_GROUP_SUMMARY       .-------------------------.
                               | name    | disk_size_alert |
                               +---------+-----------------+
                               | DATAC1  | Yellow : 25%    |
                               | RECOC2  | Yellow : 48%    |
                               | DBFS_DG | Yellow : 47%    |
                               | RECOC1  | Red : 1%        |
                               '---------+-----------------'
  ADR_EVENTS                   .-------------------------------------------------------------------.
                               | HOSTNAME       | INCIDENT_STATUS | INSTANCE_NAME | PROBLEM_STATUS |
                               +----------------+-----------------+---------------+----------------+
                               | myserver01     | FAIL            | ASM1          | FAIL           |
                               '----------------+-----------------+---------------+----------------'
+------------------------------+-----------------------------------------------------------------------------------------+
```

Drill downs show real-time analytics & details of any problems found

Exadata Cloud Exachk

- **Oracle Exadata Database Machine Exachk** (Doc ID 1070954.1)

PURPOSE

This document describes how to obtain, install, execute, and update Exachk for Oracle Exadata Database Machine based implementations. It also describes common use cases and best practices to ensure that your Exadata deployment and configurations remain compliant with Exadata Maximum Availability Architecture (MAA) best practices.

SCOPE

This document applies to all Oracle Exadata Database Machine based implementations:

- Exadata Cloud at Customer, Exadata Cloud Service, and Autonomous Database Services
- Exadata On-Premises
  - Bare Metal
  - Virtual Machines

DETAILS

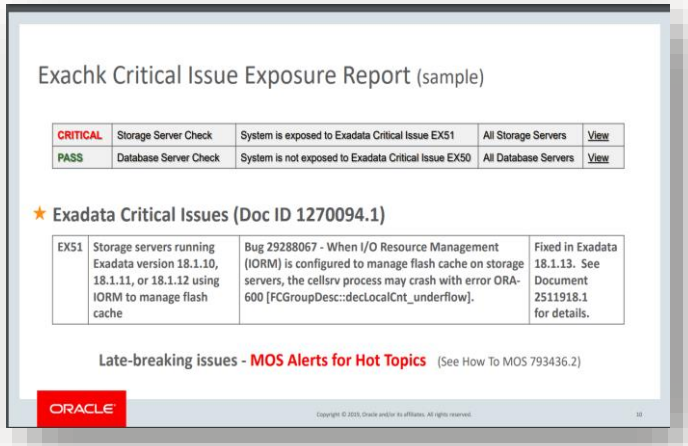
Exachk Overview

Exachk holistically evaluates Exadata Database Machine engineered systems.

It includes:

- Configuration checks for Database Servers, Storage Servers, and Network Fabric Switches:
  - Firmware
  - Operating System (e.g. Oracle Linux)
  - Exadata software
  - Grid Infrastructure and ASM
  - Database
- MAA Scorecard:
  - MAA Configuration Review
  - Exadata Software Planner
  - Exadata Critical Issue alerts
- Automatic Correction (when applicable):
  - Configuration Correction
  - Critical Issue Avoidance
- Prerequisite checks for DB and GI software updates
- Prerequisite checks for DB and GI upgrades
- Prerequisite checks for application continuity readiness

Exachk evaluates Exadata Database Machine engineered systems


Exachk Critical Issue Exposure Report (sample)

CRITICAL	Storage Server Check	System is exposed to Exadata Critical Issue EX51	All Storage Servers	View
PASS	Database Server Check	System is not exposed to Exadata Critical Issue EX50	All Database Servers	View

★ Exadata Critical Issues (Doc ID 1270094.1)

EX51	Storage servers running Exadata version 18.1.10, 18.1.11, or 18.1.12 using IORM to manage flash cache	Bug 29288067 - When I/O Resource Management (IORM) is configured to manage flash cache on storage servers, the cellsrv process may crash with error ORA-600 [FCGroupDesc::decLocalCnt_underflow].	Fixed in Exadata 18.1.13. See Document 2511918.1 for details.

Late-breaking issues - MOS Alerts for Hot Topics (See How To MOS 793436.2)

ORACLE

- Firmware
- Operating System (e.g. Oracle Linux)
- Exadata software / Grid Infrastructure and ASM / Database
- MAA Configuration Review / Exadata Software Planner
- Exadata Critical Issue alerts / Critical Issue Avoidance
- Prereq checks for DB and GI software updates

Exadata Cloud Exachk commands

SCAN ME

```
# exachk

# ahfctl version -all

# cat /etc/oracle.ahf.loc

# exachk –profile exatier1

# exachk -get all -id autostart

# dbaascli admin updateAHF

# exachk –excludecheck
9CC87B4EC33DAE8AE053D598EB0A65EF
```

```
[-a]
[-v]
[-debug]
[-nodaemon]
[-f]
[-upgrade]
[-noupgrade]
[-testemail all |
"NOTIFICATION_EMAIL=comma-delimited list of
email addresses"] [-sendemail
“NOTIFICATION_EMAIL=comma-delimited list of
email addresses"]
[-dbserial]
[-dbparallel [n]]
[-dbparallelmax]
```

Click Here

Exadata Cloud ExaWatcher

- **ExaWatcher Utility On Exadata Compute and Storage Nodes** (Doc ID 1617454.1)

APPLIES TO:

Oracle Exadata Storage Server Software - Version 11.2.3.3.0 and later
Information in this document applies to any platform.

PURPOSE

This document describes a newly designed system data collection and diagnostic tool called ExaWatcher. ExaWatcher replaces OSWatcher in Exadata engineered systems.

DETAILS

LOCATION

ExaWatcher resides on both the Exadata compute nodes and storage cell servers. It can be found in /opt/oracle.ExaWatcher.

MANAGEMENT

The ExaWatcher utility is started automatically during boot time. If you need to manually stop and start ExaWatcher you can do the following:

For 11.x, 12.x and 18.x Exadata Images

To stop ExaWatcher:

```
# ./StopExaWatcher.sh
```

To start ExaWatcher:

```
# /opt/oracle.cellos/vldrun -script oswatcher
```

What Exadata Cloud at Customer ExaWatcher tool does ?

- **CPU Charts**

The CPU charts show CPU utilization for the server. These statistics are from iostat (avg-cpu: %user, %system, %iowait).

- **IO Charts**

IO charts show IO performance for an entire server or for individual disks in the storage server.

- **Memory Charts**

Shows Oracle Linux memory consumption during report range data requested

Managing ExaWhater using Linux comands

SCAN ME

For 11.x, 12.x and 18.x Exadata Images

```
# ./StopExaWatcher.sh

# ./opt/oracle.cellos/vldrun -script oswatcher

# ps -ef | grep -i ExaWatcher
```

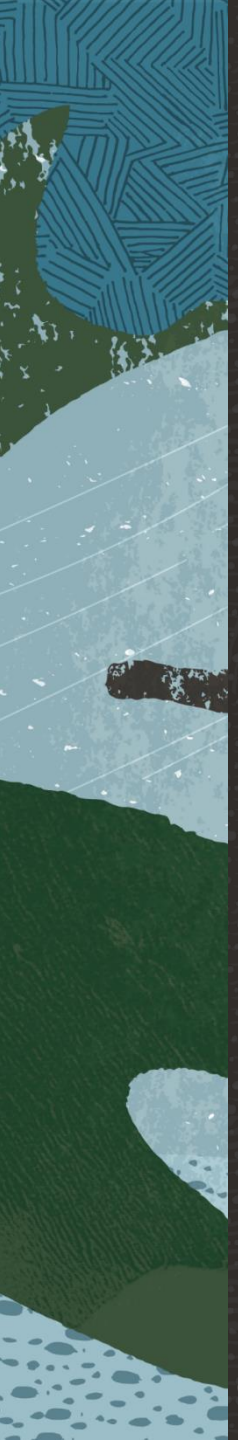
For 19.x Exadata Images :

```
# systemctl stop exawatcher

# systemctl start exawatcher

# systemctl status exawatcher
```

```
# ExaWatcher.sh --help

# ExaWatcherResults.sh --help

# ./ExaWatcher.sh --spacelimit 2048

# ./GetExaWatcherResults.sh --from
01/25/2014_13:00:00 --to
01/25/2014_14:00:00

# /opt/oracle.ExaWatcher/ExaWatcherCleanup.sh
```

Directories :

```
#  /opt/oracle.ExaWatcher

# /opt/oracle.ExaWatcher/archive/ExtractedResults
```



Linux Huge Pages

Oracle Linux Huge Pages on Exadata Cloud

- HugePages is crucial for faster Oracle database performance on Linux if you have a large RAM and SGA. If your combined database SGAs is large (like more than 8GB, can even be important for smaller), you will need HugePages configured.
- For databases with **large SGA (above 2Gb)** and with many connected users **(sessions>500)** configuring HugePages becomes mandatory
- For a database with a small SGA or with a small number of connected users (small 'sessions') configuring Huge Pages won't give any improvement.
- With *Huge Pages* enabled, the system uses fewer *Page Tables*, reducing the overhead for maintaining and accessing them.

- **Oracle Linux: HugePages on Oracle Linux 64-bit** (Doc ID 361468.1)

DETAILS

Introduction

HugePages is a feature of the Linux kernel which allows larger pages to manage memory as the alternative to the small 4KB pagesize. For a detailed introduction, see Document 361323.1

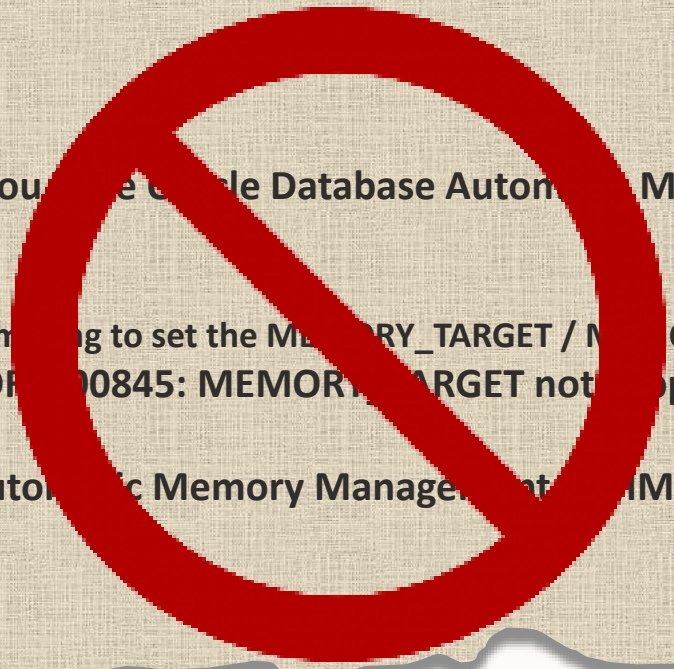
Why Do You Need HugePages?

HugePages is crucial for faster Oracle database performance on Linux if you have a large RAM and SGA. If your combined database SGAs is large (like more than 8GB, can even be important for smaller), you will need HugePages configured. Note that the size of the SGA matters. Advantages of HugePages are:

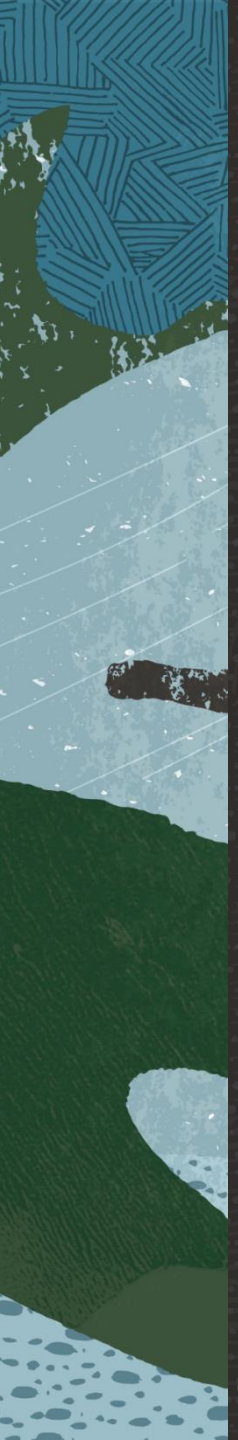
- **Larger Page Size and Less # of Pages**: Default page size is 4K whereas the HugeTLB size is 2048K. That means the system would need to handle 512 times less pages.
- **Reduced Page Table Walking**: Since a HugePage covers greater contiguous virtual address range than a regular sized page, a probability of getting a TLB hit per TLB entry with HugePages are higher than with regular pages. This reduces the number of times page tables are walked to obtain physical address from a virtual address.
- **Less Overhead for Memory Operations**: On virtual memory systems (any modern OS) each memory operation is actually two abstract memory operations. With HugePages, since there are less number of pages to work on, the possible bottleneck on page table access is clearly avoided.
- **Less Memory Usage:** From the Oracle Database perspective, with HugePages, the Linux kernel will use less memory to create pagetables to maintain virtual to physical mappings for SGA address range, in comparison to regular size pages. This makes more memory to be available for process-private computations or PGA usage.
- **No Swapping**: We must avoid swapping to happen on Linux OS at all Document 1295478.1. HugePages are not swappable (whereas regular pages are). Therefore there is no page replacement mechanism overhead. HugePages are universally regarded as pinned.
- **No 'kswapd' Operations**: kswapd will get very busy if there is a very large area to be paged (i.e. 13 million page table entries for 50GB memory) and will use an incredible amount of CPU resource. When HugePages are used, kswapd is not involved in managing them. See also Document 361670.1

There is a general misconception where the HugePages is a feature specific to 32-bit Linux. HugePages is a generic feature available to all word-sizes and architectures. Just that there are some specifics with 32-bit platforms. Please see Document 361323.1 for further references.

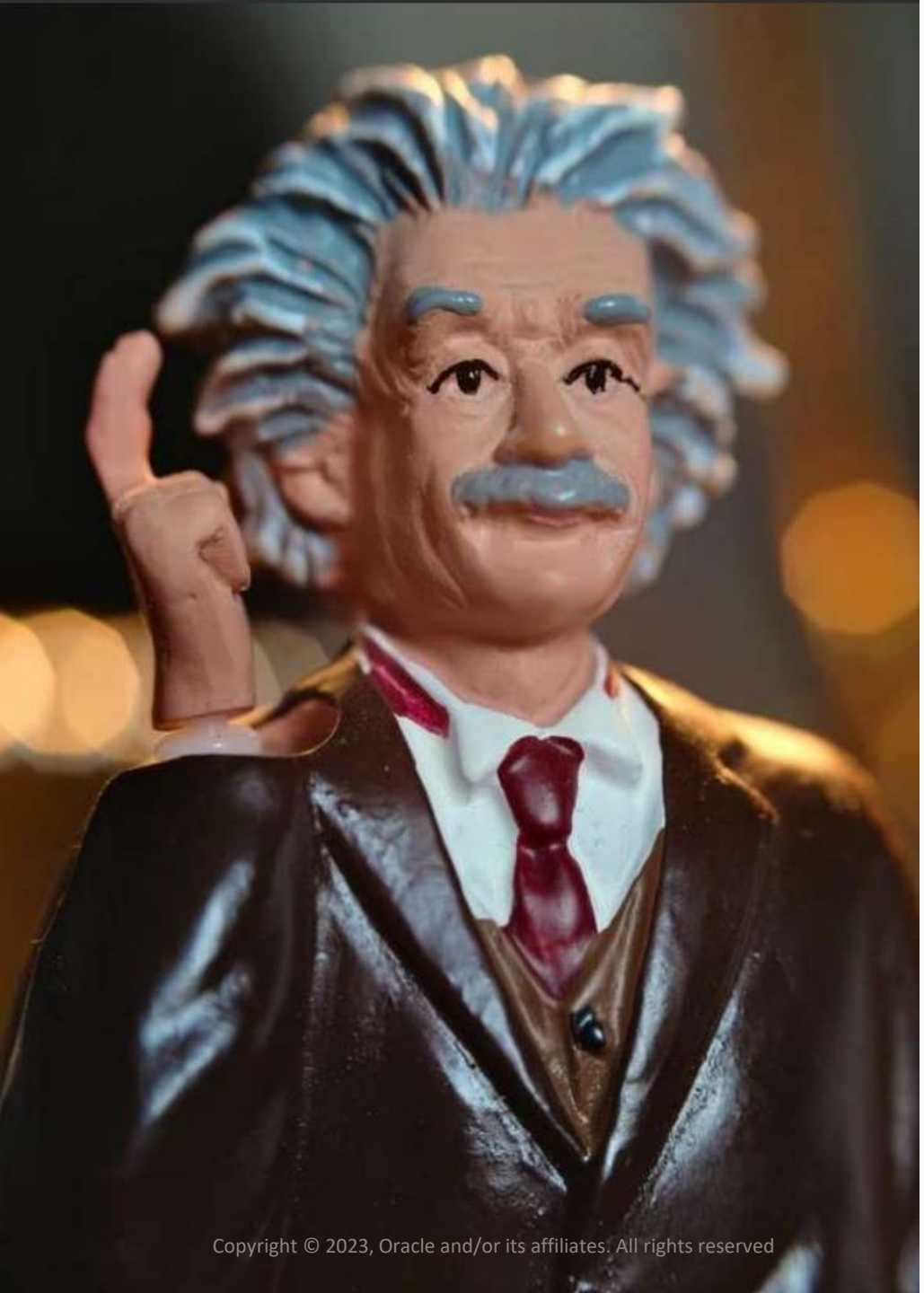
Oracle Linux Huge Pages | Never do This!



- Never configure huge pages once you [illegible]le Database Auton[illegible] Memory Management (AMM) configured on your database;
- On systems with HugePages in use, atte[illegible]g to set the M[illegible]RY_TARGET / M[illegible]ORY_MAX_TARGET instance initialization parameters may result in the following error message: OR[illegible]0845: MEMOR[illegible]ARGET not [illegible]ported on this system;
- HugePages and Oracle Database Auto[illegible]c Memory Manage[illegible]M) on Linux (Doc ID 749851.1)



Demo



Demo 1 – Configuring Huge Pages

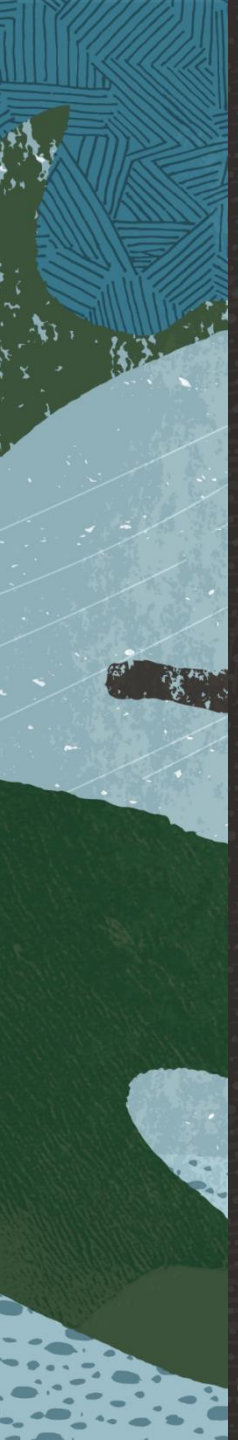
- Check current ***Huge Pages*** *configuration*
- Bounce instance using ***dbaascli***
- Generate new Huge Pages Value

Demo 2 – Exadata ExaWaWatcher

- Managing ***ExaWatcher***
- Generating ***ExaWatcher*** Report
- ***ExaWatcher*** Report Tour

Demo 3 – Exadata Exachk

- Generating ***Exachk*** Report
- ***Exachk*** Report tour



Resources

Exadata Cloud at Customer X9M Data Sheet

SCAN ME

Click Here

Exadata Cloud at Customer X10M Data Sheet

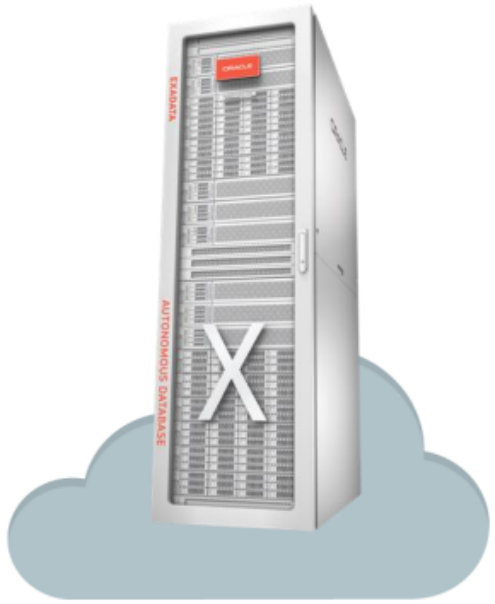
SCAN ME

ORACLE

Oracle Exadata Database Service on Cloud@Customer X10M

Run Oracle's most powerful, available, and flexible cloud database service – Oracle Exadata Database Service – in your data center on Exadata Cloud@Customer

Exadata Database Service

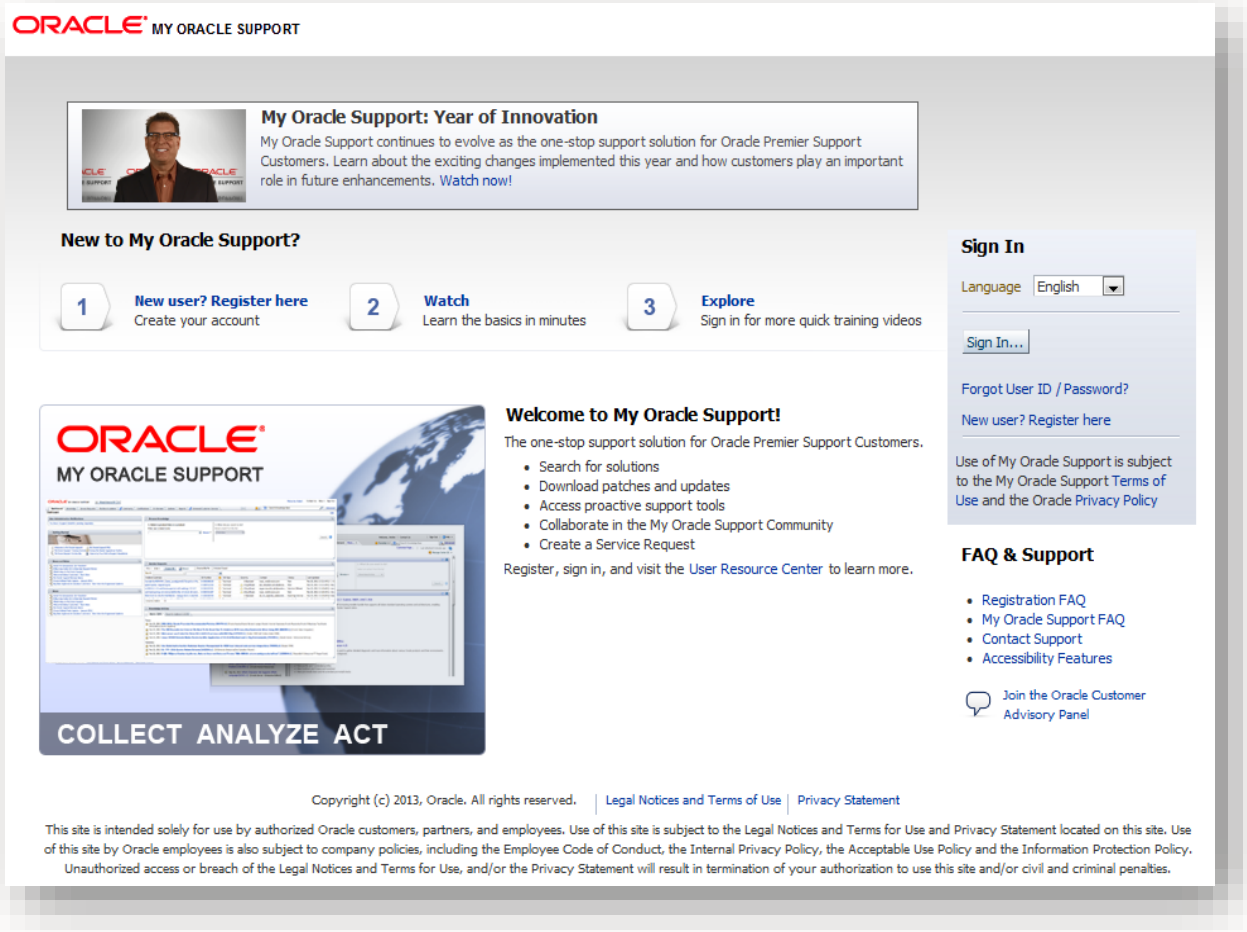


Oracle Exadata
Cloud@Customer X10M

Click Here

MOS Customer Experience

Free MOS training and certifications



- ❑ First contact for resolution, support and technical assistance through Service Request (SR) ticketing system.
- ❑ Online Resources via My Oracle Support Portal.
- ❑ Knowledge Base
  - ➢ Known issues and bugs.
  - ➢ Guides and tutorials.
- ❑ Updated information on patches, bug fixes, security, alerts, new features
- ❑ **How to use My Oracle Support -How-to Training Video Series (Doc ID 603505.1)**

S.O.S Report MOS note References

Doc ID 1663077.1 - Why Is sosreport(1) Hanging Or Running Slowly?

Doc ID 2163668.1 - Oracle Linux: How to Create Sosreport in Alternate Location?

Doc ID 2508454.1 - Oracle Linux / Oracle VM: How To Collect Support Data When sosreport(1) Is Not Installed?

Doc ID 2850341.1 - Oracle Linux: How to Obfuscate Sensitive Information in the Compressed sosreport Archive

Oracle Linux Huge Pages MOS notes

Doc ID 361323.1 HugePages on Linux: What It Is... and What It Is Not...

Doc ID 401749.1 Shell Script to Calculate Values Recommended Linux HugePages / HugeTLB Configuration

Doc ID 749851.1 HugePages and Oracle Database 11g Automatic Memory Management (AMM) on Linux

Doc ID 829850.1 Hugepages Are Not Used by Database Buffer Cache

Doc ID 728063.1 Setup HugePages in an Guest Does Not Work with Oracle VM 2.1 or 2.1.1

Doc ID 1557478.1 ALERT: Disable Transparent HugePages on SLES11, RHEL6, OEL6 and UEK2 Kernels

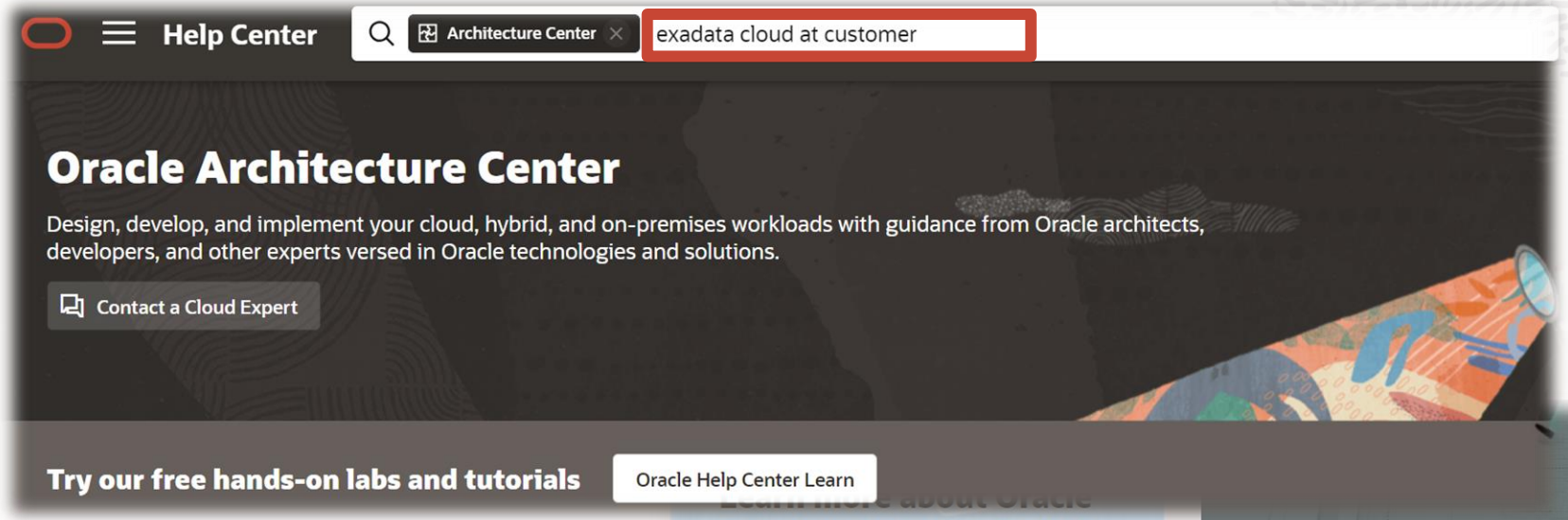
Oracle Linux ExaWatcher MOS notes

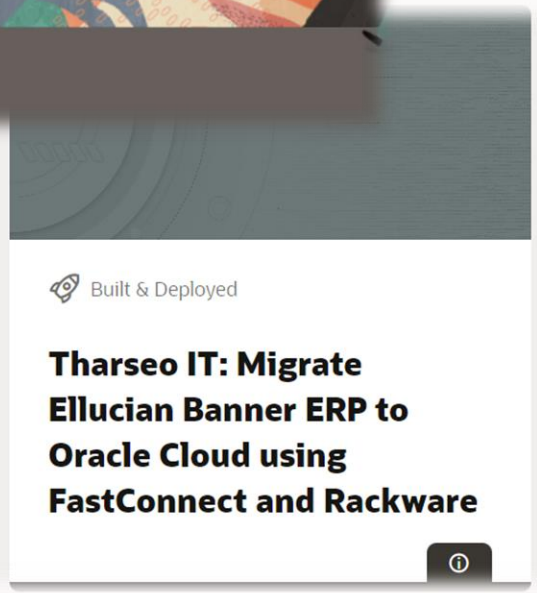
Doc ID 2430498.1 System Crash or Hang Showing 100% CPU Utilization on Background Process: apx_vi00_+APX1

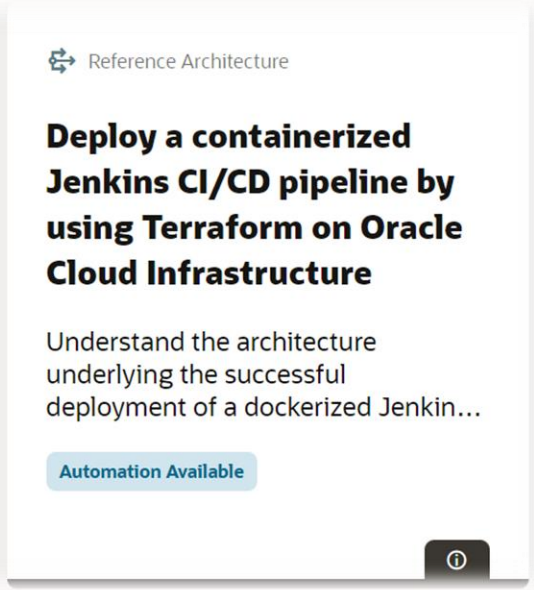
Doc ID 1617454.1 ExaWatcher Utility On Exadata Compute and Storage Nodes

Exadata Cloud Oracle on Architecture Center

SCAN ME







Click here

Exadata Cloud on Oracle Live Labs

SCAN ME

Oracle Autonomous Database Dedicated for Fleet Administrators

As fleet administrator, set up your dedicated ADB platform in the OCI and on Exadata Cloud@Customer.

7 hrs 5463 Views

Oracle Exadata Platform Performance Features

Get hands-on with Oracle Exadata, Exadata Database Service on Cloud@Customer, and Exadata Database (..)

1 hr, 20 mins 717 Views

Get Started with Oracle Exadata Database Service on Cloud@Customer

Explore getting started with Oracle Exadata Database Service on Cloud@Customer.

1 hr

Click Here

Stay Connected with the Latin America Partner Community!

Information, collaboration and training all in a single spot.

The **LAD Partner Community** is a space dedicated to our partners in Latin America, where you can find information and stay up to date on what OPN has to offer.

In the Community, you will find all the information that we communicate to our ecosystem by email.

- Explore **Categories**: organized by grouping publications on a same topic;
- Access the **Recent Discussions** tab to check the latest posts published;
- Take part in **Groups** and interact with Oracle Experts and other partners;
- Recordings.

Important: An Oracle SSO account is required to access the Community and other OPN resources. If you don't have this account yet, access **this link** or the QR code below.

Access the Community:

Create your SSO account:

Thank You ☺

Questions / Feedback / Training Suggestions

alexandre.af.fagundes@oracle.com

marcel.lamarca@oracle.com

Ask for help ☺


ORACLE