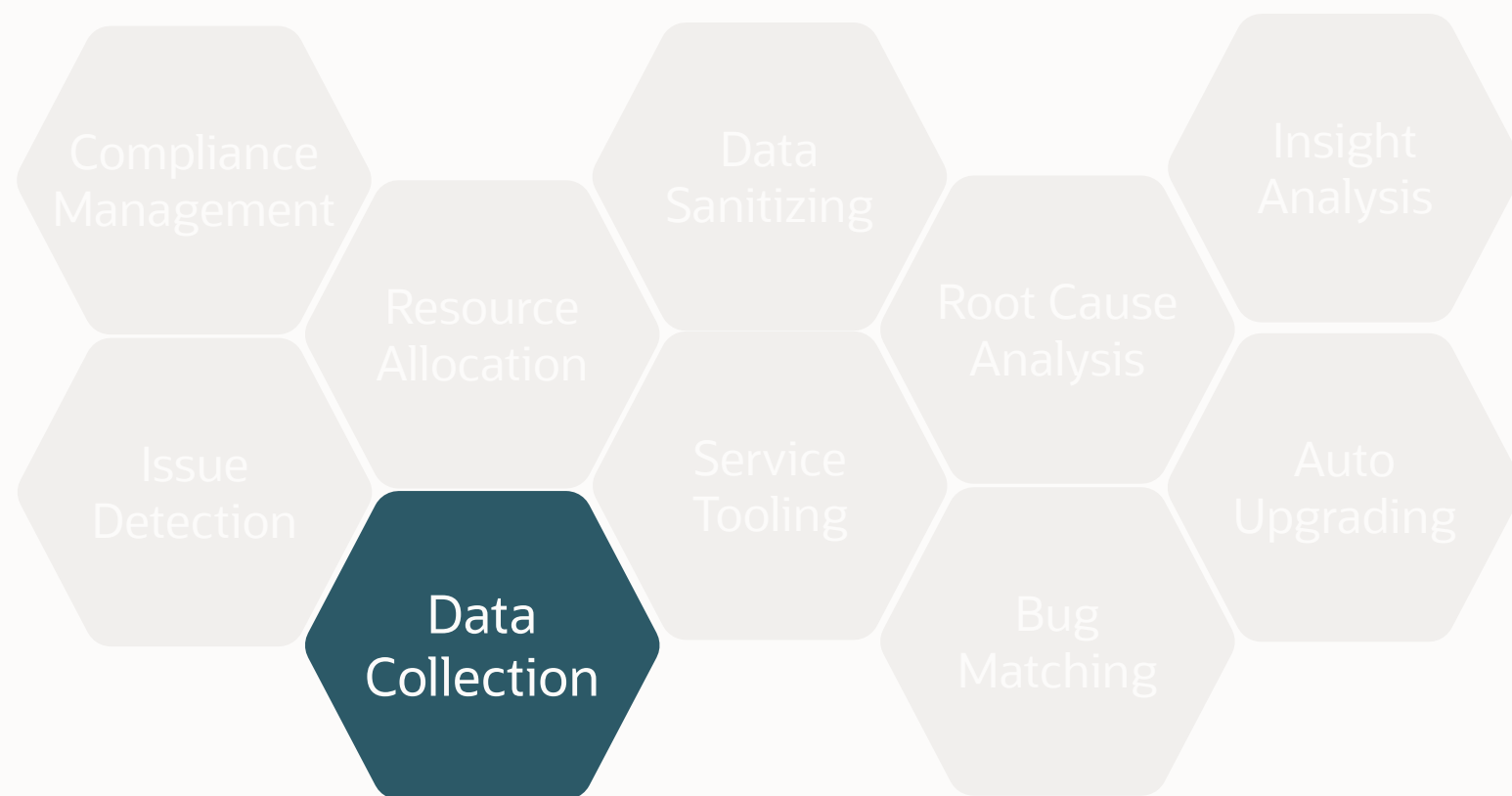


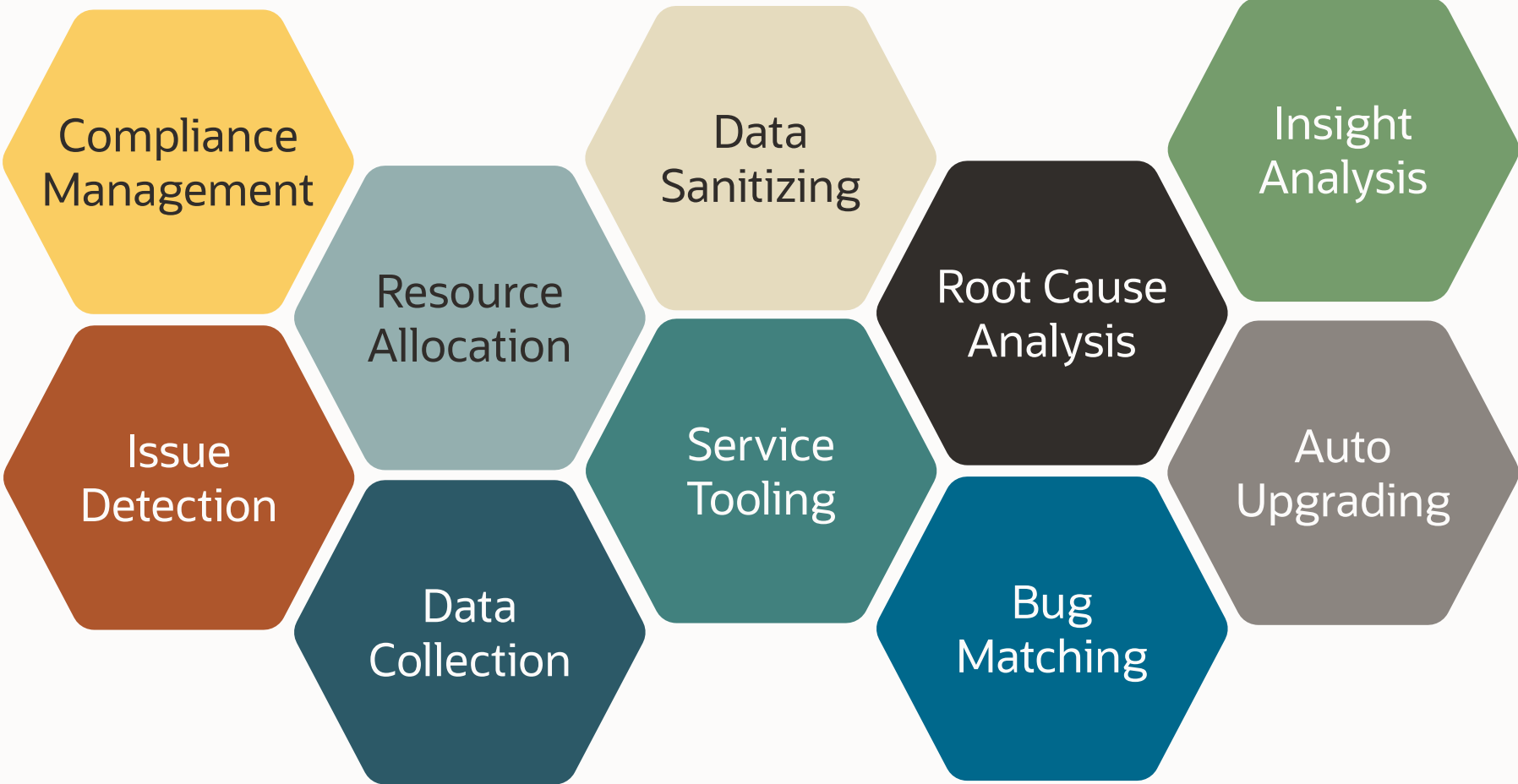
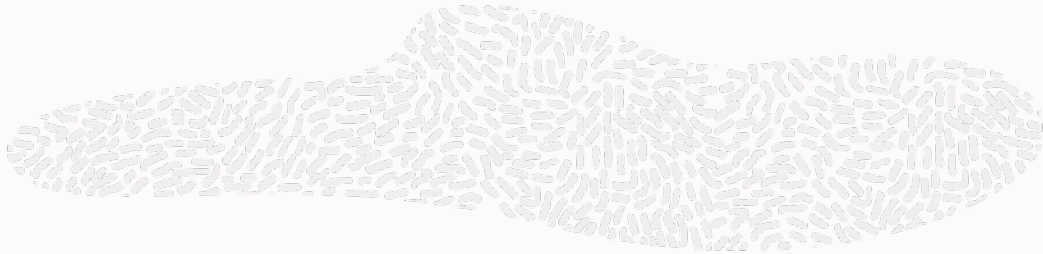
ORACLE

Autonomous Health Framework

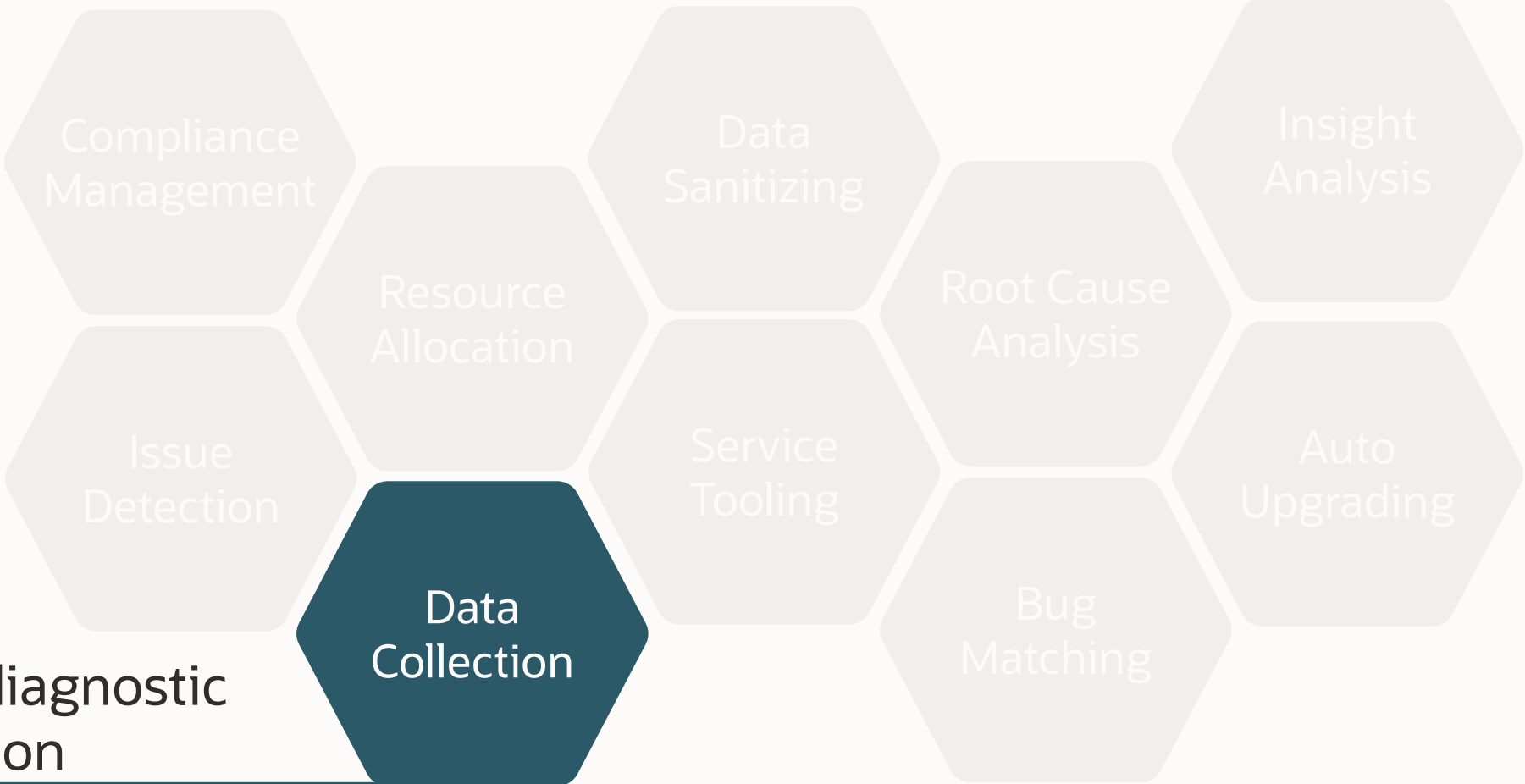
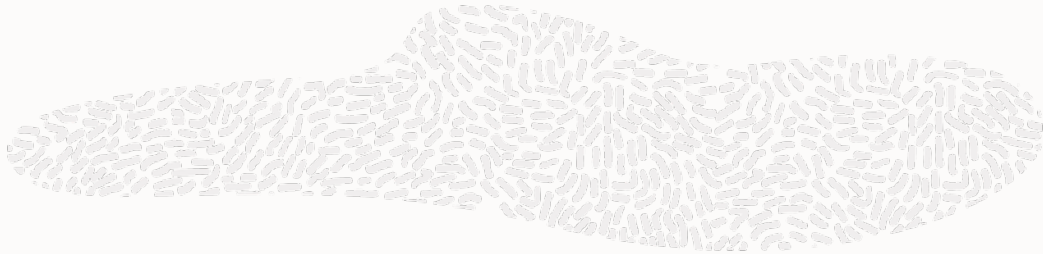
Data Collection



Oracle Autonomous Health Framework



Oracle Autonomous Health Framework



Automatic diagnostic data collection

Around 100 problem types covered

- Database areas
- Errors / Corruption
- Performance
- Install / patching / upgrade
- RAC / Grid Infrastructure
- Import / Export
- RMAN
- Transparent Data Encryption
- Storage / partitioning
- Undo / auditing
- Listener / naming services
- Spatial / XDB

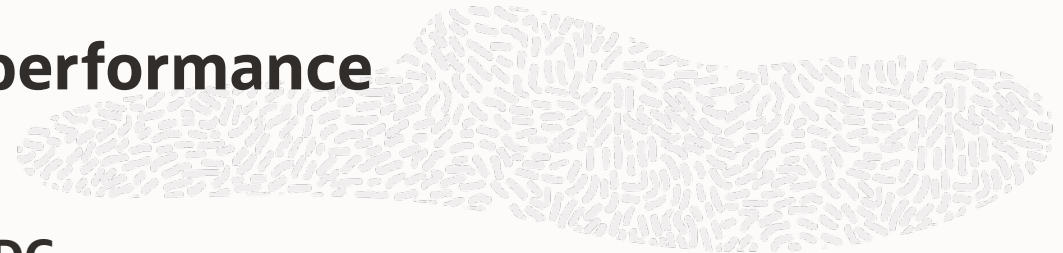


- Other Server Technology
- Enterprise Manager
- Data Guard
- GoldenGate
- Exalogic

[Full list in documentation](#)

```
tfactl diagcollect -srdc <srdc_type> [-sr <sr_number>]
```

Manual collection vs SRDC for database performance



Manual method

1. Generate ADDM reviewing [Document 1680075.1](#) (multiple steps)
2. Identify “good” and “problem” periods and gather AWR reviewing [Document 1903158.1](#) (multiple steps)
3. Generate AWR compare report (awrddrpt.sql) using “good” and “problem” periods
4. Generate ASH report for “good” and “problem” periods reviewing [Document 1903145.1](#) (multiple steps)
5. Collect OSWatcher data reviewing [Document 301137.1](#) (multiple steps)
6. Collect Hang Analyze output at Level 4
7. Generate SQL Healthcheck for problem SQL id using [Document 1366133.1](#) (multiple steps)
8. Run support provided sql scripts – Log File sync diagnostic output using [Document 1064487.1](#) (multiple steps)
9. Check alert.log if there are any errors during the “problem” period
10. Find any trace files generated during the “problem” period
11. Collate and upload all the above files/outputs to SR

SRDC

1. Run

```
tfactl diagcollect -srdc dbperf [-sr <sr_number>]
```



SRDC ORA-00600 example

```
tfactl diagcollect -srdc <srdc_type>
```

- Scans system to identify recent events
- Once the relevant event is chosen, proceeds with diagnostic collection

```
tfactl diagcollect -srdc ORA-00600
Enter the time of the ORA-00600 [YYYY-MM-DD HH24:MI:SS,<RETURN>=ALL] :
Enter the Database Name [<RETURN>=ALL] :

1. Apr/28/2023 05:29:58 : [orcl2] ORA-00600: internal error code, arguments: [600], [], [], [], [], [],
[], [], [], [], [], []
2. Apr/27/2023 06:55:08 : [orcl2] ORA-00600: internal error code, arguments: [600], [], [], [], [], [],
[], [], [], [], [], []

Please choose the event : 1-2 [1]
Selected value is : 1 ( Apr/28/2023 05:29:58 )
```

One command SRDC

All required files are identified

- Trimmed where applicable
- Package in a zip ready to provide to support

```
...
2023/04/28 06:14:24 EST : Getting List of Files to Collect
2023/04/28 06:14:27 EST : Trimming file : myserver1/rdbms/orcl2/orcl2/trace/orcl2_lmhb_3542.trc with
original file size : 163MB
...
2023/04/28 06:14:58 EST : Total time taken : 39s
2023/04/28 06:14:58 EST : Completed collection of zip files.
...
/opt/oracle.ahf/data/repository/srdc_ora600_collection_Fri_Apr_28_06_14_17_EST_2023_node_local/myserver1
.tfa_srdc_ora600_Fri_Apr_28_06_14_17_EST_2023.zip
```

AHF Smart Problem Classification

```
$ tfactl diagcollect
```

```
AHF has detected following events from 2023-03-22 07:16:21.000 to 2023-03-22 11:16:21.000[17]SEP All events are displayed in EDT time zone
```

```
Choose an event to perform a diagnostic collection:
```

- 1 . 2023-03-22 10:25:27.000 [RDBMS.cdbone.cdbone] ORA-00600: internal error code, arguments: [bryan]... [50 times]
- 2 . 2023-03-22 11:11:44.000 [RDBMS.orcl.lottapdb1] Reconfiguration started (old inc 0, new inc 2) [2 times]
- 3 . 2023-03-22 11:13:21.000 [RDBMS.orcl.lottapdb1] ORA-00600: internal error code, arguments: [adrewa]...
- 4 . 2023-03-22 11:13:34.000 [RDBMS.orcl.lottapdb1] ORA-00060: Global Enqueue Services Deadlock detected
- 5 . 2023-03-22 11:15:02.000 [RDBMS.orcl.lottapdb1] ORA-29770: global enqueue process LMS0 (OSID 111) is hung...
- 6 . 2023-03-22 11:15:55.000 [RDBMS.orcl.lottapdb1] ORA-32701: Possible hangs up to hang ID=34 detected
- 7 . Display Problem Categories
- 8 . Enter a different event time
- X . Exit

```
Choose the option [1-10]:
```


AHF Smart Problem Classification

```
$ tfactl diagcollect
```

```
AHF has detected following events from 2023-03-22 07:16:21.000 to 2023-03-22 11:16:21.000 [17 SEP] All events are displayed in EDT time zone
```

```
Choose an event to perform a diagnostic collection:
```

```
1 . 2023-03-22 10:25:27.000 [RDBMS.cdbone.cdbone] ORA-00600: internal error code, arguments: [bryan]... [50 times]
2 . 2023-03-22 11:11:44.000 [RDBMS.orcl.lottapdb1] Reconfiguration started (old inc 0, new inc 2) [2 times]
3 . 2023-03-22 11:13:21.000 [RDBMS.orcl.lottapdb1] ORA-00600: internal error code, arguments: [adrewa]...
4 . 2023-03-22 11:13:34.000 [RDBMS.orcl.lottapdb1] ORA-00060: Global Enqueue Services Deadlock detected
5 . 2023-03-22 11:15:02.000 [RDBMS.orcl.lottapdb1] ORA-29770: global enqueue process LMS0 (OSID 111) is hung...
6 . 2023-03-22 11:15:55.000 [RDBMS.orcl.lottapdb1] ORA-32701: Possible hangs up to hang ID=34 detected
7 . Display Problem Categories
8 . Enter a different event time
X . Exit
```

```
Choose the option [1-10]:6
```

```
Is the issue related a specific Pluggable Database? [Y|N] [Required for this SRDC]: N
```

```
Do you have a performance issue now [Y|y|N|n] [Y]: Y
```

```
Enter duration of the issue in hours [<RETURN>=1h] : 2h
```

```
As you have indicated that the performance issue is currently happening, will be collecting snapshots for the following periods:
```

```
Start time when the performance was bad: Mar/22/2023 09:28:05
```

```
Stop time when the performance was bad: Mar/22/2023 11:28:05
```

AHF Smart Problem Classification

As you have indicated that the performance issue is currently happening, will be collecting snapshots for the following periods:

Start time when the performance was bad: Mar/22/2023 09:28:05

Stop time when the performance was bad: Mar/22/2023 11:28:05

If any particular SQL causes the database to be slow?[Y|N] [Required for this SRDC]: N

Do you wish to generate a System State Dump? [Y|y|N|n] [Required for this SRDC]: N

Components included in this collection: DATABASE CHMOS CHA OS

Preparing to execute support diagnostic scripts.

Executing DB Script srdc_db_lfsdiag.sql on orcl with timeout of 120 seconds...

Executing DB Script srdc_real_time_addm.sql on orcl with timeout of 120 seconds...

Executing DB Script srdc_statsadvisor_report.sql on orcl with timeout of 300 seconds...

Executing DB Script saas_db_validation.sql on orcl with timeout of 300 seconds...

Executing DB Script collect_logon_logoff_triggers.sql on orcl with timeout of 300 seconds...

Executing OS Script get_perfhub_report with timeout of 600 seconds...

Collecting data for all nodes

TFA is using system timezone for collection, All times shown in EDT.

Scanning files from Mar/22/2023 09:28:05 to Mar/22/2023 11:28:05

Collection Id : 20230322112851myserver1

Detailed Logging at :

/u02/oracle.ahf/data/repository/srdc_dbhangperflite_collection_Wed_Mar_22_11_28_55_EDT_2023_node_all/diagcollect_202303221128

AHF Smart Problem Classification

```
Collection Id : 20230322112851myserver1
```

```
Detailed Logging at :
```

```
/u02/oracle.ahf/data/repository/srdc_dbhangperflite_collection_Wed_Mar_22_11_28_55_EDT_2023_node_all/diagcollect_20230322112851_myserver1.log
```

```
Waiting up to 120 seconds for collection to start
```

```
2023/03/22 11:29:03 EDT : NOTE : Any file or directory name containing the string .com will be renamed to replace .com with dotcom
```

```
2023/03/22 11:29:03 EDT : Collection Name : tfa_srdc_dbhangperflite_Wed_Mar_22_11_28_53_EDT_2023.zip
```

```
2023/03/22 11:29:04 EDT : Collecting diagnostics from hosts : [myserver1, myserver2]
```

```
2023/03/22 11:29:13 EDT : Scanning of files for Collection in progress...
```

```
2023/03/22 11:29:13 EDT : Collecting Additional Diagnostic Information...
```

```
2023/03/22 11:29:18 EDT : Getting list of files satisfying time range [03/22/2023 09:28:05 EDT, 03/22/2023 11:28:05 EDT]
```

```
2023/03/22 11:29:27 EDT : Executing DB Script awr_reports_lite on orcl with timeout of 3600 seconds...
```

```
2023/03/22 11:29:43 EDT : Executing DB Script dbhang on orcl with timeout of 3600 seconds...
```

```
2023/03/22 11:29:45 EDT : Collecting ADR incident files...
```

```
2023/03/22 11:30:57 EDT : Executing Applicable ORAchk Validations with timeout of 600 seconds...
```

```
2023/03/22 11:31:01 EDT : Executing IPS Incident Package Collection(s)...
```

```
2023/03/22 11:31:03 EDT : Generating IPS Pack for 2 incidents on database orcl
```

```
2023/03/22 11:31:14 EDT : Executing SQL Script db_feature_usage.sql on orcl with timeout of 600 seconds...
```

```
2023/03/22 11:31:14 EDT : Executing Collection for OS with timeout of 1800 seconds...
```

```
2023/03/22 11:31:26 EDT : Executing Cluster Health Monitor data collection with timeout of 1800 seconds...
```

```
2023/03/22 11:31:26 EDT : Completed Collection of Additional Diagnostic Information...
```

```
2023/03/22 11:31:36 EDT : Completed Local Collection
```

```
2023/03/22 11:31:36 EDT : Not Redacting this Collection ...
```

```
2023/03/22 11:31:36 EDT : Remote Collection in Progress...
```

```
2023/03/22 11:33:06 EDT : Completed collection of zip files.
```

AHF Smart Problem Classification

```
2023/03/22 11:31:03 EDT : Generating IPS Pack for 2 incidents on database orcl
2023/03/22 11:31:14 EDT : Executing SQL Script db_feature_usage.sql on orcl with timeout of 600 seconds...
2023/03/22 11:31:14 EDT : Executing Collection for OS with timeout of 1800 seconds...
2023/03/22 11:31:26 EDT : Executing Cluster Health Monitor data collection with timeout of 1800 seconds...
2023/03/22 11:31:26 EDT : Completed Collection of Additional Diagnostic Information...
2023/03/22 11:31:36 EDT : Completed Local Collection
2023/03/22 11:31:36 EDT : Not Redacting this Collection ...
2023/03/22 11:31:36 EDT : Remote Collection in Progress...
2023/03/22 11:33:06 EDT : Completed collection of zip files.
```

```
.-----.
```

Collection Summary			
Host	Status	Size	Time
myserver2	Completed	12MB	198s
myserver1	Completed	19MB	152s

```
-----.
```

Logs are being collected to:

```
/u02/oracle.ahf/data/repository/srdc_dbhangperflite_collection_Wed_Mar_22_11_28_55_EDT_2023_node_all
```

```
/u02/oracle.ahf/data/repository/srdc_dbhangperflite_collection_Wed_Mar_22_11_28_55_EDT_2023_node_all/myserver2.tfa_srdc_dbhangperflite_Wed_Mar_22_11_28_53_EDT_2023.zip
```

```
/u02/oracle.ahf/data/repository/srdc_dbhangperflite_collection_Wed_Mar_22_11_28_55_EDT_2023_node_all/myserver1.tfa_srdc_dbhangperflite_Wed_Mar_22_11_28_53_EDT_2023.zip
```



GIMR / MGMTDB



Oracle Cluster Diagnostics Repository

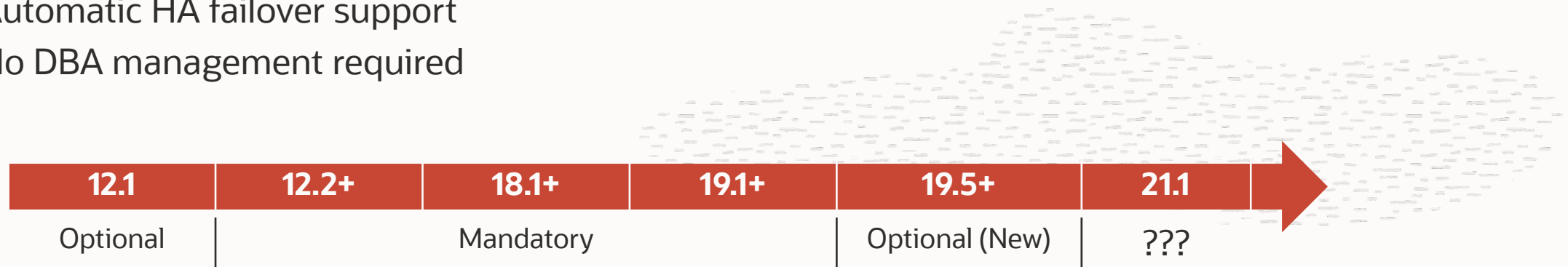
The GIMR – Your Oracle Cluster Diagnostics Repository

1. PROS

- Stores Autonomous Health metrics for real-time and post-mortem analysis
 - Cluster Health Monitor (CHM)
 - Cluster Health Advisor (CHA)
 - DB QoS Management (QoSM)
- Default 72 hours of storage
- Minimized resource footprint
- Built-in Automatic Lifecycle management
- Automatic HA failover support
- No DBA management required

1. CONS

- Requires minimum 30GB of shared disk
- GI Patching and Upgrade integration requires significantly longer maintenance window
- Only remote centralized solution required new Member Cluster greenfield installation

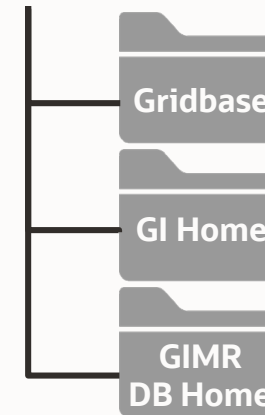


New 21c GI Management Repository (GIMR) Deployment Options

1. New Local Separate Home Default Option

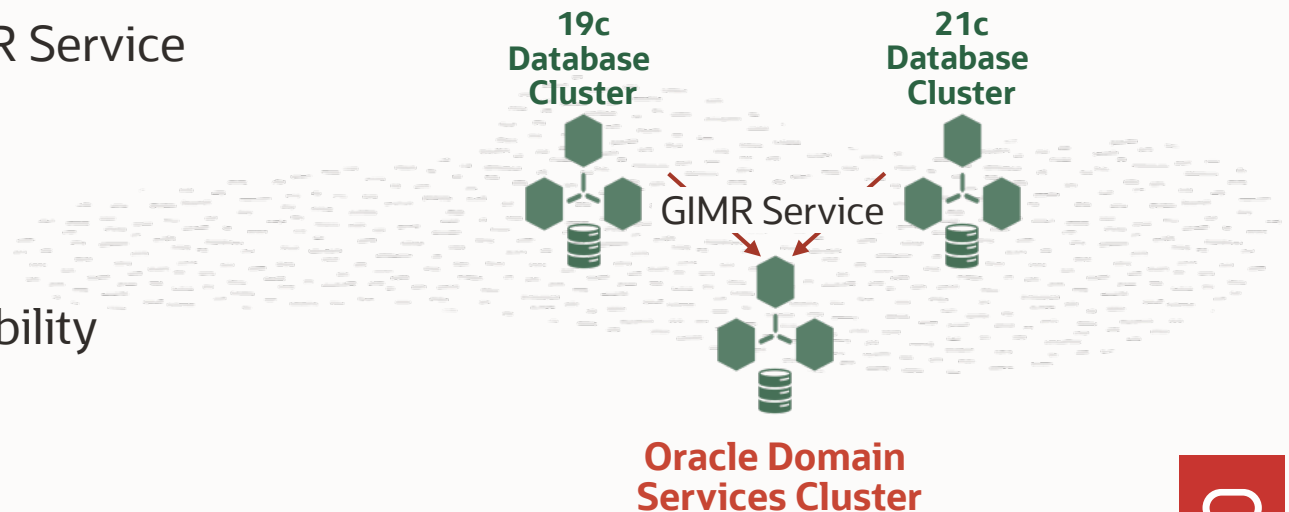
- Dedicated DB Home installation – No user DBs
- Patched/Upgraded Separately after GI
- Separate GIMR Home directory owned by oinstall user
- Single RAC-enabled instance with HA failover

Local GI Deployment



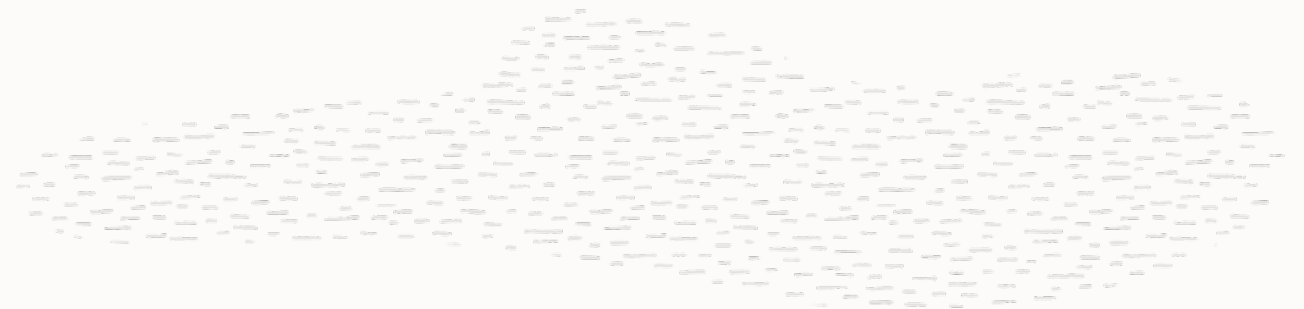
2. New Remote Centralized GIMR Service Option

- Centralized infrastructure cluster for GIMR Service
- Separate PDB-per-cluster architecture
- 1st Class GI Installation option
- Removes Local GIMR resource footprint
- 2-version backward and forward compatibility



How To Install a Local 21c GIMR in 3 Steps

- 1. Install the Oracle 21c Grid Infrastructure with Default GIMR Option.**
 - If using ASM, create a disk group for the GIMR (ex: MGMT)
- 2. Install an Oracle 21c Database Home in a separate directory as the GI User.**
 - Install on all nodes as you would an Oracle RAC database.
- 3. Create the GIMR Database**
 - `OH/bin/mgmtca createGIMRContainer [-storageDiskLocation disk_location]`



Local Option

Oracle Grid Infrastructure 21c Installer - Step 7 of 17

21^c ORACLE
Grid Infrastructure

Create GIMR Option

- [Configuration Option](#)
- [Cluster Configuration](#)
- [Grid Plug and Play](#)
- [Cluster Node Information](#)
- [Network Interface Usage](#)
- [Storage Option](#)
- [GIMR Option](#)**
- [GIMR Storage Option](#)
- Create ASM Disk Group
- ASM Password
- Operating System Groups
- Installation Location
- Root script execution
- Prerequisite Checks
- Summary
- Install Product
- Finish

The Grid Infrastructure Management Repository(GIMR) is an essential component for complete operation of the Autonomous Health Framework, that offers enhanced real time diagnostics and performance management, and Fleet Patching and Provisioning. The components that depend on the repository in whole or in part are Cluster Health Advisor, Cluster Health Monitor, QoS Management, Fleet Patching and Provisioning and Cluster Activity Log. It is best practice to install this option and failure to do so could compromise timely resolution of issues as well as available functionality for patching.

Select one of the GIMR configuration options

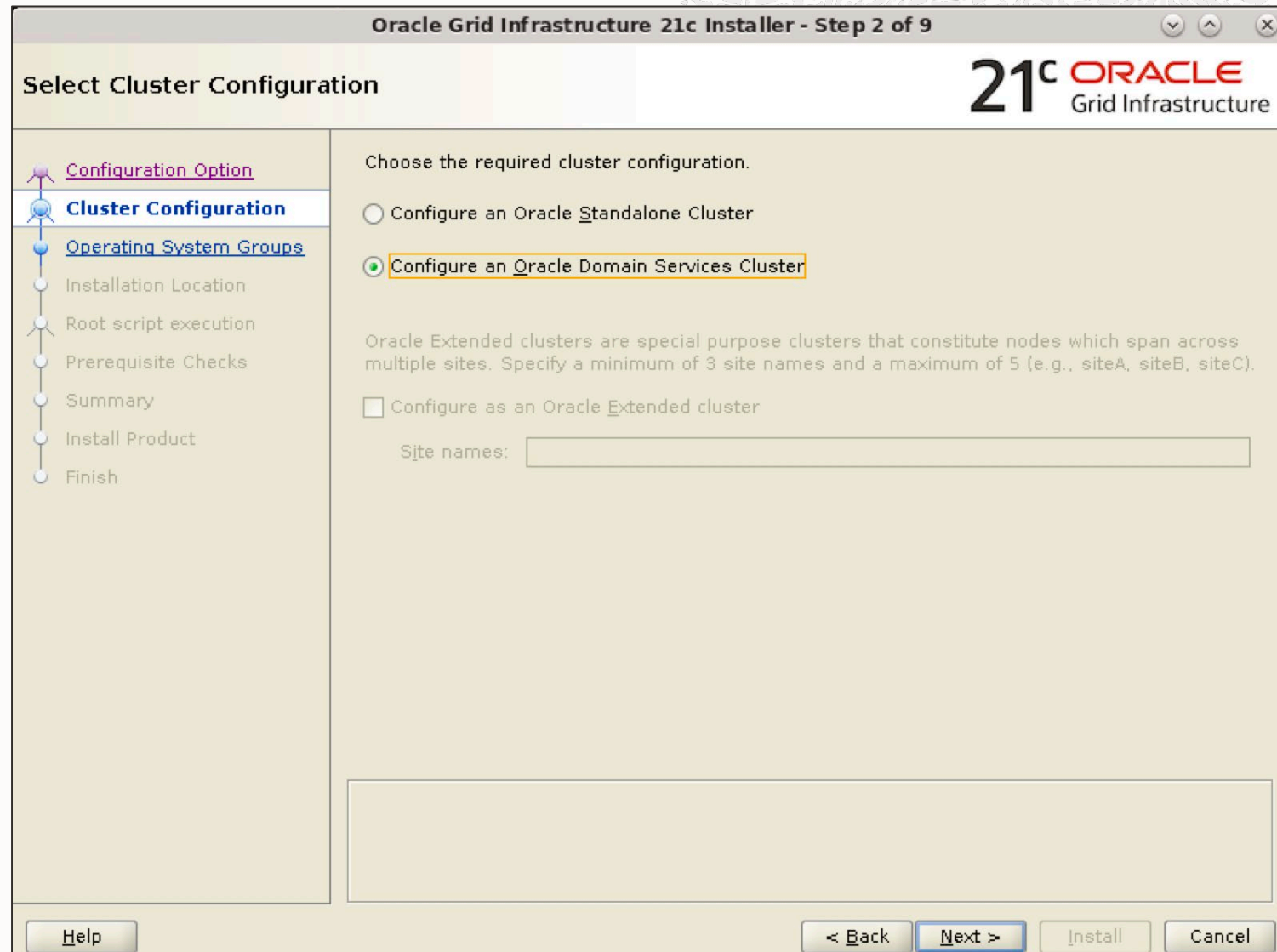
- Use a Local GIMR database
The GIMR database will have to be configured later in a separate RAC Database Oracle Home that is installed on all cluster nodes.
- Use an existing remote GIMR database
Specify a credential file:
- Do Not use a GIMR database



How To Install a Centralized 21c GIMR in 2 Steps

- 1. One Time Preparation – Domain Service Cluster Install**
- 2. Install the Oracle 21c Grid Infrastructure with DSC Option.**
 - If using ASM, create a disk group for the GIMR (ex: MGMT)
- 3. Install an Oracle 21c Database Home in a separate directory as the GI User.**
 - Install on all nodes as you would an Oracle RAC database.
- 4. Create the GIMR Database**
 - `OH/bin/mgmtca createGIMRContainer [-storageDiskLocation]`
- 5. For each Target Cluster**
- 6. Create the GIMR PDB database for target cluster**
 - `OH/bin/mgmtca createRepos -clientDataFile <client_data_file_location> -clusterName <standalone_cluster_name> [-version <standalone_cluster_version>]`
- 7. Use the credentials file when installing the GI for the target cluster.**

DSC Install



Remote Option

Oracle Grid Infrastructure 21c Installer - Step 7 of 17

21^c ORACLE
Grid Infrastructure

Create GIMR Option

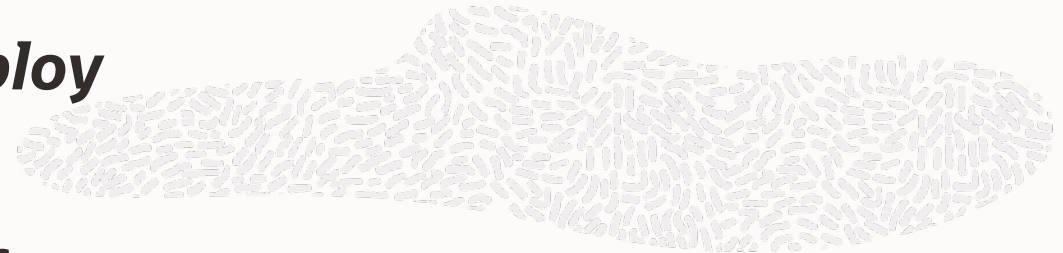
- [Configuration Option](#)
- [Cluster Configuration](#)
- [Grid Plug and Play](#)
- [Cluster Node Information](#)
- [Network Interface Usage](#)
- [Storage Option](#)
- [GIMR Option](#)**
- [GIMR Storage Option](#)
- Create ASM Disk Group
- ASM Password
- Operating System Groups
- Installation Location
- Root script execution
- Prerequisite Checks
- Summary
- Install Product
- Finish

The Grid Infrastructure Management Repository(GIMR) is an essential component for complete operation of the Autonomous Health Framework, that offers enhanced real time diagnostics and performance management, and Fleet Patching and Provisioning. The components that depend on the repository in whole or in part are Cluster Health Advisor, Cluster Health Monitor, QoS Management, Fleet Patching and Provisioning and Cluster Activity Log. It is best practice to install this option and failure to do so could compromise timely resolution of issues as well as available functionality for patching.

Select one of the GIMR configuration options

- Use a Local GIMR database
The GIMR database will have to be configured later in a separate RAC Database Oracle Home that is installed on all cluster nodes.
- Use an existing remote GIMR database
Specify a credential file?
- Do Not use a GIMR database

As of 21c no longer any reason not to deploy



CONS

- ~~• Requires minimum 30GB of shared disk~~
- ~~• GI Patching and Upgrade integration requires significantly longer maintenance window~~
- ~~• Only remote centralized solution required new Member Cluster greenfield installation~~

21c

- ✓ New Centralized GIMR removes local footprint
- ✓ New separate GIMR Home or Remote GIMR eliminates GI Patching and Upgrade impact
- ✓ Centralized DSC GIMR supports standalone 21c and 19c clusters

ORACLE