



vDRA

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CLI Support to Provide Shard Information

Feature Summary and Revision History

Table 1: Summary Data

| | |
|--|---|
| Applicable Product(s) or Functional Area | CPS |
| Applicable Platform | Not Applicable |
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Contact your Cisco Account representative |

Table 2: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

A new REST API is introduced to query shard information of given session or binding.

- API details: `https://{DRA_MASTER_IP}/dra/api/binding/shardDetails/{dbName}/{searchKey:.+}`

where,

`DRA_MASTER_IP` - DRA VNF IP

`dbName` - Any one of the following values:

- session
- ipv4
- ipv6
- imsi
- msisdn

`searchKey:.+` - Session or binding value

The following new statistics is added:

- `dra_api_binding_sharddetails_count`

For more information on statistics, see [Statistics/KPI Additions or Changes](#).

Configurable Relay Endpoints

Feature Summary and Revision History

Table 3: Summary Data

| | |
|--|-----------------------------------|
| Applicable Product(s) or Functional Area | CPS |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Disabled - Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | CPS vDRA Configuration Guide |

Table 4: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

CPS now supports configuring realm in **Policy Builder** relay endpoints.

A new column with name **Realm** is added to support configurable relay endpoint realm name.

For more information, see *Policy DRA Relay Configuration* section in the *CPS vDRA Configuration Guide*.

Extend Peer Monitoring to Rebalance Diameter Connections

Feature Summary and Revision History

Table 5: Summary Data

| | |
|--|----------------------------------|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

Table 6: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

vDRA supports rebalancing the connections across the DRA Directors to make sure that if a signaling spike occurs there is CPU available to process the messages.

In order to manually rebalance DRA, you must know which connections are on which DRA Directors. This helps to figure out which connections should be disconnected to allow them to reconnect on the DRA Director with the lower number of connections.

Currently, you need to configure the Director ID manually.

Here is a sample configuration:

Figure 1: Director ID

| Peer Host Name | Peer IP Address | DRA Host Name | DRA IP Address | Director ID | Application ID | Peer Group | Details / Event Logs | Disconnect |
|----------------|--|---------------------|---|------------------------------------|----------------|------------|----------------------|------------|
| s6-hss-1 | 2003.3052.0.0.0.0:113 10.77.87.184 2003.3052.0.0.0.0:114 | aaa:/s6a-dra2-44247 | 2003.3052.0.0.0.0:112 10.77.87.77 2003.3052.0.0.0.0:120 | diameter-endpoint-ave.local-1 | 16777252 | HSS | Details / Event Logs | ✗ |
| s6-mme-1 | 2003.3052.0.0.0.0:113 10.77.87.184 10.77.87.185 | aaa:/s6a-dra1-4000 | 2003.3052.0.0.0.0:114 10.77.87.79 10.77.87.80 | diameter-endpoint-s103.ave.local-1 | 16777251 | MME | Details / Event Logs | ✗ |
| s6-mme-1 | 2003.3052.0.0.0.0:113 10.77.87.184 10.77.87.185 | aaa:/s6a-dra1-4000 | 2003.3052.0.0.0.0:114 10.77.87.79 10.77.87.80 | diameter-endpoint-s104.ave.local-1 | 16777251 | MME | Details / Event Logs | ✗ |
| s6-mme-1 | 2003.3052.0.0.0.0:113 10.77.87.184 10.77.87.185 | aaa:/s6a-dra1-4000 | 2003.3052.0.0.0.0:114 10.77.87.79 10.77.87.80 | diameter-endpoint-s104.ave.local-1 | 16777251 | MME | Details / Event Logs | ✗ |

To support extended peer monitoring, existing REST APIs are enhanced to return the peers connected to each Director instance.

- Existing “activePeerEndpoints” REST API is enhanced with additional field “instanceId”.
 - API details: `https://{DRA_MASTER_IP}/dra/api/activePeerEndpoints`
- Existing “localActivePeerEndpoints/disconnect/key/{searchKey:.+}” REST API is used to gracefully disconnect a peer connection.
 - API details:
`https://{DRA_MASTER_IP}/dra/api/localActivePeerEndpoints/disconnect/key/{searchKey:.+}`
 - Value to be provided in `{searchKey:.+}` is the key value which is returned in API call “activePeerEndpoints”.

Mongod Consolidated Logs Utility

Feature Summary and Revision History

Table 7: Summary Data

| | |
|--|-----------------------------------|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Disabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | CPS vDRA Operations Guide |

Table 8: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

vDRA now supports collecting all the mongod log files from different VMs and create a single consolidated MongoDB log file based on the start and end timestamps which can be provided as inputs.

This feature also provides flexibility to get the consolidated view of all the MongoDB logs into a single file or collect as a single `tar.gz` file for offline analysis.

For more information, see the following sections in the *CPS vDRA Operations Guide*.

- `debug collect-db-logs-advanced collect`
- `debug collect-db-logs-advanced scan`

Limitations

- This utility can fetch logs only for the mongod instances which are running on respective sites where commands are executed.
- The log collection is limited to 15 days. If you need logs beyond 15, you must login to VM directly to pull the logs.
- Before executing `debug collect-db-logs-advanced scan` command, you need to execute `collect` command which pulls all the logs from different VMs into `tar.gz`.
- `debug collect-db-logs-advanced scan` command allows you to input timestamps in maximum of 6 hours time interval. Currently, this command expects `tar.gz` file to be present in the respective storage location and creates consolidated-log-output in same place.

Platform Health Check and Operational Improvement

Feature Summary and Revision History**Table 9: Summary Data**

| | |
|--|----------------------------------|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | CPS vDRA Operations Guide |

Table 10: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

vDRA now:

- Supports displaying the MongoDB members status of the replica-set which runs on the orchestrator containers.
- Supports executing specific command on specific or all the containers.
- Supports dynamic deletion of bindings for a given IPv6 address range and all associated bindings. Scripts are added to delete the stale database records which are left out on the databases after applying the new configurations.

For more information, see the following commands in the *CPS vDRA Operations Guide*.

- show orchestrator-database-status
- docker exec
- database delete all-bindings-sessions zone
- database delete ipv6bindings zone

Support for Dynamic Database Rate Limiting

Feature Summary and Revision History**Table 11: Summary Data**

| | |
|--|----------------------------------|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

Table 12: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

vDRA now has the ability to throttle incoming request based on database VM CPU usage. If database VM CPU crosses threshold value, calls are rejected.

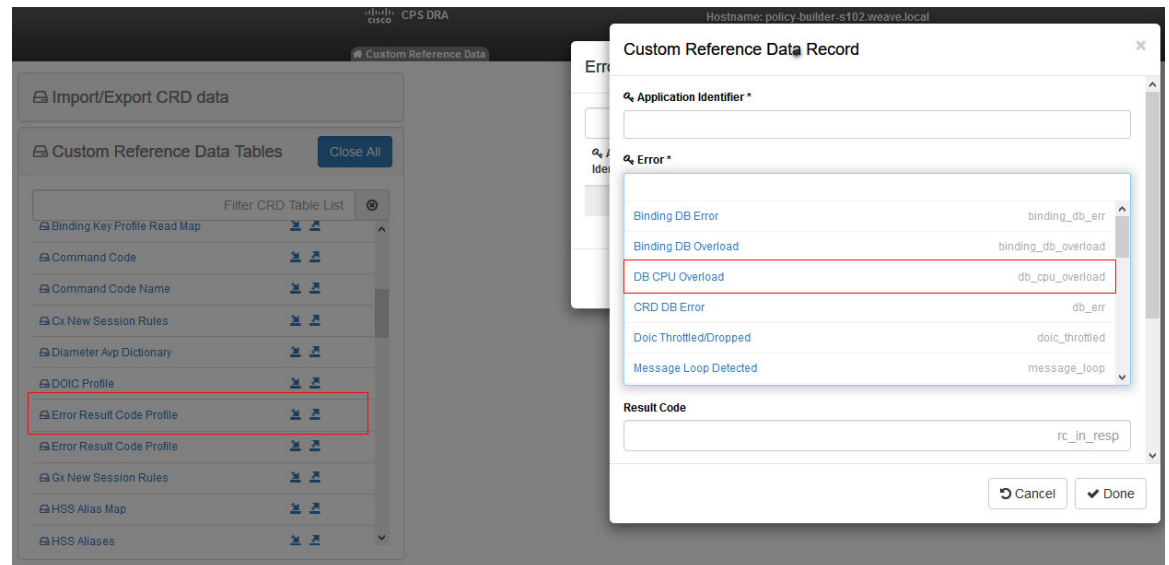
You can define CPU threshold for read database operations for write DB operations. For CLI command, see *binding throttle-db-operation* section in the *CPS vDRA Operations Guide*.

If bindings are best effort then calls are processed without performing any DB operation if CPU usage threshold is breached.

To support the feature, in **Error Result Code Profile** CRD under **Error** field, new error code **DB CPU Overload** is added.

Error profile can be configured with this value and result code that needs to be sent in response to PCEF for messages which are rejected due to DB VM CPU overload.

Figure 2: DB CPU Overload



The following new statistics has been added:

- db_cpu_threshold_breach_total.

For more information on statistics, see [Statistics/KPI Additions or Changes](#).

Support for Generating Alerts for Containers in Unhealthy State

Feature Summary and Revision History

Table 13: Summary Data

| | |
|--|----------------|
| Applicable Product(s) or Functional Area | CPS |
| Applicable Platform | Not Applicable |

| | |
|---------------------------------|---|
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Contact your Cisco Account representative |

Table 14: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

DRA provides support to generate alerts when the docker container state is un-healthy. The alert is resolved immediately after the container state changes to healthy.

Support for Health Check Files in RAM

Feature Summary and Revision History**Table 15: Summary Data**

| | |
|--|---------------------|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled - Always-on |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

Table 16: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

vDRA now uses memory-based volume (“tmpfs”) in health monitoring services (keepalived, keepalived-monitor, docker-host-info, etc.) to store/track the health status information of the monitored services.

It also support migration to “tmpfs” volume upon software upgrade and fresh installation. Downgrade reverts the system back to using disk-based volumes.

Memory and Performance Impact

As tmpfs volumes are created in memory, there is an increase in the memory usage by monitoring services.

Upgrade/Migration/Backward Compatibility Considerations



Note The upgrade from non-tmpfs version to tmpfs version would disrupt the service. It is recommended that the traffic is directed to an alternate site when performing upgrade. For more information, contact you Cisco Account representative.

The feature is enabled when the system is upgraded through normal upgrade procedure.

When upgrading DRA VNF, it migrates the required health monitoring services to use tmpfs volume for health status configuration and status information.

vDRA supports migrating the required health monitoring services to use tmpfs volume for health status configuration and status information. Downgrade reverts the system back to using disk-based volumes.

Support for Storage Health Check Settings

Feature Summary and Revision History

Table 17: Summary Data

| | |
|--|----------------------------------|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | CPS vDRA Operations Guide |

Table 18: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

vDRA now supports the following new DRA VNF commands to to configure and control the new health check service.

- `show storage-health-check service`
- `storage-health-check service <enable | disable | restart>`
- `storage-health-check set interval <value in seconds>`
- `storage-health-check set failover-hold-time <value in seconds>`
- `Storage-health-check clear interval`

- `storage-health-check clear failover-hold-time`
- `storage-health-check service restart`
- `storage-health-check service enable`



Note Storage health check feature is supported only on director nodes and triggers VIP failover for director VIPs. Storage health check-based failover is not supported for distributor VIPs.

For more information, see the *CPS vDRA Operations Guide*.

Support for Zing C2 Compiler

Feature Summary and Revision History

Table 19: Summary Data

| | |
|--|---------------------|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Enabled - Always-on |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

Table 20: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

vDRA now uses Azul C2 compiler JVM for director and worker nodes.

Support to Generate Alerts for the Docker Engine Status

Feature Summary and Revision History

Table 21: Summary Data

| | |
|--|----------------|
| Applicable Product(s) or Functional Area | CPS |
| Applicable Platform | Not Applicable |

| | |
|---------------------------------|----------------------------------|
| Default Setting | Enabled – Configuration Required |
| Related Changes in This Release | Not Applicable |
| Related Documentation | CPS vDRA SNMP and Alarms Guide |

Table 22: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

CPS now provides support to generate alarm based on Docker Engine state when VM goes down.

The following new alarm is added:

- DOCKER_ENGINE_DOWN

For more information, see *Component Notifications* and *Sample Alert Rule Configuration* sections in the *CPS vDRA SNMP and Alarms Guide*.

Upgrade Docker Version to 19.03

Feature Summary and Revision History**Table 23: Summary Data**

| | |
|--|----------------|
| Applicable Product(s) or Functional Area | vDRA |
| Applicable Platform(s) | Not Applicable |
| Default Setting | Not Applicable |
| Related Changes in This Release | Not Applicable |
| Related Documentation | Not Applicable |

Table 24: Revision History

| Revision Details | Release |
|------------------|---------|
| First introduced | 20.2.0 |

Feature Description

vDRA now uses latest stable docker engine version 19.03. The latest version includes fixes for open issues, security patches and some improvements.

You can check the docker by using the `docker --version` command from VM shell.

For more information, see <https://docs.docker.com/engine/release-notes/>.