

HPE Data Collection Daemon (DCD) Release Notes

Linux

Version: 2.3-0.3



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About this document

This document provides details of the currently supported features, enhancement, installation, patches, bugs fixed across releases (if any), known problems, issues, their workarounds, policy details, and documentation details for Data Collection Daemon (DCD).

Revision History

The following table lists all the details about this document and its release history.

Document version	Date
Initial Release	October 2017
DCD 1.0-1.	8 th December 2017
DCD 1.1-1.	12 th March 2018
DCD 1.2-4.	19 th July 2018
DCD 1.2-6.	3 rd August 2018
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DCD 2.1-1	22 nd July 2019
DCD 2.2-0.5	18 th Oct 2019
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DCD 2.3-0.3	17 th June 2020

Table 1: Revision History

Acknowledgments

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Open source tools

jsoncpp version 1.8.4: <https://github.com/open-source-parsers/jsoncpp>

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Introduction

This document discusses the most recent product information on Data Collection Daemon (DCD) which is supported on HPE Superdome Flex server running Linux.

Data Collection Daemon (DCD) is an agentless service for HPE Mission Critical Superdome Flex Servers. DCD proactively monitors the health of hardware components that are visible to running operating system instance and reports any errors to management firmware running on Rack Management Controller (RMC) of Superdome Flex. The management service running on RMC processes the data and serves it out of band to client applications.

Features Supported

This version of DCD includes the following major features on Linux:

- DCD collects inventory data for below listed components:
 - 1) Linux host operating system
 - 2) Superdome Flex Base IO configurations (Intel C600/X79 SATA RAID Controller)
 - 3) SAS/SATA controllers - MegaRAID 9361-4i, SmartRAID 3154-8e & 3162-8i /e
 - 4) NVMe controllers - Intel P4800X, Samsung PM1725a, PM1725b & PM1733/1735
 - 5) Physical drives in Superdome Flex Base Chassis (Internal) – hosted by Intel C600/X79 SATA RAID, MegaRAID 9361-4i
 - 6) RAID volumes (logical drives) managed by MegaRAID 9361-4i
 - 7) Fibre Channel Devices
 - 8) Ethernet Devices
 - 9) GPU cards - NVIDIA and AMD
- DCD proactively monitors the health of Host OS, Base IO Card and Drives, SAS/SATA/NVMe Controllers, Fibre Channel Devices, RAID Volumes, Ethernet Devices.
- Logging is supported in DCD to log messages at different logging levels.
- A command line utility “dcdCli” is provided to test the DCD Event Infrastructure.

For more details on supported cards and drives, please refer to HPE Superdome Flex Documentation. For more details on supported inventory and events, please refer to README which is part of DCD documents in the /opt/hpe/dcd/ folder on product installation.

NOTE: Disabling the DCD service will impair the functionality of HPE Insight Remote Support (IRS), and will possibly prevent inventory and proactive/real-time failure notification of the above mentioned system components monitored by DCD.

Enhancements and Defect Fixes

The following changes were introduced in DCD version 2.3-0.3:

- Added support to detect and generate an event on state change for Microchip SmartRAID 3162-8i /e storage controllers, physical drives and RAID volumes.
- Fixed the issue of DCD_OS_LAST_SHUTDOWN_CRITICAL event being logged even for normal reboots on systems running Linux operating system.
- Fixed the issue of "show chassis info" reporting missing disks as available in FRU inventory for Smart RAID Controllers.

Prerequisites

DCD is packaged as part of HPE Foundation Software (HFS) for HPE Mission Critical Servers and needs HFS ISO image or repo for installing.

Supported Hardware and Software

DCD runs on all hardware models of HPE Superdome Flex Systems.

Supported Firmware:

- DCD requires HPE Superdome Flex firmware version 2.3.132 or later.
- To enable all features introduced in this version of DCD, it is required to upgrade to HPE Superdome Flex firmware version 3.25.x.

Supported Operating Systems: DCD is supported on HPE Superdome Flex native system with the following Operating Systems:

- Red Hat - RHEL 7.3-z, RHEL 7.4, RHEL 7.5, RHEL 7.6, RHEL 7.7, RHEL 7.8, RHEL 8, RHEL 8.1, RHEL 8.2(*)
- SUSE - SLES 12 SP2, SLES 12 SP3, SLES 12 SP4, SLES 12 SP5, SLES 15, SLES 15 SP1
- Oracle Linux – OL 7.4 UEK 4U5, OL 7 UEK 5U2, OL 7.8 & 8.1 UEK 6(*)
– RHEL kernel, OL 7.5, OL 7.6, OL 7.7, OL 7.8, OL 8, OL 8.1
(*): RHEL 8.2, OL 7.8 & 8.1 UEK 6 supported with 62xx/82xx only

Dependent Software: On Linux operating system DCD requires the following dependency to be installed on the system. This dependency gets automatically installed during DCD installation from HFS:

- Storelib version 7.3 (storelib-07.0309.0100.0700.x86_64.rpm)

Installation / Upgrade

DCD is packaged and installed as part of HPE Foundation Software (HFS). When you download and install HFS, DCD and its dependencies (storelib) get installed and the DCD service is automatically started for monitoring your server.

NOTE: You should make sure that the version of DCD and HFS on your system are compatible with each other. Please refer the [HPE Superdome Flex Release Sets](#) support matrix for versions of DCD and HFS that have been qualified together.

To verify if DCD is installed and started, please follow below commands on Linux Distributions:

- You can use `rpm -qi hpe-dcd` to verify if DCD is installed.
- The command `rpm -qi hpe-dcd | grep -i version` displays the version number of DCD installed on the system.
- DCD Service details and status can be checked using the following commands:

```
# systemctl status dcd.service  
dcd.service must be in "Active" running state.  
# ps -ef | grep dcdExecutive
```

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NOTE: For users upgrading from HFS version 1.0 to a more recent version of HFS, DCD and its dependencies (storelib) do not automatically get updated due to vendor string change in the DCD RPM package. Follow the instructions in HFS Release Notes to manually update DCD and storelib to their latest version.

Limitations, Known Problems and Workarounds

- 1) DCD does not provide the Serial Number and Part Number for the Intel C600/X79 SATA RAID Controller (Base IO) in its system inventory data. This is a known behavior.
- 2) When HFS is downgraded from any higher version to 1.0, DCD does not automatically get downgraded. In order to downgrade DCD, please uninstall the higher version of DCD and install DCD 1.0-1 using the following commands:

```
# zypper remove hpe-dcd  
  
# zypper install hpe-dcd
```

- 3) When a new RAID volume is created on MegaRAID 9361-4i controller, DCD may not populate its "DeviceName" parameter in the inventory string pushed to RMC immediately after the volume creation. However, it will be populated in the subsequent inventory push to RMC.
- 4) The warning message "Failed to unregister AEN for LSI MR..." may be logged in DCD.log at the time of DCD service stop, when there is a flood of MegaRAID 9361-4i events. This can happen, for example, when a physical drive hosting several RAID volumes has failed. Below is a sample log message. These messages may be safely ignored.

```
Jul 25 03:58:19 [WARNING] 402 LSI_EVENT_INTERF: Failed to  
unregister AEN for LSI MR controllers on attempt #1. (Unique  
ID: [0x0]; rval: [0x8005])
```

- 5) DCD may not generate an event for state change of a RAID volume managed by MegaRAID 9361-i4, if the RAID volume is deleted immediately after the state change occurs. Example of RAID volume state change is: A physical drive supporting the RAID volume has failed.
- 6) Certain devices firmware upgradation might not succeed when DCD is running so, stopping the DCD service during the maintenance would enable the upgradation. Post maintenance DCD service needs to be started to ensure effective health monitoring of the system.

```
To start service use: systemctl start dcd
```

```
To stop service use: systemctl stop dcd
```

- 7) On Linux distributions using systemd version 231 or lower, the following messages are reported by systemd for the DCD service configuration file. These messages may safely be ignored:

```
Jun 11 00:55:24 uv4test36 systemd[1]: [/etc/systemd/system/dcd.service:11]  
Unknown lvalue 'StartLimitIntervalSec' in section 'Unit'
```

```
Jun 11 00:55:24 uv4test36 systemd[1]: [/etc/systemd/system/dcd.service:12]  
Unknown lvalue 'StartLimitBurst' in section 'Unit'
```

Troubleshooting

- If DCD does not get installed when HFS is installed, please refer to HFS Installation Guide and make sure the HFS Repo/ISO contains DCD rpms. For example: `find /path/to/mounted/iso/ -name "*.rpm" | grep -i -e dcd -e storelib`
- If DCD service does not start after successful installation, please refer to DCD logs located at `/opt/hpe/dcd/log/` for any indication of failures.

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- If you have a MegaRAID Controller, please ensure StoreLib library rpm is installed. You can verify using: `rpm -qi storelib`

For further details about troubleshooting DCD please refer to README.

Support Information

You can report defects related to Data Collection Daemon (DCD) by contacting your local Hewlett Packard Enterprise representative.

Enhancements and Defect Fixes In Previous Releases

The following changes were introduced in DCD version 2.3-0.1:

- Pre-enabled support for new Samsung PM1733/1735 NVMe cards:-
 - 1) HPE 1.6TB PCIe x8 MU HH DS Card (1.6 TB)
 - 2) HPE 3.2TB PCIe x8 MU HH DS Card (3.2 TB)
 - 3) HPE 6.4TB PCIe x8 MU HH DS Card (6.4 TB)
- Updated part number table for new SSD drives.

The following changes were introduced in DCD version 2.2-0.5:

- Added support to inventory the following GPU cards:
 - 1) NVIDIA Quadro RTX 8000
- "Oem.Slot" JSON attribute type has been changed from an integer to a string for all physical drives attached to SAS/SATA storage controllers.
- Added support to provide PartNumber values for the Infiniband cards which are represented as Ethernet cards in the Inventory.
- Fixed issue with hpe-dcd rpm package incorrectly owning directory `/opt/hpe`.
- Fixed a memory leak in Ethernet events handling support that occurs when there is sudden burst of Ethernet events.
- Fixed an issue in the Ethernet support functionality which was rarely causing DCD service stop process to take time (order of few minutes).
- Fixed an issue where Intel SATA RAID controller's Protocol was being reported as "SAS/SATA" instead of "SATA" in system inventory data.

The following changes were introduced in DCD version 2.1-1:

- Added support to inventory and monitor the following Samsung PM1725B NVMe cards:
 - 1) HPE 6.4TB NVMe x8 MU HH DS Card
 - 2) HPE 3.2TB NVMe x8 MU HH DS Card
 - 3) HPE 1.6TB NVMe x8 MU HH DS Card
- Added support to inventory the following GPU cards:
 - 1) NVIDIA Quadro RTX 6000
 - 2) AMD Radeon Instinct MI60
- Added support to inventory Microchip SmartRAID 3154-8e and 3162-8i /e storage controllers.
- Added PartNumber field for LSI MegaRAID 9361-4i, Intel SATA RAID, and NVIDIA GPU controllers

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in DCD Inventory JSON.

- Modified PartNumber field in DCD Inventory JSON for physical disk drives and Fibre Channel controllers to use the Spare Part Number.
- Updated part number information reported for specific models of HPE Ethernet adapters.
- Fixed the issue of DCD IPv4Addresses field not being Redfish-compliant when no IPv4 address is configured on the managed server.
- Fixed the issue of Protocol being shown as “ATA” (instead of “SATA”) for physical drives attached to Intel SATA RAID controller in the drive online (DCD_DRIVE_OK) event.
- Fixed the issue of “request sense failed” message being repeated logged in Linux syslog (/var/log/messages) on SLES 12 SP3, when the DCD-requested Device Statistics log page is not supported by the physical drive attached to Intel SATA RAID controller.
- Fixed issue of RAID10 logical volume (configured on LSI MegaRAID 9361-4i) incorrectly showing volume type as “RAID01” in the inventory string.
- Fixed issues in DCD service configuration file that was causing systemd (version 232 or higher) to report error messages related to service start rate limiting parameters.

The following changes were introduced in DCD version 2.0-1:

- Fixed the issue of DCD incorrectly reporting DCD_DRIVE_ERROR event on a healthy SATA drive.
- Fixed the issue of transient event getting generated in addition to an OK event for some Ethernet cards.
- Starting this version, DCD will fetch the health of SATA drives using a new method which reads “Extended Comprehensive Smart Error Log”.

The following changes were introduced in DCD version 2.0-0:

- Added support to detect and generate an event on state change for NVMe controllers and drives.
- Fixed the issue of DCD reporting wrong FRU details for logical volume error. (QXCR1001686566)
- Fixed the issue of field for drive firmware version not being compliant with DMTF redfish schema.
- Added support to send the inventory information for the following GPU cards:
 - 1) NVIDIA Tesla P100
 - 2) NVIDIA Tesla V100
 - 3) NVIDIA Quadro P6000
 - 4) Radeon Instinct MI25

Events for GPU will be supported in future versions of DCD.

Notes:

- a) To get the complete GPU inventory, the following drivers needs to be installed,
For NVIDIA cards : Cuda and Nvidia drivers
For AMD cards : AMD GPU driver
- b) The following attributes are not supported by the AMD GPU card and hence not inventoried:
SerialNumber, MaxSpeedMHZ and TotalCores

The following changes were introduced in DCD version 1.3-0:

- Added support for SLES 15.

The following changes were introduced in DCD version 1.2-6:

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- Added support for two or more MegaRAID 9361-4i controllers per partition.
- Integrated with newer version of storelib (07.0309.0100.0700)
- Fixed issue of segmentation fault that may occur when the DCD service is stopped.
- Fixed issue of DCD events not being generated if the inventory-refresh happens at a time when a stream of events from MegaRAID 9361-4i are being processed by DCD.
- Fixed issue of missing inventory in DCD JSON string on a partition where it takes DCD a long time (several minutes or more) to inventory the partition's hardware configuration.

The following changes were introduced in DCD version 1.2-4:

- Starting with this version, DCD will send inventory information for the following NVMe controllers:
 - 1) Samsung PM1725a
 - 2) Intel P4800XNo DCD event will be generated for state change of NVMe devices.
- The RAID volume events have been enhanced to include the participating physical drive information.
- "dcdCli" command line utility is introduced in DCD to enable customers to trigger test event from DCD. Test event will help validate DCD's ability to monitor and generate events for supported hardware.

The DCD test event feature can be used as follows:

```
dcdCli [-t eventid | --test-event eventid]
```

Example:

```
# dcdCli -t 708
# dcdCli -h
```

- Additional information consisting of inventory of faulty hardware, text indicating possible cause of the event, associated type of the event etc will be populated in each state change event generated by DCD.
- Support has been added to detect and generate an event for FibreChannel Linkdown state.
- Support has been added for providing latest inventory on request from RMC upon specific events such as RMC reboot. A new parameter "IPMIDoorBellMonitorInterval" has been introduced in /opt/hpe/dcd/data/dcd.conf in order to specify the interval at which DCD will check for requests from RMC.
- Support has been added to detect and monitor more than 16 Fibre Channel cards in a single partition.

The following changes were introduced in DCD version 1.1-1:

- Added support to inventory and monitor: (a) logical drives hosted by MegaRAID 9361-4i SAS/SATA Controller and (b) Ethernet devices
- Added support to log OS run-time critical shutdown event
- Integrated with newer version of storelib (7.3)
- Corrected computation of IPMI payload-size (arg size) parameter
- DCD inventory JSON: Renamed key "StorageController" to "StorageControllers"

The following change was introduced in DCD version 1.0-1:

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- Modified DCD install script to allow installation of DCD rpm on HPE x86 server models