



HDS HiCommand Device Manager data source

OnCommand Insight

NetApp
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HDS HiCommand Device Manager data source

The HDS HiCommand and HiCommand Lite data sources support the HiCommand Device Manager server. OnCommand Insight communicates with the HiCommand Device Manager server using the standard HiCommand API.

Terminology

OnCommand Insight acquires the following inventory information from the HDS HiCommand and HiCommand Lite data sources. For each asset type acquired by Insight, the most common terminology used for this asset is shown. When viewing or troubleshooting this data source, keep the following terminology in mind:

Vendor/Model Term	Insight Term
PDEV	Disk
Journal Pool	Disk Group
Storage Array	Storage
Port Controller	Storage Node
Array Group, DP Pool	Storage Pool
Logical Unit, LDEV	Volume



These are common terminology mappings only and might not represent every case for this data source.

Inventory Requirements

- IP address of the HiCommand Device Manager server
- Read-only user name and password for the HiCommand Device Manager software and peer privileges
- Port requirements: 2001 (http) or 2443 (https)
- Validate access:
 - Log in to the HiCommand Device Manager software using peer user name and password.
 - Verify access to the HiCommand Device Manager API: `telnet <HiCommand Device_Manager_server_ip> 2001`

Performance Requirements

- HDS USP, USP V, and VSP performance
 - Performance Monitor must be licensed.
 - Monitoring switch must be enabled.

- The Export Tool (`Export.exe`) must be copied to the OnCommand Insight Server.
- The Export Tool version must match the microcode version of the target array.
- HDS AMS performance
 - Performance Monitor needs to be licensed.
 - The Storage Navigator Modular 2 (SNM2) CLI utility needs to be installed on the OnCommand Insight Server.
 - You must register all AMS, WMS, SMS storage arrays whose performance needs to be acquired by OnCommand Insight by using the following command:


```
auunitaddauto.exe -ip<IP address of Controller0>IP address of Controller1>
```
 - You must ensure that all the arrays that you registered are listed in the output of this command:


```
auunitref.exe.
```

Configuration

Field	Description
HiCommand Server	IP address or fully-qualified domain name of the HiCommand Device Manager server
User Name	User name for the HiCommand Device Manager server.
Password	Password used for the HiCommand Device Manager server.
Devices - VSP G1000 (R800), VSP (R700), HUS VM (HM700) and USP storages	<p>Device list for VSP G1000 (R800), VSP (R700), HUS VM (HM700) and USP storages. Each storage requires:</p> <ul style="list-style-type: none"> • Array's IP: IP address of the storage • User Name: User name for the storage • Password: Password for the storage • Folder Containing Export Utility JAR Files: The folder containing the Export utility <code>.jar</code> files

SNM2Devices - WMS/SMS/AMS Storages	Device list for WMS/SMS/AMS storages. Each storage requires: <ul style="list-style-type: none"> • Array's IP: IP address of the storage • Storage Navigator CLI Path: SNM2 CLI path • Account Authentication Valid: Select to choose valid account authentication • User Name: User name for the storage • Password: Password for the storage
Choose Tuning Manager for Performance	Choose Tuning Manager for performance and override other performance options
Tuning Manager Host	IP address or fully-qualified domain name of tuning manager
Tuning Manager Port	Port used for Tuning Manager
Tuning Manager Username	User name for Tuning Manager
Tuning Manager Password	password for Tuning Manager



In HDS USP, USP V, and VSP, any disk can belong to more than one array group.

Advanced configuration

Field	Description
HiCommand Server Port	Port used for the HiCommand Device Manager
HTTPs Enabled	Select to enable HTTPs
Inventory Poll Interval (min)	Interval between inventory polls (default 40 minutes)
Choose 'Exclude' or 'Include' to specify a list	Specify whether to include or exclude the array list below when collecting data
Exclude or Include Devices	Comma-separated list of device ID's or array names to include or exclude
Query Host Manager	Select to query host manager
HTTP Timeout (sec)	HTTP connection timeout (default 60 seconds)

Performance Polling Interval (sec)	Interval between performance polls (default 300 seconds)
Export timeout in seconds	Export utility timeout (default 300 seconds)

Hitachi Ops Center data collector

This data collector uses Hitachi Ops Center's integrated suite of applications to access inventory and performance data of multiple storage devices. For inventory and capacity discovery, your Ops Center installation must include both the "Common Services" and "Administrator" components. For performance collection, you must additionally have "Analyzer" deployed.

Terminology

OnCommand Insight acquires the following inventory information from this data collector. For each asset type acquired, the most common terminology used for this asset is shown. When viewing or troubleshooting this data collector, keep the following terminology in mind:

Vendor/Model Term	OnCommand Insight Term
Storage Systems	Storage
Volume	Volume
Parity Groups	Storage Pool(RAID), Disk Groups
Disk	Disk
Storage Pool	Storage Pool(Thin, SNAP)
External Parity Groups	Storage Pool(Backend), Disk Groups
Port	Storage Node → Controller Node → Port
Host Groups	Volume Mapping and Masking
Volume Pairs	Storage Synchronization

Note: These are common terminology mappings only and might not represent every case for this data collector.

Inventory Requirements

You must have the following in order to collect inventory data:

- IP address or hostname of the Ops Center server hosting the "Common Services" component
- Root/sysadmin user account and password that exist on all servers hosting Ops Center components. HDS did not implement REST API support for usage by LDAP/SSO users until Ops Center 10.8+

Performance requirements

The following requirements must be met in order to collect performance data:

- The HDS Ops Center "Analyzer" module must be installed
- Storage arrays must be feeding the Ops Center "Analyzer" module

Configuration

Field	Description
Hitachi Ops Center IP Address	IP address or fully-qualified domain name of the Ops Center server hosting the "Common Services" component
User Name	User name for the Ops Center server.
Password	Password used for the Ops Center server.

Advanced configuration

Field	Description
Connection Type	HTTPS (port 443) is the default
Override TCP Port	Specify the port to use if not the default
Inventory Poll Interval (min)	Interval between inventory polls. The default is 40.
Choose 'Exclude' or 'Include' to specify a list	Specify whether to include or exclude the array list below when collecting data.
Filter device List	Comma-separated list of device serial numbers to include or exclude
Performance Poll Interval (sec)	Interval between performance polls. The default is 300.

HDS Storage

Terms applying to objects or references that you might find on HDS storage asset landing pages.

HDS Storage Terminology

The following terms apply to objects or references that you might find on HDS storage asset landing pages. Many of these terms apply to other data collectors as well.

- Name — comes directly from HDS HiCommand Device Manager's "name" attribute via the GetStorageArray XML API call
- Model - comes directly from HDS HiCommand Device Manager's "arrayType" attribute via the GetStorageArray XML API call
- Vendor — HDS

- Family - comes directly from HDS HiCommand Device Manager’s “arrayFamily” attribute via the GetStorageArray XML API call
- IP — this is the management IP address of the array, not an exhaustive list of all IP addresses on the array
- Raw Capacity — a base2 value representing the sum of the total capacity of all disks in this system, regardless of disk role.

HDS Storage Pool

Terms applying to objects or references that you might find on HDS storage pool asset landing pages.

HDS Storage Pool Terminology

The following terms apply to objects or references that you might find on HDS storage pool asset landing pages. Many of these terms apply to other data collectors as well.

- Type: The value here will be one of:
 - RESERVED — if this pool is dedicated for purposes other than data volumes, i.e, journaling, snapshots
 - Thin Provisioning — if this is a HDP pool
 - Raid Group — you will not likely see these for a few reasons:

OCI takes a strong stance to avoid double counting capacity at all costs. On HDS, one typically needs to build Raid Groups from disks, create pool volumes on those Raid Groups, and construct pools (often HDP, but could be special purpose) from those pool volumes. If OCI reported both the underlying Raid Groups as is, as well as the Pools, the sum of their raw capacity would vastly exceed the sum of the disks.

Instead, OCI’s HDS HiCommand data collector arbitrarily shrinks the size of Raid Groups by the capacity of pool volumes. This may result in OCI not reporting the Raid Group at all. Additionally, any resulting Raid Groups are flagged in a way such that they are not visible in the OCI WebUI, but they do flow into the OCI Data Warehouse (DWH). The purpose of these decisions is to avoid UI clutter for things that most users do not care about — if your HDS array has Raid Groups with 50MB free, you probably cannot use that free space for any meaningful outcome.

- Node - N/A, as HDS pools are not tied to any one specific node
- Redundancy - the RAID level of the pool. Possibly multiple values for a HDP pool comprised of multiple RAID types
- Capacity % - the percent used of the pool for data usage, with the used GB and total logical GB size of the pool
- Over-committed Capacity - a derived value, stating “the logical capacity of this pool is oversubscribed by this percentage by virtue of the sum of the logical volumes exceeding the logical capacity of the pool by this percentage”
- Snapshot - shows the capacity reserved for snapshot usage on this pool

HDS Storage Node

Terms applying to objects or references that you might find on HDS storage node asset landing pages.

HDS Storage Node Terminology

The following terms apply to objects or references that you might find on HDS storage node asset landing pages. Many of these terms apply to other data collectors as well.

- Name — The name of the Front-end director (FED) or Channel Adapter on monolithic arrays, or the name of the controller on a modular array. A given HDS array will have 2 or more Storage Nodes
- Volumes — The Volume table will show any volume mapped to any port owned by this storage node

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