

# **Cloud Insights**

## **Data Collector Support Matrix**

## Support Notes

Amazon EC2	4
Brocade Fibre Channel Switches	6
Brocade Network Advisor (BNA)	9
Ceph Storage	12
Cisco MDS Fabric Switches	14
Dell Compellent Storage	17
Dell EMC Celerra Unified Storage System	22
Dell EMC CLARiiON	25
Dell EMC Data Domain	31
Dell EMC Isilon	35
Dell EMC Recoverpoint	40
Dell EMC ScaleIO	42
Dell EMC VMAX Family of Devices	44
Dell EMC VNX	51
Dell EMC VNXe	58
Dell EMC VPLEX	63
Dell EMC XtremIO	68
Fujitsu ETERNUS DX	72
Hitachi Vantara Command Suite / HP Enterprise Command View	75
Hitachi Vantara NAS Platform	88
HP Enterprise 3PAR StoreServ Storage	92
Huawei OceanStor and Dorado Devices	96
IBM PowerVM	101
IBM SAN Volume Controller (SVC)	103
IBM System Storage DS8000 Series	107
IBM XIV Storage System	110
Infinidat Infinibox	114
Microsoft Azure	118
Microsoft Hyper-V	120
NetApp Cloud Volumes Service	123
NetApp Data Ontap 7-Mode	126
NetApp E-Series Arrays / IBM Total Storage DS4000 Series	136
NetApp Host and VM Filesystems	140
NetApp ONTAP Data Management Software	141
NetApp SolidFire All-Flash Array	152
NetApp StorageGrid	156
Nutanix NX Series	157
OpenStack	160
Oracle ZFS Storage Appliance	163
Pure Storage FlashArray 400 Series	168
Red Hat Virtualization	173
VMware VSphere	175

# Amazon EC2

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
CloudWatch,	,	,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Data Store	Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity	Not Available	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
	Host (Hypervisor)	Name	Implemented	HTTPS	
		IPs	Implemented	HTTPS	
		Domain Name	Not Available	HTTPS	
		Platform Type	Not Available	HTTPS	
		Memory	Not Available	HTTPS	
		Processors	Not Available	HTTPS	
		CPU speed	Not Available	HTTPS	
		NIC count	Not Available	HTTPS	
		NIC speed	Not Available	HTTPS	
		Model	Not Available	HTTPS	
		Vendor	Implemented	HTTPS	
	Virtual Disk	Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity	Not Available	HTTPS	
		Data Store	Implemented	HTTPS	
		Name	Implemented	HTTPS	
Virtual Machine	Virtual Machine	Instance Type	Implemented	HTTPS	
		Subscription ID	Implemented	HTTPS	
		Life Cycle	Implemented	HTTPS	
		Public IPs	Implemented	HTTPS	
		Security Groups	Implemented	HTTPS	
		Launch Time	Implemented	HTTPS	
		Ips	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Data Store	Implemented	HTTPS	
		OS	Implemented	HTTPS	
		Processors	Implemented	HTTPS	
		Memory	Implemented	HTTPS	
		Host	Implemented	HTTPS	
		DNS Name	Implemented	HTTPS	
		Guest State	Implemented	HTTPS	
		State	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Virtual Machine	State Change Time	Not Available	HTTPS	
		Total Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity	Not Available	HTTPS	
Perform	Virtual Disks	IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		IOps Total	Implemented	HTTPS	
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		Throughput Total	Implemented	HTTPS	
		Latency Read	Implemented	HTTPS	
		Latency Write	Implemented	HTTPS	
		Latency Total	Implemented	HTTPS	
	Virtual Machines	IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		IOps Total	Implemented	HTTPS	
		(Disk)Throughput Read	Implemented	HTTPS	
		(Disk)Throughput Write	Implemented	HTTPS	
		(Disk)Throughput Total	Implemented	HTTPS	
		Latency Read	Implemented	HTTPS	
		Latency Write	Implemented	HTTPS	
		Latency Total	Implemented	HTTPS	
		CPU Utilization	Implemented	HTTPS	
		Memory Utilization	Not Available	HTTPS	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
EC2 API	HTTPS	HTTPS	443		✓	✓	✓	✓

# Brocade Fibre Channel Switches

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions	
SNMPv1, SNMPv3, SSH,	134.1, Brocade 12000, Brocade 200E, Brocade 24000, Brocade 300E, Brocade 3250 , Brocade 3850, Brocade 3900, Brocade 4012 Embedded, Brocade 4016 Embedded, Brocade 4020 Embedded, Brocade 4024 Embedded, Brocade 4100, Brocade 4424, Brocade 4424 Embedded, Brocade 48000, Brocade 4900, Brocade 5000, Brocade 5100, Brocade 5300, Brocade 5410 Embedded, Brocade 5450 Embedded, Brocade 5460 Embedded, Brocade 5470 Embedded, Brocade 5480 Embedded, Brocade 6505, Brocade 6510, Brocade 6520, Brocade 6542, Brocade 6545, Brocade 6546, Brocade 6547 Embedded, Brocade 6548, Brocade 7500, Brocade 7600, Brocade 7800, Brocade 7840, Brocade 8000 Switch (FCoE/CEE), Brocade DCX, Brocade DCX 8510-8, Brocade DCX-4S Backbone, Brocade DCX8510-4, Brocade DCX8510-8, Brocade Encryption, Brocade G620, Brocade M5424 Embedded, Brocade M6505, Brocade SSM, Brocade VA-40FC, Brocade X6-4, Brocade X6-8, Dell M8428-k FCoE Embedded, EMC Connectrix ED-DCX8510-8B, HP EVA 4400-S SAN, ,	v4.2.0b, v4.2.2, v4.4.0b, v4.4.0c, v4.4.0e, v4.4.0f, v4.4.2b, v5.0.1, v5.0.1b, v5.0.1d, v5.0.3, v5.0.3a, v5.0.3b, v5.0.4, v5.0.4a, v5.0.5, v5.0.5a, v5.0.5b, v5.0.5f, v5.1.0a, v5.1.0b, v5.1.0d, v5.1.1, v5.2.0, v5.2.0a, v5.2.0b, v5.2.1, v5.2.1a, v5.2.1b, v5.2.2, v5.3.0, v5.3.0a, v5.3.0b, v5.3.0c, v5.3.0d, v5.3.1, v5.3.1a, v5.3.1b, v5.3.2, v5.3.2a, v5.3.2b, v5.3.2c, v6.0.0b, v6.0.0c, v6.0.1a, v6.1.0, v6.1.0a, v6.1.0b, v6.1.0c, v6.1.0d, v6.1.0e, v6.1.0f, v6.1.0g, v6.1.0h, v6.1.0j, v6.1.1, v6.1.1a, v6.1.1b, v6.1.1c, v6.1.1d, v6.1.2, v6.1.2a, v6.1.2b, v6.1.2c, v6.2.0, v6.2.0_bc2, v6.2.0_bc3, v6.2.0a, v6.2.0b, v6.2.0c, v6.2.0d, v6.2.0e, v6.2.0f, v6.2.0g, v6.2.1, v6.2.1a, v6.2.1b, v6.2.2, v6.2.2a, v6.2.2b, v6.2.2c, v6.2.2d, v6.2.2e, v6.2.2f, v6.2.2f6, v6.2.2f9, v6.2.2g, v6.3.0, v6.3.0a, v6.3.0b, v6.3.0c, v6.3.0d, v6.3.1, v6.3.1a, v6.3.1b, v6.3.1c, v6.3.1c1, v6.3.2, v6.3.2a, v6.3.2b, v6.3.2b2, v6.3.2d, v6.4.0, v6.4.0a, v6.4.0b, v6.4.0c, v6.4.0c5, v6.4.1, v6.4.1a, v6.4.1b, v6.4.2, v6.4.2a, v6.4.2b, v6.4.2b4, v6.4.3, v6.4.3b, v6.4.3c, v6.4.3d, v6.4.3e, v6.4.3f, v6.4.3f3, v6.4.3g, v6.4.3g1, v6.4.3h, v7.0.0, v7.0.0a, v7.0.0b, v7.0.0b2, v7.0.0c, v7.0.0d, v7.0.1, v7.0.1a, v7.0.1b, v7.0.2, v7.0.2a, v7.0.2b, v7.0.2b1, v7.0.2c, v7.0.2d, v7.0.2d5, v7.0.2d6, v7.0.2e, v7.0.2e1, v7.1.0, v7.1.0a, v7.1.0b, v7.1.0c, v7.1.0c1, v7.1.1, v7.1.1a, v7.1.1b, v7.1.1c, v7.1.1c1, v7.1.2, v7.1.2b, v7.1.2b1, v7.2.0, v7.2.0a, v7.2.0b, v7.2.0b1, v7.2.0d, v7.2.1, v7.2.1a, v7.2.1b, v7.2.1c, v7.2.1c1, v7.2.1d, v7.2.1e, v7.2.1f, v7.2.1g, v7.3.0, v7.3.0a, v7.3.0b, v7.3.0c, v7.3.0c1, v7.3.1, v7.3.1a, v7.3.1b, v7.3.1c, v7.3.1d, v7.3.1e, v7.3.2, v7.3.2a, v7.3.2b, v7.3.2b1, v7.4.0, v7.4.0a, v7.4.0b, v7.4.1, v7.4.1a, v7.4.1b, v7.4.1c, v7.4.1d, v7.4.1e, v7.4.1f, v7.4.2, v7.4.2a, v7.4.2b, v7.4.2c, v8.0.1, v8.0.1a, v8.0.1b, v8.0.2, v8.0.2a, v8.0.2b, v8.0.2b2, v8.0.2c, v8.0.2d, v8.0.2e, v8.1.0, v8.1.0a, v8.1.0b, v8.1.0c, v8.1.1, v8.1.1a, v8.1.2, v8.1.2a, v8.1.2a3, v8.1.2b, v8.1.2d, v8.2.0, v8.2.0a, v8.2.0b, ,	

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Fabric	WWN	Implemented	SSH	
		Name	Manual Input	Manual Entry	This information is added from the Data Collector configuration page, but will be overwritten by the data collector if the fabricshow --name command returns a descriptive name
		VSAN ID	Implemented	SSH	Brocade Virtual Fabrics
	Other	VSANs / Virtual switches	Implemented	SSH	Brocade Virtual Fabrics

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Other	SAN Routing	Implemented	SSH	
		Arbitrated Loop	Implemented	SSH	
		Fabric Discovery	Implemented	SSH	
		Zone Aliases	Implemented	SSH	
		HBA firmware and model	Implemented	SSH	
	Switch	IP	Implemented	SSH	
		WWN	Implemented	SSH	
		Domain ID	Implemented	SSH	
		Domain ID type	Implemented	SSH	
		Priority	Implemented	SSH	
		Firmware Version	Implemented	SSH	
		Vendor	Implemented	SSH	
		Model	Implemented	SSH	
		Name	Implemented	SSH	
		Switch Role	Implemented	SSH	
		Serial Number	Implemented	SSH	
		Manage URL	Implemented	SSH	
		Fabric	Implemented	SSH	
	Switch Ports	Time Zone	Implemented	SSH	
		Switch State	Implemented	SSH	
		Switch Status	Implemented	SSH	
		WWN	Implemented	SSH	
		Port State	Implemented	SSH	
		Port Status	Implemented	SSH	
		Port Number	Implemented	SSH	
		Blade	Implemented	SSH	
		Name	Implemented	SSH	
		Port Speed	Implemented	SSH	
Perform	Zone set	Physical State	Implemented	SSH	
		FC4 Protocol	Implemented	SSH	
		GBIC Type	Implemented	SSH	
		Port ID	Implemented	SSH	
	Zoning	Port Type	Implemented	SSH	
		Zone Set Name	Implemented	SSH	
		Default zone behavior	Implemented	SSH	
		Merge Control	Implemented	SSH	
	Port Performance	Inactive Zone Sets	Implemented	SSH	
		Zone Name	Implemented	SSH	
		Zone Type	Implemented	SSH	
		WWN Zone Members	Implemented	SSH	
		Port Zone Members	Implemented	SSH	
	Port Performance	Rx	Implemented	SNMP	
		Tx	Implemented	SNMP	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Port Performance	Rx Frames	Implemented	SNMP	
		Tx Frames	Implemented	SNMP	
		Signal Loss Count	Implemented	SNMP	
		Sync Loss Count	Implemented	SNMP	
		CRC Error Count	Implemented	SNMP	
		Error Count	Implemented	SNMP	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Brocade SNMP	SNMP	SNMPv1, SNMPv2, SNMPv3	161		✓	✓	✓	✓
Brocade SSH	SSH	SSH	22		✗	✗	✓	✓
Data Collector configuration	Manual Entry				✓	✓	✓	✓

# Brocade Network Advisor (BNA)

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
14.2.1+, 14.3.x, 14.4.x,	Brocade DS-, Brocade 200E, Brocade 300E, Brocade 3900, Brocade 48000, Brocade 5100 , Brocade 5300, Brocade 5470, Brocade 5480 , Brocade 6505, Brocade 6510, Brocade 6520 , Brocade 6548, Brocade 7800, Brocade DCX 8510-8, Brocade DCX-4S, Brocade G620, Brocade M5424, Brocade X6-8, EMC Connectrix DS-4900B, EMC Connectrix DS-5100B, EMC Connectrix DS-5300B, EMC Connectrix DS-6510B, EMC Connectrix ED-DCX8510-8B, IBM System Storage SAN24B-4 , IBM System Storage SAN24B-5, IBM System Storage SAN48B-5, IBM System Storage SAN64B-2, IBM System Storage SAN768B Backbone, IBM System Storage SAN80B-4, IBM System Storage SAN96B-5 ,	v5.3.2c, v6.2.2g, v6.3.2, v6.4.1a, v6.4.3e, v6.4.3g, v7.0.2b, v7.0.2e, v7.1.2a, v7.2.1c, v7.3.0b, v7.3.0c, v7.3.1a, v7.3.1d, v7.4.0a, v7.4.1a, v7.4.1b, v7.4.1d, v7.4.1e, v7.4.1e1, v7.4.2a, v7.4.2c, v8.0.1, v8.0.2c, v8.0.2d, v8.1.2a, v8.1.2b, v8.1.2d,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Fabric	WWN	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		VSAN ID	Implemented	HTTP/ HTTPS	
	Other	VSANs / Virtual switches	Implemented	HTTP/ HTTPS	
		SAN Routing	Implemented	HTTP/ HTTPS	
		Arbitrated Loop	Implemented	HTTP/ HTTPS	
		Fabric Discovery	Implemented	HTTP/ HTTPS	
		Zone Aliases	Implemented	HTTP/ HTTPS	
		HBA firmware and model	Implemented	HTTP/ HTTPS	
	Switch	IP	Implemented	HTTP/ HTTPS	
		WWN	Implemented	HTTP/ HTTPS	
		Domain ID	Implemented	HTTP/ HTTPS	
		Firmware Version	Implemented	HTTP/ HTTPS	
		Vendor	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	BNA may report OEM model names such as "HP..." or "EMC Connectrix..."
		Name	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Switch	Switch Role	Implemented	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
		Manage URL	Implemented	HTTP/ HTTPS	
		Fabric	Implemented	HTTP/ HTTPS	
		Switch State	Implemented	HTTP/ HTTPS	
		Switch Status	Implemented	HTTP/ HTTPS	
	Switch Ports	WWN	Implemented	HTTP/ HTTPS	
		Port State	Implemented	HTTP/ HTTPS	
		Port Status	Implemented	HTTP/ HTTPS	
		Port Number	Implemented	HTTP/ HTTPS	
		Blade	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Port Speed	Implemented	HTTP/ HTTPS	
		FC4 Protocol	Implemented	HTTP/ HTTPS	
		GBIC Type	Implemented	HTTP/ HTTPS	
		Port ID	Implemented	HTTP/ HTTPS	
		Port Type	Implemented	HTTP/ HTTPS	
	Zone set	Zone Set Name	Implemented	HTTP/ HTTPS	
		Default zone behavior	Implemented	HTTP/ HTTPS	
		Inactive Zone Sets	Not Available	HTTP/ HTTPS	
	Zoning	Zone Name	Implemented	HTTP/ HTTPS	
		WWN Zone Members	Implemented	HTTP/ HTTPS	
Perform	Switch Port Performance	Rx Data Rate	Implemented	HTTP/ HTTPS	Reported as a time series.
		Rx Utilization	Implemented	HTTP/ HTTPS	Reported as a time series.
		Tx Data Rate	Implemented	HTTP/ HTTPS	Reported as a time series.
		Tx Utilization	Implemented	HTTP/ HTTPS	Reported as a time series.

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information		
Perform	Switch Port Performance	Total Zero Bb Credit		Implemented	HTTP/ HTTPS	Reported as a time series.		

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Brocade Network Advisor REST API	HTTP/HTTPS	HTTP/HTTPS	443		✓	✓	✓	✓

# Ceph Storage

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	,	10.2.7,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	SSH	
		Speed	Implemented	SSH	
		Capacity	Implemented	SSH	
		Physical Location	Implemented	SSH	
		Role	Implemented	SSH	
		Model	Implemented	SSH	
		Vendor	Implemented	SSH	
		Type	Implemented	SSH	
		Serial Number	Implemented	SSH	
	Internal Volume	Status	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	
		Total Used Capacity	Implemented	SSH	
	Node	Name	Implemented	SSH	
		SerialNumber	Implemented	SSH	
		Memory Size	Implemented	SSH	
		Number Of Processors	Implemented	SSH	
		State	Implemented	SSH	
		Pool references	Implemented	SSH	
		Volume references	Implemented	SSH	
		Internal Volume references	Implemented	SSH	
	Qtree	Name	Implemented	SSH	
		Quota Hard Limit	Implemented	SSH	
	Quota	Disk Limit	Implemented	SSH	
		Type	Implemented	SSH	
		User/Group	Implemented	SSH	
	Storage	Identifier	Implemented	SSH	
		IP	Implemented	SSH	
		Name	Implemented	SSH	
		Vendor	Implemented	SSH	
		Family	Implemented	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	
		Total Raw Capacity	Implemented	SSH	
		Storage Pools Capacity	Implemented	SSH	
	Storage Pool	ID	Implemented	SSH	
		Name	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Type	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	
		Total Used Capacity	Implemented	SSH	
		Disk references	Implemented	SSH	
		Provisioned Capacity	Implemented	SSH	
		Over Commit Capacity Ratio	Implemented	SSH	
	Synchronizations	Source Volume	Implemented	SSH	
		Target Volume	Implemented	SSH	
		Mode	Implemented	SSH	
	Volume	Volume Name	Implemented	SSH	
		Capacity	Implemented	SSH	
		Consumed Capacity	Implemented	SSH	
		Raw Capacity	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Volume Type	Implemented	SSH	
		Volume Identifier	Implemented	SSH	
		Used Capacity Ratio	Implemented	SSH	

#### Management APIs used by this data collector:

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Ceph SSH	SSH	SSH	22		✓	✓	✓	✓

# Cisco MDS Fabric Switches

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
SNMPv1 (Inventory only), SNMPv2, SNMPv3,	DS-C9120-K9, DS-C9124-1-K9, DS-C9124-2-K9, DS-C9124-K9, DS-C9134-K9, DS-C9140-K9, DS-C9148-16P-K9, DS-C9148-32P-K9, DS-C9148-48P-K9, DS-C9148-K9, DS-C9148S-K9, DS-C9216-K9, DS-C9216A-K9, DS-C9216I-K9, DS-C9222I-K9, DS-C9250I-K9, DS-C9396S-K9, DS-C9506, DS-C9509, DS-C9513, DS-C9706, DS-C9710, DS-C9718, DS-HP-8GFC-K9, DS-HP-FC-K9, DS-IBM-FC-K9, DS-IBM-FC-LIC-K9, DS-IBM-FC-LIC-K9-2, N10-S6100, N5K-C5010P-BF, N5K-C5020P-BF, N5K-C5020P-BFS, N5K-C5548P, N5K-C5548UP, N5K-C5596T, N5K-C5596UP, N5K-C56128P, N5K-C5624Q, N5K-C5648Q, N5K-C5672UP, N5K-C5696Q, N6K-C6001-64P, N6K-C6001-64T, N6K-C6004, N6K-C6004-96Q, N77-C7710, N77-C7718, N7K-C7009, N7K-C7010, N7K-C7018, UCS-FI-6248UP, UCS-FI-6296UP, UCS-FI-M-6324, ,	2.0(1b), 2.0(3), 2.1(1a), 2.1(1b), 2.1(2b), 2.1(2d), 2.1(2e), 3.0(1), 3.0(2), 3.0(2a), 3.0(2b), 3.0(3), 3.1(1), 3.1(2), 3.1(2a), 3.1(2b), 3.1(3), 3.1(3a), 3.1(4), 3.2(1a), 3.2(2c), 3.2(3), 3.2(3a), 3.3(1a), 3.3(1c), 3.3(2), 3.3(3), 3.3(4), 3.3(4a), 3.3(5), 3.3(5a), 3.3(5b), 4.1(1b), 4.1(1c), 4.1(3), 4.1(3a), 4.2(0.400), 4.2(1), 4.2(1)N1(1.43m), 4.2(1)N1(1), 4.2(1)N2(1), 4.2(1)N2(1a), 4.2(1a), 4.2(1b), 4.2(3), 4.2(3a), 4.2(5), 4.2(7a), 4.2(7b), 4.2(7d), 4.2(7e), 4.2(9), 5.0(1a), 5.0(2)N1(1), 5.0(3)N1(1a), 5.0(3)N1(1c), 5.0(3)N2(1), 5.0(3)N2(2.11.2a), 5.0(3)N2(2.11.3a), 5.0(3)N2(2.11.3c), 5.0(3)N2(2.11.3g), 5.0(3)N2(2.11a), 5.0(3)N2(2.11d), 5.0(3)N2(2.11f), 5.0(3)N2(2a), 5.0(3)N2(2b), 5.0(3)N2(3.11g), 5.0(3)N2(3.11h), 5.0(3)N2(3.11k), 5.0(3)N2(3.11l), 5.0(3)N2(3.12b), 5.0(3)N2(3.12e), 5.0(3)N2(3.12f), 5.0(3)N2(3.13b), 5.0(3)N2(3.13d), 5.0(3)N2(3.13e), 5.0(3)N2(3.21b), 5.0(3)N2(3.22a), 5.0(3)N2(3.22b), 5.0(3)N2(3.22c), 5.0(3)N2(3.22d), 5.0(3)N2(3.23a), 5.0(3)N2(3.23b), 5.0(3)N2(3.23d), 5.0(4), 5.0(4b), 5.0(4c), 5.0(4d), 5.0(7), 5.0(8), 5.0(8a), 5.1(3)N1(1), 5.1(3)N2(1), 5.1(3)N2(1a), 5.1(3)N2(1b), 5.2(1), 5.2(1)N1(1), 5.2(1)N1(1a), 5.2(1)N1(1b), 5.2(1)N1(2a), 5.2(1)N1(3), 5.2(1)N1(4), 5.2(1)N1(5), 5.2(1)N1(6), 5.2(1)N1(7), 5.2(1)N1(8b), 5.2(1)N1(9), 5.2(2), 5.2(2a), 5.2(2d), 5.2(3)N2(2.21c), 5.2(3)N2(2.21d), 5.2(3)N2(2.22), 5.2(3)N2(2.22c), 5.2(3)N2(2.22d), 5.2(3)N2(2.23b), 5.2(3)N2(2.23c), 5.2(3)N2(2.23d), 5.2(3)N2(2.23f), 5.2(3)N2(2.23g), 5.2(3)N2(2.23h), 5.2(3)N2(2.24b), 5.2(3)N2(2.25a), 5.2(3)N2(2.25b), 5.2(3)N2(2.25d), 5.2(3)N2(2.26d), 5.2(3)N2(2.26e), 5.2(3)N2(2.26i), 5.2(3)N2(2.27b), 5.2(3)N2(2.27c), 5.2(3)N2(2.27e), 5.2(3)N2(2.28a), 5.2(3)N2(2.28g), 5.2(6a), 5.2(6b), 5.2(8), 5.2(8a), 5.2(8b), 5.2(8c), 5.2(8d), 5.2(8e), 5.2(8f), 5.2(8g), 5.2(8h), 5.2(8i), 6.0(2)N1(1), 6.0(2)N1(2), 6.0(2)N1(2a), 6.0(2)N2(1), 6.0(2)N2(1b), 6.0(2)N2(2), 6.0(2)N2(3), 6.0(2)N2(4), 6.0(2)N2(5), 6.0(2)N2(5a), 6.0(2)N2(6), 6.0(2)N2(7), 6.1(3), 6.2(1), 6.2(10), 6.2(11), 6.2(11b), 6.2(11c), 6.2(11e), 6.2(12), 6.2(13), 6.2(13a), 6.2(13b), 6.2(15), 6.2(16), 6.2(17), 6.2(19), 6.2(2), 6.2(21), 6.2(23), 6.2(3), 6.2(5), 6.2(5a), 6.2(5b), 6.2(7), 6.2(8), 6.2(9), 6.2(9a), 6.2(9b), 6.2(9c), 7.0(1)N1(1), 7.0(2)N1(1), 7.0(5)N1(1), 7.0(5)N1(1a), 7.0(6)N1(1), 7.0(7)N1(1), 7.0(8)N1(1), 7.1(0)N1(1a), 7.1(0)N1(1b), 7.1(1)N1(1), 7.1(3)N1(1), 7.1(4)N1(1), 7.2(0)N1(1), 7.2(1)D1(1), 7.2(1)N1(1), 7.3(0)D1(1), 7.3(0)DY(1), 7.3(0)N1(1), 7.3(1)D1(1), 7.3(1)DY(1), 7.3(1)N1(1),

		7.3(2)D1(1), 7.3(2)N1(1), 8.1(1), 8.1(1a), 8.2(1), 8.2(2), 8.3(1), ,
--	--	-------------------------------------------------------------------------

**Products supported by this data collector:**

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Fabric	WWN	Implemented	SNMP	
		Name	Implemented	SNMP	
		VSAN ID	Implemented	SNMP	VSAN
	Other	VSANs / Virtual switches	Implemented	SNMP	VSAN
		SAN Routing	Implemented	SNMP	Cisco IVR
		FCoE	Implemented	SNMP	
		Arbitrated Loop	Implemented	SNMP	
		Fabric Discovery	Implemented	SNMP	Cisco CDP
		Zone Aliases	Implemented	SNMP	
		HBA firmware and model	Implemented	SNMP	
	Switch	IP	Implemented	SNMP	
		WWN	Implemented	SNMP	
		Domain ID	Implemented	SNMP	
		Domain ID type	Implemented	SNMP	
		Priority	Implemented	SNMP	
		Firmware Version	Implemented	SNMP	
		Vendor	Implemented	SNMP	
		Model	Implemented	SNMP	
		Name	Implemented	SNMP	
		Switch Role	Implemented	SNMP	
		Serial Number	Implemented	SNMP	
		Manage URL	Implemented	SNMP	
		Fabric	Implemented	SNMP	
		Time Zone	Implemented	SNMP	
	Switch Ports	Switch State	Implemented	SNMP	
		Switch Status	Implemented	SNMP	for MDS/Nexus OS 4.0 and higher
		WWN	Implemented	SNMP	
		Port State	Implemented	SNMP	
		Port Status	Implemented	SNMP	
		Port Number	Implemented	SNMP	
		Blade	Implemented	SNMP	
		Name	Implemented	SNMP	
		Port Speed	Implemented	SNMP	
		Physical State	Implemented	SNMP	
	Zone set	FC4 Protocol	Implemented	SNMP	
		GBIC Type	Implemented	SNMP	
		Port ID	Implemented	SNMP	
		Port Type	Implemented	SNMP	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information	
Insight	Zone set	Merge Control		Implemented	SNMP		
		Inactive Zone Sets		Implemented	SNMP		
	Zoning	Zone Name		Implemented	SNMP		
		Zone Type		Implemented	SNMP		
		WWN Zone Members		Implemented	SNMP		
		Port Zone Members		Implemented	SNMP		
Perform	Port Performance	Rx		Implemented	SNMP		
		Tx		Implemented	SNMP		
		Rx Frames		Implemented	SNMP		
		Tx Frames		Implemented	SNMP		
		Signal Loss Count		Implemented	SNMP		
		Sync Loss Count		Implemented	SNMP		
		CRC Error Count		Implemented	SNMP		
		Error Count		Implemented	SNMP		

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Cisco SNMP	SNMP	SNMPv1 (Inventory only), SNMPv2, SNMPv3	161		✓	✓	✓	✓

# Dell Compellent Storage

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	EM 14.2, EM 2015 R1, Storage Center, ,	6.2.2.15, 6.3.10.106, 6.4.4.2, 6.4.5.4, 6.5.20.18, 6.5.30.17, 6.6.13.5, 6.6.5.19, 6.7.11.4, 6.7.22.7, 6.7.30.26, 7.1.12.2, 7.1.20.28, 7.1.3.23, 7.1.4.4, 7.2.31.3, 7.2.40.36, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTPS	
		Speed	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Location	Implemented	HTTPS	
		Role	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Uses disk model	Implemented	HTTPS	
Disk Group	Disk Group	Name	Implemented	HTTPS	
		Vendor Disk Group Type	Implemented	HTTPS	
		Disk Type	Not Available	HTTPS	
		Status	Implemented	HTTPS	
		Redundancy	Not Available	HTTPS	
		Virtual	Not Available	HTTPS	
		Vendor Tier	Not Available	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Disk Capacity	Implemented	HTTPS	
		Used Capacity	Implemented	HTTPS	
Internal Volume	Internal Volume	Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Space Guarantee	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Dedupe enabled	Not Available	HTTPS	
		Dedupe savings	Not Available	HTTPS	
		Last snapshot time	Not Available	HTTPS	
		Snapshot count	Not Available	HTTPS	
		Status	Implemented	HTTPS	
		Clones	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Head	Not Available	HTTPS	
		Protection type	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Not Available	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Implemented	HTTPS	Reported as a time series.
		Total Clone Saved Capacity	Not Available	HTTPS	
		Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	
	Node	Total Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Name	Implemented	HTTPS	
		Version	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		SerialNumber	Implemented	HTTPS	
Protocol	Qtree	Memory Size	Implemented	HTTPS	
		Cache Size	Not Available	HTTPS	
		Number Of Processors	Not Available	HTTPS	
		State	Implemented	HTTPS	
		Pool references	Not Available	HTTPS	
		Volume references	Not Available	HTTPS	
		Internal Volume references	Not Available	HTTPS	
		Port references	Implemented	HTTPS	
		FC(oE)	Implemented	HTTPS	
		iSCSI	Gap	HTTPS	
Storage	Storage	NFS	Not Available	HTTPS	
		SMB/CIFS	Not Available	HTTPS	
		Name	Implemented	HTTPS	
		OpLocks enabled	Not Available	HTTPS	
		Security Type	Not Available	HTTPS	
		Status	Not Available	HTTPS	
		Path	Not Available	HTTPS	
		Used Capacity	Not Available	HTTPS	
		Quota Hard Limit	Not Available	HTTPS	
		Quota Soft Limit	Not Available	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Serial Number	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	
		Total Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTPS	
		Spare Raw Capacity	Implemented	HTTPS	
		Manage URL	Implemented	HTTPS	
		Virtual	Not Available	HTTPS	
		Storage efficiency	Not Available	HTTPS	
		Storage Pools Capacity	Implemented	HTTPS	Reported as a time series.
	Storage Pool	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Raw To Usable Ratio	Implemented	HTTPS	
		Redundancy	Not Available	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Not Available	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Implemented	HTTPS	Reported as a time series.
		Reserved Capacity	Not Available	HTTPS	
		AST	Not Available	HTTPS	
		Disk references	Implemented	HTTPS	
		LUN references	Not Available	HTTPS	
		Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	
		Deduplication Enabled	Not Available	HTTPS	
		Deduplication Savings	Not Available	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Insight	Storage Ports	Controller Name	Implemented	HTTPS	
		Controller IP	Not Available	HTTPS	
		Controller Vendor	Not Available	HTTPS	
		Controller Firmware	Implemented	HTTPS	
		Controller Driver	Not Available	HTTPS	
		Controller Model	Implemented	HTTPS	
		Node WWN	Not Available	HTTPS	
		Port WWN	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Ports	Port Name	Implemented	HTTPS	
	Volume	Volume Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTPS	Reported as a time series.
		Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Written Capacity	Implemented	HTTPS	Reported as a time series.
		Redundancy	Not Available	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Virtual Volume	Not Available	HTTPS	
		Volume Type	Not Available	HTTPS	
		Disk Size	Not Available	HTTPS	
		Disk Type	Not Available	HTTPS	
		Disk Speed	Not Available	HTTPS	
		Disk Group	Not Available	HTTPS	
		Protocol Controller	Not Available	HTTPS	
		Masking	Implemented	HTTPS	
		Mapping	Implemented	HTTPS	
		Meta Volume	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Head	Not Available	HTTPS	
		Protection type	Implemented	HTTPS	
		Last known access time	Not Available	HTTPS	
		UUID	Implemented	HTTPS	
		Label	Implemented	HTTPS	
		Volume Identifier	Not Available	HTTPS	
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Written Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		Utilization Read	Implemented	HTTPS	
		Utilization Write	Implemented	HTTPS	
	Internal Volume Performance	Response Time Read	Not Available	HTTPS	
		Response Time Write	Not Available	HTTPS	
		Response Time Total	Not Available	HTTPS	
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		Write Pending	Not Available	HTTPS	
	Storage Node Performance	Response Time Read	Implemented	HTTPS	
		Response Time Write	Implemented	HTTPS	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information	
Perform	Storage Node Performance	Response Time Total		Implemented	HTTPS		
		Throughput Read		Implemented	HTTPS		
		Throughput Write		Implemented	HTTPS		
		IOps Read		Implemented	HTTPS		
		IOps Write		Implemented	HTTPS		
		Cache Hit Percent		Not Available	HTTPS		
		Disk Reads Replaced		Not Available	HTTPS		
		Utilization		Implemented	HTTPS		
		Port Utilization		Not Available	HTTPS		
		Port Errors		Not Available	HTTPS		
	Volume Performance	Port Traffic		Not Available	HTTPS		
		Response Time Read		Implemented	HTTPS		
		Response Time Write		Implemented	HTTPS		
		Response Time Total		Implemented	HTTPS		
		Throughput Read		Implemented	HTTPS		
		Throughput Write		Implemented	HTTPS		
		IOps Read		Implemented	HTTPS		
		IOps Write		Implemented	HTTPS		
		IOps Total		Implemented	HTTPS		
		Cache Hit Ratio Read		Not Available	HTTPS		
		Cache Hit Ratio Write		Not Available	HTTPS		
		Cache Hit Ratio Total		Not Available	HTTPS		
		Write Pending		Implemented	HTTPS		
		Partial Read/Write		Not Available	HTTPS		
		Accessed		Implemented	HTTPS		

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Compellent API	HTTPS	HTTPS	3033		✓	✗	✓	✓

# Dell EMC Celerra Unified Storage System

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	CNS, NS-120, NS-120FC, NS-480, NS-480FC, NS-960, NS-960FC, NS-G2, NS-G8, NS20FC, NS40, NS40FC, NS40G, NS500G, NS700G, NS80, NSX, NX4, VG8, VNX5300, VNX5500, VNX5700, VNX7500,	5.5.21-4, 5.5.22-2, 5.5.32-4, 5.5.36-2, 5.5.40-1, 5.6.45-5, 5.6.46-4, 5.6.47-11, 5.6.48-7, 5.6.49-3, 5.6.50-2, 5.6.51-3, 6.0.36-4, 6.0.40-5, 6.0.40-8, 6.0.41-3, 6.0.51-6, 6.0.55-3, 6.0.61-0, 6.0.65-2, 6.0.70-4, 6.0.71-4, 7.0.14-0, 7.0.35-3, 7.0.50-2, 7.0.51-3, 7.0.53-2, 7.1.55-3, 7.1.71-1, 7.1.74-5, 7.1.76-4, 7.1.79-8, 7.1.80-3, 7.1.80-8,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Name	Implemented	SSH	Internal volumes represent file systems
		Type	Implemented	SSH	
		Space Guarantee	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Dedupe enabled	Implemented	SSH	
		Dedupe savings	Implemented	SSH	
		Last snapshot time	Implemented	SSH	
		Snapshot count	Implemented	SSH	
		Status	Implemented	SSH	
		Clones	Implemented	SSH	
		Virtual Storage	Implemented	SSH	
		Head	Implemented	SSH	
		Protection type	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
	Other	Snapshot Allocated Capacity	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Total Clone Saved Capacity	Implemented	SSH	
		Compression Enabled	Not Available	SSH	
	Protocol	Compression Savings	Not Available	SSH	
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Host Aliases	Implemented	SSH	
		FC(oE)	Not Available	SSH	
		iSCSI	Gap	SSH	
		NFS	Implemented	SSH	
		SMB/CIFS	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Qtree	Name	Implemented	SSH	
		OpLocks enabled	Not Available	SSH	
		Security Type	Not Available	SSH	
		Status	Not Available	SSH	
		Path	Implemented	SSH	
		Used Capacity	Implemented	SSH	Reported as a time series.
		Quota Hard Limit	Implemented	SSH	Reported as a time series.
		Quota Soft Limit	Implemented	SSH	Reported as a time series.
		Quota File Count	Implemented	SSH	Reported as a time series.
	Quota	Disk Limit	Implemented	SSH	
		Soft Disk Limit	Implemented	SSH	
		File Limit	Implemented	SSH	
		Soft File Limit	Implemented	SSH	
		Threshold	Not Available	SSH	
		Type	Implemented	SSH	
		User/Group	Implemented	SSH	
		File Count	Implemented	SSH	
		Used Capacity	Implemented	SSH	
	Share	Name	Implemented	SSH	Represents a CIFS or NFS share
		Protocol	Implemented	SSH	
		Permission	Implemented	SSH	
		Files	Implemented	SSH	
	Storage	Identifier	Implemented	SSH	Serial Number
		IP	Implemented	SSH	
		Name	Implemented	SSH	
		Vendor	Manual Input	SSH	
		Model	Implemented	SSH	
		Family	Manual Input	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	
		Total Raw Capacity	Implemented	SSH	Reported as a time series. Always 0. The device has no local storage
		Failed Raw Capacity	Implemented	SSH	Always 0. The device has no local storage
		Spare Raw Capacity	Implemented	SSH	Always 0. The device has no local storage
		Manage URL	Implemented	SSH	
		Virtual	Implemented	SSH	Celerra is modeled as a NAS gateway
		Storage efficiency	Implemented	SSH	
		Storage Pools Capacity	Implemented	SSH	Reported as a time series.
	Storage Pool	ID	Implemented	SSH	StoragePools represent Volumes that host file systems
		Name	Implemented	SSH	
		Type	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Thin provisioning	Implemented	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Redundancy	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
		Snapshot Allocated Capacity	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Reserved Capacity	Implemented	SSH	Reported as a time series.
		Disk references	Implemented	SSH	
		LUN references	Implemented	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Deduplication Enabled	Not Available	SSH	
		Deduplication Savings	Not Available	SSH	
		Provisioned Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	SSH	Reported as a time series.
Storage Virtualization	Storage Virtualization	Backend Lun Name	Implemented	SSH	Backend LUNs represent Disk Volumes
		LUN	Implemented	SSH	
		Local port WWN	Implemented	SSH	
		Remote port WWN	Implemented	SSH	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Celerra CLI	SSH	SSH			✓	✗	✓	✓

# Dell EMC CLARiiON

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
NaviSphere 6+, NaviSphere CLI 7.31, NaviSphere CLI 7.32, NaviSphere CLI 7.33,	AX4-5, AX4-5F8, CX3-10c, CX3-10f, CX3-20, CX3-20c, CX3-20f, CX3-40, CX3-40c, CX3-40f, CX3-80, CX300, CX4-120, CX4-240, CX4-480, CX4-960, CX400, CX500, CX600, CX700, VNX5100, VNX5200, VNX5300, VNX5400, VNX5500, VNX5600, VNX5700, VNX5800, VNX7500, VNX7600, VNX8000,	04.28.000.5.003, 04.28.000.5.501, 04.28.000.5.504, 04.28.000.5.704, 04.28.000.5.706, 04.28.000.5.707, 04.28.000.5.708, 04.28.000.5.710, 04.29.000.5.003, 04.29.000.5.006, 04.29.000.5.012, 04.29.000.5.013, 04.29.000.5.014, 04.30.000.5.005, 04.30.000.5.507, 04.30.000.5.509, 04.30.000.5.511, 04.30.000.5.512, 04.30.000.5.517, 04.30.000.5.522, 04.30.000.5.523, 04.30.000.5.524, 04.30.000.5.525, 04.30.000.5.526, 04.30.000.5.529, 05.31.000.5.008, 05.31.000.5.011, 05.31.000.5.012, 05.31.000.5.502, 05.31.000.5.509, 05.31.000.5.704, 05.31.000.5.709, 05.31.000.5.716, 05.31.000.5.720, 05.31.000.5.726, 05.32.000.5.006, 05.32.000.5.008, 05.32.000.5.011, 05.32.000.5.015, 05.32.000.5.201, 05.32.000.5.204, 05.32.000.5.206, 05.32.000.5.207, 05.32.000.5.209, 05.32.000.5.215, 05.32.000.5.216, 05.32.000.5.217, 05.32.000.5.218, 05.32.000.5.219, 05.32.000.5.221, 05.32.000.5.225, 05.32.000.5.249, 05.33.000.5.038, 05.33.000.5.051, 05.33.000.5.052, 05.33.000.5.072, 05.33.000.5.074, 05.33.000.5.079, 05.33.000.5.081, 05.33.006.5.096, 05.33.006.5.102, 05.33.008.5.119, 05.33.009.5.155, 05.33.009.5.184, 05.33.009.5.186, 05.33.009.5.218, 05.33.009.5.231, 2.16.300.5.010, 2.16.300.5.022, 2.16.300.5.023, 2.16.500.5.012, 2.16.500.5.022, 2.16.500.5.024, 2.16.600.5.012, 2.16.600.5.018, 2.16.700.5.010, 2.16.700.5.012, 2.19.300.5.016, 2.19.300.5.019, 2.19.300.5.030, 2.19.300.5.034, 2.19.300.5.038, 2.19.300.5.040, 2.19.300.5.044, 2.19.300.5.045, 2.19.400.5.040, 2.19.400.5.044, 2.19.500.5.027, 2.19.500.5.030, 2.19.500.5.034, 2.19.500.5.038, 2.19.600.5.044, 2.19.600.5.045, 2.19.700.5.007, 2.19.700.5.014, 2.19.700.5.016, 2.19.700.5.019, 2.19.700.5.027, 2.19.700.5.030, 2.19.700.5.034, 2.19.700.5.038, 2.19.700.5.040, 2.19.700.5.044, 2.19.700.5.045, 2.23.50.5.703, 2.23.50.5.705, 2.23.50.5.707, 2.23.50.5.709, 2.23.50.5.710, 2.23.50.5.711, 2.24.300.5.006, 2.24.300.5.015, 2.24.300.5.016, 2.24.500.5.014, 2.24.500.5.015, 2.24.700.5.006, 2.24.700.5.011, 2.24.700.5.014, 2.24.700.5.015, 2.24.700.5.016, 2.24.700.5.017,

		2.24.700.5.019, 2.24.700.5.022, 2.26.300.5.010, 2.26.300.5.014, 2.26.300.5.025, 2.26.300.5.026, 2.26.300.5.031, 2.26.500.5.011, 2.26.500.5.014, 2.26.500.5.020, 2.26.500.5.025, 2.26.500.5.028, 2.26.500.5.031, 2.26.700.5.005, 2.26.700.5.011, 2.26.700.5.014, 2.26.700.5.020, 2.26.700.5.025, 2.26.700.5.026, 2.26.700.5.028, 2.26.700.5.031, 3.22.20.5.508, 3.22.40.5.005, 3.22.40.5.508, 3.22.80.5.005, 3.22.80.5.505, 3.22.80.5.506, 3.22.80.5.508, 3.22.80.5.510, 3.22.80.5.514, 3.24.10.5.011, 3.24.10.5.016, 3.24.20.5.007, 3.24.20.5.011, 3.24.20.5.014, 3.24.20.5.016, 3.24.20.5.022, 3.24.40.5.006, 3.24.40.5.011, 3.24.40.5.014, 3.24.40.5.015, 3.24.40.5.016, 3.24.40.5.017, 3.24.40.5.019, 3.24.40.5.022, 3.24.80.5.011, 3.24.80.5.014, 3.24.80.5.015, 3.24.80.5.016, 3.24.80.5.017, 3.24.80.5.019, 3.26.10.5.010, 3.26.10.5.016, 3.26.10.5.020, 3.26.10.5.025, 3.26.10.5.031, 3.26.10.5.032, 3.26.20.5.010, 3.26.20.5.011, 3.26.20.5.014, 3.26.20.5.016, 3.26.20.5.019, 3.26.20.5.020, 3.26.20.5.025, 3.26.20.5.029, 3.26.20.5.031, 3.26.20.5.032, 3.26.40.5.005, 3.26.40.5.010, 3.26.40.5.011, 3.26.40.5.014, 3.26.40.5.016, 3.26.40.5.019, 3.26.40.5.020, 3.26.40.5.025, 3.26.40.5.026, 3.26.40.5.029, 3.26.40.5.031, 3.26.40.5.032, 3.26.80.5.005, 3.26.80.5.010, 3.26.80.5.011, 3.26.80.5.014, 3.26.80.5.016, 3.26.80.5.019, 3.26.80.5.020, 3.26.80.5.025, 3.26.80.5.026, 3.26.80.5.029, 3.26.80.5.031, 3.26.80.5.032, 3.26.81.5.016, 3.26.81.5.020, 3.26.81.5.025, 3.26.81.5.029, 3.26.81.5.031, 3.26.81.5.032, 4.28.0.5.504, 4.28.0.5.706, ,
--	--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**Products supported by this data collector:**

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	CLI	
		Speed	Implemented	CLI	
		Capacity	Implemented	CLI	
		Physical Location	Implemented	CLI	
		Role	Implemented	CLI	
		Model	Implemented	CLI	
		Vendor	Implemented	CLI	
		Type	Implemented	CLI	
		Serial Number	Implemented	CLI	
		Uses disk model	Implemented	CLI	
	Network Pipe	Source PEP ID	Implemented	CLI	
		Target PEP ID	Implemented	CLI	
		Bi-directional	Gap	CLI	
		Auto Recover	Gap	CLI	
		Operational Status	Gap	CLI	
	Other	Host Aliases	Implemented	CLI	
	Protocol	FC(oE)	Implemented	CLI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Protocol	iSCSI	Gap	CLI	
		NFS	Not Available	CLI	
		SMB/CIFS	Not Available	CLI	
	Protocol End Point	Id	Implemented	CLI	
		Name	Implemented	CLI	
		Storage	Implemented	CLI	
		Network Pipe Port WWNs	Implemented	CLI	
	Storage	Identifier	Implemented	CLI	Serial Number
		IP	Implemented	CLI	
		Name	Implemented	CLI	
		Vendor	Manual Input	CLI	
		Model	Implemented	CLI	
		Family	Manual Input	CLI	
		Serial Number	Implemented	CLI	
		Microcode Version	Implemented	CLI	
		Total Raw Capacity	Implemented	CLI	Reported as a time series.
		Failed Raw Capacity	Not Available	CLI	Naviseccli does not report failed disks accurately, so support is impossible
		Spare Raw Capacity	Implemented	CLI	
		Manage URL	Implemented	CLI	
		Virtual	Implemented	CLI	
	Storage Pool	Storage efficiency	Implemented	CLI	
		Storage Pools Capacity	Implemented	CLI	Reported as a time series.
		ID	Implemented	CLI	
		Name	Implemented	CLI	
		Type	Implemented	CLI	Raid group and Virtual Provision Pool (thin provisioning) support
		Thin provisioning	Implemented	CLI	
		Raw To Usable Ratio	Implemented	CLI	
		Redundancy	Implemented	CLI	
		Total Allocated Capacity	Implemented	CLI	Reported as a time series.
		Total Used Capacity	Implemented	CLI	Reported as a time series.
		Data Allocated Capacity	Implemented	CLI	
		Data Used Capacity	Implemented	CLI	
		Other Allocated Capacity	Implemented	CLI	
		Other Used Capacity	Implemented	CLI	
		Snapshot Allocated Capacity	Implemented	CLI	Reported as a time series.
		Snapshot Used Capacity	Implemented	CLI	Reported as a time series.
		Reserved Capacity	Implemented	CLI	Reported as a time series.
		Disk references	Implemented	CLI	
		LUN references	Implemented	CLI	
		Compression Enabled	Not Available	CLI	
		Compression Savings	Not Available	CLI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Deduplication Enabled	Not Available	CLI	
		Deduplication Savings	Not Available	CLI	
		Provisioned Capacity	Implemented	CLI	Reported as a time series.
		Total Used Capacity Ratio	Implemented	CLI	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	CLI	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	CLI	Reported as a time series.
	Storage Ports	Controller Name	Implemented	CLI	
		Controller IP	Implemented	CLI	
		Controller Vendor	Implemented	CLI	
		Controller Firmware	Implemented	CLI	
		Controller Driver	Implemented	CLI	
		Controller Model	Implemented	CLI	
		Node WWN	Implemented	CLI	
		Port WWN	Implemented	CLI	
		Port Name	Implemented	CLI	
	Synchronizations	Source Volume	Implemented	CLI	
		Target Volume	Implemented	CLI	
		Source Storage	Implemented	CLI	Replication information will start coming in the system only after all arrays involved in this replication are successfully reported
		Target Storage	Implemented	CLI	Replication information will start coming in the system only after all arrays involved in this replication are successfully reported
		Mode	Gap	CLI	
		Protocol End Point refs	Implemented	CLI	
		Internal Volume Synchronization	Not Available	CLI	
Volume	Volume	Volume Name	Implemented	CLI	
		Capacity	Implemented	CLI	Reported as a time series.
		Consumed Capacity	Implemented	CLI	Reported as a time series. Using dedupe on volumes on VNX for block will inhibit EMC from reporting those volume's consumed capacity, and therefore OCI cannot obtain it
		Raw Capacity	Implemented	CLI	Reported as a time series.
		Redundancy	Implemented	CLI	
		Thin provisioning	Implemented	CLI	
		Virtual Volume	Implemented	CLI	
		Volume Type	Implemented	CLI	
		Disk Size	Implemented	CLI	
		Disk Type	Implemented	CLI	
		Disk Speed	Implemented	CLI	
		Disk Group	Implemented	CLI	
		Protocol Controller	Implemented	CLI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Masking	Implemented	CLI	
		Mapping	Implemented	CLI	
		Meta Volume	Implemented	CLI	
		Virtual Storage	Implemented	CLI	
		Head	Implemented	CLI	
		Protection type	Implemented	CLI	
		Last known access time	Implemented	CLI	
		UUID	Implemented	CLI	
		Label	Implemented	CLI	
		Volume Identifier	Implemented	CLI	LUN UID without ":"
		Used Capacity Ratio	Implemented	CLI	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	CLI	
		Throughput Write	Implemented	CLI	
		IOps Read	Implemented	CLI	
		IOps Write	Implemented	CLI	
		Utilization Read	Implemented	CLI	
		Utilization Write	Implemented	CLI	
	Storage Node Performance	Response Time Read	Not Available	CLI	
		Response Time Write	Not Available	CLI	
		Response Time Total	Not Available	CLI	
		Throughput Read	Not Available	CLI	
		Throughput Write	Not Available	CLI	
		IOps Read	Implemented	CLI	
		IOps Write	Implemented	CLI	
		Cache Hit Percent	Not Available	CLI	
		Disk Reads Replaced	Not Available	CLI	
		Utilization	Implemented	CLI	
		Port Utilization	Not Available	CLI	
		Port Errors	Not Available	CLI	
		Port Traffic	Not Available	CLI	
	Volume Performance	Response Time Read	Implemented	CLI	
		Response Time Write	Implemented	CLI	
		Response Time Total	Implemented	CLI	
		Throughput Read	Implemented	CLI	
		Throughput Write	Implemented	CLI	
		IOps Read	Implemented	CLI	
		IOps Write	Implemented	CLI	
		Cache Hit Ratio Read	Implemented	CLI	
		Cache Hit Ratio Write	Implemented	CLI	
		Cache Hit Ratio Total	Implemented	CLI	
		Write Pending	Implemented	CLI	
		Partial Read/Write	Implemented	CLI	
		Accessed	Implemented	CLI	

***Management APIs used by this data collector:***

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Navi CLI	CLI		6389,2162,2163,443(HTTPS)/80(HTTP)		✓	✓	✓	✗

# Dell EMC Data Domain

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	DD140, DD160, DD2200, DD2500, DD4200, DD4500, DD510, DD530, DD565, DD610, DD620, DD630, DD640, DD660, DD670, DD6800, DD690, DD7200, DD860, DD880, DD890, DD9300, DD9500, DD9800, DD990, ,	5.1.3.0-338649, 5.2.1.0-331816, 5.2.2.4-370754, 5.2.3.0-380917, 5.2.4.2-404896, 5.4.0.4-388934, 5.4.0.5-393571, 5.4.0.8-404909, 5.4.1.1-411752, 5.4.2.1-423209, 5.4.4.2-453843, 5.4.4.3-460654, 5.4.5.0-477080, 5.4.6.0-503967, 5.5.0.8-456696, 5.5.0.9-471508, 5.5.1.2-451885, 5.5.2.2-491486, 5.5.3.0-505842, 5.5.3.1-509919, 5.5.3.3-518859, 5.5.4.0-525810, 5.6.0.3-485123, 5.6.0.5-501748, 5.6.2.0-543944, 5.7.0.4-513368, 5.7.1.0-522982, 5.7.1.10-528588, 5.7.2.0-532316, 5.7.2.10-541351, 5.7.3.0-548132, 5.7.4.10-559104, 5.7.5.0-569395, 5.7.5.6-580632, 6.0.1.10-561375, 6.0.1.20-567551, 6.0.1.30-570211, 6.0.2.0-575017, 6.0.2.20-587212, 6.0.2.9-579709, 6.1.0.013-575425, 6.1.1.10-591041, 6.1.1.5-582414, 6.1.2.5-595467, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	SSH	
		Speed	Implemented	SSH	
		Capacity	Implemented	SSH	
		Role	Implemented	SSH	
		Model	Implemented	SSH	
		Vendor	Implemented	SSH	
		Type	Implemented	SSH	
		Serial Number	Implemented	SSH	
		Uses disk model	Implemented	SSH	
	Internal Volume	Name	Not Available	SSH	
		Type	Implemented	SSH	
		Space Guarantee	Not Available	SSH	
		Thin provisioning	Not Available	SSH	
		Dedupe enabled	Implemented	SSH	
		Dedupe savings	Implemented	SSH	
		Last snapshot time	Not Available	SSH	
		Snapshot count	Not Available	SSH	
		Status	Not Available	SSH	
		Clones	Not Available	SSH	
		Virtual Storage	Not Available	SSH	
		Protection type	Not Available	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
		Snapshot Allocated Capacity	Not Available	SSH	Reported as a time series.
		Snapshot Used Capacity	Not Available	SSH	Reported as a time series.
		Total Clone Saved Capacity	Not Available	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
Qtree	Qtree	Name	Implemented	SSH	
		OpLocks enabled	Not Available	SSH	
		Security Type	Implemented	SSH	
		Status	Not Available	SSH	
		Path	Not Available	SSH	
		Used Capacity	Not Available	SSH	
		Quota Hard Limit	Implemented	SSH	Reported as a time series.
		Quota Soft Limit	Implemented	SSH	Reported as a time series.
Quota	Quota	Disk Limit	Implemented	SSH	
		Soft Disk Limit	Implemented	SSH	
		File Limit	Implemented	SSH	
		Soft File Limit	Implemented	SSH	
		Threshold	Not Available	SSH	
		Type	Implemented	SSH	
		User/Group	Implemented	SSH	
		File Count	Not Available	SSH	
		Used Capacity	Not Available	SSH	
Share	Share	Name	Implemented	SSH	
		Protocol	Implemented	SSH	
		Permission	Implemented	SSH	
		Name	Implemented	SSH	
		Protocol	Implemented	SSH	
		Files	Implemented	SSH	
Storage	Storage	Identifier	Implemented	SSH	
		IP	Implemented	SSH	
		Name	Implemented	SSH	
		Vendor	Manual Input	SSH	
		Model	Implemented	SSH	
		Family	Manual Input	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	
		Total Raw Capacity	Implemented	SSH	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Failed Raw Capacity	Implemented	SSH	
		Spare Raw Capacity	Implemented	SSH	
		Manage URL	Not Available	SSH	
		Virtual	Not Available	SSH	
		Storage efficiency	Not Available	SSH	
		Storage Pools Capacity	Implemented	SSH	Reported as a time series.
	Storage Pool	ID	Implemented	SSH	
		Name	Implemented	SSH	
		Type	Implemented	SSH	
		Thin provisioning	Not Available	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Redundancy	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
		Snapshot Allocated Capacity	Not Available	SSH	
		Snapshot Used Capacity	Not Available	SSH	
		Reserved Capacity	Not Available	SSH	
		AST	Not Available	SSH	
		Disk references	Implemented	SSH	
		LUN references	Not Available	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Deduplication Enabled	Implemented	SSH	
		Deduplication Savings	Implemented	SSH	
		Provisioned Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	SSH	Reported as a time series.
Insight	Storage Ports	Controller Name	Not Available	SSH	
		Controller IP	Not Available	SSH	
		Controller Vendor	Not Available	SSH	
		Controller Firmware	Implemented	SSH	
		Controller Driver	Not Available	SSH	
		Controller Model	Not Available	SSH	
		Node WWN	Implemented	SSH	
		Port WWN	Implemented	SSH	
		Port Name	Implemented	SSH	
	Technical	Recording	Implemented	SSH	
		Crawling	Implemented	SSH	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information		
Insight	Technical	Simulation		Implemented	SSH			
		Enhanced Error Messages		Implemented	SSH			

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Data Domain CLI	SSH	SSH	22		✓	✓	✓	✓

# Dell EMC Isilon

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	A100, HD400, IQ 108NL, IQ 12000X, IQ 36N, IQ 36NL, IQ 5000s, IQ 5400S, IQ 72NL, IQ Accelerator-x, IQ Backup Accelerator, NL400, NL400-4U-Dual-12GB-2x1GE-2x10GE SFP+-144TB,NL410-4U-Single-24GB-2x1GE-2x10GE SFP+-144TB,X200-2U-Single-12GB-2x1GE-2x10GE SFP+-33TB-800GB SSD, NL400-4U-Dual-24GB-2x1GE-2x10GE SFP+-144TB,NL410-4U-Single-24GB-2x1GE-2x10GE SFP+-280TB-1638GB SSD, NL400-4U-Dual-48GB-2x1GE-2x10GE SFP+-105TB-800GB SSD,X400-4U-Dual-96GB-2x1GE-2x10GE SFP+-66TB-1229GB SSD, NL400-4U-Dual-48GB-2x1GE-2x10GE SFP+-144TB, NL410, NL410-4U-Single-24GB-2x1GE-2x10GE SFP+-144TB, NL410-4U-Single-48GB-2x1GE-2x10GE SFP+-140TB-800GB SSD-SED, NL410-4U-Single-48GB-2x1GE-2x10GE SFP+-210TB-800GB SSD, NL410-4U-Single-48GB-2x1GE-2x10GE SFP+-280TB-1638GB SSD, NL410-4U-Single-48GB-2x1GE-2x10GE SFP+-35TB-200GB SSD, S200, S210, S210-2U-Dual-64GB-2x1GE-2x10GE SFP+-7066GB-400GB SSD, X200, X200-2U-Single-24GB-2x1GE-2x10GE SFP+-33TB-800GB SSD, X200-2U-Single-48GB-2x1GE-2x10GE SFP+-33TB-800GB SSD-SED, X200-2U-Single-6144MB-2x1GE-2x10GE SFP+-12TB, X400, X400-4U-Dual-24GB-2x1GE-2x10GE SFP+-136TB-800GB SSD, X410, X410-4U-Dual-128GB-2x1GE-2x10GE SFP+-102TB-1638GB SSD-SED, X410-4U-Dual-128GB-2x1GE-2x10GE SFP+-136TB-1638GB SSD, X410-4U-Dual-64GB-2x1GE-2x10GE SFP+-102TB-1638GB SSD, X410-4U-Dual-64GB-2x1GE-2x10GE SFP+-70TB-800GB SSD, , ,	v6.5.4.5, v6.5.5.10, v6.5.5.24, v6.5.5.27, v6.5.5.6, v7.0.0.0, v7.0.1.5, v7.0.1.6, v7.0.1.8, v7.0.2.1, v7.0.2.4, v7.0.2.5, v7.0.2.9, v7.1.0.0, v7.1.0.5, v7.1.0.6, v7.1.1.2, v7.1.1.4, v7.2.0.2.159228, v7.2.0.3, v7.2.0.5, v7.2.1.1, v7.2.1.2, v7.2.1.4, v7.2.1.6, v8.0.0.3, v8.0.0.4, v8.0.0.5, v8.0.0.6, v8.0.1.2, v8.1.0.x, v9.0.0.x, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	SSH	
		Speed	Implemented	SSH	
		Capacity	Implemented	SSH	
		Physical Location	Implemented	SSH	
		Role	Implemented	SSH	
		Model	Implemented	SSH	
		Vendor	Implemented	SSH	
		Type	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Serial Number	Implemented	SSH	
		Uses disk model	Not Available	SSH	
	Disk Group	Name	Implemented	SSH	
		Vendor Disk Group Type	Implemented	SSH	
		Disk Type	Not Available	SSH	
		Status	Implemented	SSH	
		Redundancy	Implemented	SSH	
		Virtual	Not Available	SSH	
		Vendor Tier	Implemented	SSH	
		Capacity	Implemented	SSH	
		Physical Disk Capacity	Implemented	SSH	
		Used Capacity	Implemented	SSH	
	Internal Volume	Name	Implemented	SSH	
		Type	Implemented	SSH	
		Space Guarantee	Not Available	SSH	
		Thin provisioning	Implemented	SSH	
		Dedupe enabled	Not Available	SSH	
		Dedupe savings	Not Available	SSH	
		Last snapshot time	Not Available	SSH	
		Snapshot count	Not Available	SSH	
		Status	Not Available	SSH	
		Clones	Not Available	SSH	
		Virtual Storage	Not Available	SSH	
		Head	Not Available	SSH	
		Protection type	Not Available	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Not Available	SSH	
		Other Used Capacity	Not Available	SSH	
		Snapshot Allocated Capacity	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Total Clone Saved Capacity	Not Available	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	SSH	Reported as a time series.
	Node	Name	Implemented	SSH	
		Version	Not Available	SSH	
		Model	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Node	SerialNumber	Implemented	SSH	
		Memory Size	Not Available	SSH	
		Cache Size	Not Available	SSH	
		Number Of Processors	Not Available	SSH	
		State	Implemented	SSH	
		Pool references	Implemented	SSH	
		Volume references	Not Available	SSH	
		Internal Volume references	Not Available	SSH	
		Port references	Not Available	SSH	
	Protocol	FC(oE)	Not Available	SSH	
		iSCSI	Gap	SSH	
		NFS	Implemented	SSH	
		SMB/CIFS	Implemented	SSH	
Qtree	Qtree	Name	Implemented	SSH	
		OpLocks enabled	Not Available	SSH	
		Security Type	Not Available	SSH	
		Status	Not Available	SSH	
		Path	Implemented	SSH	
		Used Capacity	Implemented	SSH	Reported as a time series.
		Quota Hard Limit	Implemented	SSH	Reported as a time series.
		Quota Soft Limit	Implemented	SSH	Reported as a time series.
		Quota File Count	Implemented	SSH	Reported as a time series.
Quota	Quota	Disk Limit	Implemented	SSH	
		Soft Disk Limit	Implemented	SSH	
		File Limit	Implemented	SSH	
		Soft File Limit	Implemented	SSH	
		Threshold	Implemented	SSH	
		Type	Implemented	SSH	
		User/Group	Implemented	SSH	
		File Count	Implemented	SSH	
		Used Capacity	Implemented	SSH	
Share	Share	Name	Implemented	SSH	
		Protocol	Implemented	SSH	
		Permission	Implemented	SSH	
		Files	Implemented	SSH	
Storage	Storage	Identifier	Implemented	SSH	
		IP	Implemented	SSH	
		Name	Implemented	SSH	
		Vendor	Manual Input	SSH	
		Model	Implemented	SSH	
		Family	Manual Input	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Total Raw Capacity	Implemented	SSH	Reported as a time series.
		Failed Raw Capacity	Implemented	SSH	
		Spare Raw Capacity	Implemented	SSH	
		Manage URL	Not Available	SSH	
		Virtual	Not Available	SSH	
		Storage efficiency	Not Available	SSH	
		Storage Pools Capacity	Implemented	SSH	Reported as a time series.
	Storage Pool	ID	Implemented	SSH	
		Name	Implemented	SSH	
		Type	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Redundancy	Not Available	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Not Available	SSH	
		Other Used Capacity	Not Available	SSH	
		Snapshot Allocated Capacity	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Reserved Capacity	Not Available	SSH	
		AST	Not Available	SSH	
		Disk references	Implemented	SSH	
		LUN references	Not Available	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Deduplication Enabled	Not Available	SSH	
		Deduplication Savings	Not Available	SSH	
		Provisioned Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	SSH	Reported as a time series.
Perform	Storage Node Performance	Response Time Read	Not Available	SSH	
		Response Time Write	Not Available	SSH	
		Response Time Total	Not Available	SSH	
		Throughput Read	Implemented	SSH	
		Throughput Write	Implemented	SSH	
		IOps Read	Implemented	SSH	
		IOps Write	Implemented	SSH	
		Cache Hit Percent	Not Available	SSH	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information		
Perform	Storage Node Performance	Disk Reads Replaced		Not Available	SSH			
		Utilization		Implemented	SSH			
		Port Utilization		Not Available	SSH			
		Port Errors		Not Available	SSH			
		Port Traffic		Not Available	SSH			

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Isilon SSH	SSH	SSH	22		✓	✗	✓	✓

# Dell EMC Recoverpoint

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	RecoverPoint,	4.0.SP2(m.24), 4.0.x, 4.1.SP2.P2(i.212), 4.1.SP2.P3(i.219), 4.1.SP3(j.90), 4.1.x, 4.4.P1(d.180), 4.4.SP1.P1(h.154), 4.4.SP1(h. 138), 4.4.x, 5.0.SP1.P2(e.265), 5.0.SP1.P3(e. 285), 5.0.SP1(e.224), 5.1.P1(c.175), 5.1.SP2(p.62), 5.1(c.150),

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Node	Name	Implemented	HTTPS	
		Version	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		SerialNumber	Implemented	HTTPS	
		Memory Size	Implemented	HTTPS	
		Cache Size	Not Available	HTTPS	
		Number Of Processors	Implemented	HTTPS	
		State	Implemented	HTTPS	
		Pool references	Not Available	HTTPS	
		Volume references	Not Available	HTTPS	
	Protocol	Internal Volume references	Not Available	HTTPS	
		Port references	Not Available	HTTPS	
		FC(oE)	Implemented	HTTPS	
		iSCSI	Not Available	HTTPS	
	Storage	NFS	Not Available	HTTPS	
		SMB/CIFS	Not Available	HTTPS	
		Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Manual Input	HTTPS	
		Model	Implemented	HTTPS	
		Family	Manual Input	HTTPS	
		Serial Number	Implemented	HTTPS	
		Microcode Version	Not Available	HTTPS	
		Total Raw Capacity	Not Available	HTTPS	
		Failed Raw Capacity	Not Available	HTTPS	
		Spare Raw Capacity	Not Available	HTTPS	
		Manage URL	Implemented	HTTPS	
	Storage Ports	Virtual	Implemented	HTTPS	
		Storage efficiency	Not Available	HTTPS	
	Storage Ports	Controller Name	Not Available	HTTPS	
		Controller IP	Not Available	HTTPS	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information	
Insight	Storage Ports	Controller Vendor		Not Available	HTTPS		
		Controller Firmware		Not Available	HTTPS		
		Controller Driver		Not Available	HTTPS		
		Controller Model		Not Available	HTTPS		
		Node WWN		Implemented	HTTPS		
		Port WWN		Implemented	HTTPS		
		Port Name		Not Available	HTTPS		
	Synchronizations	Source Volume		Implemented	HTTPS		
		Target Volume		Implemented	HTTPS		
		Source Storage		Implemented	HTTPS		
		Target Storage		Implemented	HTTPS		
		Mode		Not Available	HTTPS		
		Protocol End Point refs		Not Available	HTTPS		
		Internal Volume Synchronization		Not Available	HTTPS		

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
RecoverPoint API	HTTPS	HTTPS	443		✓	✓	✓	✓

# Dell EMC ScaleIO

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	ScaleIO, ,	R2_0.13000.211, R2_5.1.102, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTPS	
		Speed	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Location	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
	Node	Name	Implemented	HTTPS	
		Pool references	Implemented	HTTPS	
		Volume references	Implemented	HTTPS	
	Storage	Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Family	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	
		Total Raw Capacity	Implemented	HTTPS	
		Failed Raw Capacity	Implemented	HTTPS	
		Storage Pools Capacity	Implemented	HTTPS	
	Storage Pool	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Raw To Usable Ratio	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	
		Disk references	Implemented	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	
		Over Commit Capacity Ratio	Implemented	HTTPS	
		Volume Name	Implemented	HTTPS	
	Volume	Capacity	Implemented	HTTPS	
		Raw Capacity	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		UUID	Implemented	HTTPS	
		Label	Implemented	HTTPS	
		Volume Identifier	Implemented	HTTPS	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
ScaleIO REST API	HTTPS	HTTPS	443		✓	✓	✓	✓

# Dell EMC VMAX Family of Devices

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
SE 7.1, SE 7.2, SE 7.3, SE 7.4, SE 7.5, SE 7.6 , SE 8.0.x, SE 8.1.x, SE 8.2.x, SE 8.3.x, SE 8.4.x, SE 9.0.0,	1000P-M2, 1000S-M2, 2000P-M2, 2000S-M2, 3000-M2, 800-M2, 8430, 8530, 8730, 8830, DMX1000P, DMX1000S, DMX2000P, DMX2000S, DMX3-24, DMX3-6, DMX3000, DMX4-24, DMX4-6, DMX800, Symmetrix VMAX-1, Symmetrix VMAX400K, Symmetrix VMAX40K, VMAX-1, VMAX-1SE, VMAX100K, VMAX10K, VMAX200K, VMAX20K, VMAX250F, VMAX400K, VMAX40K, VMAX450F, VMAX850F, VMAX950F, VMAXe,	5567(15BF0000), 5567(15BFAA01), 5568.68.28(15C00000), 5568.68.28(15C0AA01), 5568(15C00000), 5568(15C0AA01), 5670.99.90(16260000), 5670(16260000), 5671.75.75(16270000), 5671.80.77(16270000), 5671.81.78(16270000) , 5671.82.78(16270000), 5671(16270000), 5771.111.119(168B0000), 5771.112.120(168B0000), 5771.114.121(168B0000), 5771(168B0000), 5772.105.94(168C0000), 5772(168C0000), 5773.163.113(168D0000), 5773.168.115(168D0000), 5773.175.122(168D0000), 5773.176.124(168D0000), 5773.184.130(168D0000), 5773.198.142(168D0000), 5773.198.142(168D0000) build 23, 5773(168D0000), 5874.248.194(16F20000), 5874.259.201(16F20000), 5874(16F20000), 5875.139.93(16F30000), 5875.198.148(16F30000), 5875.231.172(16F30000), 5875.249.188(16F30000), 5875.267.201(16F30000), 5875.269.201(16F30000), 5875.286.218(16F30000), 5875.300.232(16F30000), 5875(16F30000), 5876.159.102(16F40000), 5876.163.105(16F40000), 5876.229.145(16F40000), 5876.251.161(16F40000), 5876.268.174(16F40000), 5876.269.175(16F40000), 5876.272.177(16F40000), 5876.286.194(16F40000), 5876.286.194(16F40000) build 115, 5876.288.195(16F40000), 5876.288.195(16F40000) build 100, 5876.288.195(16F40000) build 111, 5876.288.195(16F40000) build 310, 5876.288.195(16F40000) build 39, 5876.288.400(16F40000), 5876.309.196(16F40000), 5876.309.196(16F40000) build 45, 5876.309.196(16F40000) build 72, 5876.309.196(16F40000) build 76, 5876.309.196(16F40000) build 80, 5876.309.401(16F40000), 5876.309.401(16F40000) build 48, 5876.309.401(16F40000) build 65, 5876.82.57(16F40000), 5876.85.59(16F40000) , 5876(16F40000), 5977.1125.1125(17590000) , 5977.1125.1125(17590000) build 111, 5977.1125.1125(17590000) build 144, 5977.1125.1125(17590000) build 158, 5977.1125.1125(17590000) build 160, 5977.1125.1125(17590000) build 203, 5977.1125.1125(17590000) build 243, 5977.1125.1125(17590000) build 65, 5977.1131.1131(17590000), 5977.498.472(17590000),

		5977.596.583(17590000), 5977.691.684(17590000), 5977.811.784(17590000), 5977.813.785(17590000), 5977.814.786(17590000), 5977.945.890(17590000), 5977.952.892(17590000), 5977.952.892(17590000) build 132, 5977.952.892(17590000) build 15, 5977.952.892(17590000) build 203, 5977(17590000), 5978.144.144(175A0000), ,
--	--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**Products supported by this data collector:**

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	CLI	
		Speed	Implemented	CLI	
		Capacity	Implemented	CLI	
		Physical Location	Implemented	CLI	
		Role	Implemented	CLI	
		Model	Implemented	CLI	
		Vendor	Implemented	CLI	
		Type	Implemented	CLI	
		Serial Number	Implemented	CLI	
		Uses disk model	Implemented	CLI	
	Disk Group	Name	Implemented	CLI	
		Vendor Disk Group Type	Implemented	CLI	
		Disk Type	Implemented	CLI	
		Status	Implemented	CLI	
		Redundancy	Implemented	CLI	
		Virtual	Not Available	CLI	
		Vendor Tier	Not Available	CLI	
		Capacity	Implemented	CLI	
		Physical Disk Capacity	Implemented	CLI	
		Used Capacity	Implemented	CLI	
	Network Pipe	Source PEP ID	Implemented	CLI	
		Target PEP ID	Implemented	CLI	
		Bi-directional	Implemented	CLI	
		Auto Recover	Implemented	CLI	
		Operational Status	Implemented	CLI	
	Node	Name	Implemented	CLI	
		Version	Gap	CLI	
		Model	Gap	CLI	
		SerialNumber	Gap	CLI	
		Memory Size	Gap	CLI	
		Cache Size	Gap	CLI	
		Number Of Processors	Gap	CLI	
		State	Gap	CLI	
		Pool references	Gap	CLI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Node	Volume references	Implemented	CLI	
		Internal Volume references	Gap	CLI	
		Port references	Implemented	CLI	
	Other	Host Aliases	Implemented	CLI	
	Protocol	FC(oE)	Implemented	CLI	
		iSCSI	Implemented	CLI	iSCSI supported on Vmax generations 1 and 2 only
		NFS	Not Available	CLI	
		SMB/CIFS	Not Available	CLI	
	Protocol End Point	Id	Implemented	CLI	
		Name	Implemented	CLI	
		Storage	Implemented	CLI	
		Network Pipe Port WWNs	Implemented	CLI	
	Storage	Identifier	Implemented	CLI	Sym ID
		IP	Implemented	CLI	
		Name	Implemented	CLI	
		Vendor	Manual Input	CLI	
		Model	Implemented	CLI	
		Family	Manual Input	CLI	
		Serial Number	Implemented	CLI	
		Microcode Version	Implemented	CLI	
		Total Raw Capacity	Implemented	CLI	Reported as a time series.
		Failed Raw Capacity	Implemented	CLI	
		Spare Raw Capacity	Implemented	CLI	
		Manage URL	Implemented	CLI	
		Virtual	Implemented	CLI	
		Storage efficiency	Implemented	CLI	
		Storage Pools Capacity	Implemented	CLI	Reported as a time series.
	Storage Pool	ID	Implemented	CLI	
		Name	Implemented	CLI	
		Type	Implemented	CLI	
		Thin provisioning	Implemented	CLI	
		Raw To Usable Ratio	Implemented	CLI	
		Redundancy	Implemented	CLI	
		Total Allocated Capacity	Implemented	CLI	Reported as a time series.
		Total Used Capacity	Implemented	CLI	Reported as a time series.
		Data Allocated Capacity	Implemented	CLI	
		Data Used Capacity	Implemented	CLI	
		Other Allocated Capacity	Not Available	CLI	
		Other Used Capacity	Implemented	CLI	
		Snapshot Allocated Capacity	Not Available	CLI	Reported as a time series.
		Snapshot Used Capacity	Implemented	CLI	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Reserved Capacity	Not Available	CLI	Reported as a time series.
		AST	Implemented	CLI	FastVP on non-VMAX 3 arrays
		Disk references	Implemented	CLI	
		LUN references	Implemented	CLI	
		Compression Enabled	Implemented	CLI	
		Compression Savings	Implemented	CLI	Requires SE 8.4 and higher
		Deduplication Enabled	Not Available	CLI	
		Deduplication Savings	Not Available	CLI	
		Provisioned Capacity	Implemented	CLI	Reported as a time series.
		Total Used Capacity Ratio	Implemented	CLI	Reported as a time series.
Insight	Storage Ports	Over Commit Capacity Ratio	Implemented	CLI	Reported as a time series.
		Controller Name	Implemented	CLI	
		Controller IP	Implemented	CLI	
		Controller Vendor	Implemented	CLI	
		Controller Firmware	Implemented	CLI	
		Controller Driver	Implemented	CLI	
		Controller Model	Implemented	CLI	
		Node WWN	Implemented	CLI	
		Port WWN	Implemented	CLI	
Insight	Storage Virtualization	Port Name	Implemented	CLI	
		Backend Lun Name	Implemented	CLI	
		LUN	Implemented	CLI	
		Local port WWN	Implemented	CLI	
Insight	Synchronizations	Remote port WWN	Implemented	CLI	
		Source Volume	Implemented	CLI	
		Target Volume	Implemented	CLI	
		Source Storage	Implemented	CLI	
		Target Storage	Implemented	CLI	
		Mode	Implemented	CLI	
		Protocol End Point refs	Implemented	CLI	
Insight	Volume	Internal Volume Synchronization	Not Available	CLI	
		Volume Name	Implemented	CLI	Thin provisioned devices marked as "Not ready" in symdev output will not be discovered as they cannot be correlated to disk
		Capacity	Implemented	CLI	Reported as a time series.
		Consumed Capacity	Implemented	CLI	Reported as a time series.
		Raw Capacity	Implemented	CLI	Reported as a time series.
		Written Capacity	Implemented	CLI	Reported as a time series.
		Redundancy	Implemented	CLI	
		Thin provisioning	Implemented	CLI	
		Virtual Volume	Implemented	CLI	
		Volume Type	Implemented	CLI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Disk Size	Implemented	CLI	
		Disk Type	Implemented	CLI	
		Disk Speed	Implemented	CLI	
		Disk Group	Implemented	CLI	
		Protocol Controller	Implemented	CLI	
		Masking	Implemented	CLI	
		Mapping	Implemented	CLI	
		Meta Volume	Implemented	CLI	
		Virtual Storage	Implemented	CLI	
		Head	Implemented	CLI	
		Protection type	Implemented	CLI	
		Last known access time	Implemented	CLI	
		UUID	Implemented	CLI	
		Label	Not Available	CLI	
Perform	Disk Performance	Volume Identifier	Implemented	CLI	last 6 digits of the Symmetrix serial number + last 3 chars of the volume name + "000"
		Used Capacity Ratio	Implemented	CLI	Reported as a time series.
		Written Capacity Ratio	Implemented	CLI	Reported as a time series.
	Storage Node Performance	IOps Read	Implemented	SMI-S	
		IOps Write	Implemented	SMI-S	
		Response Time Read	Implemented	SMI-S	Only available when the linkage between Unisphere and SMI-S provider is set up properly. Value is derived from the pre-calculated Rated Statistics.
		Response Time Write	Implemented	SMI-S	Only available when the linkage between Unisphere and SMI-S provider is set up properly. Value is derived from the pre-calculated Rated Statistics.
		Response Time Total	Implemented	SMI-S	Only available when the linkage between Unisphere and SMI-S provider is set up properly. Value is derived from the pre-calculated Rated Statistics.
		Throughput Read	Implemented	SMI-S	
		Throughput Write	Implemented	SMI-S	
		IOps Read	Implemented	SMI-S	
		IOps Write	Implemented	SMI-S	
		Cache Hit Percent	Implemented	SMI-S	
		Disk Reads Replaced	Gap	SMI-S	
		Utilization	Implemented	SMI-S	
Storage Performance	Storage Performance	Port Utilization	Gap	SMI-S	
		Port Errors	Gap	SMI-S	
		Port Traffic	Gap	SMI-S	
		Cache Hit Ratio Read	Implemented	SMI-S	
		Cache Hit Ratio Write	Implemented	SMI-S	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Storage Performance	Cache Hit Ratio Total	Implemented	SMI-S	
		Cache Utilization Total	Implemented	SMI-S	
		IO Density Read	Gap	SMI-S	
		IO Density Write	Gap	SMI-S	
		IO Density Total	Gap	SMI-S	
		IOps Read	Implemented	SMI-S	When the linkage between Unisphere and SMI-S provider is set up properly, the value is derived from the pre-calculated Rated Statistics; otherwise, the value is derived as delta(IOS)/poll_internal
		IOps Write	Implemented	SMI-S	When the linkage between Unisphere and SMI-S provider is set up properly, the value is derived from the pre-calculated Rated Statistics; otherwise, the value is derived as delta(IOS)/poll_internal
		IOps Total	Implemented	SMI-S	When the linkage between Unisphere and SMI-S provider is set up properly, the value is derived from the pre-calculated Rated Statistics; otherwise, the value is derived as delta(IOS)/poll_internal
		Response Time Read	Implemented	SMI-S	Only available when the linkage between Unisphere and SMI-S provider is set up properly. Value is derived from the pre-calculated Rated Statistics.
		Response Time Write	Implemented	SMI-S	Only available when the linkage between Unisphere and SMI-S provider is set up properly. Value is derived from the pre-calculated Rated Statistics.
		Response Time Total	Implemented	SMI-S	Only available when the linkage between Unisphere and SMI-S provider is set up properly. Value is derived from the pre-calculated Rated Statistics.
		Throughput Read	Implemented	SMI-S	
		Throughput Write	Implemented	SMI-S	
		Throughput Total	Implemented	SMI-S	
		Pending Write Total	Implemented	SMI-S	
Volume Performance	Switch Ports	Port State	Gap	SMI-S	
	Response Time Read	Implemented	SMI-S		
	Response Time Write	Implemented	SMI-S		
	Response Time Total	Implemented	SMI-S		
	IOps Read	Implemented	SMI-S		
	IOps Write	Implemented	SMI-S		
	Backend Read	Implemented	SMI-S		
	Backend Write	Implemented	SMI-S		
	Backend IOps Read	Implemented	SMI-S		
	Backend IOps Write	Implemented	SMI-S		
	Cache Hit Read	Implemented	SMI-S		

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information		
Perform	Volume Performance	Cache Hit Write		Implemented	SMI-S			

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
symcli	CLI		2707		✓	✓	✓	✓
Symmetrix SMI-S	SMI-S	HTTP/HTTPS	5988/5989		✓	✗	✗	✓

# Dell EMC VNX

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	AX4-5, AX4-5F8, CNS, CX3-10c, CX3-10f, CX3-20, CX3-20c, CX3-20f, CX3-40, CX3-40c, CX3-40f, CX3-80, CX300, CX4-120, CX4-240, CX4-480, CX4-960, CX400, CX500, CX600, CX700, NS-120, NS-120FC, NS-480, NS-480FC, NS-960, NS-960FC, NS-G2, NS-G8 , NS20FC, NS40, NS40FC, NS40G, NS500G, NS700G, NS80, NSX, NX4, VG8, VNX5100, VNX5200, VNX5300, VNX5400, VNX5500, VNX5600, VNX5700, VNX5800, VNX7500, VNX7600, VNX8000,	04.28.000.5.003, 04.28.000.5.501, 04.28.000.5.504, 04.28.000.5.704, 04.28.000.5.706, 04.28.000.5.707, 04.28.000.5.708, 04.28.000.5.710, 04.29.000.5.003, 04.29.000.5.006, 04.29.000.5.012, 04.29.000.5.013, 04.29.000.5.014, 04.30.000.5.005, 04.30.000.5.507, 04.30.000.5.509, 04.30.000.5.511, 04.30.000.5.512, 04.30.000.5.517, 04.30.000.5.522, 04.30.000.5.523, 04.30.000.5.524, 04.30.000.5.525, 04.30.000.5.526, 04.30.000.5.529, 05.31.000.5.007, 05.31.000.5.008, 05.31.000.5.011, 05.31.000.5.012, 05.31.000.5.502, 05.31.000.5.509, 05.31.000.5.704, 05.31.000.5.709, 05.31.000.5.716, 05.31.000.5.720, 05.31.000.5.726, 05.32.000.5.006, 05.32.000.5.008, 05.32.000.5.011, 05.32.000.5.015, 05.32.000.5.201, 05.32.000.5.204, 05.32.000.5.206, 05.32.000.5.207, 05.32.000.5.209, 05.32.000.5.215, 05.32.000.5.216, 05.32.000.5.217, 05.32.000.5.218, 05.32.000.5.219, 05.32.000.5.221, 05.32.000.5.225, 05.33.000.5.038, 05.33.000.5.051, 05.33.000.5.052, 05.33.000.5.072, 05.33.000.5.074, 05.33.000.5.079, 05.33.000.5.081, 05.33.006.5.096, 05.33.006.5.102, 05.33.008.5.119, 05.33.009.5.155, 05.33.009.5.184, 05.33.009.5.186, 2.16.300.5.010, 2.16.300.5.022, 2.16.300.5.023, 2.16.500.5.012, 2.16.500.5.022, 2.16.500.5.024, 2.16.600.5.012, 2.16.600.5.018, 2.16.700.5.010, 2.16.700.5.012, 2.19.300.5.016, 2.19.300.5.019, 2.19.300.5.030, 2.19.300.5.034, 2.19.300.5.038, 2.19.300.5.040, 2.19.300.5.044, 2.19.300.5.045, 2.19.400.5.040, 2.19.400.5.044, 2.19.500.5.027, 2.19.500.5.030, 2.19.500.5.034, 2.19.500.5.040, 2.19.500.5.044, 2.19.500.5.045, 2.19.600.5.030, 2.19.600.5.034, 2.19.600.5.040, 2.19.600.5.044, 2.19.700.5.007, 2.19.700.5.014, 2.19.700.5.016, 2.19.700.5.019, 2.19.700.5.027, 2.19.700.5.030, 2.19.700.5.034, 2.19.700.5.038, 2.19.700.5.040, 2.19.700.5.044, 2.19.700.5.045, 2.23.50.5.703, 2.23.50.5.705, 2.23.50.5.707, 2.23.50.5.709, 2.23.50.5.710, 2.23.50.5.711, 2.24.300.5.006, 2.24.300.5.015 , 2.24.300.5.016, 2.24.500.5.014, 2.24.500.5.015, 2.24.500.5.016, 2.24.700.5.011, 2.24.700.5.014, 2.24.700.5.015, 2.24.700.5.016, 2.24.700.5.017, 2.24.700.5.019, 2.24.700.5.022,

					2.26.300.5.010, 2.26.300.5.014, 2.26.300.5.025, 2.26.300.5.026, 2.26.300.5.031, 2.26.500.5.011, 2.26.500.5.014, 2.26.500.5.020, 2.26.500.5.025, 2.26.500.5.028, 2.26.500.5.031, 2.26.700.5.005, 2.26.700.5.011, 2.26.700.5.014, 2.26.700.5.020, 2.26.700.5.025, 2.26.700.5.026, 2.26.700.5.028, 2.26.700.5.031, 3.22.20.5.508, 3.22.40.5.005, 3.22.40.5.508, 3.22.80.5.005, 3.22.80.5.505, 3.22.80.5.506, 3.22.80.5.508, 3.22.80.5.510, 3.22.80.5.514, 3.24.10.5.011, 3.24.10.5.016, 3.24.20.5.007, 3.24.20.5.011, 3.24.20.5.014, 3.24.20.5.016, 3.24.20.5.022, 3.24.40.5.006, 3.24.40.5.011, 3.24.40.5.014, 3.24.40.5.015, 3.24.40.5.016, 3.24.40.5.017, 3.24.40.5.019, 3.24.40.5.022, 3.24.80.5.011, 3.24.80.5.014, 3.24.80.5.015, 3.24.80.5.016, 3.24.80.5.017, 3.24.80.5.019, 3.26.10.5.010, 3.26.10.5.016, 3.26.10.5.020, 3.26.10.5.025, 3.26.10.5.031, 3.26.10.5.032, 3.26.20.5.010, 3.26.20.5.011, 3.26.20.5.014, 3.26.20.5.016, 3.26.20.5.019, 3.26.20.5.020, 3.26.20.5.025, 3.26.20.5.029, 3.26.20.5.031, 3.26.20.5.032, 3.26.40.5.005, 3.26.40.5.010, 3.26.40.5.011, 3.26.40.5.014, 3.26.40.5.016, 3.26.40.5.019, 3.26.40.5.020, 3.26.40.5.025, 3.26.40.5.026, 3.26.40.5.029, 3.26.40.5.031, 3.26.40.5.032, 3.26.80.5.005, 3.26.80.5.010, 3.26.80.5.011, 3.26.80.5.014, 3.26.80.5.016, 3.26.80.5.019, 3.26.80.5.020, 3.26.80.5.025, 3.26.80.5.026, 3.26.80.5.029, 3.26.80.5.031, 3.26.80.5.032, 3.26.81.5.016, 3.26.81.5.020, 3.26.81.5.025, 3.26.81.5.029, 3.26.81.5.031, 3.26.81.5.032, 4.28.0.5.504, 4.28.0.5.704, 4.28.0.5.706, 5.5.21-4, 5.5.22-2, 5.5.32-4, 5.5.36-2, 5.5.40-1, 5.6.45-5, 5.6.46-4 , 5.6.47-11, 5.6.48-7, 5.6.49-3, 5.6.50-2, 5.6.51-3, 6.0.36-4, 6.0.40-5, 6.0.40-8, 6.0.41-3 , 6.0.51-6, 6.0.55-3, 6.0.61-0, 6.0.65-2, 6.0.70-4, 6.0.71-4, 7.0.14-0, 7.0.35-3, 7.0.50-2 , 7.0.51-3, 7.0.53-2, 7.0.54-5, 7.1.55-3, 7.1.65-8, 7.1.71-1, 7.1.72-1, 7.1.74-5, 7.1.76-4 , 7.1.79-8, 7.1.80-3, 7.1.80-7, 7.1.80-8, 7.1.82-0, 8.1.2-51, 8.1.3-72, 8.1.3-79, 8.1.6-101, 8.1.8-121, 8.1.9-155, 8.1.9-184, 8.1.9-211, ,
--	--	--	--	--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**Products supported by this data collector:**

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	SSH	
		Speed	Implemented	SSH	
		Capacity	Implemented	SSH	
		Physical Location	Implemented	SSH	
		Role	Implemented	SSH	
		Model	Implemented	SSH	
		Vendor	Implemented	SSH	
		Type	Implemented	SSH	
		Serial Number	Implemented	SSH	
		Uses disk model	Implemented	SSH	
	Internal Volume	Name	Implemented	SSH	Internal volumes represent file

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume				systems
		Type	Implemented	SSH	
		Space Guarantee	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Dedupe enabled	Implemented	SSH	
		Dedupe savings	Implemented	SSH	
		Last snapshot time	Implemented	SSH	
		Snapshot count	Implemented	SSH	
		Status	Implemented	SSH	
		Clones	Implemented	SSH	
		Virtual Storage	Implemented	SSH	
		Head	Implemented	SSH	
		Protection type	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
		Snapshot Allocated Capacity	Not Available	SSH	Reported as a time series.
		Snapshot Used Capacity	Not Available	SSH	Reported as a time series.
		Total Clone Saved Capacity	Implemented	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
Network Pipe	Network Pipe	Source PEP ID	Implemented	SSH	
		Target PEP ID	Implemented	SSH	
		Bi-directional	Gap	SSH	
		Auto Recover	Gap	SSH	
		Operational Status	Gap	SSH	
Protocol	Other	Host Aliases	Implemented	SSH	
	Protocol	FC(oE)	Implemented	SSH	
		iSCSI	Gap	SSH	
		NFS	Implemented	SSH	
Protocol End Point	Protocol End Point	SMB/CIFS	Implemented	SSH	
		Id	Implemented	SSH	
		Name	Implemented	SSH	
		Storage	Implemented	SSH	
Qtree	Qtree	Network Pipe Port WWNs	Implemented	SSH	
		Name	Implemented	SSH	
		OpLocks enabled	Not Available	SSH	
		Security Type	Not Available	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Qtree	Status	Not Available	SSH	
		Path	Implemented	SSH	
		Used Capacity	Implemented	SSH	Reported as a time series.
		Quota Hard Limit	Implemented	SSH	Reported as a time series.
		Quota Soft Limit	Implemented	SSH	Reported as a time series.
		Quota File Count	Implemented	SSH	Reported as a time series.
	Quota	Disk Limit	Implemented	SSH	
		Soft Disk Limit	Implemented	SSH	
		File Limit	Implemented	SSH	
		Soft File Limit	Implemented	SSH	
		Threshold	Not Available	SSH	
		Type	Implemented	SSH	
		User/Group	Implemented	SSH	
		File Count	Implemented	SSH	
		Used Capacity	Implemented	SSH	
	Share	Name	Implemented	SSH	Represents a CIFS or NFS share
		Protocol	Implemented	SSH	
		Permission	Implemented	SSH	
		Files	Implemented	SSH	
	Storage	Identifier	Implemented	SSH	Serial Number for CLARiiON
		IP	Implemented	SSH	
		Name	Implemented	SSH	
		Vendor	Manual Input	SSH	
		Model	Implemented	SSH	
		Family	Manual Input	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	
		Total Raw Capacity	Implemented	SSH	Reported as a time series.
		Failed Raw Capacity	Not Available	SSH	Naviseccli does not report failed disks accurately, so support is impossible
		Spare Raw Capacity	Implemented	SSH	
		Manage URL	Implemented	SSH	
		Virtual	Implemented	SSH	Celerra is modeled as a NAS gateway
		Storage efficiency	Implemented	SSH	
		Storage Pools Capacity	Implemented	SSH	Reported as a time series.
	Storage Pool	ID	Implemented	SSH	
		Name	Implemented	SSH	
		Type	Implemented	SSH	Raid group and Virtual Provision Pool (thin provisioning) support for CLARiiON
		Thin provisioning	Implemented	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Redundancy	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
		Snapshot Allocated Capacity	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Reserved Capacity	Implemented	SSH	Reported as a time series.
		Disk references	Implemented	SSH	
		LUN references	Implemented	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Deduplication Enabled	Not Available	SSH	
		Deduplication Savings	Not Available	SSH	
	Storage Ports	Provisioned Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	SSH	Reported as a time series.
		Controller Name	Implemented	SSH	
	Storage Virtualization	Controller IP	Implemented	SSH	
		Controller Vendor	Implemented	SSH	
		Controller Firmware	Implemented	SSH	
		Controller Driver	Implemented	SSH	
		Controller Model	Implemented	SSH	
		Node WWN	Implemented	SSH	
		Port WWN	Implemented	SSH	
		Port Name	Implemented	SSH	
		Backend Lun Name	Implemented	SSH	Celerra Backend LUNs represent Disk Volumes
Synchronizations	Source	LUN	Implemented	SSH	
		Local port WWN	Implemented	SSH	
		Remote port WWN	Implemented	SSH	
		Source Volume	Implemented	SSH	
	Target	Target Volume	Implemented	SSH	
		Source Storage	Implemented	SSH	Replication information will start coming in the system only after all arrays involved in this replication are successfully reported
	Mode	Target Storage	Implemented	SSH	Replication information will start coming in the system only after all arrays involved in this replication are successfully reported
		Mode	Gap	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Synchronizations	Protocol End Point refs	Implemented	SSH	
		Internal Volume Synchronization	Not Available	SSH	
	Volume	Volume Name	Implemented	SSH	
		Capacity	Implemented	SSH	Reported as a time series.
		Consumed Capacity	Implemented	SSH	Reported as a time series. Using dedupe on volumes on VNX for block will inhibit EMC from reporting those volume's consumed capacity, and therefore OCI cannot obtain it
		Raw Capacity	Implemented	SSH	Reported as a time series.
		Redundancy	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Virtual Volume	Implemented	SSH	
		Volume Type	Implemented	SSH	
		Disk Size	Implemented	SSH	
		Disk Type	Implemented	SSH	
		Disk Speed	Implemented	SSH	
		Disk Group	Implemented	SSH	
		Protocol Controller	Implemented	SSH	
		Masking	Implemented	SSH	
		Mapping	Implemented	SSH	
		Meta Volume	Implemented	SSH	
		Virtual Storage	Implemented	SSH	
		Head	Implemented	SSH	
		Protection type	Implemented	SSH	
		Last known access time	Implemented	SSH	
		UUID	Implemented	SSH	
		Label	Implemented	SSH	
		Volume Identifier	Not Available	SSH	
		Used Capacity Ratio	Implemented	SSH	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	SSH	
		Throughput Write	Implemented	SSH	
		IOps Read	Implemented	SSH	
		IOps Write	Implemented	SSH	
		Utilization Read	Implemented	SSH	
		Utilization Write	Implemented	SSH	
	Storage Node Performance	Response Time Read	Not Available	SSH	
		Response Time Write	Not Available	SSH	
		Response Time Total	Not Available	SSH	
		Throughput Read	Not Available	SSH	
		Throughput Write	Not Available	SSH	
		IOps Read	Implemented	SSH	
		IOps Write	Implemented	SSH	
		Cache Hit Percent	Not Available	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Storage Node Performance	Disk Reads Replaced	Not Available	SSH	
		Utilization	Implemented	SSH	
		Port Utilization	Not Available	SSH	
		Port Errors	Not Available	SSH	
		Port Traffic	Not Available	SSH	
	Volume Performance	Response Time Read	Implemented	SSH	
		Response Time Write	Implemented	SSH	
		Response Time Total	Implemented	SSH	
		Throughput Read	Implemented	SSH	
		Throughput Write	Implemented	SSH	
		IOps Read	Implemented	SSH	
		IOps Write	Implemented	SSH	
		Cache Hit Ratio Read	Implemented	SSH	
		Cache Hit Ratio Write	Implemented	SSH	
		Cache Hit Ratio Total	Implemented	SSH	
		Write Pending	Implemented	SSH	
		Partial Read/Write	Implemented	SSH	
		Accessed	Implemented	SSH	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
VNX - SSH and CLI	SSH	SSH	22		✓	✗	✓	✓

# Dell EMC VNxe

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	Unity 300, Unity 300F, Unity 400, Unity 400F, Unity 450F, Unity 500, Unity 500F, Unity 550F, Unity 600, Unity 600F, VNxe 1600, VNxe 3100, VNxe 3200, VNxe 3300, VNxe3150, VNxe3200,	2.4.1.21171, 2.4.2.21519, 2.4.3.21980, 2.4.4.22283, 3.1.5.6801782, 3.1.5.7213336, 3.1.8.9340299, 4.1.2.9257522, 4.2.0.9476662, 4.2.1.9535982, 4.2.3.9670635, 4.3.1.1525703027, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTPS	
		Speed	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Location	Implemented	HTTPS	
		Role	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Uses disk model	Implemented	HTTPS	
Internal Volume	Internal Volume	Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Space Guarantee	Not Available	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Dedupe enabled	Implemented	HTTPS	
		Dedupe savings	Not Available	HTTPS	
		Last snapshot time	Not Available	HTTPS	
		Snapshot count	Not Available	HTTPS	
		Status	Implemented	HTTPS	
		Clones	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Protection type	Not Available	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Not Available	HTTPS	
		Total Clone Saved Capacity	Not Available	HTTPS	
		Total Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Node	Name	Implemented	HTTPS	
		Version	Not Available	HTTPS	
		Model	Implemented	HTTPS	
		SerialNumber	Implemented	HTTPS	
		Memory Size	Implemented	HTTPS	
		Cache Size	Not Available	HTTPS	
		Number Of Processors	Not Available	HTTPS	
		State	Implemented	HTTPS	
		Pool references	Not Available	HTTPS	
		Volume references	Not Available	HTTPS	
		Internal Volume references	Not Available	HTTPS	
		Port references	Not Available	HTTPS	
	Protocol	FC(oE)	Implemented	HTTPS	
		iSCSI	Implemented	HTTPS	
		NFS	Implemented	HTTPS	
		SMB/CIFS	Implemented	HTTPS	
Qtree	Qtree	Name	Implemented	HTTPS	
		OpLocks enabled	Not Available	HTTPS	
		Security Type	Not Available	HTTPS	
		Status	Not Available	HTTPS	
		Path	Implemented	HTTPS	
		Used Capacity	Not Available	HTTPS	
		Quota Hard Limit	Not Available	HTTPS	
		Quota Soft Limit	Not Available	HTTPS	
Share	Share	Name	Implemented	HTTPS	
		Protocol	Implemented	HTTPS	
		Permission	Not Available	HTTPS	
Storage	Storage	Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Manual Input	HTTPS	
		Model	Implemented	HTTPS	
		Family	Manual Input	HTTPS	
		Serial Number	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	
		Total Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTPS	
		Spare Raw Capacity	Implemented	HTTPS	
		Manage URL	Not Available	HTTPS	
		Virtual	Implemented	HTTPS	
		Storage efficiency	Not Available	HTTPS	
		Storage Pools Capacity	Implemented	HTTPS	Reported as a time series.
	Storage Pool	ID	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Raw To Usable Ratio	Implemented	HTTPS	
		Redundancy	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Not Available	HTTPS	
		Data Used Capacity	Not Available	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Not Available	HTTPS	
		Reserved Capacity	Not Available	HTTPS	
		AST	Not Available	HTTPS	
		Disk references	Implemented	HTTPS	
		LUN references	Implemented	HTTPS	
		Compression Enabled	Implemented	HTTPS	
		Compression Savings	Implemented	HTTPS	OCI will report Unity's calculated valued, a rollup of volumes' compression
		Deduplication Enabled	Not Available	HTTPS	
		Deduplication Savings	Not Available	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Volume	Volume	Volume Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTPS	Reported as a time series.
		Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Redundancy	Not Available	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Virtual Volume	Not Available	HTTPS	
		Volume Type	Implemented	HTTPS	
		Disk Size	Not Available	HTTPS	
		Disk Type	Not Available	HTTPS	
		Disk Speed	Not Available	HTTPS	
		Disk Group	Not Available	HTTPS	
		Protocol Controller	Implemented	HTTPS	
		Masking	Implemented	HTTPS	
		Mapping	Implemented	HTTPS	
Unity	Volume	Meta Volume	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Head	Not Available	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Protection type	Not Available	HTTPS	
		Last known access time	Not Available	HTTPS	
		UUID	Implemented	HTTPS	
		Label	Implemented	HTTPS	
		Volume Identifier	Implemented	HTTPS	
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		Throughput Write	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		IOps Read	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		IOps Write	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		Utilization Read	Not Available	HTTPS	
		Utilization Write	Not Available	HTTPS	
	Storage Node Performance	Response Time Read	Not Available	HTTPS	
		Response Time Write	Not Available	HTTPS	
		Response Time Total	Not Available	HTTPS	
		Throughput Read	Not Available	HTTPS	
		Throughput Write	Not Available	HTTPS	
		IOps Read	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		IOps Write	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		Cache Hit Percent	Not Available	HTTPS	
		Disk Reads Replaced	Not Available	HTTPS	
		Utilization	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
	Volume Performance	Response Time Read	Not Available	HTTPS	
		Response Time Write	Not Available	HTTPS	
		Response Time Total	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		Throughput Read	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		Throughput Write	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		IOps Read	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		IOps Write	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		IOps Total	Implemented	HTTPS	Only Unity and the second gen VNXe models (1600, 3200) are supported
		Cache Hit Ratio Read	Not Available	HTTPS	
		Cache Hit Ratio Write	Not Available	HTTPS	
		Cache Hit Ratio Total	Not Available	HTTPS	
		Write Pending	Not Available	HTTPS	
		Partial Read/Write	Not Available	HTTPS	

***Management APIs used by this data collector:***

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
VNXe (UnisphereCLI)	HTTPS	HTTPS	443		✓	✓	✓	✓

# Dell EMC VPLEX

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	VPLEX,	5.1.0.02.00.01, 5.1.0.03.00.07, 5.1.0.04.00.04, 5.2.0.00.00.05, 5.2.1.00.00.04, 5.2.1.02.00.03, 5.2.1.03.00.02, 5.3.0.00.00.10, 5.3.0.01.00.04, 5.3.0.02.00.05, 5.3.0.03.00.04, 5.3.0.04.00.07, 5.4.1.00.00.07, 5.4.1.01.00.05, 5.4.1.03.00.04, 5.4.1.04.00.01, 5.5.1.00.00.05, 5.5.1.01.00.05, 5.5.1.02.00.01, 5.5.2.01.00.03, 5.5.2.02.00.03, 5.5.2.03.00.06, 5.5.2.04.00.01, 5.5.2.05.00.09, 6.0.0.02.00.07, 6.0.1.00.00.08, 6.0.1.01.00.04, 6.0.1.02.00.03, 6.0.1.04.00.09, 6.0.1.07.00.04, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Identifier	Implemented	HTTP/ HTTPS	Serial number
		IP	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	Serial number
		Vendor	Manual Input	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		Family	Manual Input	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
		Microcode Version	Implemented	HTTP/ HTTPS	
		Total Raw Capacity	Not Available	HTTP/ HTTPS	
		Failed Raw Capacity	Not Available	HTTP/ HTTPS	
		Spare Raw Capacity	Not Available	HTTP/ HTTPS	
		Manage URL	Implemented	HTTP/ HTTPS	
		Virtual	Implemented	HTTP/ HTTPS	
		Storage efficiency	Not Available	HTTP/ HTTPS	
	Storage Pool	Storage Pools Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		ID	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Thin provisioning	Not Available	HTTP/ HTTPS	
		Raw To Usable Ratio	Not Available	HTTP/ HTTPS	
		Redundancy	Implemented	HTTP/ HTTPS	
		Total Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Used Capacity	Not Available	HTTP/ HTTPS	
		Data Allocated Capacity	Not Available	HTTP/ HTTPS	
		Data Used Capacity	Not Available	HTTP/ HTTPS	
		Other Allocated Capacity	Not Available	HTTP/ HTTPS	
		Other Used Capacity	Not Available	HTTP/ HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTP/ HTTPS	
		Snapshot Used Capacity	Not Available	HTTP/ HTTPS	
		Reserved Capacity	Not Available	HTTP/ HTTPS	
		Disk references	Not Available	HTTP/ HTTPS	
		LUN references	Implemented	HTTP/ HTTPS	
		Compression Enabled	Not Available	HTTP/ HTTPS	
		Compression Savings	Not Available	HTTP/ HTTPS	
		Deduplication Enabled	Not Available	HTTP/ HTTPS	
		Deduplication Savings	Not Available	HTTP/ HTTPS	
		Provisioned Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
Storage Ports	Storage Ports	Controller Name	Implemented	HTTP/ HTTPS	
		Controller IP	Implemented	HTTP/ HTTPS	
		Controller Vendor	Not Available	HTTP/ HTTPS	
		Controller Firmware	Not Available	HTTP/ HTTPS	
		Controller Driver	Not Available	HTTP/ HTTPS	
		Controller Model	Not Available	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Ports	Node WWN	Implemented	HTTP/ HTTPS	
		Port WWN	Implemented	HTTP/ HTTPS	
		Port Name	Implemented	HTTP/ HTTPS	
	Storage Virtualization	Backend Lun Name	Implemented	HTTP/ HTTPS	
		LUN	Implemented	HTTP/ HTTPS	
		Local port WWN	Implemented	HTTP/ HTTPS	
		Remote port WWN	Implemented	HTTP/ HTTPS	
	Volume	Volume Name	Implemented	HTTP/ HTTPS	
		Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Consumed Capacity	Not Available	HTTP/ HTTPS	
		Raw Capacity	Not Available	HTTP/ HTTPS	
		Written Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Redundancy	Implemented	HTTP/ HTTPS	
		Thin provisioning	Not Available	HTTP/ HTTPS	
		Virtual Volume	Implemented	HTTP/ HTTPS	
		Volume Type	Not Available	HTTP/ HTTPS	
		Disk Size	Not Available	HTTP/ HTTPS	
		Disk Type	Not Available	HTTP/ HTTPS	
		Disk Speed	Not Available	HTTP/ HTTPS	
		Disk Group	Not Available	HTTP/ HTTPS	
		Protocol Controller	Implemented	HTTP/ HTTPS	
		Masking	Implemented	HTTP/ HTTPS	
		Mapping	Implemented	HTTP/ HTTPS	
		Meta Volume	Not Available	HTTP/ HTTPS	
		Virtual Storage	Implemented	HTTP/ HTTPS	
		Head	Not Available	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Protection type	Not Available	HTTP/ HTTPS	
		Last known access time	Not Available	HTTP/ HTTPS	
		UUID	Not Available	HTTP/ HTTPS	
		Label	Not Available	HTTP/ HTTPS	
		Volume Identifier	Not Available	HTTP/ HTTPS	
Perform	Storage Node Performance	Response Time Read	Implemented	SSH	supported on 5.3.0 and higher firmware
		Response Time Write	Implemented	SSH	supported on 5.3.0 and higher firmware
		Response Time Total	Not Available	SSH	supported on 5.3.0 and higher firmware
		Throughput Read	Implemented	SSH	supported on 5.3.0 and higher firmware
		Throughput Write	Implemented	SSH	supported on 5.3.0 and higher firmware
		IOps Read	Implemented	SSH	supported on 5.3.0 and higher firmware
		IOps Write	Implemented	SSH	supported on 5.3.0 and higher firmware
		Cache Hit Percent	Implemented	SSH	supported on 5.3.0 and higher firmware
		Disk Reads Replaced	Not Available	SSH	supported on 5.3.0 and higher firmware
		Utilization	Implemented	SSH	supported on 5.3.0 and higher firmware
	Volume Performance	Port Utilization	Not Available	SSH	supported on 5.3.0 and higher firmware
		Port Errors	Not Available	SSH	supported on 5.3.0 and higher firmware
		Port Traffic	Not Available	SSH	supported on 5.3.0 and higher firmware
		Response Time Read	Implemented	SSH	supported on 5.3.0 and higher firmware
		Response Time Write	Implemented	SSH	supported on 5.3.0 and higher firmware

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information	
Perform	Volume Performance	Cache Hit Ratio Read		Not Available	SSH	supported on 5.3.0 and higher firmware	
		Cache Hit Ratio Write		Not Available	SSH	supported on 5.3.0 and higher firmware	
		Cache Hit Ratio Total		Not Available	SSH	supported on 5.3.0 and higher firmware	
		Write Pending		Not Available	SSH	supported on 5.3.0 and higher firmware	
		Partial Read/Write		Not Available	SSH	supported on 5.3.0 and higher firmware	
		Accessed		Implemented	SSH	supported on 5.3.0 and higher firmware	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
VPLEX CLI	HTTP/HTTPS	HTTP/HTTPS	80/443		✓	✓	✓	✓
VPLEX CLI	SSH	SSH	22		✓	✓	✓	✓

# Dell EMC XtremIO

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	1X10TB, 1X20TB, 1X40TB, 2X10TB, 2X20TB, 2X40TB, 4X10TB, 4X20TB, 4X40TB, 6X20TB, 6X40TB, 8X20TB, 8X40TB, X2R, X2S, X2T, ,	2.4.1-12, 3.0.0-44, 3.0.1-11, 3.0.2-14_hotfix_2 , 3.0.3-11, 3.0.3-11_hotfix_4, 3.0.3-11_hotfix_7, 4.0.1-41, 4.0.1-41_hotfix_1, 4.0.10-33, 4.0.15-15, 4.0.15-20, 4.0.15-24, 4.0.2-80, 4.0.25-22, 4.0.25-27, 4.0.4-28, 4.0.4-41, 6.0.2-17_X2, 6.1.0-99_X2,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTPS	
		Speed	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Location	Implemented	HTTPS	
		Role	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Uses disk model	Implemented	HTTPS	
Node	Node	Name	Implemented	HTTPS	
		Version	Not Available	HTTPS	
		Model	Not Available	HTTPS	
		SerialNumber	Implemented	HTTPS	
		Memory Size	Not Available	HTTPS	
		Cache Size	Not Available	HTTPS	
		Number Of Processors	Implemented	HTTPS	
		State	Implemented	HTTPS	
		Pool references	Not Available	HTTPS	
		Volume references	Not Available	HTTPS	
		Internal Volume references	Not Available	HTTPS	
		Port references	Not Available	HTTPS	
Protocol	FC(oE)	Implemented	HTTPS		
	iSCSI	Gap	HTTPS		
Storage	Storage	Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Manual Input	HTTPS	
		Model	Implemented	HTTPS	
		Family	Manual Input	HTTPS	
		Serial Number	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Total Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTPS	
		Spare Raw Capacity	Implemented	HTTPS	
		Manage URL	Implemented	HTTPS	
		Virtual	Not Available	HTTPS	
		Storage efficiency	Not Available	HTTPS	
		Storage Pools Capacity	Implemented	HTTPS	Reported as a time series.
	Storage Pool	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Raw To Usable Ratio	Implemented	HTTPS	
		Redundancy	Not Available	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Not Available	HTTPS	
		Reserved Capacity	Not Available	HTTPS	
		AST	Not Available	HTTPS	
		Disk references	Implemented	HTTPS	
		LUN references	Not Available	HTTPS	
		Compression Enabled	Implemented	HTTPS	
		Compression Savings	Implemented	HTTPS	
		Deduplication Enabled	Implemented	HTTPS	
		Deduplication Savings	Implemented	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
	Storage Ports	Controller Name	Implemented	HTTPS	
		Controller IP	Not Available	HTTPS	
		Controller Vendor	Not Available	HTTPS	
		Controller Firmware	Implemented	HTTPS	
		Controller Driver	Not Available	HTTPS	
		Controller Model	Not Available	HTTPS	
		Node WWN	Implemented	HTTPS	
		Port WWN	Implemented	HTTPS	
		Port Name	Implemented	HTTPS	
		Volume	Volume Name	Implemented	HTTPS

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Capacity	Implemented	HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTPS	Reported as a time series.
		Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Redundancy	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Virtual Volume	Implemented	HTTPS	
		Volume Type	Implemented	HTTPS	
		Disk Size	Implemented	HTTPS	
		Disk Type	Implemented	HTTPS	
		Disk Speed	Implemented	HTTPS	
		Disk Group	Not Available	HTTPS	
		Protocol Controller	Implemented	HTTPS	
		Masking	Implemented	HTTPS	
		Mapping	Implemented	HTTPS	
		Meta Volume	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Head	Not Available	HTTPS	
		Protection type	Not Available	HTTPS	
		Last known access time	Not Available	HTTPS	
		UUID	Implemented	HTTPS	
		Label	Not Available	HTTPS	
		Volume Identifier	Not Available	HTTPS	
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Perform	Storage Node Performance	Response Time Read	Not Available	HTTPS	
		Response Time Write	Not Available	HTTPS	
		Response Time Total	Not Available	HTTPS	
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		Cache Hit Percent	Not Available	HTTPS	
		Disk Reads Replaced	Not Available	HTTPS	
		Utilization	Not Available	HTTPS	
		Port Utilization	Not Available	HTTPS	
		Port Errors	Not Available	HTTPS	
		Port Traffic	Implemented	HTTPS	
	Volume Performance	Response Time Read	Implemented	HTTPS	
		Response Time Write	Implemented	HTTPS	
		Response Time Total	Implemented	HTTPS	
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information	
Perform	Volume Performance	IOps Total		Implemented	HTTPS		
		Cache Hit Ratio Read		Not Available	HTTPS		
		Cache Hit Ratio Write		Not Available	HTTPS		
		Cache Hit Ratio Total		Not Available	HTTPS		
		Write Pending		Not Available	HTTPS		
		Partial Read/Write		Implemented	HTTPS		
		Accessed		Implemented	HTTPS		

***Management APIs used by this data collector:***

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
XtremIO API	HTTPS	HTTPS	443		✓	✓	✓	✓

# Fujitsu ETERNUS DX

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	DX100S3, DX200S3, DX410S2, DX440S2, DX500S3, DX600S3, DX60S2, DX60S3, DX80S2, DX8700S2, DX90S2, ET092DCU, ET092DDU, ET103AU, ET203AU, ET442SAU, ET603SAU, ,	V10L19-1000, V10L20-4000, V10L22-0000, V10L22-3000, V10L25-0000, V10L30-0000, V10L32-0000, V10L32-0000 , V10L50-0000, V10L50-3000, V10L50-4000, V10L54-0000, V10L60-0000, V10L60-1000, V10L60-6000, V10L70-5000, V10L80-0000, V20L12-0000, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	SSH	
		Speed	Implemented	SSH	
		Capacity	Implemented	SSH	
		Physical Location	Implemented	SSH	
		Role	Implemented	SSH	
		Model	Implemented	SSH	
		Vendor	Implemented	SSH	
		Type	Implemented	SSH	
		Serial Number	Implemented	SSH	
	Other	Uses disk model	Implemented	SSH	
		Host Aliases	Implemented	SSH	
		FC(oE)	Implemented	SSH	
		iSCSI	Gap	SSH	
	Storage	NFS	Not Available	SSH	
		SMB/CIFS	Not Available	SSH	
		Identifier	Implemented	SSH	
		IP	Implemented	SSH	
		Name	Manual Input	SSH	
		Vendor	Manual Input	SSH	
		Model	Implemented	SSH	
		Family	Manual Input	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	
		Total Raw Capacity	Implemented	SSH	Reported as a time series.
		Failed Raw Capacity	Implemented	SSH	
	Storage Pool	Spare Raw Capacity	Implemented	SSH	
		Manage URL	Implemented	SSH	
		Virtual	Implemented	SSH	
		Storage efficiency	Implemented	SSH	
		Storage Pools Capacity	Implemented	SSH	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Thin provisioning	Implemented	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Redundancy	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
		Snapshot Allocated Capacity	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Reserved Capacity	Implemented	SSH	Reported as a time series.
		Disk references	Implemented	SSH	
		LUN references	Implemented	SSH	
	Performance Metrics	Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Deduplication Enabled	Manual Input	SSH	Always no
		Deduplication Savings	Not Available	SSH	
		Provisioned Capacity	Implemented	SSH	Reported as a time series.
Insight	Storage Ports	Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	SSH	Reported as a time series.
		Controller Name	Implemented	SSH	
		Controller IP	Implemented	SSH	
		Controller Vendor	Implemented	SSH	
		Controller Firmware	Implemented	SSH	
		Controller Driver	Implemented	SSH	
		Controller Model	Implemented	SSH	
		Node WWN	Implemented	SSH	
	Storage Virtualization	Port WWN	Implemented	SSH	
		Port Name	Implemented	SSH	
		Backend Lun Name	Implemented	SSH	
		LUN	Implemented	SSH	
Insight	Technical	Local port WWN	Implemented	SSH	
		Remote port WWN	Implemented	SSH	
		Recording	Implemented	SSH	
		Crawling	Implemented	SSH	
		Simulation	Implemented	SSH	
		MOID	Implemented	SSH	
	Volume	Filtering	Implemented	SSH	
		Enhanced Error Messages	Implemented	SSH	
	Volume	Volume Name	Implemented	SSH	
		Capacity	Implemented	SSH	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Consumed Capacity	Implemented	SSH	Reported as a time series.
		Raw Capacity	Implemented	SSH	Reported as a time series.
		Redundancy	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Virtual Volume	Implemented	SSH	
		Volume Type	Implemented	SSH	
		Disk Size	Implemented	SSH	
		Disk Type	Implemented	SSH	
		Disk Speed	Implemented	SSH	
		Disk Group	Implemented	SSH	
		Protocol Controller	Implemented	SSH	
		Masking	Implemented	SSH	
		Mapping	Implemented	SSH	
		Meta Volume	Implemented	SSH	
		Virtual Storage	Implemented	SSH	
		Head	Not Planned	SSH	
		Protection type	Implemented	SSH	
		Last known access time	Implemented	SSH	
		UUID	Not Available	SSH	
		Label	Implemented	SSH	
		Volume Identifier	Not Available	SSH	
		Used Capacity Ratio	Implemented	SSH	Reported as a time series.

#### Management APIs used by this data collector:

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Fujitsu Eternus SSH CLI	SSH	SSH			✓	✗	✓	✓

# Hitachi Vantara Command Suite / HP Enterprise Command View

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
7, 7.0, 7.0.1, 7.1, 7.1.1, 7.1.3, 7.2, 7.2.0, 7.2.1, 7.3, 7.3.1, 7.4, 7.4.0, 7.4.1, 7.5.0, 7.6, 7.6.1, 8.0, 8.1.1, 8.1.2, 8.1.3, 8.1.4, 8.2, 8.2.1, 8.4, 8.4.1, 8.5.x, 8.6.1,	AMS, AMS 2x00, AMS200, D800, DF600H, DF700H, DF700M, DF700XS, DF800EH, DF800EM, DF800H, DF800S, DF850MH, DF850S, DF850XS, HDS9500V, HDS9570V, HDS9900V, HDS9960, HDS9970V, HM700, HM800, HM800H, HM800S, HUS 1xx (block only), HUS VM (block only), P9500, RAID450, RAID500, RAID501, RAID600, RAID601, RAID700, RAID800, SA800, USP-V, VSP, VSP G1000, XP7,	065B/K, 065E/A, 065F/B, 065F/C, 065F/D, 065F/G, 0726/B-X, 0760/A-H, 0770/C-H, 0770/G-H, 0772/A-H, 0772/A-M, 0772/D-H, 0772/D-S, 0773/D-H, 0773/D-M, 0775/A-H, 0775/A-M, 0780/A-H, 0780/A-M, 0780/A-X, 0781/A-H, 0781/A-M, 0781/A-S, 0782/A-H, 0782/B-H, 0782/B-M, 0782/B-S, 0782/E-H, 0782/E-M, 0783/A-H, 0783/A-M, 0783/A-S, 0783/D-H, 0783/D-M, 0783/G-H, 0783/G-M, 0786/B-H, 0786/C-H, 0786/C-M, 0786/C-S, 0786/E-H, 0786/G-H, 0786/G-M, 0786/H-H, 0786/J-H, 0786/J-M, 0787/B-H, 0787/B-M, 0787/E-H, 0787/E-M, 0850/C-M, 0850/D-H, 0850/D-M, 0860/C-H, 0860/C-M, 0860/C-S, 0865/E-H, 0865/F-H, 0872/B-H, 0872/B-M, 0872/E-H, 0872/E-M, 0880/A-H, 0883/B-H, 0883/B-S, 0885/A-H, 0885/A-M, 0885/A-S, 0885/C-H, 0885/D-H, 0890/B-H, 0890/B-S, 0890/H-H, 0890/H-S, 0890/H-Z, 0893/B-H, 0893/B-Z, 0893/E-H, 0893/E-S, 0893/E-Z, 0893/G-H, 0893/G-S, 0893/G-Z, 0897/B-H, 0897/B-Z, 0897/C-H, 0897/C-S, 0897/C-Z, 0897/H-H, 0897/H-S, 0897/H-X, 0897/H-Y, 0897/H-Z, 08A0/B-H, 08A0/B-M, 08A0/B-Y, 08A0/B-Z, 08A0/J-H, 08A0/J-M, 08A0/J-S, 08A0/J-X, 08A0/J-Y, 08A0/J-Z, 08B0/B-H, 08B0/B-Z, 08B3/A-H, 08B3/A-Z, 08B5/B-H, 08B5/B-S, 08B5/B-Z, 08B5/D-H, 08B5/D-M, 08B5/D-S, 08B5/D-Z, 08B5/F-Z, 08B5/H-H, 08B5/H-S, 08B5/H-Z, 08B5/K-H, 08B5/K-Z, 08B5/N-H, 08B5/N-S, 08B5/N-Z, 08B7/A-Y, 08B7/A-Z, 08B7/B-Z, 08B7/G-H, 08B7/G-Z, 08B7/H-H, 08B7/H-M, 08B7/H-Z, 08B7/K-Z, 08B7/P-S, 08B7/S-H, 08B7/S-Z, 08B7/V-H, 08B7/V-M, 08B7/V-Z, 08C1/A-H, 08C1/A-M, 08C1/A-Y, 08C1/A-Z, 08C3/A-Z, 08C3/F-H, 08C3/F-M, 08C3/F-Z, 08C3/G-M, 08C3/J-H, 08C3/J-M, 08C3/J-X, 08C3/J-Z, 08C3/M-H, 08C3/M-M, 08C3/M-Y, 08C3/M-Z, 08C3/N-H, 08C3/N-Y, 08C3/N-Z, 08C3/R-H, 08C3/R-Z, 08C3/U-H, 08C3/U-M, 08C3/U-S, 08C3/U-X, 08C3/U-Y, 08C3/U-Z, 08C3/V-H, 08C3/V-Z, 08C5/A-Z, 08C5/B-H, 08C5/B-Z, 08C5/D-M, 08C5/D-Y, 08C5/D-Z, 08C5/F-H, 08C5/F-Z, 08C5/H-H, 08C5/K-H, 08C5/K-Z, 08C5/N-H, 08C5/N-M, 08C5/N-Y, 08C5/N-Z, 08D1/B-H, 08D1/B-Z, 08D1/D-H, 08D1/D-Z, 08D3/A-S, 08D3/A-X, 08D3/A-Y, 08D3/A-Z, 08D3/D-H, 08D3/D-Z, 08D7/A-X, 08D7/A-Z, 08E1/A-H, 08E1/A-Z, 08E1/D-H, 08E1/D-Z, 08E1/F-H, 08E1/F-Z, 08E1/H-H, 08E1/H-M, 08E1/H-Z, 08E1/J-H, 08E1/J-X, 08E1/J-Z, 0917/A-H, 0917/E-H, 0917/E-S, 0920/B-H, 0930/A-H, 0937/A-S, 0945/B-H, 0950/A-H, 0950/A-S, 0970/A-H, 0970/A-S, 0975/A-H, 0975/A-W, 0977/A-H, 0977/E-H, 0977/H-H, 0977/H-W, 0977/J-H, 0977/J-S, 0977/J-W, 0977/P-H, 0980/A-H, 0980/A-S, 0980/A-W, 0980/B-H, 0980/B-W, 0980/D-H, 0980/D-S, 0980/D-W, 0980/F-H, 0980/G-H, 0980/J-W, 0980/P-H, 0980/P-S,

	<p>0980/S-H, 0981/A-H, 0981/A-W, 0981/B-H, 0981/B-S, 0981/B-W, 0981/D-W, 0981/E-H, 0981/E-W, 0982/E-H, 0982/E-W, 0983/A-H, 0983/A-S, 0983/A-W, 0983/B-H, 0983/B-W, 0984/A-H, 0984/A-S, 0984/A-W, 0984/B-H, 0984/B-S, 0985/A-H, 0985/B-S, 0985/B-W, 0985/D-H, 0985/D-S, 0985/D-W, 0985/G-H, 0985/G-S, 0985/G-W, 0985/J-H, 0985/J-S, 0985/J-W, 0986/A-H, 0986/A-S, 0986/B-H, 0986/B-S, 0986/B-W, 0987/A-H, 0987/A-W, 165B/M, 165B/R, 165C/G, 165C/R, 165E/A, 165F, 165F/B, 165F/C, 165F/D, 165F/E, 165F/G, 165F/H, 1897/B-A, 21-14-13/00, 21-14-16/00, 50-09-03/00, 50-09-04/00, 50-09-37/00, 50-09-39/00, 50-09-52/00, 50-09-71/00, 50-09-76/00, 60-02-49/00, 60-04-07/00, 60-04-08/02, DKC:01-19-86,SVP:01-19-80/00, DKC:01-19-99,SVP:01-19-85/00, DKC:21-13-02,SVP:21-13-01/00, DKC:21-14-20-00/00,SVP:21-14-07/00, DKC:21-14-30,SVP:21-14-12/00, DKC:21-14-37-00/00,SVP:21-14-15/00, DKC:21-14-40,SVP:21-14-15/00, DKC:21-14-41-00/00,SVP:21-14-16/00, DKC:21-14-45-00/00,SVP:21-14-17/00, DKC:21-14-47-00/00,SVP:21-14-17/00, DKC:21-14-50-00/00,SVP:21-14-18/00, DKC:21-14-54-00/00,SVP:21-14-20/00, DKC:21-14-55,SVP:21-14-20/00, DKC:21-14-56-00/00,SVP:21-14-21/00, DKC:50-09-06-00/00,SVP:50-09-03/00, DKC:50-09-40-00/10,SVP:50-09-37/00, DKC:50-09-54-00/00,SVP:50-09-52/00, DKC:50-09-71-00/00,SVP:50-09-71/00, DKC:50-09-71,SVP:50-09-71/00, DKC:50-09-72-00/00,SVP:50-09-72/00, DKC:50-09-74-00/00,SVP:50-09-74/00, DKC:50-09-75-00/00,SVP:50-09-74/00, DKC:50-09-76-00/00,SVP:50-09-75/00, DKC:50-09-76,SVP:50-09-75/00, DKC:50-09-77-00/00,SVP:50-09-76/00, DKC:50-09-78-00/00,SVP:50-09-76/00, DKC:50-09-78,SVP:50-09-76/00, DKC:50-09-81-00/00,SVP:50-09-77/00, DKC:50-09-82-00/00,SVP:50-09-78/00, DKC:50-09-83-00/00,SVP:50-09-79/00, DKC:50-09-84-00/00,SVP:50-09-80/00, DKC:50-09-85-00/00,SVP:50-09-81/00, DKC:50-09-86-00/00,SVP:50-09-82/00, DKC:50-09-86,SVP:50-09-82/00, DKC:50-09-87-00/00,SVP:50-09-83/00, DKC:50-09-88-00/00,SVP:50-09-83/00, DKC:50-09-90-00/00,SVP:50-09-84/00, DKC:50-09-91-00/00,SVP:50-09-85/00, DKC:50-09-92-00/00,SVP:50-09-85/01, DKC:50-09-94,SVP:50-09-86/00, DKC:50-09-96-00/00,SVP:50-09-87/00, DKC:50-09-97-00/00,SVP:50-09-87/00, DKC:50-09-98-00/00,SVP:50-09-87/00, DKC:50-09-98-00/01,SVP:50-09-87/00, DKC:50-09-98-00/02,SVP:50-09-87/00, DKC:50-09-98-00/03,SVP:50-09-88/00, DKC:50-09-98-00/04,SVP:50-09-88/00, DKC:50-09-98-00/05,SVP:50-09-89/00, DKC:50-09-98-00/07,SVP:50-09-89/00, DKC:50-09-98-00/08,SVP:50-09-90/00, DKC:50-09-98-00/12,SVP:50-09-94/00, DKC:50-09-98-00/14,SVP:50-09-95/00, DKC:50-09-98-00/21,SVP:50-09-98/00, DKC:</p>
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



60-08-32-00/00,SVP:60-08-29/00, DKC:  
60-08-33-00/00,SVP:60-08-29/00, DKC:  
60-08-35,SVP:60-08-30/00, DKC:  
60-08-37-00/00,SVP:60-08-33/00, DKC:  
60-08-38-00/00,SVP:60-08-34/00, DKC:  
60-08-41-00/00,SVP:60-08-36/00, DKC:  
60-08-43-00/00,SVP:60-08-36/00, DKC:  
60-08-43,SVP:60-08-36/00, DKC:  
60-08-44-00/00,SVP:60-08-36/00, DKC:  
60-08-45-00/00,SVP:60-08-37/00, DKC:  
60-08-47-00/00,SVP:60-08-38/00, DKC:  
60-08-48-00/00,SVP:60-08-38/00, DKC:  
60-08-49-00/00,SVP:60-08-39/00, DKC:  
60-08-49,SVP:60-08-39/00, DKC:  
60-08-51-00/00,SVP:60-08-41/00, DKC:  
60-08-51,SVP:60-08-41/00, DKC:  
60-08-52-00/00,SVP:60-08-42/00, DKC:  
60-08-53-00/00,SVP:60-08-44/00, DKC:  
60-08-53,SVP:60-08-44/00, DKC:  
60-08-55-00/00,SVP:60-08-45/00, DKC:  
60-08-55,SVP:60-08-45/00, DKC:  
60-08-56-00/00,SVP:60-08-46/00, DKC:  
60-08-57-00/00,SVP:60-08-47/00, DKC:  
60-08-59-00/00,SVP:60-08-48/00, DKC:  
60-08-59-00/00,SVP:60-08-49/00, DKC:  
60-08-60-00/00,SVP:60-08-50/00, DKC:  
60-08-60,SVP:60-08-50/00, DKC:  
60-08-61-00/00,SVP:60-08-51/00, DKC:  
60-08-62-00/00,SVP:60-08-52/00, DKC:  
60-08-64-00/00,SVP:60-08-53/00, DKC:  
70-01-26-00/00,SVP:70-01-24/00, DKC:  
70-01-62-00/00,SVP:70-01-61/00, DKC:  
70-01-66-00/00,SVP:70-01-64/00, DKC:  
70-02-05-00/00,SVP:70-02-03/00, DKC:  
70-02-06-00/00,SVP:70-02-05/00, DKC:  
70-02-07-00/00,SVP:70-02-06/00, DKC:  
70-02-08-00/00,SVP:70-02-06/00, DKC:  
70-02-70-00/00,SVP:70-02-70/00, DKC:  
70-02-70,SVP:70-02-71/00, DKC:  
70-02-71-00/00,SVP:70-02-71/00, DKC:  
70-02-72-00/00,SVP:70-02-72/00, DKC:  
70-02-73-00/00,SVP:70-02-73/00, DKC:  
70-03-01-00/00,SVP:70-03-01/00, DKC:  
70-03-02-00/00,SVP:70-03-02/00, DKC:  
70-03-04-00/00,SVP:70-03-03/00, DKC:  
70-03-04,SVP:70-03-03/00, DKC:  
70-03-05-00/00,SVP:70-03-04/00, DKC:  
70-03-06-00/00,SVP:70-03-04/00, DKC:  
70-03-07-00/00,SVP:70-03-05/00, DKC:  
70-03-33-00/00,SVP:70-03-34/00, DKC:  
70-03-36-00/00,SVP:70-03-37/00, DKC:  
70-03-37-00/00,SVP:70-03-38/00, DKC:  
70-03-38-00/00,SVP:70-03-38/00, DKC:  
70-04-51-00/00,SVP:70-04-51/00, DKC:  
70-04-52-00/00,SVP:70-04-51/00, DKC:  
70-04-52,SVP:70-04-51/00, DKC:  
70-04-54-00/00,SVP:70-04-52/00, DKC:  
70-04-55-00/40,SVP:70-04-54/00, DKC:  
70-04-59-00/00,SVP:70-04-56/00, DKC:  
70-04-68-00/00,SVP:70-04-62/00, DKC:  
70-05-03-00/00,SVP:70-05-03/00, DKC:  
70-05-05-00/00,SVP:70-05-04/00, DKC:  
70-05-05-00/10,SVP:70-05-04/00, DKC:  
70-05-08-00/00,SVP:70-05-05/00, DKC:  
70-05-10,SVP:70-05-05/00, DKC:  
70-05-14-00/00,SVP:70-05-06/00, DKC:  
70-05-15-00/00,SVP:70-05-07/00, DKC:  
70-05-15,SVP:70-05-07/00, DKC:  
70-05-19-00/00,SVP:70-05-09/00, DKC:





					83-04-47-40/00,SVP:83-04-46-40/00, DKC: 83-04-48-20/00,SVP:83-04-48-20/00, DKC: 83-04-48-40/00,SVP:83-04-47-40/00, DKC: 83-04-48-40/00,SVP:83-04-48-40/00, DKC: 83-04-48-60/00,SVP:83-04-47-60/00, DKC: 83-04-48-60/00,SVP:83-04-48-60/00, DKC: 83-04-61-40/00,SVP:83-04-61-40/00, DKC: 83-04-61-60/00,SVP:83-04-61-60/00, DKC: 83-05-02-20/00,SVP:83-05-02-20/00, DKC: 83-05-02-40/00,SVP:83-05-02-40/00, DKC: 83-05-02-60/00,SVP:83-05-02-60/00, DKC: 83-05-03-60/00,SVP:83-05-03-60/00, DKC: 83-05-21-40/00,SVP:83-05-21-40/00, DKC: 83-05-21-60/00,SVP:83-05-21-60/00, DKC: 83-05-22-20/00,SVP:83-05-21-20/00, DKC: 83-05-22-40/00,SVP:83-05-21-40/00, DKC: 83-05-22-60/00,SVP:83-05-21-60/00, DKC: 83-05-23-40/00,SVP:83-05-22-40/00, DKC: 83-05-23-60/00,SVP:83-05-22-60/00, DKC: 83-05-24-40/00,SVP:83-05-23-40/00, DKC: 83-05-24-60/00,SVP:83-05-23-60/00, ,
--	--	--	--	--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**Products supported by this data collector:**

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HDS XML API	
		Speed	Implemented	HDS XML API	
		Capacity	Implemented	HDS XML API	
		Physical Location	Implemented	HDS XML API	
		Role	Implemented	HDS XML API	HDS XML API does not support the reporting of spare disks for 9900, 9900V, HUS VM, USP, USP_V, and VSP families
		Model	Implemented	HDS XML API	
		Vendor	Implemented	HDS XML API	
		Type	Implemented	HDS XML API	
		Serial Number	Implemented	Export/CLI	
		Uses disk model	Implemented	HDS XML API	
Disk Group	Disk Group	Name	Implemented	HDS XML API	API version 7.1.0 or above.
		Vendor Disk Group Type	Implemented	HDS XML API	API version 7.1.0 or above.
		Disk Type	Implemented	HDS XML API	API version 7.1.0 or above.
		Status	Implemented	HDS XML API	API version 7.1.0 or above.
		Redundancy	Implemented	HDS XML API	API version 7.1.0 or above.
		Virtual	Not Available	HDS XML API	
		Vendor Tier	Implemented	HDS XML	API version 7.1.0 or above.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk Group			API	
		Capacity	Implemented	HDS XML API	API version 7.1.0 or above.
		Physical Disk Capacity	Implemented	HDS XML API	API version 7.1.0 or above.
		Used Capacity	Implemented	HDS XML API	API version 7.1.0 or above.
	Network Pipe	Source PEP ID	Implemented	HDS XML API	
		Target PEP ID	Implemented	HDS XML API	
		Bi-directional	Gap	HDS XML API	
		Auto Recover	Gap	HDS XML API	
		Operational Status	Gap	HDS XML API	
	Other	Host Aliases	Implemented	HDS XML API	
	Protocol	FC(oE)	Implemented	HDS XML API	
		iSCSI	Gap	HDS XML API	
		NFS	Not Available	HDS XML API	
		SMB/CIFS	Not Available	HDS XML API	
	Protocol End Point	Id	Implemented	HDS XML API	
		Name	Implemented	HDS XML API	
		Storage	Implemented	HDS XML API	
		Network Pipe Port WWNs	Implemented	HDS XML API	
	Storage	Identifier	Implemented	HDS XML API	
		IP	Implemented	HDS XML API	
		Name	Implemented	HDS XML API	
		Vendor	Manual Input	HDS XML API	
		Model	Implemented	HDS XML API	
		Family	Implemented	HDS XML API	
		Serial Number	Implemented	HDS XML API	
		Microcode Version	Implemented	HDS XML API	
		Total Raw Capacity	Implemented	HDS XML	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage			API	
		Failed Raw Capacity	Implemented	HDS XML API	
		Spare Raw Capacity	Implemented	HDS XML API	
		Manage URL	Implemented	HDS XML API	
		Virtual	Implemented	HDS XML API	
		Storage efficiency	Implemented	HDS XML API	
		Storage Pools Capacity	Implemented	HDS XML API	Reported as a time series.
Insight	Storage Pool	ID	Implemented	HDS XML API	
		Name	Implemented	HDS XML API	
		Type	Implemented	HDS XML API	
		Thin provisioning	Implemented	HDS XML API	
		Raw To Usable Ratio	Implemented	HDS XML API	
		Redundancy	Implemented	HDS XML API	
		Total Allocated Capacity	Implemented	HDS XML API	Reported as a time series.
		Total Used Capacity	Implemented	HDS XML API	Reported as a time series.
		Data Allocated Capacity	Implemented	HDS XML API	
		Data Used Capacity	Implemented	HDS XML API	
		Other Allocated Capacity	Implemented	HDS XML API	
		Other Used Capacity	Implemented	HDS XML API	
		Snapshot Allocated Capacity	Implemented	HDS XML API	Reported as a time series.
		Snapshot Used Capacity	Implemented	HDS XML API	Reported as a time series.
		Reserved Capacity	Implemented	HDS XML API	Reported as a time series.
		AST	Implemented	HDS XML API	
		Disk references	Implemented	HDS XML API	
		LUN references	Implemented	HDS XML API	
		Compression Enabled	Not Available	HDS XML API	
		Compression Savings	Not Available	HDS XML	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool			API	
		Deduplication Enabled	Not Available	HDS XML API	
		Deduplication Savings	Not Available	HDS XML API	
		Provisioned Capacity	Implemented	HDS XML API	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HDS XML API	Reported as a time series.
	Storage Ports	Controller Name	Implemented	HDS XML API	
		Controller IP	Implemented	HDS XML API	
		Controller Vendor	Implemented	HDS XML API	
		Controller Firmware	Implemented	HDS XML API	
		Controller Driver	Implemented	HDS XML API	
		Controller Model	Implemented	HDS XML API	
		Node WWN	Implemented	HDS XML API	
		Port WWN	Implemented	HDS XML API	
		Port Name	Implemented	HDS XML API	
Synchronizations	Storage Virtualization	Backend Lun Name	Implemented	HDS XML API	
		LUN	Implemented	HDS XML API	
		Local port WWN	Implemented	HDS XML API	
		Remote port WWN	Implemented	HDS XML API	
	Synchronizations	Source Volume	Implemented	HDS XML API	
		Target Volume	Implemented	HDS XML API	
		Source Storage	Implemented	HDS XML API	Replication information will start coming in the system only after all arrays involved in this replication are successfully reported
		Target Storage	Implemented	HDS XML API	Replication information will start coming in the system only after all arrays involved in this replication are successfully reported
		Mode	Gap	HDS XML API	
		Protocol End Point refs	Implemented	HDS XML API	
		Internal Volume Synchronization	Not Available	HDS XML API	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Volume Name	Implemented	HDS XML API	
		Capacity	Implemented	HDS XML API	Reported as a time series.
		Consumed Capacity	Implemented	HDS XML API	Reported as a time series.
		Raw Capacity	Implemented	HDS XML API	Reported as a time series.
		Redundancy	Implemented	HDS XML API	
		Thin provisioning	Implemented	HDS XML API	
		Virtual Volume	Implemented	HDS XML API	
		Volume Type	Implemented	HDS XML API	
		Disk Size	Implemented	HDS XML API	
		Disk Type	Implemented	HDS XML API	
		Disk Speed	Implemented	HDS XML API	
		Disk Group	Implemented	HDS XML API	
		Protocol Controller	Implemented	HDS XML API	
		Masking	Implemented	HDS XML API	
		Mapping	Implemented	HDS XML API	
		Meta Volume	Implemented	HDS XML API	
		Virtual Storage	Implemented	HDS XML API	
		Head	Implemented	HDS XML API	
		Protection type	Implemented	HDS XML API	
		Last known access time	Implemented	HDS XML API	
		UUID	Not Available	HDS XML API	
		Label	Implemented	HDS XML API	
		Volume Identifier	Implemented	HDS XML API	storage serial number + volume number as hex; not supported for meta volumes
		Used Capacity Ratio	Implemented	HDS XML API	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	Export/CLI	
		Throughput Write	Implemented	Export/CLI	
		IOps Read	Implemented	Export/CLI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Disk Performance	IOps Write	Implemented	Export/CLI	
		Utilization Read	Implemented	Export/CLI	
		Utilization Write	Implemented	Export/CLI	
	Storage Node Performance	Response Time Read	Implemented	Export/CLI	
		Response Time Write	Implemented	Export/CLI	
		Response Time Total	Implemented	Export/CLI	
		Throughput Read	Implemented	Export/CLI	
		Throughput Write	Implemented	Export/CLI	
		IOps Read	Implemented	Export/CLI	
		IOps Write	Implemented	Export/CLI	
		Cache Hit Percent	Implemented	Export/CLI	
		Disk Reads Replaced	Implemented	Export/CLI	
		Utilization	Implemented	Export/CLI	
	Storage Pool Performance	Throughput Read	Implemented	Export/CLI	
		Throughput Write	Implemented	Export/CLI	
		Throughput Total	Implemented	Export/CLI	
		IOps Read	Implemented	Export/CLI	
		IOps Write	Implemented	Export/CLI	
		IOps Total	Implemented	Export/CLI	
		Utilization Read	Implemented	Export/CLI	
		Utilization Write	Implemented	Export/CLI	
		Utilization Total	Implemented	Export/CLI	
	Volume Performance	Response Time Read	Implemented	Export/CLI	
		Response Time Write	Implemented	Export/CLI	
		Response Time Total	Implemented	Export/CLI	
		Throughput Read	Implemented	Export/CLI	
		Throughput Write	Implemented	Export/CLI	
		IOps Read	Implemented	Export/CLI	
		IOps Write	Implemented	Export/CLI	
		Cache Hit Ratio Read	Implemented	Export/CLI	
		Cache Hit Ratio Write	Implemented	Export/CLI	
		Cache Hit Ratio Total	Implemented	Export/CLI	
		Write Pending	Not Available	Export/CLI	
		Partial Read/Write	Not Available	Export/CLI	
		Accessed	Implemented	Export/CLI	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Export utility (USPV) / SNM CLI (AMS)	Export/CLI				x	x	x	x
HiCommand	HDS XML API	HTTP/HTTPS	2001		✓	✓	✓	✓

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Device Manager XML API								

# Hitachi Vantara NAS Platform

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	3080-G2, 3090-G2, G800, HNAS 4040, HNAS 4060, HNAS 4080, HNAS 4100,	12.2.3753.08, 12.3.3826.11, 12.3.3826.12, 12.4.3924.14, 12.5.4038.06, 12.5.4038.07, 12.7.4221.01, 12.7.4221.12, 13.1.4428.02, 13.2.4527.01, 13.2.4527.04, 13.2.4527.07, 13.2.4527.08, 13.2.4527.12, 13.2.4527.14, 13.3.4633.02, 13.3.4663.03, 13.3.4663.06, 13.4.4814.03, 13.4.4911.00, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk Group	Name	Implemented	SSH	
		Vendor Disk Group Type	Not Available	SSH	
		Disk Type	Not Available	SSH	
		Status	Not Available	SSH	
		Redundancy	Not Available	SSH	
		Virtual	Implemented	SSH	
		Vendor Tier	Implemented	SSH	
		Capacity	Implemented	SSH	
		Physical Disk Capacity	Not Available	SSH	
		Used Capacity	Implemented	SSH	
	Internal Volume	Name	Implemented	SSH	
		Type	Implemented	SSH	
		Space Guarantee	Not Available	SSH	
		Thin provisioning	Implemented	SSH	
		Dedupe enabled	Implemented	SSH	
		Dedupe savings	Implemented	SSH	
		Last snapshot time	Not Available	SSH	
		Snapshot count	Not Available	SSH	
		Status	Implemented	SSH	
		Clones	Not Available	SSH	
		Virtual Storage	Implemented	SSH	
		Protection type	Not Available	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Not Available	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Not Available	SSH	
		Other Used Capacity	Not Available	SSH	
		Snapshot Allocated Capacity	Not Available	SSH	
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Total Clone Saved Capacity	Not Available	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
	Node	Name	Implemented	SSH	
		Version	Implemented	SSH	
		Model	Not Available	SSH	
		SerialNumber	Implemented	SSH	
		Memory Size	Implemented	SSH	
		Cache Size	Not Available	SSH	
		Number Of Processors	Implemented	SSH	
	Protocol	State	Implemented	SSH	
		Pool references	Not Available	SSH	
		Volume references	Not Available	SSH	
		Internal Volume references	Implemented	SSH	
		Port references	Implemented	SSH	
		FC(oE)	Implemented	SSH	
		iSCSI	Not Available	SSH	
		NFS	Implemented	SSH	
		SMB/CIFS	Implemented	SSH	
	Qtree	Name	Implemented	SSH	
		OpLocks enabled	Not Available	SSH	
		Security Type	Not Available	SSH	
		Status	Not Available	SSH	
		Path	Implemented	SSH	
		Used Capacity	Implemented	SSH	Reported as a time series.
		Quota Hard Limit	Implemented	SSH	Reported as a time series.
		Quota Soft Limit	Implemented	SSH	Reported as a time series.
		Quota File Count	Implemented	SSH	Reported as a time series.
	Quota	Disk Limit	Implemented	SSH	
		Soft Disk Limit	Implemented	SSH	
		File Limit	Implemented	SSH	
		Soft File Limit	Implemented	SSH	
		Threshold	Not Available	SSH	
		Type	Implemented	SSH	
		User/Group	Implemented	SSH	
		File Count	Implemented	SSH	
		Used Capacity	Implemented	SSH	
	Share	Name	Implemented	SSH	
		Protocol	Implemented	SSH	
		Permission	Implemented	SSH	
		Files	Implemented	SSH	
	Storage	Identifier	Implemented	SSH	
		IP	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Name	Implemented	SSH	
		Vendor	Manual Input	SSH	
		Model	Implemented	SSH	
		Family	Manual Input	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	
		Total Raw Capacity	Not Available	SSH	
		Failed Raw Capacity	Not Available	SSH	
		Spare Raw Capacity	Not Available	SSH	
		Manage URL	Not Available	SSH	
		Virtual	Implemented	SSH	
		Storage efficiency	Not Available	SSH	
	Storage Pools Capacity	Storage Pools Capacity	Implemented	SSH	Reported as a time series.
		ID	Implemented	SSH	
		Name	Implemented	SSH	
Insight	Storage Pool	Type	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Redundancy	Not Available	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Not Available	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Not Available	SSH	
		Other Used Capacity	Not Available	SSH	
		Snapshot Allocated Capacity	Not Available	SSH	
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Reserved Capacity	Not Available	SSH	
		AST	Not Available	SSH	
Insight	Disk references	Disk references	Not Available	SSH	
		LUN references	Implemented	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Deduplication Enabled	Not Available	SSH	
	Provisioned Capacity	Deduplication Savings	Not Available	SSH	
		Provisioned Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	SSH	Reported as a time series.
		Controller Name	Implemented	SSH	
Insight	Storage Ports	Controller IP	Implemented	SSH	
		Controller Vendor	Not Available	SSH	
		Controller Firmware	Not Available	SSH	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information		
Insight	Storage Ports	Controller Driver			Not Available	SSH		
		Controller Model			Not Available	SSH		
		Node WWN			Implemented	SSH		
		Port WWN			Implemented	SSH		
		Port Name			Implemented	SSH		
	Storage Virtualization	Backend Lun Name			Implemented	SSH		
		LUN			Implemented	SSH		
		Local port WWN			Implemented	SSH		
		Remote port WWN			Implemented	SSH		

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
HNAS CLI	SSH	SSH	22		✓	✓	✓	✓

# HP Enterprise 3PAR StoreServ Storage

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
SMI-S 1.0.2, SSH,	20450, 20800, 20840_R2, 20850, 7200, 7200c, 7400, 7400c, 7440c, 7450, 7450c, 8200, 8400, 8440, 8450, 9450, F200, F400, HP_3PAR 20850, HP_3PAR 8440, HPE_3PAR 20450, HPE_3PAR 7440c, S400X, S800X, T400, T800, V400, V800, ,	2.2.2, 2.2.3, 2.2.4, 2.3.1, 2.3.1 (MU3), 2.3.1 (MU4), 2.3.1 (MU5), 3.1.1, 3.1.1 (MU1), 3.1.1 (MU2), 3.1.2, 3.1.2 (MU1), 3.1.2 (MU2), 3.1.2 (MU3), 3.1.3, 3.1.3 (MU1), 3.1.3 (MU2), 3.2.1, 3.2.1 (MU1), 3.2.1 (MU2), 3.2.1 (MU3), 3.2.1 (MU5), 3.2.2 (MU1), 3.2.2 (MU2), 3.2.2 (MU3), 3.2.2 (MU4), 3.2.2 (MU4), 3.2.2 (MU6), 3.3.1 (MU1), 3.3.1 (MU2), ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	SSH	
		Speed	Implemented	SSH	
		Capacity	Implemented	SSH	
		Physical Location	Implemented	SSH	
		Role	Implemented	SSH	
		Model	Implemented	SSH	
		Vendor	Implemented	SSH	
		Type	Implemented	SSH	
		Serial Number	Implemented	SSH	
		Uses disk model	Implemented	SSH	
	Other	Host Aliases	Implemented	SSH	
Protocol	Protocol	FC(oE)	Implemented	SSH	
		iSCSI	Gap	SSH	
		NFS	Not Available	SSH	
		SMB/CIFS	Not Available	SSH	
Storage	Storage	Identifier	Implemented	SSH	Storage IP
		IP	Implemented	SSH	
		Name	Implemented	SSH	
		Vendor	Manual Input	SSH	
		Model	Implemented	SSH	Model name supported with firmware 2.2.2 and higher
		Family	Manual Input	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	
		Total Raw Capacity	Implemented	SSH	Reported as a time series.
		Failed Raw Capacity	Implemented	SSH	
		Spare Raw Capacity	Implemented	SSH	
		Manage URL	Not Available	SSH	
		Virtual	Not Available	SSH	
		Storage efficiency	Not Available	SSH	
		Storage Pools Capacity	Implemented	SSH	Reported as a time series.
	Storage Pool	ID	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Name	Implemented	SSH	CPG name
		Type	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Redundancy	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
		Snapshot Allocated Capacity	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Reserved Capacity	Not Available	SSH	
		AST	Implemented	SSH	
		Disk references	Implemented	SSH	
		LUN references	Not Available	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Deduplication Enabled	Not Available	SSH	
		Deduplication Savings	Not Available	SSH	
		Provisioned Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	SSH	Reported as a time series.
Insight	Storage Ports	Controller Name	Not Available	SSH	
		Controller IP	Not Available	SSH	
		Controller Vendor	Not Available	SSH	
		Controller Firmware	Not Available	SSH	
		Controller Driver	Not Available	SSH	
		Controller Model	Not Available	SSH	
		Node WWN	Implemented	SSH	
		Port WWN	Implemented	SSH	
		Port Name	Implemented	SSH	
Insight	Synchronizations	Source Volume	Implemented	SSH	Remote Copy not yet supported
		Target Volume	Implemented	SSH	Remote Copy not yet supported
		Mode	Implemented	SSH	Remote Copy not yet supported
Insight	Volume	Volume Name	Implemented	SSH	
		Capacity	Implemented	SSH	Reported as a time series.
		Consumed Capacity	Implemented	SSH	Reported as a time series.
		Raw Capacity	Implemented	SSH	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Redundancy	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Virtual Volume	Implemented	SSH	
		Volume Type	Implemented	SSH	
		Disk Size	Implemented	SSH	
		Disk Type	Not Available	SSH	
		Disk Speed	Implemented	SSH	
		Disk Group	Not Available	SSH	
		Protocol Controller	Implemented	SSH	
		Masking	Implemented	SSH	
		Mapping	Implemented	SSH	
		Meta Volume	Not Available	SSH	
		Virtual Storage	Implemented	SSH	
		Head	Not Available	SSH	
		Protection type	Not Available	SSH	
		Last known access time	Not Available	SSH	
		UUID	Not Available	SSH	
		Label	Not Available	SSH	
		Volume Identifier	Not Available	SSH	
		Used Capacity Ratio	Implemented	SSH	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	SMI-S	version 3.1.x and higher
		Throughput Write	Implemented	SMI-S	version 3.1.x and higher
		IOps Read	Implemented	SMI-S	version 3.1.x and higher
		IOps Write	Implemented	SMI-S	version 3.1.x and higher
		Utilization Read	Implemented	SMI-S	version 3.1.x and higher
		Utilization Write	Implemented	SMI-S	version 3.1.x and higher
	Storage Node Performance	Response Time Read	Implemented	SMI-S	
		Response Time Write	Implemented	SMI-S	
		Response Time Total	Implemented	SMI-S	
		Throughput Read	Implemented	SMI-S	
		Throughput Write	Implemented	SMI-S	
		IOps Read	Implemented	SMI-S	
		IOps Write	Implemented	SMI-S	
		Cache Hit Percent	Implemented	SMI-S	
		Utilization	Implemented	SMI-S	Available only for 3.3.1 firmware, 3.2.x MU 4 and higher values of MU, 3.1.x MU 5 and higher values of MU
	Volume Performance	Response Time Read	Implemented	SMI-S	version 3.1.x and higher
		Response Time Write	Implemented	SMI-S	version 3.1.x and higher
		Response Time Total	Implemented	SMI-S	version 3.1.x and higher
		Throughput Read	Implemented	SMI-S	version 3.1.x and higher
		Throughput Write	Implemented	SMI-S	version 3.1.x and higher
		IOps Read	Implemented	SMI-S	version 3.1.x and higher
		IOps Write	Implemented	SMI-S	version 3.1.x and higher

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Volume Performance	Cache Hit Ratio Read	Implemented	SMI-S	version 3.1.x and higher
		Cache Hit Ratio Write	Implemented	SMI-S	version 3.1.x and higher
		Cache Hit Ratio Total	Implemented	SMI-S	version 3.1.x and higher
		Write Pending	Not Available	SMI-S	
		Partial Read/Write	Not Available	SMI-S	
		Accessed	Implemented	SMI-S	version 3.1.x and higher

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
3Par CLI	SSH	SSH	22		✓	✗	✓	✓
3Par SMI-S	SMI-S	HTTP/HTTPS	5988/5989		✓	✓	✓	✓

# Huawei OceanStor and Dorado Devices

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	18500 V3, 18800 V3, 2600 V3, 2800 V3, 5300 V3, 5500 V3, 5600 V3, 5800 V3, 6800 V3, 6900 V3, Dorado 18000 V3, Dorado 5000 V3, Dorado 6000 V3,	V300R001, V300R001C00, V300R001C01, V300R001C20, V300R001C21, V300R002C10, V300R003C00, V300R003C20,,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTPS	
		Speed	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Location	Implemented	HTTPS	
		Role	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Uses disk model	Not Available	HTTPS	
Insight	Internal Volume	Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Space Guarantee	Not Available	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Dedupe enabled	Implemented	HTTPS	
		Dedupe savings	Implemented	HTTPS	
		Last snapshot time	Not Available	HTTPS	
		Snapshot count	Not Available	HTTPS	
		Status	Not Available	HTTPS	
		Clones	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Protection type	Not Available	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Not Available	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Implemented	HTTPS	Reported as a time series.
		Total Clone Saved Capacity	Not Available	HTTPS	
		Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Total Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
	Node	Name	Implemented	HTTPS	
		Version	Implemented	HTTPS	
		Model	Not Available	HTTPS	
		SerialNumber	Not Available	HTTPS	
		Memory Size	Not Available	HTTPS	
		Cache Size	Not Available	HTTPS	
		Number Of Processors	Not Available	HTTPS	
		State	Not Available	HTTPS	
		Pool references	Implemented	HTTPS	
		Volume references	Implemented	HTTPS	
		Internal Volume references	Not Available	HTTPS	
	Protocol	Port references	Implemented	HTTPS	
		FC(oE)	Implemented	HTTPS	
		iSCSI	Not Available	HTTPS	
		NFS	Implemented	HTTPS	
	Qtree	SMB/CIFS	Not Available	HTTPS	
		Name	Implemented	HTTPS	
		OpLocks enabled	Not Available	HTTPS	
		Security Type	Not Available	HTTPS	
		Status	Not Available	HTTPS	
		Path	Implemented	HTTPS	
		Used Capacity	Not Available	HTTPS	
		Quota Hard Limit	Not Available	HTTPS	
	Share	Quota Soft Limit	Not Available	HTTPS	
		Name	Implemented	HTTPS	
		Protocol	Implemented	HTTPS	
		Permission	Implemented	HTTPS	
	Storage	Files	Implemented	HTTPS	
		Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Family	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	
		Total Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTPS	
		Spare Raw Capacity	Implemented	HTTPS	
		Manage URL	Implemented	HTTPS	
		Virtual	Not Available	HTTPS	
		Storage efficiency	Not Available	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Storage Pools Capacity	Implemented	HTTPS	Reported as a time series.
	Storage Pool	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Raw To Usable Ratio	Implemented	HTTPS	
		Redundancy	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Not Available	HTTPS	
		Data Used Capacity	Not Available	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Not Available	HTTPS	
		Reserved Capacity	Not Available	HTTPS	
		AST	Not Available	HTTPS	
		Disk references	Implemented	HTTPS	
		LUN references	Not Available	HTTPS	
	Storage Ports	Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	
		Deduplication Enabled	Not Available	HTTPS	
		Deduplication Savings	Not Available	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Controller Name	Implemented	HTTPS	
		Controller IP	Not Available	HTTPS	
		Controller Vendor	Not Available	HTTPS	
Volume	Volume	Controller Firmware	Implemented	HTTPS	
		Controller Driver	Not Available	HTTPS	
		Controller Model	Not Available	HTTPS	
		Node WWN	Implemented	HTTPS	
		Port WWN	Implemented	HTTPS	
		Port Name	Implemented	HTTPS	
		Volume Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTPS	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Disk Size	Not Available	HTTPS	
		Disk Type	Not Available	HTTPS	
		Disk Speed	Not Available	HTTPS	
		Disk Group	Not Available	HTTPS	
		Protocol Controller	Implemented	HTTPS	
		Masking	Implemented	HTTPS	
		Mapping	Implemented	HTTPS	
		Meta Volume	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Head	Not Available	HTTPS	
		Protection type	Not Available	HTTPS	
		Last known access time	Not Available	HTTPS	
		UUID	Not Available	HTTPS	
		Label	Not Available	HTTPS	
		Volume Identifier	Implemented	HTTPS	
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
	Storage Node Performance	Response Time Read	Implemented	HTTPS	
		Response Time Write	Implemented	HTTPS	
		Response Time Total	Implemented	HTTPS	
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		Utilization	Implemented	HTTPS	
	Storage Pool Performance	Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		Throughput Total	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		IOps Total	Implemented	HTTPS	
		Utilization Total	Implemented	HTTPS	
	Volume Performance	Response Time Read	Implemented	HTTPS	
		Response Time Write	Implemented	HTTPS	
		Response Time Total	Implemented	HTTPS	
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		IOps Total	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Volume Performance	Cache Hit Ratio Read	Implemented	HTTPS	
		Cache Hit Ratio Write	Implemented	HTTPS	
		Cache Hit Ratio Total	Implemented	HTTPS	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
OceanStor API	HTTPS	HTTPS	8088		✓	✓	✓	✓
OceanStor Performance API	HTTPS	HTTPS	8088		✓	✗	✓	✓

# IBM PowerVM

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	POWER5, POWER6, POWER7,	V6.1.2, V7R3.3.0, V7R3.4.0, V7R7.2.0, V7R7.3.0, V7R7.5.0,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Data Store	Name	Implemented	SSH	
		Capacity	Implemented	SSH	Reported as a time series.
		Used Capacity	Implemented	SSH	Reported as a time series.
		Provisioned Capacity	Not Available	SSH	
		Used Capacity Ratio	Implemented	SSH	Reported as a time series.
	Host (Hypervisor)	Name	Implemented	SSH	
		Data Center	Not Available	SSH	
		Cluster Name	Not Available	SSH	
		IPs	Implemented	SSH	
		Domain Name	Not Available	SSH	
		Platform Type	Implemented	SSH	
		Memory	Implemented	SSH	
		Processors	Implemented	SSH	
		CPU speed	Not Available	SSH	
		NIC count	Implemented	SSH	
		NIC speed	Not Available	SSH	
		Model	Implemented	SSH	
		Vendor	Implemented	SSH	
	Host Adapter	Node WWN	Implemented	SSH	
		Name	Implemented	SSH	
		Model	Not Available	SSH	
		Vendor	Not Available	SSH	
		Driver	Not Available	SSH	
	Host Port	WWN	Implemented	SSH	
		Name	Not Available	SSH	
		Status	Not Available	SSH	
	LUN	Policy	Not Available	SSH	
		TID	Not Available	SSH	
		Disk Name	Implemented	SSH	
		Number	Implemented	SSH	
		Data Store	Implemented	SSH	
	Path	Active	Implemented	SSH	
		Storage Port WWN	Implemented	SSH	
		Host Port WWN	Implemented	SSH	
	Virtual Disk	Capacity	Implemented	SSH	Reported as a time series.
		Used Capacity	Not Available	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Virtual Disk	Data Store	Implemented	SSH	
		Name	Implemented	SSH	
	Virtual Machine	Ips	Implemented	SSH	
		Name	Implemented	SSH	
		Data Store	Not Available	SSH	
		OS	Implemented	SSH	
		Processors	Implemented	SSH	
		Memory	Implemented	SSH	
		Host	Implemented	SSH	
		DNS Name	Implemented	SSH	
		Guest State	Implemented	SSH	
		State	Implemented	SSH	
	State Change Time		Not Available	SSH	
	Total Capacity		Not Available	SSH	
	Used Capacity		Not Available	SSH	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Hardware Management Console SSH access	SSH	SSH	22		✓	✗	✓	✓

# IBM SAN Volume Controller (SVC)

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	2072-12C,2072-12E, 2072-24C, 2072-24C, 2072-24E, 2072-24E, 2076-112,2076-212, 2076-124, 2076-124,2076-212,2076-224, 2076-124,2076-224, 2076-224,4939-A49, 2076-24F,2076-524, 2076-24F,2076-624, 2076-324, 2076-524, 2077-12F, 2077-212,2077-92F, 2078-24C,2078-24E, 2078-324,2078-92F, 2145-24F, 9840-AE1, 9840-AE2, 9843-AE1, 9843-AE2, 9848-AE2, SVC, V3700, V5000, V7000, ,	1.1.3.2, 1.1.3.7, 1.1.3.8, 1.2.1.7, 1.2.1.8, 1.3.0.3, 1.3.0.4, 1.3.0.5, 1.3.0.6, 1.4.0.10, 1.4.0.8, 1.4.4.2, 1.4.5.0, 1.4.6.0, 1.4.6.1, 1.4.7.1, 1.5.1.2, 4.2.0.5, 4.2.1.9, 4.3.0.3, 4.3.1.1, 4.3.1.10 (build 9.19.0911240000), 4.3.1.10 (build 9.19.0911240010), 4.3.1.11, 4.3.1.4, 4.3.1.5, 4.3.1.6, 4.3.1.7, 5.1.0.10, 5.1.0.2, 5.1.0.5, 5.1.0.7, 5.1.0.8, 5.1.0.9, 6.2.0.2, 6.2.0.4, 6.2.0.5, 6.2.0.6, 6.3.0.0, 6.3.0.2, 6.3.0.4, 6.3.0.5, 6.3.0.7, 6.4.0.2, 6.4.0.4, 6.4.1.4, 6.4.1.5, 6.4.1.9, 7.1.0.1, 7.1.0.10, 7.1.0.2, 7.1.0.3, 7.1.0.5, 7.1.0.6, 7.1.0.7, 7.1.0.9, 7.2.0.1, 7.2.0.10, 7.2.0.11, 7.2.0.12, 7.2.0.3, 7.2.0.4, 7.2.0.5, 7.2.0.6, 7.2.0.7, 7.2.0.8, 7.2.0.9, 7.3.0.11, 7.3.0.12, 7.3.0.13, 7.3.0.5, 7.3.0.6, 7.3.0.7, 7.3.0.8, 7.3.0.9, 7.4.0.10, 7.4.0.11, 7.4.0.4, 7.4.0.5, 7.4.0.6, 7.4.0.7, 7.4.0.8, 7.4.0.9, 7.4.1.2, 7.5.0.11, 7.5.0.2, 7.5.0.3, 7.5.0.6, 7.5.0.7, 7.5.0.8, 7.5.0.9, 7.5.1.2, 7.6.0.4, 7.6.1.3, 7.6.1.4, 7.6.1.5, 7.6.1.6, 7.6.1.7, 7.7.1.0, 7.7.1.5, 7.7.1.6, 7.7.1.8, 7.8.0.2, 7.8.1.0, 7.8.1.1, 7.8.1.2, 7.8.1.4, 7.8.1.5, 7.8.1.6, 7.8.1.7, 8.1.1.2, 8.1.3.1, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	SSH	
		Speed	Implemented	SSH	
		Capacity	Implemented	SSH	
		Physical Location	Implemented	SSH	
		Role	Implemented	SSH	
		Model	Implemented	SSH	
		Vendor	Implemented	SSH	
		Type	Implemented	SSH	
		Serial Number	Implemented	SSH	
		Uses disk model	Implemented	SSH	
	Network Pipe	Source PEP ID	Not Planned	SSH	
		Target PEP ID	Not Planned	SSH	
		Bi-directional	Not Planned	SSH	
		Auto Recover	Not Planned	SSH	
		Operational Status	Not Planned	SSH	
	Other	Host Aliases	Implemented	SSH	
	Protocol	FC(oE)	Implemented	SSH	
		iSCSI	Gap	SSH	
		NFS	Not Available	SSH	
		SMB/CIFS	Not Available	SSH	
	Protocol End Point	Id	Not Planned	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Protocol End Point	Name	Gap	SSH	
		Storage	Not Planned	SSH	
		Network Pipe Port WWNs	Not Planned	SSH	
	Storage	Identifier	Implemented	SSH	Serial number
		IP	Implemented	SSH	
		Name	Implemented	SSH	
		Vendor	Manual Input	SSH	
		Model	Implemented	SSH	
		Family	Manual Input	SSH	
		Serial Number	Implemented	SSH	
		Microcode Version	Implemented	SSH	
		Total Raw Capacity	Implemented	SSH	Reported as a time series. V7000 only
		Failed Raw Capacity	Implemented	SSH	V7000 only
		Spare Raw Capacity	Implemented	SSH	V7000 only
		Manage URL	Implemented	SSH	
		Virtual	Implemented	SSH	
	Storage Pool	Storage efficiency	Implemented	SSH	
		Storage Pools Capacity	Implemented	SSH	Reported as a time series.
		ID	Implemented	SSH	
		Name	Implemented	SSH	
		Type	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Raw To Usable Ratio	Implemented	SSH	
		Redundancy	Implemented	SSH	
		Total Allocated Capacity	Implemented	SSH	Reported as a time series.
		Total Used Capacity	Implemented	SSH	Reported as a time series.
		Data Allocated Capacity	Implemented	SSH	
		Data Used Capacity	Implemented	SSH	
		Other Allocated Capacity	Implemented	SSH	
		Other Used Capacity	Implemented	SSH	
Insight	Storage Pool	Snapshot Allocated Capacity	Implemented	SSH	Reported as a time series.
		Snapshot Used Capacity	Implemented	SSH	Reported as a time series.
		Reserved Capacity	Implemented	SSH	Reported as a time series.
		AST	Implemented	SSH	
		Disk references	Implemented	SSH	
		LUN references	Implemented	SSH	
		Compression Enabled	Not Available	SSH	
		Compression Savings	Not Available	SSH	
		Deduplication Enabled	Not Available	SSH	
		Deduplication Savings	Not Available	SSH	
		Provisioned Capacity	Implemented	SSH	Reported as a time series.
		Over Commit Capacity	Implemented	SSH	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Ratio			
	Storage Ports	Controller Name	Implemented	SSH	
		Controller IP	Implemented	SSH	
		Controller Vendor	Implemented	SSH	
		Controller Firmware	Implemented	SSH	
		Controller Driver	Implemented	SSH	
		Controller Model	Implemented	SSH	
		Node WWN	Implemented	SSH	
		Port WWN	Implemented	SSH	
		Port Name	Implemented	SSH	
	Storage Virtualization	Backend Lun Name	Implemented	SSH	Backend Luns represent Mdisks
		LUN	Implemented	SSH	
		Local port WWN	Not Available	SSH	
		Remote port WWN	Implemented	SSH	
	Synchronizations	Source Volume	Implemented	SSH	Synchronizations represent GlobalMirror, MetroMirror relationships. Vdisk mirror copies are not supported.
		Target Volume	Implemented	SSH	
		Source Storage	Implemented	SSH	
		Target Storage	Implemented	SSH	
		Mode	Implemented	SSH	
		Protocol End Point refs	Implemented	SSH	
		Internal Volume Synchronization	Not Available	SSH	
Volume	Volume	Volume Name	Implemented	SSH	Volumes represent Vdisks
		Capacity	Implemented	SSH	Reported as a time series.
		Consumed Capacity	Implemented	SSH	Reported as a time series.
		Raw Capacity	Implemented	SSH	Reported as a time series.
		Written Capacity	Implemented	SSH	Reported as a time series.
		Redundancy	Implemented	SSH	
		Thin provisioning	Implemented	SSH	
		Virtual Volume	Implemented	SSH	
		Volume Type	Implemented	SSH	
		Disk Size	Implemented	SSH	
		Disk Type	Implemented	SSH	
		Disk Speed	Implemented	SSH	
		Disk Group	Implemented	SSH	IO group
		Protocol Controller	Implemented	SSH	
	Protection	Masking	Implemented	SSH	
		Mapping	Implemented	SSH	
		Meta Volume	Implemented	SSH	
		Virtual Storage	Implemented	SSH	
		Head	Implemented	SSH	IO group
		Protection type	Implemented	SSH	GlobalMirror, MetroMirror, FlashCopy

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Last known access time	Implemented	SSH	
		UUID	Implemented	SSH	
		Label	Implemented	SSH	
		Volume Identifier	Not Available	SSH	
		Used Capacity Ratio	Implemented	SSH	Reported as a time series.
		Written Capacity Ratio	Implemented	SSH	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	SSH	
		Throughput Write	Implemented	SSH	
		IOps Read	Implemented	SSH	Currently we do not support Disk Performance for V7000 local disks.
		IOps Write	Implemented	SSH	Currently we do not support Disk Performance for V7000 local disks.
		Utilization Read	Implemented	SSH	Currently we do not support Disk Performance for V7000 local disks.
		Utilization Write	Implemented	SSH	Currently we do not support Disk Performance for V7000 local disks.
	Volume Performance	Response Time Read	Implemented	SSH	
		Response Time Write	Implemented	SSH	
		Response Time Total	Implemented	SSH	
		Throughput Read	Implemented	SSH	
		Throughput Write	Implemented	SSH	
		IOps Read	Implemented	SSH	
		IOps Write	Implemented	SSH	
		Cache Hit Ratio Read	Implemented	SSH	
		Cache Hit Ratio Write	Implemented	SSH	
		Cache Hit Ratio Total	Implemented	SSH	
		Write Pending	Not Available	SSH	
		Partial Read/Write	Not Available	SSH	
		Accessed	Implemented	SSH	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
SVC CLI	SSH	SSH	22		✓	✗	✓	✓

# IBM System Storage DS8000 Series

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	2107-941, 2107-951, 2107-961, DS6800 1750 model 511, DS6800 1750 model 522, DS8000 1750 model 511, DS8000 2107 model 931, DS8000 2107 model 932, DS8000 2107 Turbo model 931, DS8000 2107 Turbo model 932, DS8100 2107 model 921, DS8300 2107 model 922, DS8800,	5.1.0.289, 5.1.600.168, 5.1.600.196, 5.2.400.304, 5.2.400.327, 5.4.36.194, 5.4.36.217, 5.4.36.224, 6.6.31.1210, 6.6.31.1340, 6.6.31.1460, 6.6.31.170, 6.6.31.670, 7.6.31.1150, 7.6.31.1520, 7.6.31.2440, 7.6.31.2441, 7.6.31.3510, 7.6.31.3730, 7.6.31.630, 7.7.10.317, 7.7.21.13 , 7.7.21.39, 7.7.21.41, 7.7.31.32, 7.7.31.50, 7.7.41.108, 7.7.51.1110, 7.7.51.1400, 7.7.51.1990, 7.7.51.2700, 7.7.51.470, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	DSNI	
		Speed	Implemented	DSNI	
		Capacity	Implemented	DSNI	
		Physical Location	Implemented	DSNI	
		Role	Implemented	DSNI	
		Model	Implemented	DSNI	
		Vendor	Implemented	DSNI	
		Type	Implemented	DSNI	
		Serial Number	Implemented	DSNI	
		Uses disk model	Implemented	DSNI	
Other	Host Aliases	Implemented	DSNI		
	Storage	Identifier	Implemented	DSNI	Serial Number
		IP	Implemented	DSNI	
		Name	Manual Input	Manual Entry	This information is added from the Data Collector configuration page
		Vendor	Manual Input	DSNI	
		Model	Implemented	DSNI	
		Family	Manual Input	DSNI	
		Serial Number	Implemented	DSNI	
		Microcode Version	Implemented	DSNI	
		Total Raw Capacity	Implemented	DSNI	Reported as a time series.
		Failed Raw Capacity	Implemented	DSNI	
		Spare Raw Capacity	Implemented	DSNI	
		Manage URL	Implemented	DSNI	
		Virtual	Implemented	DSNI	
Storage Pool	Storage efficiency	Implemented	DSNI		
		Storage Pools Capacity	Implemented	DSNI	Reported as a time series.
		ID	Implemented	DSNI	
		Name	Implemented	DSNI	
	Type	Implemented	DSNI		
	Thin provisioning	Implemented	DSNI		

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Raw To Usable Ratio	Implemented	DSNI	
		Redundancy	Implemented	DSNI	
		Total Allocated Capacity	Implemented	DSNI	Reported as a time series.
		Total Used Capacity	Implemented	DSNI	Reported as a time series.
		Data Allocated Capacity	Implemented	DSNI	
		Data Used Capacity	Implemented	DSNI	
		Other Allocated Capacity	Implemented	DSNI	
		Other Used Capacity	Implemented	DSNI	
		Snapshot Allocated Capacity	Implemented	DSNI	Reported as a time series.
		Snapshot Used Capacity	Implemented	DSNI	Reported as a time series.
		Reserved Capacity	Implemented	DSNI	Reported as a time series.
		Disk references	Implemented	DSNI	
		LUN references	Implemented	DSNI	
		Compression Enabled	Not Available	DSNI	
	Storage Ports	Compression Savings	Not Available	DSNI	
		Deduplication Enabled	Not Available	DSNI	
		Deduplication Savings	Not Available	DSNI	
		Provisioned Capacity	Implemented	DSNI	Reported as a time series.
		Total Used Capacity Ratio	Implemented	DSNI	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	DSNI	Reported as a time series.
Volume	Storage Ports	Controller Name	Implemented	DSNI	
		Controller IP	Implemented	DSNI	
		Controller Vendor	Implemented	DSNI	
		Controller Firmware	Implemented	DSNI	
		Controller Driver	Implemented	DSNI	
		Controller Model	Implemented	DSNI	
		Node WWN	Implemented	DSNI	
		Port WWN	Implemented	DSNI	
		Port Name	Implemented	DSNI	
	Volume	Volume Name	Implemented	DSNI	
		Capacity	Implemented	DSNI	Reported as a time series.
		Consumed Capacity	Implemented	DSNI	Reported as a time series.
		Raw Capacity	Implemented	DSNI	Reported as a time series.
		Redundancy	Gap	DSNI	
		Thin provisioning	Implemented	DSNI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Masking	Implemented	DSNI	
		Mapping	Implemented	DSNI	
		Meta Volume	Implemented	DSNI	
		Virtual Storage	Implemented	DSNI	
		Head	Not Planned	DSNI	
		Protection type	Implemented	DSNI	
		Last known access time	Implemented	DSNI	
		UUID	Not Available	DSNI	
		Label	Implemented	DSNI	
		Volume Identifier	Not Available	DSNI	
		Used Capacity Ratio	Implemented	DSNI	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	DSNI	
		Throughput Write	Implemented	DSNI	
		IOps Read	Implemented	DSNI	
		IOps Write	Implemented	DSNI	
		Utilization Read	Implemented	DSNI	
		Utilization Write	Implemented	DSNI	
	Volume Performance	Response Time Read	Implemented	DSNI	
		Response Time Write	Implemented	DSNI	
		Response Time Total	Implemented	DSNI	
		Throughput Read	Implemented	DSNI	
		Throughput Write	Implemented	DSNI	
		IOps Read	Implemented	DSNI	
		IOps Write	Implemented	DSNI	
		Cache Hit Ratio Read	Implemented	DSNI	
		Cache Hit Ratio Write	Implemented	DSNI	
		Cache Hit Ratio Total	Implemented	DSNI	
		Write Pending	Gap	DSNI	
		Partial Read/Write	Not Available	DSNI	
		Accessed	Implemented	DSNI	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Data Collector configuration	Manual Entry				✓	✓	✓	✓
DS CLI	DSNI	DSNI			✓	✓	✓	✓

# IBM XIV Storage System

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	114, 214, 314, A14, A9000,	10.0.1.b, 10.0.1.c, 10.1, 10.1.0.a, 10.2.1, 10.2.2, 10.2.2.a, 10.2.4, 10.2.4.a, 10.2.4.b, 10.2.4.c, 10.2.4.c-1, 10.2.4.e, 10.2.4.e-10, 10.2.4.e-3, 10.2.4.e-5, 10.2.4.e-7, 10.2.4.e-8, 11.0.1, 11.0.1.a, 11.1.0.b, 11.1.1, 11.2.0.b, 11.2.0.c, 11.3.0.a, 11.3.1, 11.3.1.c, 11.4.1.a, 11.4.2, 11.4.2.a, 11.4.2.c, 11.4.2.d, 11.5.0.a, 11.5.1.b, 11.5.2, 11.5.2.a, 11.5.2.b, 11.6.0.b, 11.6.1, 11.6.1.a, 11.6.2, 11.6.2.a, 12.0.3, 12.1.0.d, 12.2.0.b, 12.2.1.b-1,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	XIV CLI	
		Speed	Implemented	XIV CLI	
		Capacity	Implemented	XIV CLI	
		Physical Location	Implemented	XIV CLI	
		Role	Implemented	XIV CLI	
		Model	Implemented	XIV CLI	
		Vendor	Implemented	XIV CLI	
		Type	Implemented	XIV CLI	
		Serial Number	Implemented	XIV CLI	
		Uses disk model	Implemented	XIV CLI	
Internal Volume	Internal Volume	Name	Implemented	XIV CLI	Storage Pool for A9000
		Type	Implemented	XIV CLI	Storage Pool for A9000
		Space Guarantee	Not Available	XIV CLI	
		Thin provisioning	Implemented	XIV CLI	Storage Pool for A9000
		Dedupe enabled	Not Available	XIV CLI	
		Dedupe savings	Not Available	XIV CLI	
		Last snapshot time	Not Available	XIV CLI	
		Snapshot count	Not Available	XIV CLI	
		Status	Not Available	XIV CLI	
		Clones	Not Available	XIV CLI	
	Virtual Storage	Virtual Storage	Not Available	XIV CLI	
		Head	Not Available	XIV CLI	
		Protection type	Not Available	XIV CLI	
		Total Allocated Capacity	Implemented	XIV CLI	Storage Pool for A9000
		Total Used Capacity	Implemented	XIV CLI	Storage Pool for A9000
		Data Allocated Capacity	Implemented	XIV CLI	Storage Pool for A9000
		Data Used Capacity	Implemented	XIV CLI	Storage Pool for A9000
		Other Allocated Capacity	Implemented	XIV CLI	Storage Pool for A9000
		Other Used Capacity	Not Available	XIV CLI	
		Snapshot Allocated Capacity	Implemented	XIV CLI	Storage Pool for A9000

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Snapshot Used Capacity	Implemented	XIV CLI	Storage Pool for A9000
		Total Clone Saved Capacity	Not Available	XIV CLI	
		Compression Enabled	Not Available	XIV CLI	
		Compression Savings	Not Available	XIV CLI	
		Total Used Capacity Ratio	Not Available	XIV CLI	
		Snapshot Used Capacity Ratio	Not Available	XIV CLI	
		QoS - Policy	Not Available	XIV CLI	
		QoS - Limit Raw	Not Available	XIV CLI	
		QoS - Limit (IO/s)	Not Available	XIV CLI	
		QoS - Limit (MB/s)	Not Available	XIV CLI	
		Member Name	Not Available	XIV CLI	
	Other	Host Aliases	Implemented	XIV CLI	
Protocol	FC(oE)	Implemented	XIV CLI		
	iSCSI	Gap	XIV CLI		
	NFS	Not Available	XIV CLI		
	SMB/CIFS	Not Available	XIV CLI		
Storage	Identifier	Implemented	XIV CLI		List of array IPs
	IP	Implemented	XIV CLI		
	Name	Implemented	XIV CLI		
	Vendor	Manual Input	XIV CLI		
	Model	Implemented	XIV CLI		
	Family	Manual Input	XIV CLI		
	Serial Number	Implemented	XIV CLI		
	Microcode Version	Implemented	XIV CLI		
	Total Raw Capacity	Implemented	XIV CLI		Reported as a time series.
	Failed Raw Capacity	Implemented	XIV CLI		
	Spare Raw Capacity	Implemented	XIV CLI		
	Manage URL	Implemented	XIV CLI		
	Virtual	Not Available	XIV CLI		
	Storage efficiency	Implemented	XIV CLI		
Storage Pool	Storage Pools Capacity	Implemented	XIV CLI		Reported as a time series.
	ID	Implemented	XIV CLI		
	Name	Implemented	XIV CLI		Same as storage for A9000
	Type	Implemented	XIV CLI		
	Thin provisioning	Implemented	XIV CLI		
	Raw To Usable Ratio	Implemented	XIV CLI		
	Redundancy	Implemented	XIV CLI		
	Total Allocated Capacity	Implemented	XIV CLI		Reported as a time series. Same as storage for A9000
	Total Used Capacity	Implemented	XIV CLI		Reported as a time series. Same as storage for A9000
	Data Allocated Capacity	Implemented	XIV CLI		Same as storage for A9000

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Data Used Capacity	Implemented	XIV CLI	Same as storage for A9000
		Other Allocated Capacity	Implemented	XIV CLI	Same as storage for A9000
		Other Used Capacity	Implemented	XIV CLI	Same as storage for A9000
		Snapshot Allocated Capacity	Implemented	XIV CLI	Reported as a time series. Same as storage for A9000
		Snapshot Used Capacity	Implemented	XIV CLI	Reported as a time series. Same as storage for A9000
		Reserved Capacity	Implemented	XIV CLI	Reported as a time series. Same as storage for A9000
		Disk references	Implemented	XIV CLI	
		LUN references	Implemented	XIV CLI	
		Compression Enabled	Not Available	XIV CLI	
		Compression Savings	Not Available	XIV CLI	
		Deduplication Enabled	Not Available	XIV CLI	
		Deduplication Savings	Not Available	XIV CLI	
		Provisioned Capacity	Implemented	XIV CLI	Reported as a time series. Same as storage for A9000
		Total Used Capacity Ratio	Implemented	XIV CLI	Reported as a time series. Same as storage for A9000
		Snapshot Used Capacity Ratio	Implemented	XIV CLI	Reported as a time series. Same as storage for A9000
		Over Commit Capacity Ratio	Implemented	XIV CLI	Reported as a time series. Same as storage for A9000
	Storage Ports	Controller Name	Implemented	XIV CLI	
		Controller IP	Implemented	XIV CLI	
		Controller Vendor	Implemented	XIV CLI	
		Controller Firmware	Implemented	XIV CLI	
		Controller Driver	Implemented	XIV CLI	
		Controller Model	Implemented	XIV CLI	
		Node WWN	Implemented	XIV CLI	
		Port WWN	Implemented	XIV CLI	
		Port Name	Implemented	XIV CLI	
Volume	Volume	Volume Name	Implemented	XIV CLI	
		Capacity	Implemented	XIV CLI	Reported as a time series.
		Consumed Capacity	Implemented	XIV CLI	Reported as a time series.
		Raw Capacity	Implemented	XIV CLI	Reported as a time series.
		Redundancy	Implemented	XIV CLI	
		Thin provisioning	Implemented	XIV CLI	
		Virtual Volume	Not Available	XIV CLI	
		Volume Type	Implemented	XIV CLI	
		Disk Size	Implemented	XIV CLI	
		Disk Type	Implemented	XIV CLI	
		Disk Speed	Implemented	XIV CLI	
		Disk Group	Implemented	XIV CLI	
		Protocol Controller	Implemented	XIV CLI	
		Masking	Implemented	XIV CLI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Mapping	Implemented	XIV CLI	
		Meta Volume	Implemented	XIV CLI	
		Virtual Storage	Not Available	XIV CLI	
		Head	Implemented	XIV CLI	
		Protection type	Implemented	XIV CLI	
		Last known access time	Implemented	XIV CLI	
		UUID	Not Available	XIV CLI	
		Label	Not Available	XIV CLI	
		Volume Identifier	Implemented	XIV CLI	first 3 digits of storage serial number + last 4 digits of storage serial number as hex + volume serial number as hex
Perform	Disk Performance	Used Capacity Ratio	Implemented	XIV CLI	Reported as a time series.
		Throughput Read	Not Available	DSNI	
		Throughput Write	Not Available	DSNI	
		IOps Read	Not Available	DSNI	
		IOps Write	Not Available	DSNI	
		Utilization Read	Not Available	DSNI	
	Volume Performance	Utilization Write	Not Available	DSNI	
		Response Time Read	Implemented	DSNI	IBM XIV CIM Agent needs to support SMI-S_1.4.0+ and have the Block Server Performance profile registered to retrieve any performance values
		Response Time Write	Implemented	DSNI	
		Response Time Total	Implemented	DSNI	
		Throughput Read	Implemented	DSNI	
		Throughput Write	Implemented	DSNI	
		IOps Read	Implemented	DSNI	
		IOps Write	Implemented	DSNI	
		Cache Hit Ratio Read	Implemented	DSNI	
		Cache Hit Ratio Write	Implemented	DSNI	
		Cache Hit Ratio Total	Implemented	DSNI	
Management APIs used by this data collector:		Write Pending	Not Available	DSNI	
		Partial Read/Write	Not Available	DSNI	
		Accessed	Implemented	DSNI	

#### Management APIs used by this data collector:

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
DS CLI	DSNI	DSNI			✓	✓	✓	✓
IBM XIV CLI	XIV CLI	TCP	7778		✓	✗	✓	✗

# Infinidat Infinibox

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	F6140, F6230, F6240, F6260,	2.2.0.34, 2.2.13.2, 3.0.0.150, 3.0.20.100, 3.0.36.0,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTPS	
		Speed	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Location	Implemented	HTTPS	
		Role	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Uses disk model	Implemented	HTTPS	
	Internal Volume	Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Space Guarantee	Not Available	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Dedupe enabled	Not Available	HTTPS	
		Dedupe savings	Not Available	HTTPS	
		Last snapshot time	Not Available	HTTPS	
		Snapshot count	Not Available	HTTPS	
		Status	Not Available	HTTPS	
		Clones	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Protection type	Not Available	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
Node	Node	Data Allocated Capacity	Not Available	HTTPS	
		Data Used Capacity	Not Available	HTTPS	
		Other Allocated Capacity	Implemented	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Not Available	HTTPS	
		Total Clone Saved Capacity	Not Available	HTTPS	
		Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	
		Name	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Node	Version	Not Available	HTTPS	
		Model	Implemented	HTTPS	
		SerialNumber	Not Available	HTTPS	
		Memory Size	Not Available	HTTPS	
		Cache Size	Not Available	HTTPS	
		Number Of Processors	Not Available	HTTPS	
		State	Implemented	HTTPS	
		Pool references	Implemented	HTTPS	
		Volume references	Implemented	HTTPS	
		Internal Volume references	Not Available	HTTPS	
Protocol	Port references	Implemented	HTTPS		
	Other	Host Aliases	Implemented	HTTPS	
	FC(oE)	FC(oE)	Implemented	HTTPS	
		iSCSI	Not Available	HTTPS	
		NFS	Implemented	HTTPS	
		SMB/CIFS	Not Available	HTTPS	
Qtree	Name	Name	Implemented	HTTPS	
		OpLocks enabled	Not Available	HTTPS	
		Security Type	Not Available	HTTPS	
		Status	Not Available	HTTPS	
		Path	Implemented	HTTPS	
		Used Capacity	Not Available	HTTPS	
		Quota Hard Limit	Not Available	HTTPS	
		Quota Soft Limit	Not Available	HTTPS	
	Share	Name	Implemented	HTTPS	
		Protocol	Implemented	HTTPS	
		Permission	Implemented	HTTPS	
		Files	Implemented	HTTPS	
Storage	Storage	Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Family	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	
		Total Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTPS	
		Spare Raw Capacity	Implemented	HTTPS	
		Manage URL	Implemented	HTTPS	
		Virtual	Not Available	HTTPS	
		Storage efficiency	Not Available	HTTPS	
		Storage Pools Capacity	Implemented	HTTPS	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Raw To Usable Ratio	Implemented	HTTPS	
		Redundancy	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Not Available	HTTPS	
		Reserved Capacity	Implemented	HTTPS	Reported as a time series.
		AST	Not Available	HTTPS	
		Disk references	Implemented	HTTPS	
		LUN references	Not Available	HTTPS	
		Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	
		Deduplication Enabled	Not Available	HTTPS	
		Deduplication Savings	Not Available	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Insight	Storage Ports	Controller Name	Implemented	HTTPS	
		Controller IP	Not Available	HTTPS	
		Controller Vendor	Implemented	HTTPS	
		Controller Firmware	Implemented	HTTPS	
		Controller Driver	Not Available	HTTPS	
		Controller Model	Implemented	HTTPS	
		Node WWN	Implemented	HTTPS	
		Port WWN	Implemented	HTTPS	
		Port Name	Implemented	HTTPS	
Insight	Volume	Volume Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTPS	Reported as a time series.
		Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Redundancy	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Virtual Volume	Not Available	HTTPS	
		Volume Type	Implemented	HTTPS	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information	
Insight	Volume	Disk Size		Not Available	HTTPS		
		Disk Type		Not Available	HTTPS		
		Disk Speed		Not Available	HTTPS		
		Disk Group		Not Available	HTTPS		
		Protocol Controller		Implemented	HTTPS		
		Masking		Implemented	HTTPS		
		Mapping		Implemented	HTTPS		
		Meta Volume		Not Available	HTTPS		
		Virtual Storage		Not Available	HTTPS		
		Head		Not Available	HTTPS		
		Protection type		Not Available	HTTPS		
		Last known access time		Not Available	HTTPS		
		UUID		Implemented	HTTPS		
		Label		Implemented	HTTPS		
		Volume Identifier		Implemented	HTTPS		
		Used Capacity Ratio		Implemented	HTTPS	Reported as a time series.	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Infinidat API	HTTPS	HTTPS	443		✓	✓	✓	✓

# Microsoft Azure

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
2015-05-01, 2016-03-30,	Azure,	,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Data Store	Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	
		Over Commit Capacity Ratio	Implemented	HTTPS	
	Host (Hypervisor)	Name	Implemented	HTTPS	
		IPs	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
	Virtual Disk	Capacity	Implemented	HTTPS	
		Data Store	Implemented	HTTPS	
		Name	Implemented	HTTPS	
	Virtual Machine	Instance Type	Implemented	HTTPS	
		Subscription ID	Implemented	HTTPS	
		Public IPs	Implemented	HTTPS	
		Security Groups	Implemented	HTTPS	
		Launch Time	Implemented	HTTPS	
		Ips	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Data Store	Implemented	HTTPS	
		OS	Implemented	HTTPS	
		Processors	Implemented	HTTPS	
		Memory	Implemented	HTTPS	
		Host	Implemented	HTTPS	
		DNS Name	Implemented	HTTPS	
		Guest State	Implemented	HTTPS	
		State	Implemented	HTTPS	
		Total Capacity	Implemented	HTTPS	
Perform	Virtual Machines	IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		IOps Total	Implemented	HTTPS	
		(Disk)Throughput Read	Implemented	HTTPS	
		(Disk)Throughput Write	Implemented	HTTPS	
		(Disk)Throughput Total	Implemented	HTTPS	
		CPU Utilization	Implemented	HTTPS	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Azure Compute API	HTTPS	HTTPS	443		✓	✓	✓	✓

# Microsoft Hyper-V

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
,	,	Microsoft Windows Server 2008 R2, Microsoft Windows Server 2012, Microsoft Windows Server 2012 R2,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Data Store	Name	Implemented	WMI	
		Capacity	Implemented	WMI	Reported as a time series.
		Used Capacity	Implemented	WMI	
		Provisioned Capacity	Implemented	WMI	Reported as a time series.
		Used Capacity Ratio	Implemented	WMI	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	WMI	Reported as a time series.
	Host (Hypervisor)	Name	Implemented	WMI	
		Data Center	Implemented	WMI	
		Cluster Name	Implemented	WMI	
		IPs	Implemented	WMI	
		Domain Name	Implemented	WMI	
		Platform Type	Implemented	WMI	
		Memory	Implemented	WMI	
		Processors	Implemented	WMI	
		CPU speed	Implemented	WMI	
		NIC count	Implemented	WMI	
		NIC speed	Implemented	WMI	
		Model	Implemented	WMI	
		Vendor	Implemented	WMI	
	Host Adapter	Node WWN	Implemented	WMI	
		Name	Implemented	WMI	
		Model	Implemented	WMI	
		Vendor	Implemented	WMI	
		Driver	Implemented	WMI	
	Host Port	WWN	Implemented	WMI	
		Name	Gap	WMI	
		Status	Implemented	WMI	
	LUN	Policy	Not Available	WMI	
		TID	Implemented	WMI	
		Disk Name	Implemented	WMI	
		Number	Implemented	WMI	
		Data Store	Implemented	WMI	
	NAS share	Remote Path	Implemented	WMI	
		Capacity	Not Available	WMI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	NAS share	Filer	Implemented	WMI	
		Type	Implemented	WMI	
		Data Store	Implemented	WMI	
	Path	Active	Implemented	WMI	
		Storage Port WWN	Implemented	WMI	
		Host Port WWN	Implemented	WMI	
	Virtual Disk	Capacity	Implemented	WMI	Reported as a time series.
		Used Capacity	Implemented	WMI	
		Data Store	Implemented	WMI	
		Name	Implemented	WMI	
		Used Capacity Ratio	Implemented	WMI	Reported as a time series.
	Virtual Machine	Ips	Implemented	WMI	
		Name	Implemented	WMI	
		Data Store	Implemented	WMI	
		OS	Implemented	WMI	
		Processors	Implemented	WMI	
		Memory	Implemented	WMI	
		Host	Implemented	WMI	
		DNS Name	Implemented	WMI	
		Guest State	Implemented	WMI	
		State	Implemented	WMI	
		State Change Time	Implemented	WMI	
		Total Capacity	Implemented	WMI	Reported as a time series.
		Used Capacity	Implemented	WMI	Reported as a time series.
		Used Capacity Ratio	Implemented	WMI	Reported as a time series.
Perform	Host (Hypervisor) Performance	CPU Utilization	Implemented	WS-Management	
		Memory Utilization	Implemented	WS-Management	
	Network	Throughput Receive	Implemented	WS-Management	
		Throughput Transmit	Implemented	WS-Management	
		Throughput Total	Implemented	WS-Management	
	Virtual Disks	IOps Read	Implemented	WS-Management	
		IOps Write	Implemented	WS-Management	
		IOps Total	Implemented	WS-Management	
		Throughput Read	Implemented	WS-Management	
		Throughput Write	Implemented	WS-Management	
		Throughput Total	Implemented	WS-Management	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Virtual Disks	Latency Read	Implemented	WS-Management	
		Latency Write	Implemented	WS-Management	
		Latency Total	Implemented	WS-Management	
	Virtual Machines	IOps Read	Implemented	WS-Management	
		IOps Write	Implemented	WS-Management	
		IOps Total	Implemented	WS-Management	
		(Disk)Throughput Read	Implemented	WS-Management	
		(Disk)Throughput Write	Implemented	WS-Management	
		(Disk)Throughput Total	Implemented	WS-Management	
		Latency Read	Not Available	WS-Management	
		Latency Write	Not Available	WS-Management	
		Latency Total	Implemented	WS-Management	
		(Ethernet)Throughput Receive	Implemented	WS-Management	
		(Ethernet)Throughput Transmit	Implemented	WS-Management	
		(Ethernet)Throughput Total	Implemented	WS-Management	
		CPU Utilization	Implemented	WS-Management	
		Memory Utilization	Not Available	WS-Management	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
PowerShell	WS-Management	HTTP	5985		✓	✗	✗	✓
WMI	WMI	WMI	135		✓	✗	✓	✓

# NetApp Cloud Volumes Service

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
v1,	,	,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Space Guarantee	Not Available	HTTPS	
		Thin provisioning	Not Available	HTTPS	
		Dedupe enabled	Not Available	HTTPS	
		Dedupe savings	Not Available	HTTPS	
		Last snapshot time	Implemented	HTTPS	
		Snapshot count	Implemented	HTTPS	
		Status	Implemented	HTTPS	
		Clones	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Protection type	Not Available	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	
		Total Used Capacity	Implemented	HTTPS	
		Data Allocated Capacity	Implemented	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Implemented	HTTPS	
		Snapshot Used Capacity	Implemented	HTTPS	
		Total Clone Saved Capacity	Not Available	HTTPS	
		Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	
		Total Used Capacity Ratio	Implemented	HTTPS	
		Snapshot Used Capacity Ratio	Implemented	HTTPS	
	Protocol	QoS - Policy	Not Available	HTTPS	
		QoS - Limit Raw	Not Available	HTTPS	
		QoS - Limit (IO/s)	Not Available	HTTPS	
		QoS - Limit (MB/s)	Not Available	HTTPS	
		Member Name	Not Available	HTTPS	
		Comment	Not Available	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Protocol	SMB/CIFS	Not Available	HTTPS	
Qtree	Name OpLocks enabled Security Type Status Path Used Capacity Quota Hard Limit Quota Soft Limit Quota File Count	Name	Implemented	HTTPS	
		OpLocks enabled	Not Available	HTTPS	
		Security Type	Implemented	HTTPS	
		Status	Implemented	HTTPS	
		Path	Implemented	HTTPS	
		Used Capacity	Not Available	HTTPS	
		Quota Hard Limit	Not Available	HTTPS	
		Quota Soft Limit	Not Available	HTTPS	
		Quota File Count	Not Available	HTTPS	
Share	Name Protocol Permission Files	Name	Implemented	HTTPS	
		Protocol	Implemented	HTTPS	
		Permission	Implemented	HTTPS	
		Files	Implemented	HTTPS	
Storage	Identifier IP Name Vendor Model Family Serial Number Microcode Version Total Raw Capacity Failed Raw Capacity Spare Raw Capacity Manage URL Virtual Storage efficiency Storage Pools Capacity	Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Family	Implemented	HTTPS	
		Serial Number	Not Available	HTTPS	
		Microcode Version	Implemented	HTTPS	
		Total Raw Capacity	Implemented	HTTPS	
		Failed Raw Capacity	Not Available	HTTPS	
		Spare Raw Capacity	Not Available	HTTPS	
		Manage URL	Not Available	HTTPS	
		Virtual	Not Available	HTTPS	
		Storage efficiency	Not Available	HTTPS	
Storage Pool	ID Name Type Thin provisioning Raw To Usable Ratio Redundancy Total Allocated Capacity Total Used Capacity Data Allocated Capacity Data Used Capacity Other Allocated Capacity Other Used Capacity Snapshot Allocated Capacity Snapshot Used Capacity	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Raw To Usable Ratio	Not Available	HTTPS	
		Redundancy	Not Available	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	
		Total Used Capacity	Implemented	HTTPS	
		Data Allocated Capacity	Implemented	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Not Available	HTTPS	
		Other Used Capacity	Not Available	HTTPS	
		Snapshot Allocated Capacity	Implemented	HTTPS	
		Snapshot Used Capacity	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Reserved Capacity	Not Available	HTTPS	
		AST	Not Available	HTTPS	
		Disk references	Not Available	HTTPS	
		LUN references	Not Available	HTTPS	
		Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	
		Deduplication Enabled	Not Available	HTTPS	
		Deduplication Savings	Not Available	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	
		Total Used Capacity Ratio	Implemented	HTTPS	
		Snapshot Used Capacity Ratio	Implemented	HTTPS	
		Over Commit Capacity Ratio	Implemented	HTTPS	
		Is Encrypted	Not Available	HTTPS	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Cloud Volumes Service API	HTTPS	HTTPS	443		✓	✓	✓	✓

# NetApp Data Ontap 7-Mode

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
ONTAP 7.0.3+,	FAS2020, FAS2040, FAS2050, FAS2220, FAS2240, FAS2240-2, FAS2240-4, FAS250, FAS2520, FAS2552, FAS2554, FAS270, FAS3020, FAS3040, FAS3050, FAS3070, FAS3140, FAS3160, FAS3170, FAS3210, FAS3220, FAS3240, FAS3250, FAS3270, FAS6030, FAS6040, FAS6070, FAS6080, FAS6210, FAS6220, FAS6240, FAS6250, FAS6280, FAS6290, FAS8020, FAS8040, FAS8060, FAS8080, FAS8080 EX, FAS940, FAS960, FAS980, FASDvM100, GF960, N3150, N3300, N3400, N3600, N3700, N5200, N5300, N5500, N5600, N6040, N6060, N6070, N6210, N6220, N6240, N6270, N7600, N7700, N7800, N7900, N7950T, R200, V3020, V3040, V3070, V3140, V3170, V3210, V3220, V3240, V3250, V3270, V6030, V6070, V6080, V6210, v6240, v6280,	7.0.4, 7.0.6P5D1, 7.1.1.1, 7.2.1.1, 7.2.2, 7.2.3, 7.2.3P3, 7.2.3P4, 7.2.3P6, 7.2.4, 7.2.4L1, 7.2.4P3, 7.2.4P6, 7.2.4P9, 7.2.5, 7.2.5.1, 7.2.5.1P3, 7.2.5.1P6, 7.2.6.1, 7.2.6.1P2, 7.2.6.1P4, 7.2.6.1P6, 7.2.7, 7.3, 7.3.1, 7.3.1.1, 7.3.1.1L1, 7.3.1.1P2, 7.3.1.1P7, 7.3.1.1P8, 7.3.1.1P9, 7.3.1P2, 7.3.2, 7.3.2P3, 7.3.2P4, 7.3.2P5, 7.3.2P5D7, 7.3.2P6, 7.3.2P7, 7.3.3, 7.3.3P1, 7.3.3P2, 7.3.3P3, 7.3.3P4, 7.3.3P5, 7.3.4, 7.3.4P1, 7.3.4P2, 7.3.4P3, 7.3.4P4, 7.3.5.1, 7.3.5.1P1, 7.3.5.1P2, 7.3.5.1P3, 7.3.5.1P4, 7.3.5.1P5, 7.3.5P1, 7.3.6, 7.3.6P1, 7.3.6P2, 7.3.6P4, 7.3.6P5, 7.3.7, 7.3.7P1, 7.3.7P2, 7.3.7P3, 7.3P1, 7.3P6, 7.3P7, 8.0 7-Mode, 8.0.1, 8.0.1 7-Mode, 8.0.1D2 7-Mode, 8.0.1P1 7-Mode, 8.0.1P2 7-Mode, 8.0.1P2D2 7-Mode, 8.0.1P3 7-Mode, 8.0.1P4 7-Mode, 8.0.1P5 7-Mode, 8.0.1RC1 7-Mode, 8.0.1RC2 7-Mode, 8.0.1RC3 7-Mode, 8.0.2 7-Mode, 8.0.2P1 7-Mode, 8.0.2P2 7-Mode, 8.0.2P3 7-Mode, 8.0.2P4 7-Mode, 8.0.2P5 7-Mode, 8.0.2P6 7-Mode, 8.0.2P7 7-Mode, 8.0.3 7-Mode, 8.0.3P2 7-Mode, 8.0.3P3 7-Mode, 8.0.3P4 7-Mode, 8.0.4 7-Mode, 8.0.5 7-Mode, 8.0.5P1 7-Mode, 8.0P1 7-Mode, 8.0P2 7-Mode, 8.1 7-Mode, 8.1.1 7-Mode, 8.1.1P1 7-Mode, 8.1.1P2 7-Mode, 8.1.1RC1 7-Mode, 8.1.2 7-Mode, 8.1.2P1 7-Mode, 8.1.2P2 7-Mode, 8.1.2P3 7-Mode, 8.1.2P4 7-Mode, 8.1.3 7-Mode, 8.1.3P1 7-Mode, 8.1.3P2 7-Mode, 8.1.3P3 7-Mode, 8.1.3RC1 7-Mode, 8.1.4 7-Mode, 8.1.4P1 7-Mode, 8.1.4P10 7-Mode, 8.1.4P2 7-Mode, 8.1.4P3 7-Mode, 8.1.4P4 7-Mode, 8.1.4P5 7-Mode, 8.1.4P6 7-Mode, 8.1.4P7 7-Mode, 8.1.4P8 7-Mode, 8.1.4P9 7-Mode, 8.1.4P9D18 7-Mode, 8.1.4P9D8 7-Mode, 8.1P1 7-Mode, 8.1P2 7-Mode, 8.1P3 7-Mode, 8.1RC2 7-Mode, 8.1RC3 7-Mode, 8.2.1 7-Mode, 8.2.1P1 7-Mode, 8.2.1P2 7-Mode, 8.2.1P3 7-Mode, 8.2.2 7-Mode, 8.2.2P1 7-Mode, 8.2.2P2 7-Mode, 8.2.3 7-Mode, 8.2.3P1 7-Mode, 8.2.3P2 7-Mode, 8.2.3P2D13 7-Mode, 8.2.3P3 7-Mode, 8.2.3P4 7-Mode, 8.2.3P5 7-Mode, 8.2.3P6 7-Mode, 8.2.3X20 7-Mode, 8.2.3X3 7-Mode, 8.2.4 7-Mode, 8.2.4P1 7-Mode, 8.2.4P1D4 7-Mode, 8.2.4P2 7-Mode, 8.2.4P2X3 7-Mode, 8.2.4P3 7-Mode, 8.2.4P4 7-Mode, 8.2.4P5 7-Mode, 8.2.4P6 7-Mode, 8.2.4X14 7-Mode, 8.2.5 7-Mode, 8.2.5P1 7-Mode, 8.2P3 7-Mode, 8.2P4 7-Mode, 8.2P5 7-Mode, 8.2P6 7-Mode, 8.2RC1 7-Mode, R8.2.4xN_151027_1011 7-Mode, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTP/ HTTPS	
		Speed	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Capacity	Implemented	HTTP/ HTTPS	
		Physical Location	Implemented	HTTP/ HTTPS	
		Role	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		Vendor	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
		Uses disk model	Implemented	HTTP/ HTTPS	
	Internal Volume	Name	Implemented	HTTP/ HTTPS	NetApp flex-vols / trad-vols
		Type	Implemented	HTTP/ HTTPS	
		Space Guarantee	Implemented	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Dedupe enabled	Implemented	HTTP/ HTTPS	
		Dedupe savings	Implemented	HTTP/ HTTPS	
		Last snapshot time	Implemented	HTTP/ HTTPS	
		Snapshot count	Implemented	HTTP/ HTTPS	
		Status	Implemented	HTTP/ HTTPS	
		Clones	Implemented	HTTP/ HTTPS	
		Virtual Storage	Implemented	HTTP/ HTTPS	
		Head	Implemented	HTTP/ HTTPS	
		Protection type	Implemented	HTTP/ HTTPS	
		Total Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTP/ HTTPS	
		Data Used Capacity	Implemented	HTTP/ HTTPS	
		Other Allocated Capacity	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Other Used Capacity	Implemented	HTTP/ HTTPS	
		Snapshot Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Snapshot Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Clone Saved Capacity	Implemented	HTTP/ HTTPS	
		Compression Enabled	Not Available	HTTP/ HTTPS	
		Compression Savings	Not Available	HTTP/ HTTPS	
		Total Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
	Network Pipe	Source PEP ID	Not Available	HTTP/ HTTPS	
		Target PEP ID	Not Available	HTTP/ HTTPS	
		Bi-directional	Not Available	HTTP/ HTTPS	
		Auto Recover	Not Available	HTTP/ HTTPS	
		Operational Status	Not Available	HTTP/ HTTPS	
Node	Node	Name	Implemented	HTTP/ HTTPS	
		Version	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		SerialNumber	Implemented	HTTP/ HTTPS	
		Memory Size	Implemented	HTTP/ HTTPS	
		Cache Size	Implemented	HTTP/ HTTPS	
		Number Of Processors	Implemented	HTTP/ HTTPS	
		State	Not Available	HTTP/ HTTPS	
		Pool references	Implemented	HTTP/ HTTPS	
		Volume references	Implemented	HTTP/ HTTPS	
	Other	Internal Volume references	Implemented	HTTP/ HTTPS	
		Port references	Implemented	HTTP/ HTTPS	
		Host Aliases	Gap	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Protocol	FC(oE)	Implemented	HTTP/ HTTPS	
		iSCSI	Implemented	HTTP/ HTTPS	ONTAP version 7.3.5 and above
		NFS	Implemented	HTTP/ HTTPS	
		SMB/CIFS	Implemented	HTTP/ HTTPS	
	Protocol End Point	Id	Not Available	HTTP/ HTTPS	
		Name	Not Available	HTTP/ HTTPS	
		Storage	Not Available	HTTP/ HTTPS	
		Network Pipe Port WWNs	Not Available	HTTP/ HTTPS	
	Qtree	Name	Implemented	HTTP/ HTTPS	
		OpLocks enabled	Implemented	HTTP/ HTTPS	
		Security Type	Implemented	HTTP/ HTTPS	
		Status	Implemented	HTTP/ HTTPS	
		Path	Implemented	HTTP/ HTTPS	
		Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Quota Hard Limit	Implemented	HTTP/ HTTPS	Reported as a time series.
		Quota Soft Limit	Implemented	HTTP/ HTTPS	Reported as a time series.
		Quota File Count	Implemented	HTTP/ HTTPS	Reported as a time series.
	Quota	Disk Limit	Implemented	HTTP/ HTTPS	
		Soft Disk Limit	Implemented	HTTP/ HTTPS	
		File Limit	Implemented	HTTP/ HTTPS	
		Soft File Limit	Implemented	HTTP/ HTTPS	
		Threshold	Not Available	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		User/Group	Implemented	HTTP/ HTTPS	
		File Count	Implemented	HTTP/ HTTPS	
		Used Capacity	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Share	Name	Implemented	HTTP/ HTTPS	
		Protocol	Implemented	HTTP/ HTTPS	
		Permission	Implemented	HTTP/ HTTPS	
		Files	Implemented	HTTP/ HTTPS	
	Storage	Identifier	Implemented	HTTP/ HTTPS	
		IP	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Vendor	Manual Input	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		Family	Implemented	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
		Microcode Version	Implemented	HTTP/ HTTPS	
		Total Raw Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTP/ HTTPS	
		Spare Raw Capacity	Implemented	HTTP/ HTTPS	
		Manage URL	Implemented	HTTP/ HTTPS	
		Virtual	Implemented	HTTP/ HTTPS	For V-series
		Storage efficiency	Implemented	HTTP/ HTTPS	
		Storage Pools Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
Storage Pool	Storage Pool	ID	Implemented	HTTP/ HTTPS	NetApp Aggregates
		Name	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Raw To Usable Ratio	Implemented	HTTP/ HTTPS	
		Redundancy	Implemented	HTTP/ HTTPS	
		Total Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Total Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTP/ HTTPS	
		Data Used Capacity	Implemented	HTTP/ HTTPS	
		Other Allocated Capacity	Implemented	HTTP/ HTTPS	
		Other Used Capacity	Implemented	HTTP/ HTTPS	
		Snapshot Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Snapshot Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Reserved Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		AST	Implemented	HTTP/ HTTPS	Flash Pool
		Disk references	Implemented	HTTP/ HTTPS	
		LUN references	Implemented	HTTP/ HTTPS	
		Compression Enabled	Not Available	HTTP/ HTTPS	
		Compression Savings	Not Available	HTTP/ HTTPS	
		Deduplication Enabled	Not Available	HTTP/ HTTPS	
		Deduplication Savings	Not Available	HTTP/ HTTPS	
		Provisioned Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
Storage Ports	Storage Ports	Controller Name	Implemented	HTTP/ HTTPS	
		Controller IP	Implemented	HTTP/ HTTPS	
		Controller Vendor	Implemented	HTTP/ HTTPS	
		Controller Firmware	Implemented	HTTP/ HTTPS	
		Controller Driver	Implemented	HTTP/ HTTPS	
		Controller Model	Implemented	HTTP/ HTTPS	
		Node WWN	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Ports	Port WWN	Implemented	HTTP/ HTTPS	
		Port Name	Implemented	HTTP/ HTTPS	
	Storage Virtualization	Backend Lun Name	Implemented	HTTP/ HTTPS	For V-series
		LUN	Implemented	HTTP/ HTTPS	For V-series
		Local port WWN	Implemented	HTTP/ HTTPS	For V-series
		Remote port WWN	Implemented	HTTP/ HTTPS	For V-series
	Synchronizations	Source Volume	Not Available	HTTP/ HTTPS	
		Target Volume	Not Available	HTTP/ HTTPS	
		Source Storage	Not Available	HTTP/ HTTPS	
		Target Storage	Not Available	HTTP/ HTTPS	
		Mode	Not Available	HTTP/ HTTPS	
		Protocol End Point refs	Not Available	HTTP/ HTTPS	
		Internal Volume Synchronization	Implemented	HTTP/ HTTPS	
	Volume	Volume Name	Implemented	HTTP/ HTTPS	NetApp lun
		Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Raw Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Redundancy	Implemented	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Virtual Volume	Implemented	HTTP/ HTTPS	For V-series
		Volume Type	Implemented	HTTP/ HTTPS	
		Disk Size	Implemented	HTTP/ HTTPS	
		Disk Type	Implemented	HTTP/ HTTPS	
		Disk Speed	Implemented	HTTP/ HTTPS	
		Disk Group	Implemented	HTTP/ HTTPS	
		Protocol Controller	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Masking	Implemented	HTTP/ HTTPS	
		Mapping	Implemented	HTTP/ HTTPS	
		Meta Volume	Implemented	HTTP/ HTTPS	
		Virtual Storage	Implemented	HTTP/ HTTPS	
		Head	Implemented	HTTP/ HTTPS	
		Protection type	Implemented	HTTP/ HTTPS	
		Last known access time	Implemented	HTTP/ HTTPS	
		UUID	Not Available	HTTP/ HTTPS	
		Label	Implemented	HTTP/ HTTPS	
		Volume Identifier	Implemented	HTTP/ HTTPS	LUN serial number
		Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Utilization Read	Implemented	HTTP/ HTTPS	
		Utilization Write	Implemented	HTTP/ HTTPS	
	Internal Volume Performance	Response Time Read	Implemented	HTTP/ HTTPS	
		Response Time Write	Implemented	HTTP/ HTTPS	
		Response Time Total	Implemented	HTTP/ HTTPS	
		Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Write Pending	Not Available	HTTP/ HTTPS	
	Qtree Performance	IOps Total	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Storage Node Performance	Response Time Read	Implemented	HTTP/ HTTPS	
		Response Time Write	Implemented	HTTP/ HTTPS	
		Response Time Total	Implemented	HTTP/ HTTPS	
		Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Cache Hit Percent	Implemented	HTTP/ HTTPS	ONTAP version 7.3 and above
		Disk Reads Replaced	Implemented	HTTP/ HTTPS	ONTAP version 7.3 and above
		Utilization	Implemented	HTTP/ HTTPS	
		Port Utilization	Not Available	HTTP/ HTTPS	
		Port Errors	Not Available	HTTP/ HTTPS	
		Port Traffic	Not Available	HTTP/ HTTPS	
	Volume Performance	Response Time Read	Not Available	HTTP/ HTTPS	
		Response Time Write	Not Available	HTTP/ HTTPS	
		Response Time Total	Implemented	HTTP/ HTTPS	
		Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Cache Hit Ratio Read	Not Available	HTTP/ HTTPS	
		Cache Hit Ratio Write	Not Available	HTTP/ HTTPS	
		Cache Hit Ratio Total	Not Available	HTTP/ HTTPS	
		Write Pending	Implemented	HTTP/ HTTPS	
		Partial Read/Write	Implemented	HTTP/ HTTPS	
		Accessed	Implemented	HTTP/ HTTPS	

***Management APIs used by this data collector:***

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
ONTAPI	HTTP/HTTPS	HTTP/HTTPS	80/443		✓	✗	✓	✓

# NetApp E-Series Arrays / IBM Total Storage DS4000 Series

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
6.x, 7.x, 8.10.x,	1932, 2600, 2610, 2650, 2660, 2680, 2700, 2702, 2704, 2734, 2752, 2806, 2822, 2882, 350, 3992, 3994, 4000, 4500, 4600, 4884, 4900, 4980, 5480, 5481, 5486, 5488, 5504, 5564, 5600, 5884, 6130, 6140, 6180, 6284, 6287, 6540, 6580, 6780, 6841, 6843, 6844, 6988-XBB, 6994-XBB, 6998, 7900XBB-2, 7980, 7988, 7999, 9176, DCS3700, DS3950, DS41, DS4200, DS4300, DS4300 Turbo, DS4400, DS4500, DS4700, DS4800, DS5020, DS5100, DS5300, E2600, E2700, E5400, E5500, EF280, EF540, EF550, EF560, EF570, FLX210, FLX240, FLX280, FLX380, IS4100, S330, TP9300, TP9300S, TP9400, TP9500, TP9500S, TP9700, ,	5.30.25.0, 6.10.11.0, 6.12.10.0, 6.12.16.0, 6.12.27.0, 6.12.3.0, 6.12.56.0, 6.15.27.5, 6.19.25.0, 6.19.25.16, 6.19.25.26, 6.23.5.0, 6.60.11.21, 6.60.17.0, 6.60.2.0, 6.60.22.0, 6.60.22.10, 6.60.22.20, 6.60.34.0, 6.60.8.0, 7.10.23.0, 7.10.25.10, 7.15.10.1, 7.15.7.0, 7.35.41.2, 7.35.53.0, 7.35.73.0, 7.36.12.0, 7.36.17.0, 7.50.12.0, 7.50.13.0, 7.50.13.10, 7.60.13.5, 7.60.18.10, 7.60.28.0, 7.60.36.13, 7.60.40.0, 7.60.52.0, 7.60.53.10, 7.60.63.0, 7.70.38.0, 7.75.28.60, 7.77.18.0, 7.77.19.0, 7.77.20.0, 7.77.23.0, 7.77.34.0, 7.77.38.0, 7.80.41.60, 7.80.55.0, 7.83.22.0, 7.83.25.0, 7.83.27.0, 7.84.44.0, 7.84.44.60, 7.84.46.0, 7.84.47.60, 7.84.53.60, 7.84.56.0, 7.86.29.0, 7.86.32.0, 7.86.34.0, 7.86.40.0, 8.10.11.0, 8.10.14.0, 8.10.15.0, 8.10.18.0, 8.10.3.0, 8.10.5.0, 8.10.7.0, 8.20.11.0, 8.20.11.60, 8.20.12.0, 8.20.16.0, 8.20.18.0, 8.20.20.0, 8.20.21.0, 8.20.24.0, 8.20.27.0, 8.20.30.0, 8.20.5.0, 8.20.5.60, 8.20.8.0, 8.20.9.0, 8.20.9.2, 8.20.9.60, 8.25.11.0, 8.25.13.0, 8.25.14.0, 8.25.4.0, 8.25.5.0, 8.25.6.0, 8.25.8.0, 8.25.9.0, 8.30.1.0, 8.30.10.0, 8.30.10.1, 8.30.20.0, 8.30.30.1, 8.30.50.0, 8.40.0.1, 8.40.0.3, 8.40.10.1, 8.40.20.0, 8.41.10.1, 88.30.37.83, 88.30.38.17, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	RMI	
		Speed	Implemented	RMI	
		Capacity	Implemented	RMI	
		Physical Location	Implemented	RMI	
		Role	Implemented	RMI	
		Model	Implemented	RMI	
		Vendor	Implemented	RMI	
		Type	Implemented	RMI	
		Serial Number	Implemented	RMI	
		Uses disk model	Implemented	RMI	
	Other	Host Aliases	Implemented	RMI	
	Protocol	FC(oE)	Implemented	RMI	
		iSCSI	Implemented	RMI	
		NFS	Not Available	RMI	
		SMB/CIFS	Not Available	RMI	
	Storage	Identifier	Implemented	RMI	Node WWN / Serial Number
		IP	Implemented	RMI	
		Name	Implemented	RMI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Vendor	Manual Input	RMI	
		Model	Implemented	RMI	
		Family	Manual Input	RMI	
		Serial Number	Implemented	RMI	Not available for old models, 7xxx/4xxx/1xxx. Available for models starting 2600 and later (2700, 2800, 5400, 5500, 5600)
		Microcode Version	Implemented	RMI	
		Total Raw Capacity	Implemented	RMI	Reported as a time series.
		Failed Raw Capacity	Implemented	RMI	
		Spare Raw Capacity	Implemented	RMI	
		Manage URL	Implemented	RMI	
		Virtual	Not Available	RMI	
Insight	Storage Pool	Storage efficiency	Gap	RMI	
		Storage Pools Capacity	Implemented	RMI	Reported as a time series.
		ID	Implemented	RMI	
		Name	Implemented	RMI	
		Type	Implemented	RMI	
		Thin provisioning	Implemented	RMI	version 7.83 and higher
		Raw To Usable Ratio	Implemented	RMI	
		Redundancy	Implemented	RMI	
		Total Allocated Capacity	Implemented	RMI	Reported as a time series.
		Total Used Capacity	Implemented	RMI	Reported as a time series.
		Data Allocated Capacity	Implemented	RMI	
		Data Used Capacity	Implemented	RMI	
		Other Allocated Capacity	Implemented	RMI	
		Other Used Capacity	Implemented	RMI	
		Snapshot Allocated Capacity	Implemented	RMI	Reported as a time series.
		Snapshot Used Capacity	Gap	RMI	
		Reserved Capacity	Implemented	RMI	Reported as a time series.
		Disk references	Implemented	RMI	
		LUN references	Implemented	RMI	
Insight	Storage Ports	Compression Enabled	Not Available	RMI	
		Compression Savings	Not Available	RMI	
		Deduplication Enabled	Not Available	RMI	
		Deduplication Savings	Not Available	RMI	
		Provisioned Capacity	Implemented	RMI	Reported as a time series.
		Total Used Capacity Ratio	Implemented	RMI	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	RMI	Reported as a time series.
		Controller Name	Implemented	RMI	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Ports	Controller Driver	Implemented	RMI	
		Controller Model	Implemented	RMI	
		Node WWN	Implemented	RMI	
		Port WWN	Implemented	RMI	
		Port Name	Implemented	RMI	
	Volume	Volume Name	Implemented	RMI	
		Capacity	Implemented	RMI	Reported as a time series.
		Consumed Capacity	Implemented	RMI	Reported as a time series.
		Raw Capacity	Implemented	RMI	Reported as a time series.
		Redundancy	Implemented	RMI	
		Thin provisioning	Implemented	RMI	version 7.83 and higher
		Virtual Volume	Not Available	RMI	
		Volume Type	Implemented	RMI	
		Disk Size	Implemented	RMI	
		Disk Type	Implemented	RMI	
		Disk Speed	Implemented	RMI	
		Disk Group	Implemented	RMI	
		Protocol Controller	Implemented	RMI	
		Masking	Implemented	RMI	
		Mapping	Implemented	RMI	
		Meta Volume	Implemented	RMI	
		Virtual Storage	Not Available	RMI	
		Head	Implemented	RMI	
		Protection type	Implemented	RMI	
		Last known access time	Implemented	RMI	
		UUID	Implemented	RMI	
		Label	Not Available	RMI	
		Volume Identifier	Implemented	RMI	for thin volumes, lowercase thin volume WorldWideName; Otherwise, lowercase volume WorldWideName
		Used Capacity Ratio	Implemented	RMI	Reported as a time series.
		Written Capacity Ratio	Implemented	RMI	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	RMI	version 7.83 and higher
		Throughput Write	Implemented	RMI	version 7.83 and higher
		IOps Read	Implemented	RMI	version 7.83 and higher
		IOps Write	Implemented	RMI	version 7.83 and higher
		Utilization Read	Implemented	RMI	version 7.83 and higher
		Utilization Write	Implemented	RMI	version 7.83 and higher
	Volume Performance	Response Time Read	Implemented	RMI	version 7.83 and higher
		Response Time Write	Implemented	RMI	version 7.83 and higher
		Response Time Total	Implemented	RMI	version 7.83 and higher
		Throughput Read	Implemented	RMI	version 7.83 and higher
		Throughput Write	Implemented	RMI	version 7.83 and higher
		IOps Read	Implemented	RMI	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information	
Perform	Volume Performance	IOps Write		Implemented	RMI		
		Cache Hit Ratio Read		Implemented	RMI	version 7.83 and higher	
		Cache Hit Ratio Write		Implemented	RMI	version 7.83 and higher	
		Cache Hit Ratio Total		Implemented	RMI	version 7.83 and higher	
		Write Pending		Not Available	RMI		
		Partial Read/Write		Not Available	RMI		
		Accessed		Implemented	RMI		

***Management APIs used by this data collector:***

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
SANtricity API	RMI	TCP			✓	✓	✗	✗

# NetApp Host and VM Filesystems

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
,	,	Microsoft Windows Server 2008, Microsoft Windows Server 2008 R2, Microsoft Windows Server 2012, Microsoft Windows Server 2012 R2, Red Hat Enterprise Linux 5, Red Hat Enterprise Linux 7, SUSE Linux Enterprise Server 11,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	File System	Name	Implemented	SSH/WMI	
		Type	Implemented	SSH/WMI	
		Allocated Capacity	Implemented	SSH/WMI	
		Used Capacity	Implemented	SSH/WMI	
		Hardware Id	Implemented	SSH/WMI	
		Location Type	Not Available	SSH/WMI	
		Volume Identifier	Implemented	SSH/WMI	See storage array data collectors for Volume Identifier reporting
		Virtual Disk Identifier	Implemented	SSH/WMI	See virtualization data collectors for Virtual Disk Identifier reporting
	File System Host	IP	Implemented	SSH/WMI	
		Host Name	Implemented	SSH/WMI	
		Domain	Implemented	SSH/WMI	
		OS	Implemented	SSH/WMI	
		Memory	Implemented	SSH/WMI	
		CPU Count	Implemented	SSH/WMI	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
WMI/SSH	SSH/WMI	SSH/DCOM	22/135	1024-65535	✓	✗	✓	✓

# NetApp ONTAP Data Management Software

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
,	AFF-A200, AFF-A220, AFF-A300, AFF-A700, AFF-A700s, AFF-A800, AFF8040, AFF8060, AFF8080, DS-C9148-48P-K9, FAS2220, FAS2240-2, FAS2240-4, FAS2520, FAS2552, FAS2554, FAS2620, FAS2650, FAS3070, FAS3140, FAS3160, FAS3170, FAS3210, FAS3220, FAS3240, FAS3250, FAS3270, FAS6070, FAS6080, FAS6210, FAS6220, FAS6240, FAS6250, FAS6280, FAS6290, FAS8020, FAS8040, FAS8060, FAS8080, FAS8080 EX, FAS8200, FAS9000, FASDvM200, FASDvM300, SIMBOX, V3220, ,	5.2(2d), 8.0.5 7-Mode, 8.1.0 clustered Data ONTAP, 8.1.1 clustered Data ONTAP, 8.1.2 clustered Data ONTAP, 8.1.2P2 clustered Data ONTAP, 8.1.3 clustered Data ONTAP, 8.1.4 clustered Data ONTAP, 8.2.0 clustered Data ONTAP, 8.2.0P3 clustered Data ONTAP, 8.2.0P5 clustered Data ONTAP, 8.2.0P6 clustered Data ONTAP, 8.2.1 clustered Data ONTAP, 8.2.1P1 clustered Data ONTAP, 8.2.1P2 clustered Data ONTAP, 8.2.1P3 clustered Data ONTAP, 8.2.2 clustered Data ONTAP, 8.2.2P1 clustered Data ONTAP, 8.2.2P2 clustered Data ONTAP, 8.2.3 clustered Data ONTAP, 8.2.3P1 clustered Data ONTAP, 8.2.3P2 clustered Data ONTAP, 8.2.3P3 clustered Data ONTAP, 8.2.3P4 clustered Data ONTAP, 8.2.3P5 clustered Data ONTAP, 8.2.3P6 clustered Data ONTAP, 8.2.4 clustered Data ONTAP, 8.2.4P1 clustered Data ONTAP, 8.2.4P2 clustered Data ONTAP, 8.2.4P4 clustered Data ONTAP, 8.2.4P6 clustered Data ONTAP, 8.3.0 clustered Data ONTAP, 8.3.0P1 clustered Data ONTAP, 8.3.0P2 clustered Data ONTAP, 8.3.1 clustered Data ONTAP, 8.3.1P1 clustered Data ONTAP, 8.3.1P1D1 clustered Data ONTAP, 8.3.1P2 clustered Data ONTAP, 8.3.2 clustered Data ONTAP, 8.3.2P1 clustered Data ONTAP, 8.3.2P10 clustered Data ONTAP, 8.3.2P11 clustered Data ONTAP, 8.3.2P12 clustered Data ONTAP, 8.3.2P2 clustered Data ONTAP, 8.3.2P3 clustered Data ONTAP, 8.3.2P4 clustered Data ONTAP, 8.3.2P5 clustered Data ONTAP, 8.3.2P6 clustered Data ONTAP, 8.3.2P7 clustered Data ONTAP, 8.3.2P8 clustered Data ONTAP, 8.3.2P9 clustered Data ONTAP, 8.4.0 clustered Data ONTAP, 9.0.0 clustered Data ONTAP, 9.0.0P1 clustered Data ONTAP, 9.0.0P2 clustered Data ONTAP, 9.0.0P3 clustered Data ONTAP, 9.0.0P4 clustered Data ONTAP, 9.1.0 clustered Data ONTAP, 9.1.0P1 clustered Data ONTAP, 9.1.0P10 clustered Data ONTAP, 9.1.0P11 clustered Data ONTAP, 9.1.0P12 clustered Data ONTAP, 9.1.0P13 clustered Data ONTAP, 9.1.0P14 clustered Data ONTAP, 9.1.0P2 clustered Data ONTAP, 9.1.0P3 clustered Data ONTAP, 9.1.0P5 clustered Data ONTAP, 9.1.0P6 clustered Data ONTAP, 9.1.0P7 clustered Data ONTAP, 9.1.0P8 clustered Data ONTAP, 9.1.0P9 clustered Data ONTAP, 9.2.0 clustered Data ONTAP, 9.2.0P1 clustered Data ONTAP, 9.2.0P2 clustered Data ONTAP, 9.2.0P3 clustered Data ONTAP, 9.2.0P4 clustered Data ONTAP, 9.3.0 clustered Data ONTAP, 9.3.0P1 clustered Data ONTAP, 9.3.0P2 clustered Data ONTAP, 9.3.0P3 clustered Data ONTAP, 9.3.0P4 clustered Data ONTAP, 9.3.0P5 clustered Data ONTAP, 9.3.0P6 clustered Data ONTAP, 9.3.0P7 clustered Data ONTAP, 9.4.0 clustered Data ONTAP, 9.4.0P1 clustered Data ONTAP, ,

**Products supported by this data collector:**

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTP/ HTTPS	
		Speed	Implemented	HTTP/ HTTPS	
		Capacity	Implemented	HTTP/ HTTPS	
		Role	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		Vendor	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
		Uses disk model	Implemented	HTTP/ HTTPS	
		Is Encrypted	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Location	Implemented	HTTP/ HTTPS	
		Group	Implemented	HTTP/ HTTPS	
		Vendor ID	Implemented	HTTP/ HTTPS	
Internal Volume	Internal Volume	Name	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		Space Guarantee	Implemented	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Dedupe enabled	Implemented	HTTP/ HTTPS	
		Dedupe savings	Implemented	HTTP/ HTTPS	
		Last snapshot time	Gap	HTTP/ HTTPS	
		Snapshot count	Implemented	HTTP/ HTTPS	Supported for cDot 8.2.0 and higher
		Status	Implemented	HTTP/ HTTPS	
		Clones	Gap	HTTP/ HTTPS	
		Virtual Storage	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Protection type	Implemented	HTTP/ HTTPS	
		Total Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTP/ HTTPS	
		Data Used Capacity	Implemented	HTTP/ HTTPS	
		Other Allocated Capacity	Implemented	HTTP/ HTTPS	
		Other Used Capacity	Gap	HTTP/ HTTPS	
		Snapshot Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Snapshot Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Clone Saved Capacity	Implemented	HTTP/ HTTPS	
		Compression Enabled	Implemented	HTTP/ HTTPS	
		Compression Savings	Implemented	HTTP/ HTTPS	
		Total Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		QoS - Policy	Implemented	HTTP/ HTTPS	
		QoS - Limit Raw	Implemented	HTTP/ HTTPS	
		QoS - Limit (IO/s)	Implemented	HTTP/ HTTPS	
		QoS - Limit (MB/s)	Implemented	HTTP/ HTTPS	
		Member Name	Implemented	HTTP/ HTTPS	FlexGroup member name
		Comment	Implemented	HTTP/ HTTPS	FlexVol Comment
Node	Node	Name	Implemented	HTTP/ HTTPS	
		Version	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		SerialNumber	Implemented	HTTP/ HTTPS	
		Memory Size	Implemented	HTTP/ HTTPS	
		Cache Size	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Node	Number Of Processors	Implemented	HTTP/ HTTPS	
		State	Implemented	HTTP/ HTTPS	
		Pool references	Implemented	HTTP/ HTTPS	
		Volume references	Implemented	HTTP/ HTTPS	
		Internal Volume references	Implemented	HTTP/ HTTPS	
		Port references	Implemented	HTTP/ HTTPS	
	Other	Host Aliases	Gap	HTTP/ HTTPS	
	Protocol	FC(oE)	Implemented	HTTP/ HTTPS	
		iSCSI	Implemented	HTTP/ HTTPS	
		NFS	Implemented	HTTP/ HTTPS	
		SMB/CIFS	Implemented	HTTP/ HTTPS	
	Qtree	Name	Implemented	HTTP/ HTTPS	
		OpLocks enabled	Implemented	HTTP/ HTTPS	
		Security Type	Implemented	HTTP/ HTTPS	
		Status	Implemented	HTTP/ HTTPS	
		Path	Implemented	HTTP/ HTTPS	
		Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Quota Hard Limit	Implemented	HTTP/ HTTPS	Reported as a time series.
		Quota Soft Limit	Implemented	HTTP/ HTTPS	Reported as a time series.
		Quota File Count	Implemented	HTTP/ HTTPS	Reported as a time series.
	Quota	Disk Limit	Implemented	HTTP/ HTTPS	
		Soft Disk Limit	Implemented	HTTP/ HTTPS	
		File Limit	Implemented	HTTP/ HTTPS	
		Soft File Limit	Implemented	HTTP/ HTTPS	
		Threshold	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Quota	User/Group	Implemented	HTTP/ HTTPS	
		File Count	Implemented	HTTP/ HTTPS	
		Used Capacity	Implemented	HTTP/ HTTPS	
	Share	Name	Implemented	HTTP/ HTTPS	
		Protocol	Implemented	HTTP/ HTTPS	
		Permission	Implemented	HTTP/ HTTPS	
	Storage	Identifier	Implemented	HTTP/ HTTPS	
		IP	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Vendor	Manual Input	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		Family	Implemented	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
		Microcode Version	Implemented	HTTP/ HTTPS	
		Total Raw Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTP/ HTTPS	
		Manage URL	Implemented	HTTP/ HTTPS	
		Spare Raw Capacity	Implemented	HTTP/ HTTPS	
	Storage Pool	Virtual	Implemented	HTTP/ HTTPS	V-Series supported with cDot 8.2.0 and higher
		Storage efficiency	Gap	HTTP/ HTTPS	
		Storage Pools Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		ID	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool	Redundancy	Implemented	HTTP/ HTTPS	
		Total Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTP/ HTTPS	
		Data Used Capacity	Implemented	HTTP/ HTTPS	
		Other Allocated Capacity	Not Available	HTTP/ HTTPS	
		Other Used Capacity	Not Available	HTTP/ HTTPS	
		Snapshot Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Snapshot Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Reserved Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		AST	Implemented	HTTP/ HTTPS	
		Disk references	Implemented	HTTP/ HTTPS	
		LUN references	Implemented	HTTP/ HTTPS	
		Compression Enabled	Not Available	HTTP/ HTTPS	
Storage Ports	Storage Ports	Compression Savings	Not Available	HTTP/ HTTPS	
		Deduplication Enabled	Not Available	HTTP/ HTTPS	
		Deduplication Savings	Not Available	HTTP/ HTTPS	
		Provisioned Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		Snapshot Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		Is Encrypted	Implemented	HTTP/ HTTPS	
		Controller Name	Implemented	HTTP/ HTTPS	
		Controller IP	Gap	HTTP/ HTTPS	
		Controller Vendor	Gap	HTTP/ HTTPS	
		Controller Firmware	Gap	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Ports	Controller Driver	Gap	HTTP/ HTTPS	
		Controller Model	Gap	HTTP/ HTTPS	
		Node WWN	Implemented	HTTP/ HTTPS	
		Port WWN	Implemented	HTTP/ HTTPS	
		Port Name	Implemented	HTTP/ HTTPS	
	Storage Virtual Machine	UUID	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		State	Implemented	HTTP/ HTTPS	
		Comment	Implemented	HTTP/ HTTPS	
		IPSpace	Implemented	HTTP/ HTTPS	
		InternalVolumeLimit	Implemented	HTTP/ HTTPS	
		Protocols	Implemented	HTTP/ HTTPS	
		AllocatedCapacityMB	Implemented	HTTP/ HTTPS	Reported as a time series.
		UsedCapacityMB	Implemented	HTTP/ HTTPS	Reported as a time series.
	Storage Virtualization	DedupeSavings	Implemented	HTTP/ HTTPS	
		CompressionSavings	Implemented	HTTP/ HTTPS	
		Backend Lun Name	Implemented	HTTP/ HTTPS	
		LUN	Implemented	HTTP/ HTTPS	
Synchronizations	Synchronizations	Local port WWN	Implemented	HTTP/ HTTPS	
		Remote port WWN	Implemented	HTTP/ HTTPS	
		Source Volume	Not Available	HTTP/ HTTPS	
		Target Volume	Not Available	HTTP/ HTTPS	
		Source Storage	Not Available	HTTP/ HTTPS	
Synchronizations	Synchronizations	Target Storage	Not Available	HTTP/ HTTPS	
		Mode	Not Available	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Synchronizations	Protocol End Point refs	Not Available	HTTP/ HTTPS	
		Internal Volume Synchronization	Implemented	HTTP/ HTTPS	
	Technical	Recording	Implemented	HTTP/ HTTPS	
		Crawling	Gap	HTTP/ HTTPS	
		Simulation	Implemented	HTTP/ HTTPS	
		Enhanced Error Messages	Implemented	HTTP/ HTTPS	
	Volume	Volume Name	Implemented	HTTP/ HTTPS	
		Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Raw Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Redundancy	Not Available	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Virtual Volume	Implemented	HTTP/ HTTPS	
		Volume Type	Implemented	HTTP/ HTTPS	
		Disk Size	Implemented	HTTP/ HTTPS	
		Disk Type	Implemented	HTTP/ HTTPS	
		Disk Speed	Implemented	HTTP/ HTTPS	
		Disk Group	Implemented	HTTP/ HTTPS	
		Protocol Controller	Implemented	HTTP/ HTTPS	
		Masking	Implemented	HTTP/ HTTPS	
		Mapping	Implemented	HTTP/ HTTPS	
		Meta Volume	Not Available	HTTP/ HTTPS	
		Virtual Storage	Not Available	HTTP/ HTTPS	
		Protection type	Not Available	HTTP/ HTTPS	
		Last known access time	Not Available	HTTP/ HTTPS	
		UUID	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Label	Implemented	HTTP/ HTTPS	
		Volume Identifier	Implemented	HTTP/ HTTPS	LUN serial number
		Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		QoS - Policy	Implemented	HTTP/ HTTPS	
		QoS - Limit Raw	Implemented	HTTP/ HTTPS	
		QoS - Limit (IO/s)	Implemented	HTTP/ HTTPS	
		QoS - Limit (MB/s)	Implemented	HTTP/ HTTPS	
		Is Encrypted	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
Perform	Disk Performance	Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Utilization Read	Implemented	HTTP/ HTTPS	
		Utilization Write	Implemented	HTTP/ HTTPS	
	Internal Volume Performance	Response Time Read	Implemented	HTTP/ HTTPS	
		Response Time Write	Implemented	HTTP/ HTTPS	
		Response Time Total	Implemented	HTTP/ HTTPS	
		Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Write Pending	Not Available	HTTP/ HTTPS	
	Qtree Performance	IOps Total	Implemented	HTTP/ HTTPS	
	Storage Node Performance	Response Time Read	Implemented	HTTP/ HTTPS	
		Response Time Write	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Storage Node Performance	Response Time Total	Implemented	HTTP/ HTTPS	
		Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Cache Hit Percent	Implemented	HTTP/ HTTPS	
		Disk Reads Replaced	Implemented	HTTP/ HTTPS	
		Utilization	Implemented	HTTP/ HTTPS	
		Port Utilization	Gap	HTTP/ HTTPS	
		Port Errors	Gap	HTTP/ HTTPS	
Storage Pool Performance	Storage Pool Performance	Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		Throughput Total	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		IOps Total	Implemented	HTTP/ HTTPS	
		Utilization Read	Implemented	HTTP/ HTTPS	
		Utilization Write	Implemented	HTTP/ HTTPS	
		Utilization Total	Implemented	HTTP/ HTTPS	
		Compaction Savings (Percentage)	Implemented	HTTP/ HTTPS	
Storage Virtual Machine Performance	Storage Virtual Machine Performance	Compaction Savings (GB)	Implemented	HTTP/ HTTPS	
		Response Time Read	Implemented	HTTP/ HTTPS	
		Response Time Write	Implemented	HTTP/ HTTPS	
		Response Time Total	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Storage Virtual Machine Performance	Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		Throughput Total	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		IOps Total	Implemented	HTTP/ HTTPS	
		IO Density Read	Implemented	HTTP/ HTTPS	
		IO Density Write	Implemented	HTTP/ HTTPS	
		IO Density Total	Implemented	HTTP/ HTTPS	
	Volume Performance	Response Time Read	Implemented	HTTP/ HTTPS	
		Response Time Write	Implemented	HTTP/ HTTPS	
		Response Time Total	Implemented	HTTP/ HTTPS	
		Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Cache Hit Ratio Read	Not Available	HTTP/ HTTPS	
		Cache Hit Ratio Write	Not Available	HTTP/ HTTPS	
		Cache Hit Ratio Total	Not Available	HTTP/ HTTPS	
		Write Pending	Implemented	HTTP/ HTTPS	
		Partial Read/Write	Implemented	HTTP/ HTTPS	
		Accessed	Implemented	HTTP/ HTTPS	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
ONTAPI	HTTP/HTTPS	HTTP/HTTPS	80/443		✓	✓	✓	✓

# NetApp SolidFire All-Flash Array

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	FC0025, H300S, SF19210, SF2405, SF3010, SF4805, SF6010, SF9010, SF9605,	10.0.0.282, 10.1.0.83, 10.3.0.157, 10.x, 8.1.1.4, 8.4.0.68, 8.5.0.13, 8.6.0.25, 8.6.1.2, 8.6.2.3, 9.0.0.1554, 9.2.0.43, 9.3.0.40, 9.4.0.13,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTPS	
		Speed	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Location	Implemented	HTTPS	
		Role	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Uses disk model	Not Available	HTTPS	
Insight	Node	Name	Implemented	HTTPS	
		Version	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		SerialNumber	Implemented	HTTPS	
		Memory Size	Implemented	HTTPS	
		Cache Size	Not Available	HTTPS	
		Number Of Processors	Implemented	HTTPS	
		State	Not Available	HTTPS	
		Pool references	Implemented	HTTPS	
		Volume references	Implemented	HTTPS	
		Internal Volume references	Not Available	HTTPS	
		Port references	Implemented	HTTPS	
Insight	Protocol	FC(oE)	Implemented	HTTPS	
		iSCSI	Implemented	HTTPS	
		NFS	Not Available	HTTPS	
		SMB/CIFS	Not Available	HTTPS	
Insight	Storage	Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Manual Input	HTTPS	
		Model	Implemented	HTTPS	
		Family	Manual Input	HTTPS	
		Serial Number	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Total Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTPS	
		Spare Raw Capacity	Implemented	HTTPS	
		Manage URL	Implemented	HTTPS	
		Virtual	Not Available	HTTPS	
		Storage efficiency	Not Available	HTTPS	
		Storage Pools Capacity	Implemented	HTTPS	Reported as a time series.
	Storage Pool	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Raw To Usable Ratio	Implemented	HTTPS	
		Redundancy	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Other Allocated Capacity	Implemented	HTTPS	
		Other Used Capacity	Implemented	HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTPS	
		Snapshot Used Capacity	Not Available	HTTPS	
		Reserved Capacity	Not Available	HTTPS	
		AST	Not Available	HTTPS	
		Disk references	Implemented	HTTPS	
		LUN references	Not Available	HTTPS	
		Compression Enabled	Not Available	HTTPS	
		Compression Savings	Not Available	HTTPS	
		Deduplication Enabled	Implemented	HTTPS	
		Deduplication Savings	Implemented	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Total Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
	Storage Ports	Controller Name	Not Available	HTTPS	
		Controller IP	Not Available	HTTPS	
		Controller Vendor	Not Available	HTTPS	
		Controller Firmware	Not Available	HTTPS	
		Controller Driver	Not Available	HTTPS	
		Controller Model	Not Available	HTTPS	
		Node WWN	Implemented	HTTPS	
		Port WWN	Implemented	HTTPS	
		Port Name	Not Available	HTTPS	
		Volume	Volume Name	Implemented	HTTPS

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume	Capacity	Implemented	HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTPS	Reported as a time series.
		Raw Capacity	Implemented	HTTPS	Reported as a time series.
		Redundancy	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Virtual Volume	Not Available	HTTPS	
		Volume Type	Implemented	HTTPS	
		Disk Size	Not Available	HTTPS	
		Disk Type	Not Available	HTTPS	
		Disk Speed	Not Available	HTTPS	
		Disk Group	Not Available	HTTPS	
		Protocol Controller	Implemented	HTTPS	
		Masking	Implemented	HTTPS	
		Mapping	Implemented	HTTPS	
		Meta Volume	Not Available	HTTPS	
		Virtual Storage	Not Available	HTTPS	
		Head	Not Available	HTTPS	
		Protection type	Not Available	HTTPS	
		Last known access time	Not Available	HTTPS	
		UUID	Implemented	HTTPS	
		Label	Not Available	HTTPS	
		Volume Identifier	Implemented	HTTPS	
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Perform	Disk Performance	Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		Utilization Read	Not Available	HTTPS	
		Utilization Write	Not Available	HTTPS	
	Storage Node Performance	Response Time Read	Implemented	HTTPS	Reported for firmware 10.x or higher
		Response Time Write	Implemented	HTTPS	Reported for firmware 10.x or higher
		Response Time Total	Implemented	HTTPS	Reported for firmware 10.x or higher
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		Cache Hit Percent	Not Available	HTTPS	
		Disk Reads Replaced	Not Available	HTTPS	
		Utilization	Implemented	HTTPS	
		Port Utilization	Not Available	HTTPS	
		Port Errors	Not Available	HTTPS	
		Port Traffic	Not Available	HTTPS	
	Volume Performance	Response Time Read	Implemented	HTTPS	Reported for firmware 10.x or higher

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Volume Performance	Response Time Write	Implemented	HTTPS	Reported for firmware 10.x or higher
		Response Time Total	Implemented	HTTPS	Reported for firmware 10.x or higher
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		IOps Total	Implemented	HTTPS	
		Cache Hit Ratio Read	Not Available	HTTPS	
		Cache Hit Ratio Write	Not Available	HTTPS	
		Cache Hit Ratio Total	Not Available	HTTPS	
		Write Pending	Not Available	HTTPS	
		Partial Read/Write	Implemented	HTTPS	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
SolidFire API	HTTPS	HTTPS	443		✓	✓	✓	✓

# NetApp StorageGrid

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	Webscale,	2.0, 2.1,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Internal Volume	Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	
		Total Used Capacity	Implemented	HTTPS	
	Node	Name	Implemented	HTTPS	
		Memory Size	Implemented	HTTPS	
		Cache Size	Implemented	HTTPS	
	Qtree	Name	Implemented	HTTPS	
	Storage	Identifier	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Family	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	
		Total Raw Capacity	Implemented	HTTPS	
		Storage Pools Capacity	Implemented	HTTPS	
	Storage Pool	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	
		Total Used Capacity	Implemented	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	
		Over Commit Capacity Ratio	Implemented	HTTPS	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
StorageGrid REST API	HTTPS	HTTPS	443		✓	✓	✓	✓

# Nutanix NX Series

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	XC630-10, XC730xd-12, ,	5.1.2, 5.5.2, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTPS	
		Speed	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Physical Location	Implemented	HTTPS	
		Role	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
	Internal Volume	Thin provisioning	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	
		Total Used Capacity	Implemented	HTTPS	
		Compression Enabled	Implemented	HTTPS	
		Compression Savings	Implemented	HTTPS	
	Node	Name	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		SerialNumber	Implemented	HTTPS	
		Memory Size	Implemented	HTTPS	
		Number Of Processors	Implemented	HTTPS	
		State	Implemented	HTTPS	
		Pool references	Implemented	HTTPS	
		Volume references	Implemented	HTTPS	
		Internal Volume references	Implemented	HTTPS	
	Protocol	iSCSI	Implemented	HTTPS	
		NFS	Implemented	HTTPS	
		SMB/CIFS	Implemented	HTTPS	
	Qtree	Name	Implemented	HTTPS	
		Path	Implemented	HTTPS	
	Share	Name	Implemented	HTTPS	
		Protocol	Implemented	HTTPS	
		Files	Implemented	HTTPS	
	Storage	Identifier	Implemented	HTTPS	
		IP	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
		Model	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Family	Implemented	HTTPS	
		Serial Number	Implemented	HTTPS	
		Microcode Version	Implemented	HTTPS	
		Total Raw Capacity	Implemented	HTTPS	
		Failed Raw Capacity	Implemented	HTTPS	
		Manage URL	Implemented	HTTPS	
		Storage Pools Capacity	Implemented	HTTPS	
	Storage Pool	ID	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Type	Implemented	HTTPS	
		Redundancy	Implemented	HTTPS	
		Total Allocated Capacity	Implemented	HTTPS	
		Total Used Capacity	Implemented	HTTPS	
		Data Used Capacity	Implemented	HTTPS	
		Reserved Capacity	Implemented	HTTPS	
		AST	Implemented	HTTPS	
		Disk references	Implemented	HTTPS	
		Provisioned Capacity	Implemented	HTTPS	
		Total Used Capacity Ratio	Implemented	HTTPS	
		Over Commit Capacity Ratio	Implemented	HTTPS	
	Synchronizations	Internal Volume Synchronization	Implemented	HTTPS	
	Volume	Volume Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	
		Raw Capacity	Implemented	HTTPS	
		Redundancy	Implemented	HTTPS	
		Thin provisioning	Implemented	HTTPS	
		Protocol Controller	Implemented	HTTPS	
		Masking	Implemented	HTTPS	
		Mapping	Implemented	HTTPS	
		UUID	Implemented	HTTPS	
		Label	Implemented	HTTPS	
		Volume Identifier	Implemented	HTTPS	
Perform	Disk Performance	Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
	Storage Node Performance	Response Time Read	Implemented	HTTPS	
		Response Time Write	Implemented	HTTPS	
		Response Time Total	Implemented	HTTPS	
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Storage Node Performance	IOps Write	Implemented	HTTPS	
	Storage Pool Performance	Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		Throughput Total	Implemented	HTTPS	
		IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
	Volume Performance	IOps Total	Implemented	HTTPS	
		Response Time Read	Implemented	HTTPS	
		Response Time Write	Implemented	HTTPS	
		Response Time Total	Implemented	HTTPS	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Nutanix REST API	HTTPS	HTTPS	443		✓	✓	✓	✓

# OpenStack

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
,		Juno, Kilo, Liberty, Mitaka, Newton, Ocata,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Data Store	Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity	Implemented	HTTPS	Reported as a time series.
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
	Host (Hypervisor)	Name	Implemented	HTTPS	
		IPs	Implemented	HTTPS	
		Domain Name	Implemented	HTTPS	
		Platform Type	Not Available	HTTPS	
		Memory	Implemented	HTTPS	
		Processors	Implemented	HTTPS	
		CPU speed	Not Available	HTTPS	
		NIC count	Not Available	HTTPS	
		NIC speed	Not Available	HTTPS	
		Model	Not Available	HTTPS	
		Vendor	Not Available	HTTPS	
	Host Adapter	Node WWN	Implemented	SSH	
		Name	Not Available	SSH	
		Model	Not Available	SSH	
		Vendor	Not Available	SSH	
		Driver	Not Available	SSH	
	Host Port	WWN	Implemented	SSH	
		Name	Not Available	SSH	
		Status	Implemented	SSH	
	LUN	Policy	Not Available	SSH	
		TID	Implemented	SSH	
		Disk Name	Implemented	SSH	
		Number	Implemented	SSH	
		Data Store	Implemented	SSH	
	Path	Active	Implemented	SSH	
		Storage Port WWN	Implemented	SSH	
		Host Port WWN	Implemented	SSH	
	Virtual Disk	Capacity	Implemented	SSH	Reported as a time series.
		Used Capacity	Implemented	SSH	Reported as a time series.
		Data Store	Implemented	SSH	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Virtual Disk	Name	Implemented	SSH	
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
	Virtual Machine	Ips	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Data Store	Implemented	HTTPS	
		OS	Not Available	HTTPS	
		Processors	Implemented	HTTPS	
		Memory	Implemented	HTTPS	
		Host	Implemented	HTTPS	
		DNS Name	Not Available	HTTPS	
		Guest State	Implemented	HTTPS	
		State	Implemented	HTTPS	
		State Change Time	Not Available	HTTPS	
		Total Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
Perform	Host (Hypervisor) Performance	CPU Utilization	Implemented	HTTPS	
		Memory Utilization	Implemented	HTTPS	
	Virtual Disks	IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		IOps Total	Implemented	HTTPS	
		Throughput Read	Implemented	HTTPS	
		Throughput Write	Implemented	HTTPS	
		Throughput Total	Implemented	HTTPS	
		Latency Read	Implemented	HTTPS	
		Latency Write	Implemented	HTTPS	
		Latency Total	Implemented	HTTPS	
	Virtual Machines	IOps Read	Implemented	HTTPS	
		IOps Write	Implemented	HTTPS	
		IOps Total	Implemented	HTTPS	
		(Disk)Throughput Read	Implemented	HTTPS	
		(Disk)Throughput Write	Implemented	HTTPS	
		(Disk)Throughput Total	Implemented	HTTPS	
		Latency Read	Implemented	HTTPS	
		Latency Write	Implemented	HTTPS	
		Latency Total	Implemented	HTTPS	
		CPU Utilization	Implemented	HTTPS	
		Memory Utilization	Implemented	HTTPS	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
OpenStack REST API	HTTPS	HTTPS	443		✓	✗	✓	✓
OpenStack SSH	SSH	SSH	22		✓	✗	✓	✓

# Oracle ZFS Storage Appliance

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	Sun ZFS Storage 7330, Sun ZFS Storage 7420, Sun ZFS Storage 7430,	2013.06.05.6.2,1-1.1, 2013.06.05.6.8,1-1.1, 2013.06.05.7.12,1-2.1.1.1, 2013.06.05.7.14,1-1.1, 2013.06.05.7.18,1-1.3, 2013.06.05.7.19,1-1.2,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTP/ HTTPS	
		Speed	Implemented	HTTP/ HTTPS	
		Capacity	Implemented	HTTP/ HTTPS	
		Physical Location	Implemented	HTTP/ HTTPS	
		Role	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		Vendor	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
	Internal Volume	Thin provisioning	Implemented	HTTP/ HTTPS	
		Dedupe enabled	Implemented	HTTP/ HTTPS	
		Protection type	Implemented	HTTP/ HTTPS	
		Total Allocated Capacity	Implemented	HTTP/ HTTPS	
		Total Used Capacity	Implemented	HTTP/ HTTPS	
		Data Used Capacity	Implemented	HTTP/ HTTPS	
		Other Used Capacity	Implemented	HTTP/ HTTPS	
		Snapshot Used Capacity	Implemented	HTTP/ HTTPS	
		Compression Enabled	Implemented	HTTP/ HTTPS	
		Compression Savings	Implemented	HTTP/ HTTPS	
		Total Used Capacity Ratio	Implemented	HTTP/ HTTPS	
	Node	Name	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Node	Version	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		SerialNumber	Implemented	HTTP/ HTTPS	
		Memory Size	Implemented	HTTP/ HTTPS	
		Number Of Processors	Implemented	HTTP/ HTTPS	
		State	Implemented	HTTP/ HTTPS	
		Pool references	Implemented	HTTP/ HTTPS	
		Volume references	Implemented	HTTP/ HTTPS	
		Internal Volume references	Implemented	HTTP/ HTTPS	
	Protocol	FC(oE)	Implemented	HTTP/ HTTPS	
Qtree	Qtree	Name	Implemented	HTTP/ HTTPS	
		Used Capacity	Implemented	HTTP/ HTTPS	
		Quota Soft Limit	Implemented	HTTP/ HTTPS	
Quota	Quota	Soft Disk Limit	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		User/Group	Implemented	HTTP/ HTTPS	
		Used Capacity	Implemented	HTTP/ HTTPS	
Storage	Storage	Identifier	Implemented	HTTP/ HTTPS	
		IP	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Vendor	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		Family	Implemented	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
		Microcode Version	Implemented	HTTP/ HTTPS	
		Total Raw Capacity	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage	Failed Raw Capacity	Implemented	HTTP/ HTTPS	
		Spare Raw Capacity	Implemented	HTTP/ HTTPS	
		Storage Pools Capacity	Implemented	HTTP/ HTTPS	
	Storage Pool	ID	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Raw To Usable Ratio	Implemented	HTTP/ HTTPS	
		Redundancy	Implemented	HTTP/ HTTPS	
		Total Allocated Capacity	Implemented	HTTP/ HTTPS	
		Total Used Capacity	Implemented	HTTP/ HTTPS	
		Data Allocated Capacity	Implemented	HTTP/ HTTPS	
		Data Used Capacity	Implemented	HTTP/ HTTPS	
		Other Used Capacity	Implemented	HTTP/ HTTPS	
		Snapshot Used Capacity	Implemented	HTTP/ HTTPS	
		AST	Implemented	HTTP/ HTTPS	
Storage Ports	Storage Ports	Disk references	Implemented	HTTP/ HTTPS	
		Compression Enabled	Implemented	HTTP/ HTTPS	
	Controller	Compression Savings	Implemented	HTTP/ HTTPS	
		Deduplication Enabled	Implemented	HTTP/ HTTPS	
		Deduplication Savings	Implemented	HTTP/ HTTPS	
Insight	Controller	Provisioned Capacity	Implemented	HTTP/ HTTPS	
		Total Used Capacity Ratio	Implemented	HTTP/ HTTPS	
		Over Commit Capacity Ratio	Implemented	HTTP/ HTTPS	
		Controller Name	Implemented	HTTP/ HTTPS	
		Controller IP	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Ports	Controller Vendor	Implemented	HTTP/ HTTPS	
		Controller Firmware	Implemented	HTTP/ HTTPS	
		Controller Driver	Implemented	HTTP/ HTTPS	
		Controller Model	Implemented	HTTP/ HTTPS	
		Node WWN	Implemented	HTTP/ HTTPS	
		Port WWN	Implemented	HTTP/ HTTPS	
		Port Name	Implemented	HTTP/ HTTPS	
	Volume	Volume Name	Implemented	HTTP/ HTTPS	
		Capacity	Implemented	HTTP/ HTTPS	
		Consumed Capacity	Implemented	HTTP/ HTTPS	
		Raw Capacity	Implemented	HTTP/ HTTPS	
		Redundancy	Implemented	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Volume Type	Implemented	HTTP/ HTTPS	
		Disk Size	Implemented	HTTP/ HTTPS	
		Disk Type	Implemented	HTTP/ HTTPS	
		Disk Speed	Implemented	HTTP/ HTTPS	
		UUID	Implemented	HTTP/ HTTPS	
		Label	Implemented	HTTP/ HTTPS	
		Volume Identifier	Implemented	HTTP/ HTTPS	
		Used Capacity Ratio	Implemented	HTTP/ HTTPS	
Perform	Storage Node Performance	IOps Total	Implemented	HTTP/ HTTPS	
		Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Storage Node Performance	Cache Hit Percent	Implemented	HTTP/ HTTPS	
		Utilization	Implemented	HTTP/ HTTPS	
	Storage Performance	Read IOps	Implemented	HTTP/ HTTPS	
		Write IOps	Implemented	HTTP/ HTTPS	
		Total IOps	Implemented	HTTP/ HTTPS	
		Read Throughput	Implemented	HTTP/ HTTPS	
		Write Throughput	Implemented	HTTP/ HTTPS	
		Total Throughput	Implemented	HTTP/ HTTPS	NFS3/NFS4/SMB2 OPS share must be enabled
	Storage Pool Performance	IOps Total	Implemented	HTTP/ HTTPS	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Oracle ZFS REST API	HTTP/HTTPS	HTTP/HTTPS	215		✓	✓	✓	✓

# Pure Storage FlashArray 400 Series

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
	FA-405, FA-420, FA-450, FA-m10r2, FA-m20, FA-m20r2, FA-m50, FA-m50r2, FA-m70, FA-m70r2, FA-X50R2, FA-x70, ,	4.0.20, 4.1.5, 4.1.8, 4.10.10, 4.10.11, 4.10.4, 4.10.5, 4.10.6, 4.10.7, 4.10.8, 4.10.9, 4.5.3, 4.5.5, 4.6.11, 4.6.8, 4.7.10, 4.7.5, 4.7.8, 4.8.10, 4.8.11, 4.8.13, 4.8.8, 4.9.5, 5.0.0.beta2.1, 5.1.1, ,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Disk	Disk ID	Implemented	HTTP/ HTTPS	
		Speed	Implemented	HTTP/ HTTPS	
		Capacity	Implemented	HTTP/ HTTPS	
		Physical Location	Not Available	HTTP/ HTTPS	
		Role	Implemented	HTTP/ HTTPS	
		Model	Not Available	HTTP/ HTTPS	
		Vendor	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		Serial Number	Not Available	HTTP/ HTTPS	
		Uses disk model	Not Available	HTTP/ HTTPS	
Node	Node	Name	Implemented	HTTP/ HTTPS	
		Version	Implemented	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		SerialNumber	Not Available	HTTP/ HTTPS	
		Memory Size	Implemented	HTTP/ HTTPS	
		Cache Size	Not Available	HTTP/ HTTPS	
		Number Of Processors	Not Available	HTTP/ HTTPS	
		State	Implemented	HTTP/ HTTPS	
		Pool references	Implemented	HTTP/ HTTPS	
		Volume references	Implemented	HTTP/ HTTPS	
		Internal Volume	Not Available	HTTP/	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Node	references		HTTPS	
		Port references	Implemented	HTTP/ HTTPS	
	Protocol	FC(oE)	Implemented	HTTP/ HTTPS	
		iSCSI	Implemented	HTTP/ HTTPS	
		NFS	Not Available	HTTP/ HTTPS	
		SMB/CIFS	Not Available	HTTP/ HTTPS	
	Storage	Identifier	Implemented	HTTP/ HTTPS	
		IP	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Vendor	Manual Input	HTTP/ HTTPS	
		Model	Implemented	HTTP/ HTTPS	
		Family	Manual Input	HTTP/ HTTPS	
		Serial Number	Implemented	HTTP/ HTTPS	
		Microcode Version	Implemented	HTTP/ HTTPS	
		Total Raw Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Failed Raw Capacity	Implemented	HTTP/ HTTPS	
		Spare Raw Capacity	Not Available	HTTP/ HTTPS	
		Manage URL	Implemented	HTTP/ HTTPS	
	Storage Pool	Virtual	Not Available	HTTP/ HTTPS	
		Storage efficiency	Not Available	HTTP/ HTTPS	
		Storage Pools Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		ID	Implemented	HTTP/ HTTPS	
		Name	Implemented	HTTP/ HTTPS	
		Type	Implemented	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Raw To Usable Ratio	Implemented	HTTP/ HTTPS	
		Redundancy	Not Available	HTTP/	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Pool			HTTPS	
		Total Allocated Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Data Allocated Capacity	Implemented	HTTP/ HTTPS	
		Data Used Capacity	Implemented	HTTP/ HTTPS	
		Other Allocated Capacity	Not Available	HTTP/ HTTPS	
		Other Used Capacity	Implemented	HTTP/ HTTPS	
		Snapshot Allocated Capacity	Not Available	HTTP/ HTTPS	
		Snapshot Used Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Reserved Capacity	Not Available	HTTP/ HTTPS	
		AST	Not Available	HTTP/ HTTPS	
		Disk references	Implemented	HTTP/ HTTPS	
		LUN references	Not Available	HTTP/ HTTPS	
		Compression Enabled	Not Available	HTTP/ HTTPS	
		Compression Savings	Not Available	HTTP/ HTTPS	
		Deduplication Enabled	Implemented	HTTP/ HTTPS	
		Deduplication Savings	Implemented	HTTP/ HTTPS	
		Provisioned Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Total Used Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTP/ HTTPS	Reported as a time series.
Storage Ports	Storage Ports	Controller Name	Implemented	HTTP/ HTTPS	
		Controller IP	Not Available	HTTP/ HTTPS	
		Controller Vendor	Not Available	HTTP/ HTTPS	
		Controller Firmware	Implemented	HTTP/ HTTPS	
		Controller Driver	Not Available	HTTP/ HTTPS	
		Controller Model	Implemented	HTTP/ HTTPS	
		Node WWN	Not Available	HTTP/	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Storage Ports			HTTPS	
		Port WWN	Implemented	HTTP/ HTTPS	
	Volume	Port Name	Implemented	HTTP/ HTTPS	
		Volume Name	Implemented	HTTP/ HTTPS	
		Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Consumed Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Raw Capacity	Implemented	HTTP/ HTTPS	Reported as a time series.
		Redundancy	Implemented	HTTP/ HTTPS	
		Thin provisioning	Implemented	HTTP/ HTTPS	
		Virtual Volume	Implemented	HTTP/ HTTPS	
		Volume Type	Implemented	HTTP/ HTTPS	
		Disk Size	Implemented	HTTP/ HTTPS	
		Disk Type	Implemented	HTTP/ HTTPS	
		Disk Speed	Implemented	HTTP/ HTTPS	
		Disk Group	Not Available	HTTP/ HTTPS	
		Protocol Controller	Not Available	HTTP/ HTTPS	
		Masking	Implemented	HTTP/ HTTPS	
		Mapping	Implemented	HTTP/ HTTPS	
		Meta Volume	Not Available	HTTP/ HTTPS	
		Virtual Storage	Not Available	HTTP/ HTTPS	
		Head	Not Available	HTTP/ HTTPS	
		Protection type	Not Available	HTTP/ HTTPS	
		Last known access time	Not Available	HTTP/ HTTPS	
		UUID	Not Available	HTTP/ HTTPS	
		Label	Not Available	HTTP/ HTTPS	
		Volume Identifier	Not Available	HTTP/ HTTPS	
		Used Capacity Ratio	Implemented	HTTP/	Reported as a time series.

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Volume			HTTPS	
Perform	Volume Performance	Response Time Read	Implemented	HTTP/ HTTPS	
		Response Time Write	Implemented	HTTP/ HTTPS	
		Response Time Total	Implemented	HTTP/ HTTPS	
		Throughput Read	Implemented	HTTP/ HTTPS	
		Throughput Write	Implemented	HTTP/ HTTPS	
		IOps Read	Implemented	HTTP/ HTTPS	
		IOps Write	Implemented	HTTP/ HTTPS	
		Cache Hit Ratio Read	Not Available	HTTP/ HTTPS	
		Cache Hit Ratio Write	Not Available	HTTP/ HTTPS	
		Cache Hit Ratio Total	Not Available	HTTP/ HTTPS	
		Write Pending	Not Available	HTTP/ HTTPS	
		Partial Read/Write	Not Available	HTTP/ HTTPS	
		Accessed	Implemented	HTTP/ HTTPS	

**Management APIs used by this data collector:**

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
Pure API	HTTP/HTTPS	HTTP/HTTPS	80/443		✓	✓	✓	✓

# Red Hat Virtualization

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
3.x,	,	,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Data Store	Name	Implemented	HTTPS	
		Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity	Implemented	HTTPS	Reported as a time series.
		Provisioned Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	HTTPS	Reported as a time series.
	Host (Hypervisor)	Name	Implemented	HTTPS	
		IPs	Implemented	HTTPS	
		Domain Name	Not Available	HTTPS	
		Platform Type	Implemented	HTTPS	
		Memory	Implemented	HTTPS	
		Processors	Implemented	HTTPS	
		CPU speed	Implemented	HTTPS	
		NIC count	Implemented	HTTPS	
		NIC speed	Implemented	HTTPS	
		Model	Implemented	HTTPS	
		Vendor	Implemented	HTTPS	
	LUN	Policy	Not Available	HTTPS	
		TID	Not Available	HTTPS	
		Disk Name	Not Available	HTTPS	
		Number	Implemented	HTTPS	
		Data Store	Implemented	HTTPS	
	Path	Active	Implemented	HTTPS	
		Storage Port WWN	Implemented	HTTPS	We only obtain IQN information for iSCSI, and the API does not make available FC WWN information
		Host Port WWN	Implemented	HTTPS	We only obtain IQN information for iSCSI, and the API does not make available FC WWN information
	Virtual Disk	Capacity	Implemented	HTTPS	Reported as a time series.
		Used Capacity	Implemented	HTTPS	Reported as a time series.
		Data Store	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Used Capacity Ratio	Implemented	HTTPS	Reported as a time series.
	Virtual Machine	Ips	Implemented	HTTPS	
		Name	Implemented	HTTPS	
		Data Store	Implemented	HTTPS	

Product	Category	Feature / Attribute		Status	Protocol Used	Additional Information	
Insight	Virtual Machine	OS		Implemented	HTTPS		
		Processors		Implemented	HTTPS		
		Memory		Implemented	HTTPS		
		Host		Implemented	HTTPS		
		DNS Name		Not Available	HTTPS		
		Guest State		Implemented	HTTPS		
		State		Implemented	HTTPS		
		State Change Time		Not Available	HTTPS		
		Total Capacity		Implemented	HTTPS	Reported as a time series.	
		Used Capacity		Implemented	HTTPS	Reported as a time series.	
		Used Capacity Ratio		Implemented	HTTPS	Reported as a time series.	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
RHEV REST API	HTTPS	HTTPS	443		✓	✓	✓	✓

# VMware vSphere

*Models and versions supported by this data collector:*

API versions	Models	Firmware versions
vSphere 3.5, vSphere 4.0, vSphere 4.1, vSphere 5.0, vSphere 5.1, vSphere 5.5, vSphere 6.0, vSphere 6.5, vSphere 6.7,	ESX,	3.5, 4.0,

*Products supported by this data collector:*

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Data Store	Name	Implemented	Web Services	
		Capacity	Implemented	Web Services	Reported as a time series.
		Used Capacity	Implemented	Web Services	Reported as a time series.
		Provisioned Capacity	Implemented	Web Services	Reported as a time series.
		Used Capacity Ratio	Implemented	Web Services	Reported as a time series.
		Over Commit Capacity Ratio	Implemented	Web Services	Reported as a time series.
	Host (Hypervisor)	Name	Implemented	Web Services	
		Data Center	Implemented	Web Services	
		Cluster Name	Implemented	Web Services	
		IPs	Implemented	Web Services	
		Domain Name	Implemented	Web Services	
		Platform Type	Implemented	Web Services	
		Memory	Implemented	Web Services	
		Processors	Implemented	Web Services	
		CPU speed	Implemented	Web Services	
		NIC count	Implemented	Web Services	
		NIC speed	Implemented	Web Services	
		Model	Implemented	Web Services	
		Vendor	Implemented	Web Services	
	Host Port	WWN	Implemented	Web Services	
		Name	Gap	Web Services	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Host Port	Status	Implemented	Web Services	
	LUN	Policy	Implemented	Web Services	
		TID	Implemented	Web Services	
		Disk Name	Implemented	Web Services	
		Number	Implemented	Web Services	
		Data Store	Implemented	Web Services	
	NAS share	Remote Path	Implemented	Web Services	
		Capacity	Implemented	Web Services	
		Filer	Implemented	Web Services	
		Type	Implemented	Web Services	
		Data Store	Implemented	Web Services	
	Path	Active	Implemented	Web Services	
		Storage Port WWN	Implemented	Web Services	
		Host Port WWN	Implemented	Web Services	
	Virtual Disk	Capacity	Implemented	Web Services	Reported as a time series.
		Used Capacity	Implemented	Web Services	
		Data Store	Implemented	Web Services	
		Name	Implemented	Web Services	
		Used Capacity Ratio	Implemented	Web Services	Reported as a time series.
	Virtual Machine	Ips	Implemented	Web Services	
		Name	Implemented	Web Services	
		Data Store	Implemented	Web Services	
		OS	Implemented	Web Services	
		Processors	Implemented	Web Services	
		Memory	Implemented	Web Services	
		Host	Implemented	Web Services	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Insight	Virtual Machine	DNS Name	Implemented	Web Services	
		Guest State	Implemented	Web Services	
		State	Implemented	Web Services	
		State Change Time	Implemented	Web Services	
		Total Capacity	Implemented	Web Services	Reported as a time series.
		Used Capacity	Implemented	Web Services	Reported as a time series.
		Used Capacity Ratio	Implemented	Web Services	Reported as a time series.
Perform	Host (Hypervisor) Performance	CPU Utilization	Implemented	Web Services	
		Memory Utilization	Implemented	Web Services	
	Network	Throughput Receive	Implemented	Web Services	
		Throughput Transmit	Implemented	Web Services	
		Throughput Total	Implemented	Web Services	
	Virtual Disks	IOps Read	Implemented	Web Services	
		IOps Write	Implemented	Web Services	
		IOps Total	Implemented	Web Services	
		Throughput Read	Implemented	Web Services	
		Throughput Write	Implemented	Web Services	
		Throughput Total	Implemented	Web Services	
		Latency Read	Implemented	Web Services	
		Latency Write	Implemented	Web Services	
		Latency Total	Implemented	Web Services	
	Virtual Machines	IOps Read	Implemented	Web Services	
		IOps Write	Implemented	Web Services	
		IOps Total	Implemented	Web Services	
		(Disk)Throughput Read	Implemented	Web Services	
		(Disk)Throughput Write	Implemented	Web Services	

Product	Category	Feature / Attribute	Status	Protocol Used	Additional Information
Perform	Virtual Machines	(Disk)Throughput Total	Implemented	Web Services	
		Latency Read	Implemented	Web Services	
		Latency Write	Implemented	Web Services	
		Latency Total	Implemented	Web Services	
		(Ethernet)Throughput Receive	Implemented	Web Services	
		(Ethernet)Throughput Transmit	Implemented	Web Services	
		(Ethernet)Throughput Total	Implemented	Web Services	
		CPU Utilization	Implemented	Web Services	
		Memory Utilization	Implemented	Web Services	

*Management APIs used by this data collector:*

API	Protocol used	Transport layer protocol used	Incoming ports used	Outgoing ports used	Supports authentication	Requires only 'Read-only' credentials	Supports Encryption	Firewall friendly (static ports)
VMware API	Web Services	HTTP/HTTPS			✓	✓	✓	✓