

Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager

v01.10.0 User's Guide for Storage Systems

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Hitachi Data Systems

MK-92SCOM008-10

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Preface

This document describes how to use the Hitachi Infrastructure Adapter for Microsoft® System Center Operations Manager software management packs for compute systems.

This preface includes the following information:

- Intended Audience
- Product Version
- Release Notes
- Referenced Documents
- Related Documents
- Document Conventions
- Convention for Storage Capacity Values
- Getting Help
- Comments

Note

The use of *Hitachi Infrastructure Adapter for Microsoft*[®] *System Center Operations Manager for Storage Systems* and all other Hitachi Data Systems products is governed by the terms of your agreement(s) with Hitachi Data Systems Corporation.

Intended Audience

This document is intended for system administrators, Hitachi Ltd. representatives, and authorized service providers who are involved in installing, configuring, and operating the Hitachi Storage System, Compute System and Switch families.

Readers of this document should be familiar with the following:

- Enterprise storage arrays and their basic functions.
- Hitachi Unified Storage (HUS), Virtual Storage Platform (VSP), Hitachi Unified Storage VM (HUS VM), Virtual Storage Platform G1000 (VSP G1000), Virtual Storage Platform Gx00 (VSP Gx00), Hitachi Virtual Storage Platform Fx00 (VSP Fx00), and Virtual Storage Platform G1500 (VSP G1500) and Virtual Storage Platform F1500 (VSP F1500) storage arrays.
- Hitachi NAS Platform (HNAS).
- Microsoft System Center Operations Manager.

Product Version

This document revision applies to Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager version v01.10.0 or later.

Release Notes

Release notes are on the documentation CD. Read the release notes before installing and using this product. They may contain requirements or restrictions that are not fully described in this document or updates or corrections to this document.

Referenced Documents

Hitachi Infrastructure Adapter for Microsoft® System Center Operations Managerdocuments:

Hitachi Storage Adapter for Microsoft Windows PowerShell® User's Guide, MK-99DF8228-19

Hitachi Data Systems Portal, <u>http://portal.hds.com</u>

Related Documents

Documents related to this product:

Hitachi documents:

- Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager Consolidated Installer User's Guide, MK-92SCOM010
- Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager User's Guide for Compute Systems, MK-92SCOM009
- *Hitachi NAS Platform Storage Systems Administration,* MK-92HNAS013
- Hitachi Storage Navigator Modular 2 Advanced Settings User's Guide, MK-97DF8039
- Hitachi Storage Adapter for Microsoft[®] Windows PowerShell User's Guide, MK-99DF8228, MK-09DF8201
- Hitachi Virtual Storage Platform Provisioning Guide for Open Systems, MK-90RD7022
- Hitachi Virtual Storage Platform Hitachi Storage Navigator User Guide, MK-90RD7027
- Hitachi Unified Storage VM Block Module Provisioning Guide, MK-92HM7012
- Hitachi Unified Storage VM Block Module Hitachi Storage Navigator User Guide, MK-92HM7016
- Hitachi Virtual Storage Platform G1000 Provisioning Guide for Open Systems, MK-92RD8014
- Hitachi Virtual Storage Platform G1000 Global-Active Device User Guide, MK-92RD8072
- Hitachi Virtual Storage Platform G1000 Hitachi Universal Volume Manager User Guide, MK-92RD8024
- Provisioning Guide for Hitachi Virtual Storage Platform Gx00 and Fx00 Models, MK-94HM8014
- Hitachi Virtual Storage Platform System Administrator Guide, MK-94HM8016
- Hitachi Command Control Interface User and Reference Guide, MK-90RD7010
- *Hitachi Command Suite User Guide*, MK-90HC172

Hitachi Data Systems Portal, <u>http://portal.hds.com</u>

Microsoft documents:

 Microsoft[®] technical documentation for System Center Operations Manager

Document Conventions

Convention	Description
Bold	 Indicates text in a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click OK. Indicates emphasized words in list items.
Italic	 Indicates a document title or emphasized words in text. Indicates a variable, which is a placeholder for actual text you enter or text provided by the system. Example: pairdisplay -g group (For exceptions to this convention, see angled brackets.)
screen/code (monospace)	Indicates text displayed on screen or text that you enter. Example: # pairdisplay -g oradb
<> angled brackets	 Indicates variables in the following scenarios: Variables are not clearly separated from the surrounding text or from other variables. Example: Status-<report-name><file-version>.csv</file-version></report-name> Variables in headings.
[] square brackets	Indicates optional values. Example: [a b] indicates that you can select a, b, or nothing.
{ } braces	Indicates required or expected values. Example: { a b } indicates that you must select either a or b.
vertical bar	Indicates a choice between two or more options or arguments. Examples: [a b] indicates that you can select a, b, or nothing. { a b } indicates that you must select either a or b.
<pre>_ (underlined text)</pre>	Default value

This document uses the following typographic conventions:

This document uses the following iconographic conventions to draw attention to information:

	Label	Definition
Z	Note	Calls attention to important and/or additional information.
Ç	Тір	Provides helpful information, guidelines, or suggestions for performing tasks more effectively.
1	Caution	Warns the user of adverse conditions and/or consequences (for example, disruptive operations).
	WARNING	Warns the user of severe conditions and/or consequences (for example, destructive operations).

Convention for Storage Capacity Values

Physical storage capacity values (for example, disk drive capacity) are calculated based on the following values:

Physical Capacity Unit	Value
1 kilobyte (KB)	1,000 (10 ³) bytes
1 megabyte (MB)	1,000 KB or 1,000 ² bytes
1 gigabyte (GB)	1,000 MB or 1,000 ³ bytes
1 terabyte (TB)	1,000 GB or 1,000 ⁴ bytes
1 petabyte (PB)	1,000 TB or $1,000^5$ bytes
1 exabyte (EB)	1,000 PB or 1,000 ⁶ bytes

Logical Capacity Unit	Value
1 block	512 bytes
1 cylinder	Mainframe: 870 KB
	Open-systems:
	 OPEN-V: 960 KB
	Others: 720 KB
1 KB	1,024 (2 ¹⁰) bytes
1 MB	1,024 KB or 1,024 ² bytes
1 GB	1,024 MB or 1,024 ³ bytes
1 TB	1,024 GB or 1,024 ⁴ bytes
1 PB	1,024 TB or 1,024 ⁵ bytes
1 EB	1,024 PB or 1,024 ⁶ bytes

Logical storage capacity values (e.g., logical device capacity) are calculated based on the following values:

Getting Help

The Hitachi Data Systems Support Center staff is available 24 hours a day, seven days a week. To reach us, please visit the support Web site for current telephone numbers and other contact information: <u>http://www.hds.com/services/support/</u>. If you purchased this product from an authorized HDS reseller, contact that reseller for support.

Before calling the Hitachi Data Systems Support Center, please provide as much information about the problem as possible, including:

- The circumstances surrounding the error or failure.
- The exact content of any error message(s) displayed on the host system(s).

Comments

Please send us your comments on this document: <u>doc.comments@hds.com</u>. Include the document title, number, and revision level (for example, -07), and refer to specific section(s) and paragraph(s) whenever possible. All comments become the property of Hitachi Data Systems Corporation.

Thank you!

1

Introduction

The System Center Operations Manager (SCOM) is a performance, health and state monitoring product for Microsoft Windows operating systems.

The Hitachi Storage Adapter for Microsoft[®] System Center Operations Manager is the storage-oriented subset of the Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager. It enables Hitachi storage device configuration, health and alert information to appear in the SCOM console.

The status of registered devices is displayed in the **Hitachi Storage Systems** folder in the directory tree shown in the Monitoring pane of the operation console.

- **Controller** displays storage device controllers.
- **Controller Port** displays storage device controller ports.
- Drive displays hard drives attached to Modular and Enterprise storage arrays, and SDs (system drives) visible to HNAS devices.
- **EVS** displays HNAS EVS and Unified HNAS module objects.
- **File Server Node** displays HNAS and Unified HNAS module nodes.
- **File System** displays HNAS and Unified HNAS module filesystems.
- Link Aggregation displays HNAS and Unified HNAS module aggregated Ethernet ports (e.g. ag1).
- Link Aggregation Port displays the individual Ethernet ports constituent to HNAS and Unified HNAS module port aggregation objects (e.g. ge1).
- Logical Unit displays LUs and LDEVs on Modular and Enterprise storage arrays, respectively.
- **Quorum Device** displays HNAS cluster quorum devices.
- Storage Pool displays RAID groups and similar objects on Modular and Enterprise arrays, and HNAS storage pools.
- **Subsystem** displays high-level information for each storage device.

Introduction

The management pack provides the following storage performance object views in Monitoring pane of the Operations Console (under **Hitachi Storage Systems 3.11 > Performance**):

- Controller Port Performance displays controller port performance data for monitored HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 storage subsystems.
- HDP Pool Performance displays HDP pool performance data for monitored HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 storage subsystems.
- Logical Unit Performance displays logical unit performance data for monitored HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 storage subsystems.
- RAID Group Performance displays RAID group performance data for monitored HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 storage subsystems.

The management pack provides the following storage replication object views in the Monitoring pane of the Operations Console (under **Hitachi Storage Systems 3.11 > Storage Replication**).

- HNAS Snapshot displays snapshots for monitored HNAS and Unified NAS module file servers.
- Remote Storage Replication displays remote storage replication information for monitored storage devices.
- **Storage Replication** displays storage replication information for monitored storage devices.

Storage alerts are displayed under **Hitachi Storage Systems Alerts**.

- Alerts displays alerts collected from HUS, VSP, HUS VM, VSP G1000, VSP Gx00, and VSP Fx00 storage subsystems; HNAS or Unified NAS Module subsystems are not supported
- Connector Alerts displays alerts when HSCS (the SCOM adapter Windows service) stops running.
- SNMP Alerts displays alerts when SCOM receives SNMP traps directly from HUS VM, HNAS, Unified NAS module, VSP, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 arrays.

2

Setup and Configuration

The Hitachi Storage Adapter for Microsoft[®] System Center Operations Manager view appears in the Monitoring view of the SCOM console.



Adding a subsystem

1. Open the Microsoft Management Console (MMC) from the Windows from the Windows **Start** menu.

Select: All Programs > Hitachi > Hitachi Storage Management Pack for SCOM > Hitachi Storage Connector Configuration.

a	Hitach	ni Storage C	onnector Config	uration - [Cor	sole Root\Hitac	hi Storage C	onnector Configura	ation] 🗕 🗖 🗙
🚟 File Action View	Window Help							_ <i>8</i> ×
Console Root	Hitachi Storage Co	onnector Conf	iguration					Actions
I Hitachi Storage	Subsystems C	onnector Con	figuration Perform	mance Advan	ced Configuration			Hitachi Storage Connector 🔺
	Subsystem	Model	Serial Number	CTL0	CTL1	SVP IP	Admin EVS IP	💠 Add Subsystem
	HUS130_922	HUS130	92210013	172.17.46.60	172.17.46.61			🔀 Remove Subsystem
								View New Window from Here
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	<			Ш			>	
	HUS130_92 - Model : H - Serial Nu - CTL0 IP - CTL1 IP	210013 HUS130 Imber : 92210 172.17.46.60 172.17.46.61	013					
<u>s</u> m >	<u></u>							



Important

Support for monitoring global storage virtualization Virtual DKCs must be enabled prior to configuring the SCOM adapter to monitor them. To enable this support:

- 1. Stop the Connector service.
- 2. Using a text editor, open the *HiScomConnectorService.exe.config* file from the installation directory.
- Find the following line: <add key="VirtualStorageSupportMode" value="false" />
- Change the value from "false" to "true".
 <add key="VirtualStorageSupportMode" value="true" />

Global storage virtualization Virtual DKCs can be monitored by adding VSP G1000 arrays, VSP Gx00, VSP Fx00, VSP G1500, or VSP F1500 arrays, and entering the serial numbers which correspond to the Virtual DKCs. The screenshot below shows how this looks.

The Virtual DKC information specified when registering the storage system is displayed in Subsystem, Model and Serial Number columns. The Physical DKC(s) upon which the Virtual DKC resides are displayed in parentheses.

Virtual DKCs configured across multiple Physical DKCs are displayed in this format: Virtual DKC (Physical DKC1, Physical DKC2). There is a 1:N correlation between Virtual DKCs and Physical DKCs.

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VEP_C1000_54221 (VSP_G1000_54221, VSP_G1000_50002) Virtual (Physical 1, Physical 2) Image: VSP_G1000_54221 (VSP_G1000_54221, VSP_G1000_50002) (Physical 1, Physical 2) Image: VSP_G1000_54221 (VSP_G1000_54221, VSP_G1000_50002) Image: VSP_G1000_54221 (VSP_G1000_50002) Virtual (Physical 1, Physical 2) Image: VSP_G1000_54221 (VSP_G1000_54221, VSP_G1000_50002) Image: VSP_G1000_54221 (VSP_G1000_54221, VSP_G1000_50002) Image: VSP_G1000_54221 (VSP_G1000_54221, VSP_G1000_50002) Image: VSP_G1000_54221 (VSP_G1000, S4221, VSP_G1000_50002) Image: VSP_G1000_54221 (VSP_G1000, 54221, VSP_G1000, S0002) Image: VSP_G1000_54221 (VSP_G1000, S4221, VSP_G1000, S0002) Image: VSP_G1000_54221 (VSP_G1000, S4221, VSP_G1000, S0002) Image: VSP_G1000_S4221 (VSP_G1000, S4221, VSP_G1000, S0002) Image: VSP_G1000_S4221 (VSP_G1000, S4221, VSP_G1000, S0002) Image: VSP_G1000_S4221 (VSP_G1000, S4221, VSP_G1000, S0002) Image: VSP_G1000_S4221 (VSP_G1000, S0002) Image: VSP_G1000, S4221 (VSP_G1000, S4221, VSP_G1000, S0002) Image: VSP_G1000_S4221 (VSP_G1000, S0002) Image: VSP_G1000, S4221 (VSP_G1000, S4221, VSP_G1000, S0002) Image: VSP_G1000_VSP_G1000, VSP_G1000, VSP_G1000, S0002) Image: VSP_G1000, S4221 (VSP_G1000, S0002) Image: VSP_G1000_VSP_G1000, VSP_G1000, S0002) Image: VSP_G1000, S0002 (Image: VSP_G1000, S0002) Image: VSP_G1000_VSP_G1000, VSP_G1000, S0002 (Image: VSP_G1000, S0002)	Console Root	Hitachi Storage Connector Configuration	Actions
Subsystem Model Seriel Number CTL0 CTL1 SyPrP VSP_G1000_5421 (VSP_G1000_5421, VSP_G1000_5002) VSP_G1000_5421 (VSP_G1000_5421, VSP_G1000_S421, VSP_G1000, VSP_G100, VSP_G1	U Pitachi Storage	Subsystems Connector Configuration Performance Advanced Configuration	Hitachi Storag 🔺
VPP_G1000_54321 (VSP_G1000_5002) VSP_G1000 (VSP_G1000, 54221, 5002) 172.16.105.15 Virtual (Physical1, Physical 2) New Window Virtual (Physical2, VSP_G1000_54221, VSP_G1000_5002) New Window SVP_G1000_54221 (VSP_G1000_54221, VSP_G1000_5002) Image: State		Subsystem Model Serial Number CTL0 CTL1 SVP IP	+ Add Subsyste
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Virtual (Physical 1, Physical 2)			New Window
Virtual (Physical 1, Physical 2) Image: VSP_G1000_54321 (VSP_G1000_50002) Image: VSP_G1000_54321 (VSP_G1000_50002) Image: VSP_G1000_54321 (VSP_G1000_50002) Image: VSP_G1000_50002) Image: VSP_G1000_50002 Image: VSP_G1000_50002) Image: VSP_G1000_50002 Image: VSP_G1000_50002) Image: VSP_G1000_50002 Image: VSP_G1000_50002 Image: VSP_G1000_50002 Image: VSP_G1000_50002 Image: VSP_G1000_50002 Image: VSP_G1000_50002 Image: VSP_G1000_50002 Image: VSP_G1000_50002 Image: VSP_G1000_5002 Image: VSP_G1000_5002 Image: VSP_G1000_5002 Image: VSP_G1000_5002 Image: VSP_G1000_5002 Image: VSP_G1000_5002 Image: VSP_G1000_5002 <td< td=""><td></td><td></td><td>Help</td></td<>			Help
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< M >		SP_G1000_54321 (VSP_G1000_54321, VSP_G1000_50002)	
SVP IP: 172.16.105.15 SVP IP IP		- Model: VSP_G1000 (VSP_G1000, VSP_G1000)	
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SVP IP			
SVP IP			
		SVF IF	
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			.1

When VSP Gx00 or VSP Fx00 arrays are being used, the Controller 0 IP field corresponds to Controller 1 of the array, while the Controller 1 IP field corresponds to Controller 2.

8	Hita	chi Storage	Connector Conf	iguration - [Co	nsole Root\Hita	achi Storage Co	nnector Configuration]	_ _ X
🚡 <u>F</u> ile <u>A</u> ction <u>V</u> iew	r <u>₩</u> indow <u>H</u> elp							_ 8 ×
🗢 🌩 🖄 📰 🛽								
Console Root	Hitachi Storage Connec	tor Configura:	tion					Actions
🖳 Hitachi Storage	Subsystems Conne	ctor Configura	ation Performan	ce Advanced (Configuration			Hitachi Storage Conne 🔺
	Subsystem	Model	Serial Number	CTLO	CTL1	SVPIP	Admin EVS IP	🔶 Add Subsystem
	VSP_G200_477777	VSP_G200	477777	172.16.105.21	172.16.105.22	172.16.105.25		🞇 Remove Subsystem
	VSP_F400_400003	VSP_F400	400003	172.16.105.17	172.16.105.18	172.16.105.23		View
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		77						51
	Model : VSP_	G200						
	- Serial Numbe	er : 477777 16 105 21						
		16.105.22						
	SVP IP : 172.1	6.105.25						
< III >								
								- 11

2. In the **Actions** pane of the console, click **Add subsystem**.

	Add Subsystem	-
Subsystem		
Select Model:	HUS	~
Subsystem information		
Controller0 IP:		
Controller1 IP:		
User Name:		
Password:		
	OK	<u> </u>



Notes

- If the credentials used to access a subsystem change after the subsystem has been added, the current subsystem information may stop appearing in the SCOM console. To change the credentials used by the Hitachi SCOM Management Pack, remove and re-add the subsystem configuration.
- 2. When adding any authenticated storage subsystem, the account must have resource View or Modify permission.
- 3. After migrating a physical VSP array to a VSP G1000 Virtual DKC, it is necessary to remove the VSP monitoring configuration from this MMC snap-in for this adapter and re-add it.
- 4. When entering a username and password, enter between 1 and 256 alphanumeric characters, including the following special characters: ! " # \$ % & ' () * + , . / : ; < = > ? @ \ [] ^ _ ` ` { | } ~
- 3. From the Subsystem **Select Model** list, select the subsystem you want to add.
 - Adding an HUS subsystem:
 - a. Select HUS from the Select Model list.

- b. In **Controller0 IP** and **Controller1 IP**, enter the IP addresses for the system you are adding.
- c. If the array is configured to use authentication, enter the credentials into the **User Name** and **Password** fields.
- d. Click **OK**.

- Adding a VSP/HUS VM/VSP G1000/VSP G1500/VSP F1500 subsystem:
 - a. Select a model from the Select Model list.

ubsystem		
Select Model:	VSP	۲
ubsystem information		
Array Serial #:		53103
SVP IP Address:		192.168.29.100
User Name:		admin
Password:		

- b. In **Array Serial #**, enter the serial number for the system you are adding.
- c. In SVP IP Address, enter the server IP address.
- d. If the array is configured to use authentication, enter the credentials into the **User Name** and **Password** fields.
- e. Click OK.

Notes



- 1. An array command device must be mapped to the SCOM adapter host, and the Command Control Interface (CCI) software must be installed before registering Enterprise family storage arrays. After installing the CCI software, you must restart both the Connector service and the SCOM adapter's MMC snap-in; otherwise, registration will fail.
- 2. In some environments, additional SCOM adapter configuration may be required to monitor Enterprise family storage arrays. See *Monitoring Enterprise Arrays* more information.
- 3. To monitor a global storage virtualization Virtual DKC, enter the serial number for the Virtual DKC when registering the storage system. When registering Virtual DKCs, SVP alert monitoring is not supported.
- 4. If you upgrade a VSP G1000 subsystem while it is operating to a VSP G1500, the display for the VSP G1000 subsystem will appear as UNKNOWN. Remove any VSP G1000 subsystem(s) that appear as UNKNOWN, then add the VSP G1500 subsystem.



When monitoring Thin Image pair snapshot groups and cascade types, only users with permission to access all resource groups can add storage systems.

- Adding a VSP Gx00/VSP Fx00 subsystem:
 - a. Select a model from the **Select Model** list.

	Add Subsystem
Subsystem	
Select Model:	VSP Gx00 ♥
 Block information 	
Array Serial #:	7930485
SVP IP Address:	193.171.30.101
User Name:	admin
Password:	******
File information	
 File information Controller1 IP (Admin 	EVS IP): 193.171.30.102
 File information Controller1 IP (Admin User Name: 	EVS IP): 193.171.30.102 admin

- b. (*Optional*) Enter block information (select the checkbox to activate).
 - In **Array Serial #**, enter the serial number for the system you are adding.
 - In **SVP IP Address**, enter the server IP address.
 - If the array is configured to use authentication, enter the credentials into the **User Name** and **Password** fields.
- c. (*Optional*) Enter file information (select the checkbox to activate).
 - In **Controller1 IP (Admin EVS IP)**, enter the IP address for the system you are adding.
 - If the array is configured to use authentication, enter the credentials into the **User Name** and **Password** fields.
- d. Click OK.

If you are entering block information, in the File Information fields, enter the Unified HNAS for the subsystem you entered in the block information.

- Adding an HNAS subsystem:
 - a. Select **HNAS** from the **Select** Model list.

Subsystem	
Select Model:	HNAS 🗸
Subsystem information	
Admin EVS IP:	192.168.29.227
User Name:	supervisor
Password:	********

- b. In **Admin EVS IP**, enter the IP address for the HNAS Admin services enterprise virtual server (EVS).
- c. If the array is configured to use authentication, enter the credentials into the **User Name** and **Password** fields.
- d. Click OK.



Notes

- 1. The IP address entered for **Admin EVS IP** should correspond to the an HNAS Admin services EVS.
- 2. This adapter should be installed on a computer that has TCP/IP connectivity with the HNAS Admin services EVS. This adapter depends on being able to log in to the Admin services EVS with ssh.
- 3. If HNAS registration fails despite having used the Admin services EVS IP address, use an SSH client to confirm that it is possible to login to the Admin services EVS from the computer on which the this adapter is installed.

Configuring the Hitachi Storage Connector

The Connector Configuration tab of the Hitachi Storage Connector Configuration console is where you enter the configuration settings for the storage connector service.

-	Hitachi Storage Connector Configuration - [Console Root\Hitachi Storage	Connector Configuration]
<u>F</u> ile <u>A</u> ction <u>V</u> iew <u>H</u> elp		
🏟 🞽 🖬 👔 🎫		
Console Root	Hitachi Storage Connector Configuration	Actions
🖳 Hitachi Storage Connect	Subsystems Connector Configuration Performance Advanced Configuration	Hitachi Storage Connector Configuration
		Start Service
	Operations Manager Setup Information	Stop Service
		K Test Connection
		Save Configuration
	Enter refresh rate, in minutes (1-1440)	Ketresh
	30	Uninstall Management Pack
	- Monitoring Options	Alert Filter Setting (For Hus)
		View
	The following three checkboxes are unavailable in v01.5.0. Please see the User's Guide for more information.	7 Heln
	Monitor Healthy Storage Pools	
	Monitor Healthy Logical Units	
	Monitor Healthy File Systems	
	Display Storage Replication Data	
	Status Information	
	Test connection status : Connected to LOCALHOST	
	Test connection uses current user logon.	
	Connector service status: Stopped	
	Connector service uses defined security credentials.	
× · · · · · · · · · · · · · · · · · · ·	1	11

Z

Note

Any time you enter or modify the configuration settings, you must stop and restart the storage connector service.

1. Open the Hitachi Storage Connector from the Windows Start menu.

Select: All Programs > Hitachi > Hitachi Storage Management Pack for SCOM > Hitachi Storage Connector Configuration.

Note



The account used to start the MMC console must be a member of the Administrators group on the computer(s) running SCOM and the Hitachi Infrastructure Adapter for Microsoft® System Center Operations Manager. See Account permissions for installing and using the Hitachi Infrastructure Adapter for SCOM in the Hitachi Infrastructure Adapter for Microsoft® System Center Operations Manager Consolidated Installer User's Guide.

- 2. Click the **Configuration** tab.
- 3. Enter the Operation Manager Setup Information
 - a. For the server address, enter LOCALHOST if the SCOM server is local. Or, enter the IP address or hostname if the SCOM server is remote.
 - b. Enter a refresh rate for the data collection interval. The default refresh rate is 30 minutes.
 - c. In the Actions pane, click Save Configuration.
- 4. Start the storage connector service.

In the **Actions** pane, click **Start Service**. The connector service status changes from **Not Running** to **Starting** to Running. The status of the storage connector service is displayed on the Connector Configuration tab and it is updated automatically every 30 seconds.

🖀 Hitachi Storage Connector	Configuration - [Console Root\Hitachi Storage C	onnector Configurati	on] [- 🗆 X
Eile Action View Help				
Console Root Hitachi Storage Connector Config	juration	Actions		
U Hitachi storage Connect Subsystems Connector Confi	guration Performance Advanced Configuration	Hitachi Storage Cor	nector Configurati	ion 🔺
		Start Service		
Operations Manager Setup I	ntormation	😈 Stop Service		
Enter server address	_	X Test Connection		
LOCALHOST		Save Configuration		
Enter refresh rate, in minutes	(1-1440)	📬 Refresh		
30		Uninstall Manageme	ent Pack	
		Alert Filter Setting (F	or HUS)	
Monitoring Options		Alert Filter Setting (F	or the other models)	
The following three checkboxes an Please see the User's Guide for mo	e unavailable in v01.9.0. re information.	View 12 Help		•
Monitor Healthy Storage	Pools	i nup		
Monitor Healthy Logical	Jnits			
Monitor Healthy File Syst	ems			
Display Storage Replication	tion Data			
Status Information				
Test connection status :	Connected to LOCALHOST			
Test connection uses current user	logon.			
Connector service status:	Running			
Connector service uses defined service	curity credentials.			



1. The first storage connector service started installs the Hitachi Storage Management Pack for Microsoft SCOM and the connector settings on the SCOM server.

For the storage connector service to start, the System Center Data Access service on the SCOM server must be running.

5. (Optional) Test the connection between the storage adapter for SCOM and the SCOM server.

In the **Actions** pane, click **Test Connection**. A message is displayed notifying you that the operation manager is or is not connected. The connection status is also displayed on the Connector Configuration tab.

6. Save the configuration settings.

In the Actions pane, click Save Configuration.

Verifying management pack installation on the SCOM server

The Administration view of the Microsoft System Center Operations Manager 2012 or 2016 console is where you verify that the current version of the management packs have been installed on the SCOM server.

1. Open the Operations Console from the Windows Start menu.

Select either:

Note

All Programs > Microsoft System Center 2012 > Operations Console All Programs > Microsoft System Center 2016 > Operations Console

- 2. Click **Administration** to display the Administration view.
- 3. Select **Management Packs** to display the list of installed management packs.
- 4. Verify that the installed version of the **Hitachi Storage Systems** management pack is the current version.



While uninstalling this adapter, the installer does not remove the management pack and the connector settings from SCOM. To remove the management pack and settings, in the **Administration** view of the Operations Console, select the management pack to be uninstalled; then, from the **Actions** pane, click **Delete**.

Accessing the Hitachi Storage PowerShell Console

The Hitachi Storage Adapter for Microsoft Windows PowerShell® enables Hitachi storage administrators to extend Microsoft Windows PowerShell® with cmdlets that perform Hitachi storage device operations.

A link named **PowerShell Console** is added to SCOM to conveniently start the PowerShell adapter. You must install the Hitachi Storage Adapter for Microsoft Windows PowerShell before this link will function.

The **PowerShell Console** link appears in the SCOM Console **Actions** pane under Hitachi Storage Subsystems Tasks, as shown:

The **PowerShell Console** link appears in the Subsystem, HDP Pool, Storage Pool, RAID Group, Drive, Controller, Controller Port and Logical Unit state views and the monitored components alert views.

For more information see *Hitachi Storage Adapter for Microsoft Windows PowerShell*® *User's Guide, MK-99DF8228-19*.

Accessing Hitachi Storage Connector Service Properties

The Services console of the Windows Control Panel is where you view the properties of the Hitachi Storage Connector Configuration service.

1. Open the Services console from the Windows Start menu.

Select: Control Panel > Administrative Tools > Services

2. Right-click on **Hitachi Storage Connector Service**, then select Properties from the Action menu.

0			Services					X
File Action View	Help							
Services (Local)	Services (Local)	-						
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	Stop the service	Hitachi Compute Cor		1				r
	Restart the service	Hitachi Server Manag	General Log On	Recovery Depend	lencies			
	Description:	🔍 Hitachi Storage Mana	Service name:	HiScomConnector				=
	Collects and provides Hitachi Storage Array information to Microsoft Operations Manager.	Human Interface Devi	Display name:	Hitachi Storage Cor	nnector Service			
		Hyper-V Guest Service	Description:	Collects and provide information to Micro	es Hitachi Storage soft Operations M	anager.	-	
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Configuring Performance Monitoring

These steps configure the SCOM adapter to display Hitachi device performance information in the SCOM console.

- 1. Enable Performance Monitoring for HUS subsystems.
 - a. Open the Hitachi Storage Navigator Modular 2 Web application.
 - b. Go to **Performance > Monitoring** screen.
 - c. Enable the following performance measurement items:
 - Port Information
 - RAID Group, DP Pool and Logical Unit Information

- 2. Enable Performance Monitoring for VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 subsystems.
 - a. Open the Hitachi Storage Navigator instance that corresponds to the storage device being configured.
 - b. Go to the **Performance Monitor** screen.
 - c. Click Edit Monitoring Switch.
 - d. Click Enable.
 - e. Click Finish.
- 3. Enable SCOM Adapter Performance Monitoring.
 - a. Open the Hitachi Storage Connector Configuration console.
 - b. Select the **Connector Configuration** tab and click **Start Service** to start the storage connector service.
 - c. Select the **Performance** tab, enter a performance data collection interval.
 - d. Click **Save Configuration**. The default interval is 300 seconds.
 - e. Click **Start** to start performance monitoring.

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	Status Information Collection Status :	Stopped			E View New Window from Here Help
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	< III				
< 111 >	Controller Port Read Rate (IOPS) Write Rate (IOPS)	Enable v Enable v	Read Transfer Rate (MB/ Write Transfer Rate (MB/	(S) S)	



The Collection Status value is refreshed every 30 seconds.

Supporting Maintenance Mode

When a monitored object is put into Maintenance mode, all of its constituent objects are also put into Maintenance mode.

For example, if Storage Pool 1-12 contains LDEV 00:00:22 and LDEV 00:00:23, when Storage Pool 1-12 is put into Maintenance mode, LDEV 00:00:22 and LDEV 00:00:23 are also put into Maintenance mode.

Objects in Maintenance mode are changed to the **Not monitored** state from the current state (which could be **Healthy**, **Warning** or **Critical**).

When a monitored object is in Maintenance mode, the Connector Windows service does not send WMI events to update their health states.

When monitored objects are brought out of Maintenance mode, their health state is set to **Healthy** regardless of the state they were in before being put into Maintenance mode. The Connector Windows service subsequently resumes sending WMI events to update their health states.

When monitored objects are in Maintenance mode, no alerts are generated or resolved.

Monitoring SNMP Trap Alerts

Enterprise family arrays (VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, VSP F1500, HNAS, and Unified NAS module) can use SNMP (Simple Network Management Protocol) to report hardware and environmental events. You can configure the subsystems and SCOM to display these events as alerts in the Monitoring pane of the SCOM console.

Notes

- 1. While it is possible to monitor SNMP traps while the Connector process is running, the Connector is not strictly required for this feature to work. To monitor SNMP traps without running the Connector, manually import the Hitachi.Storage.VSP.Alerts.mp Management Pack into SCOM, then follow the configuration steps shown in this section.
 - 2. It is not possible to monitor SNMP traps from global storage virtualization Virtual DKCs.
 - 3. SNMP versions v1/v2c are supported, but v3 is not because it is not supported by SCOM itself.

To use this feature, the array must be configured to send events to the SCOM host, and SCOM must be configured to receive them.

SCOM monitors Hitachi arrays as SNMP network devices. SNMP trap alerts are generated by SNMP traps sent by the subsystems.

Configuring a VSP subsystem to send SNMP traps to SCOM



The images shown in the procedure below are of an original VSP subsystem; however, the steps are similar for configuring VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 subsystems.

1. Open a Web browser and enter the IP address of the management network interface for the VSP subsystem. Ensure the web browser you are using allows popup windows. You will see the Hitachi Storage Navigator login screen.

Hitachi Storage Navigator - IP:172.17.45.64 - 5/N:66209 - D/N:UNKNOWN - Windows Internet Explorer		_ D ×
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2. Login, then select **Settings > Environmental Setting > SNMP Information**.

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- 3. A new window appears. Enter modify mode to make the configuration changes.
- 4. Enter the IP address for the SCOM host; click **Set**. In this example, the SCOM host IP address is 172.17.58.100.

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6. Enter the IP address for your SCOM host; click **OK**.

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172.17.37.174	Hitachi Storage Na	avigator			×	
172.17.58.248	_					
172.17.58.97	_					
172.17.58.64	IP Address	172.17.58.100			-	
172.17.37.223		1				
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172.17.58.178	_					
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IP Address						
⊙ IPv4 C IPv6			Set			
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System Group						
Name						
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7. Click **Apply** to finalize the configuration.

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	19 minute(s) remaining in session.	Resei	Logged in as: rg	regg
cense Key SNMP Informa	tion E-mail Information Partition Defin	nition		
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172.17.37.170		<u>^</u>		
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172.17.58.128			172.17.37.24	
172.17.58.130			172.17.37.105	
172.17.37.174			172.17.37.170	
172.17.58.248			172.17.57.212	
172.17.58.97			172.17.30.130	
172.17.58.64			172.17.57.174	
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Note

Do not set the SNMP version to v3 for a storage system.
Configuring VSP Gx00/VSP Fx00/Unified NAS Module subsystems to send SNMP traps to SCOM

1. Open a web browser, connect to the Controller(GUM), then open the **Maintenance Utility**.



2. Enter a username and password; click **Login**.



3. Click **Administration**.

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Maintenance Utility						
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	C (N: 400000					
Storage System	S/N: 400003					Last
Ready	Set Up System Information					
Unread alerts exist Serial Number + 400003	Storage System Name	G400-400003	×	IPv4 Address	CTL1	172.16.1
Connected to : CTL1	Contact		×		CTL2	172.16.1
Hardware	Location	VCD C400	¥	IPv6 Address	CTL1	
	Serial Number	400003		Temperature	CILZ	
Administration	NAS Module Status	Active		remperature		20 005
		Data	Spare		Free	
	Number of Drives	48	4		4	
	Drive Capacity	46.00 TB	3.60 TB	6.40 TB		
	Chassis Drives	Alerts				
	Install Remove Locate	LED 🔹				_
	Controller Chassis					Go
	-					
		KMF-20:-, .::BKMF-21:-, .::BKMF-22:-, .	.:BKMF-23:-, 20 24	PS1 10000 FF 10	*****	
				CHB:2E:0 CH	IB:25:0 LAN2 C	CHB-2A/2B/2C/2 HB:2G1:: DKB:2H
		<u> </u>				
	B	KMF-10: BKMF-11: BKMF-12:	BKMF-13 10 11			CHB-1A/1B/1C/1
						HB-1G DKB-1H
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	DB-00					Fariler to
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4. Click Alert Notifications.

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Maintenance Utility							
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	C (N. 400000						
Storage System	S/N: 400003					Last	
Ready	Set Up System Information						
Serial Number : 400003	Storage System Name	G400-400003	*	IPv4 Address	CTL1	172.16.1	
Connected to : CTL1	Contact		*	TDue Address	CTL2	172.16.1	
Hardware	Storage System Type	VSP 6400	Ŷ	IPV6 Address	CTL2		
Administration	Serial Number	400003		Temperature	CILL	20 dec	
😭 Firmware	NAS Module Status	Active					
and the set of the initial states in the set		Data	Spare		Free		
19 Alert Notifications	Number of Drives	48	4		4	4	
📝 Licenses	Drive Capacity	46.00 TB	3.60 TB		6.40 TB		
🔓 Network Settings	Chassis						
O Date & Time	Drives	Alerts	_	_	_		
🛐 Audit Log Settings	Install Remove Locate LE	ED 🔻				_	
	Controller Chassis					Go	
			CFM				
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				CHB-2Ess CH	Bizeni LAN2: Ch	B-2G::: DKB-2H	
	BKM	F-10: .BKMF-11: BKMF-12: .BK	MF-13 10 11			CHR-1A/1B/1C/1	
		~		CHB://Eist CH	BLARE LANA CH	B-1G DKB-1H	
		aaa. aaaaaaaMithaaaaaa. aaa	000000° 1° 1°	Activate	VVIII COWS		
	DB-00					<u>Go</u> 🗸	
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5. Click **Set Up**.

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Unread alerts exis	allert.		Hest Depart	
Serial Number : 400003	Empil Notice		Disabled	
Connected to : CTL1	Syslog Server Notice	Transfer Protocol	UDD/REC3164	
Hardware	Sysing Server Woulde	Primary Server	Disabled	
Administration		Secondary Server	Disabled	
😭 Firmware	SNMP Agent	becondury berrer	Enabled	
User Administration				
N Alert Notifications	Email Syslog	SNMP		
	Send Test Email			
	Mail Server			
B Network Settings	SMTP Authentication		Disabled	
O Date & Time		Account		
🛱 Audit Log Settings	Email Address	From		
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	Description to Notify			
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				Activate windows
				Go to System in Control Panel to
				activate windows.
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6. Click **SNMP**.

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in Set Up Alert Notific	cations			1
types. When the settings are	complete, verify the settings, and the	et the required information for aler n click [Apply].	t notification settings for the information	ogge
or Notification Alert: O Host R	eport O All			
Email Syslog	SNMP			
Email Notice:	○ Enable			
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rd	Email A	ddress		
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	(Max. 255 characters)			
Description to Notify:				
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	(Max. 511 characters or bla	ank)		
Mail Server Settings:	Mail Server:		A 1' 1 141' 1	
	Han Server.		Activate Windows	
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	SMTP Authentication:	C Enable Disable	activate Windows.	inalic

7. In the **Registered Sending Trap Settings** pane, click **Add**.

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in	Set Up Alert Notifications	_	_	_	
To ty	o edit the alert notification settings of E ypes. When the settings are complete, v	mail, Syslog, and SNMP, set the r erify the settings, and then click	equired information for alert notit [Apply].	fication settings for the information	bgg
or r	Notification Alert: Host Report A				
	Email Syslog SNMP				
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rdı mi	Sending Trap Setting:	Registered Sending Trap	Settings		
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Ale Lici Nel Dal		Add F hange Remov	8	Selected: 0 / 0	
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Ale Lio Nel Dal	Request Authentication Setting:	Add hange Remov Registered Request Auther Community	e ntication Settings Requests Permitted	Selected: 0 / 0	
A <mark>le</mark> Lico Dal	Request Authentication Setting:	Add hange Remov Registered Request Author Community	e Intication Settings Requests Permitted	Selected: 0 / 0	
A <mark>le</mark> Lio Ne! Dai	Request Authentication Setting: System Group Information:	Add change Remov Registered Request Author Community Add Change Remov	e ntication Settings Requests Permitted	Selected: 0 / 0 Selected: 0 / 0 Selected: 0 / 0	
Ale Lio Nel Dal	Request Authentication Setting: System Group Information:	Add hange Remov Registered Request Author Community Add Change Remov Storage System Name:	e	Selected: 0 / 0 Selected: 0 / 0 Selected: 0 / 0 Activate Windows Got to System in Control	Panel t



Do not set the SNMP version to v3. Setting the SNMP version to v1 or v2 is OK.

- 8. Enter the Sending Trap Settings:
 - a. Enter a community. Check **New**, then enter a community name. Enter **public**, if not provided with a specific name.
 - b. Enter an IP address. Check **New**, then enter the IP address for the SCOM server where the traps are to be sent.
 - c. Click **OK**.

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🤷 Us		Add Sending	g Trap Setting							
tę; Ale	e	Enter the SNMP sen	nding trap settings to	be added	, and then click [OK].					
📝 Lic		Community:	✓ New	public	00 - L L \					
Da		Send Trap to:		(Max. 18	SU characters)					
R Au			✓ New	+ Add I	P Address		× Selected: 0 / 0	1		
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Email Syslog SNMP	
SNMP Agent:	Enable Disable
SNMP Version:	v1 V
Sending Trap Setting:	Registered Sending Trap Settings
Fin	Community Send Trap to
Use	□ public ¥ 172.16.7.32 ¥
Ale Lio Ne	This field is required.
Au	Add Change Remove Selected: 0 / 1
Request Authentication Setting:	Registered Request Authentication Settings
	Community Requests Permitted
	Add Change Remove Selected: 0 / 0
System Group Information:	Storage System Name: [G400-400003 (Max. 180 characters)
System Group Information:	Storage System Name: G400-400003 (Max. 180 characters) Contact: (Max. 180 characters or blank)

9. In the **Registered Request Authentication Settings** pane, click **Add**.

- 10. Enter the Request Authentication Settings:
 - a. Enter a community. Check **New**, then enter a community name. Enter **public**, if not provided with a specific name.
 - b. For **Requests Permitted**, check **New**, then enter the IP address for the SCOM server where the traps are to be sent.
 - c. Click **OK**.

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ZA USC		Add Reques	t Authenticat	ion Set	ting		×	
E/ Lio		Enter the SNMP req	uest authentication	settings to	be added, and then clic	:k [OK].		
🖁 Nel		Community:	✓ New	public (Max. 1	80 characters)			
💽 Da		Requests Permitte	d: 🗌 All				Selected: 0 / 1	
	Request Authentic		✓ New	IPv4 ∨	172.16.7.32	*		
	Request Automatic	1		+ Add I	P Address			
							Selected: 0 / 0	
	System Group Info					OK Car	icel ?	
					(Max. 180 characte	ers)		
<			Contact:		(Max. 180 characte	ers or blank)		
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	SNMP Engine ID:		0x80000074043	131363931	306163		activate windows.	
	SNMD Context Nan	no•	VSDGv00					

11. Verify the community name and IP address for the SCOM server appear in the **Registered Sending Trap Settings** pane and **Registered Request Authentication Settings** pane.

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SNMP V	ersion:	v1 V						^
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😭 Fin		Community	Send Trap to			11		
29 Usi		🗌 public 🛛 🛠	172.16.7.32		¥			
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System	Group Information:	Storage System Name:	G400-400003					
		Contacti	(Max. 180 characte	ers)	_			~
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12. Click **Apply;** click **OK** to close the confirmation dialog.

13. Click the **SNMP** tab.

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Maintenance Utility				
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Storage System	Alert Notifications			Last
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Unread alerts exist	Natification Alart		Hect Pepert	
Serial Number : 400003	Email Notice		Disabled	
Connected to : CTL1	Syslog Server Notice	Transfer Protocol	LIDP/REC3164	
Hardware	by bird house	Primary Server	Disabled	
Administration		Secondary Server	Disabled	
😪 Firmware	SNMP Agent	,,	Enabled	
🧏 User Administration				
9 Alert Notifications	Email Syslog	SNMP		
The Licenses	Send Test Email			
P Natural Cattings	Mail Server			
BB Network Settings	SMTP Authentication		Disabled	
Date & Time		Account		
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14. Verify the settings appear as set above.

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Hardware		Primary S	erver	Disabled			
Administration		Secondar	y Server	Disabled			
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🤌 User Administration							
Alert Notifications	Email Syslog	SNMP					
🗹 Licenses	Send Test SNMP Trap						
📇 Network Settings	Storage System Name		G400-400003				
Date & Time	Contact						
	Location						
un Audit Log Settings	SNMP Engine ID		0x80000074043	131363931306	163		
	SNMP Context Name		VSPGx00				
	SNMP Version		v1				
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- 15. Return to the Controller (GUM) webpage.
- 16. Open the **NAS Manager**.



Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager User's Guide for Storage Systems

17. Enter a username and password; click **Login**.





18. In the **Status & Monitoring** pane, click **SNMP Traps Setup**.

- 19. Enter the SNMP trap settings.
 - a. Notification Frequency
 - Server Alerts: Immediately
 - Warning Alerts: Immediately
 - b. Trap Recipients
 - **Host**: enter the IP address of the SCOM server.
 - **Community**: enter **public**, if not provided with a specific name.
 - c. Click Add.

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NAS Manager				HITACH
G400-400003		Help About	Logged in: maintenance	Sign Out
Status & Monitoring	Home > Status & Monitoring > SNMP Traps Setup			
SNMP Traps	Severe Alerts: Immedia Warning Alerts: Immedia Unformation Alerts: Never SNMP Traps Send Traps To Port: 16 Trap Recipients Enter hosts to which this server will se Host: 172.16.7.32 C Host / Community	tely V tely V 2 nd traps. publid ×	Add	
	apply			
<	Shortcuts: SNMP Access Configuration			~ ~

20. Verify the host and community settings have been added to the **Host/Community** pane; click **Apply**.

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NAS Manager			HITACH
G400-400003	Help A	Logged in: maintenance	Sign Out
Status & Monitoring Home > Status & Monitoring > SNMP Traps Setup			
SNMP Traps Setup			
Notification Frequency Severe Alerts: Warning Alerts: Information Alerts: SNMP Traps Send Traps To Port: Trap Recipients Enter hosts to which this ser Host: Host / Community 172.16.7.32 / public	Immediately Immed	Add	
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21. Verify the confirmation message that the SNMP settings have been saved.

Certificate error C SNMP Traps Setup - SMU × Acout Logged in: maintenance Sign Out Status & Monitoring Home > Status & Monitoring > SNMP Traps Setup SNMP Traps Setup SNMP Traps Setup
NAS Manager HITACH G400-400003 Help About Logged in: maintenance Sign Out Status & Monitoring Home > Status & Monitoring > SNMP Traps Setup SNMP Traps Setup
G400-400003 Help About Logged in: maintenance Sign Out Status & Monitoring Home > Status & Monitoring > SNMP Traps Setup SNMP Traps Setup
Status & Monitoring Home > Status & Monitoring > SNMP Traps Setup SNMP Traps Setup
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SMMP settings have been saved.
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Send Traps To Port: 162
Trap Recipients
Enter nosts to which this server will send traps.
Host / Community
172.16.7.32 / public
appky

Configuring an HNAS subsystem to send SNMP traps to SCOM

- 1. Open a web browser, then connect to the SMU.
- 2. Enter a username and password; click **Login**...



3. Click **Server Settings**.



4. Scroll down to Management Access; open SNMP Access Configuration.



5. In **Allowed Hosts**, enter the IP address for the SCOM server; click **Add**. The IP address appears in the pane below.

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NAS Manager	2.11.36.277mgr/appraction/serveraur 🎾 👻 🧕	Certificate error C	SNMP Access Config	juratio ×		HITACH
Cluster-Gizmo - 17	72.17.58.28			Help Abou	t Logged in: admin	Sign Out
Server Settings	Home > Server Settings > SNMP Access	s Configuration			-	
SNMP A	CCESS Configuration SNMP Protocol Support: Accept SNMP Packets On Port: Allowed Hosts: Allowed Communities:	Disable agent Process SNMP Process SNMP 161 Restrict Access 172.16.7.32	V1 requests only V2c requests only V1 and SNMPv2c requ To Allowed Hosts X T A X D X D	ests dd elete dd		
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6. In **Allowed Communities**, enter the community name. Enter **public**, if not provided with a specific name. Click **Add**. The community name appears in the pane below.

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	Accept SNMP Packets On Port:	161					
		Restrict Acces	s To Allowed Host	s			
	Allowed Hosts:	172.16.7.32		 Add Delete 			
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7. Verify that the IP address and community name are correct; click **Apply**.

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Server Settings	Home > Server Settings > SNMP Access	Configuration				
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	Accept SNMP Packets On Port:	161				
		Restrict Access	s To Allowed Hosts			
	Allowed Hosts:			Add		
		172.16.7.32		Delete		
	Allowed Communities:			Add		
		public		Delete		
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	Shortcuts: SNMP Traps Setup				Go to System	in Control Panel to
					activate Wind	ows.
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8. Verify the confirmation message that the SNMP settings have been saved, then click **Home** to return to the home page.

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NAS Manager			HITACH
Cluster-Gizmo - 172.17.58.28	Help	About Logged in: admin	1 Sign Out
Server Settings Home > Server Settings > SNMP Acces	s Configuration		
SNMP Access Configuration			
SNMP access configuration set successfully			
SNMP Protocol Support:	O Disable agent		
	O Process SNMPv1 requests only		
	O Process SNMPv2c requests only		
	Process SNMPv1 and SNMPv2c requests		
Accept SNMP Packets On Port:	161		
	Restrict Access To Allowed Hosts		
Allowed Hosts:	DbA 🔽		
	172.16.7.32		
	X Delete		
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	apply	Activate Window	s
		Go to System in Contro	ol Panel to
	Download SNMP MIB modules	activate Windows.	~
(
			/

9. In the **Status & Monitoring** pane, click **SNMP Traps Setup**.



- 10. Enter the SNMP trap settings.
 - a. Notification Frequency
 - Server Alerts: Immediately
 - Warning Alerts: Immediately
 - b. Trap Recipients
 - **Host**: enter the IP address of the SCOM server.
 - **Community**: enter **public**, if not provided with a specific name.
 - c. Click **Add**.

			_ 0 ×
🗲 💮 🚳 https://172.17.58.27/mgr/app/action/events.Al 🔎 👻 😵 Certificate error C 🏾 🧔	SNMP Traps Setup - SMU ×		ît ★ 🛱
NAS Manager			HITACH
Cluster-Gizmo - 172.17.58.28	Help	About Logged in:	admin Sign Out
Status & Monitoring Home > Status & Monitoring > SNMP Traps Setup			
SNMP Traps Setup			
Notification Frequency			
Severe Alerts: Im	mediately 🗸		
Warning Alerts: Im	mediately V		
	ver 🗸		
SNMP Traps			
Send Traps To Port: 162			
☐ Send trap	s upon authentication failure		
Trap Recipients			
Enter hosts to which this server	will send traps.		
Host: 172.16.7.32	Community: public >	Add	
Host / Community			
	×		
		Activate Win	dows
apply)	Go to System in O activate Windows	s.
<			> *

11. Verify the host and community settings have been added to the **Host/Community** pane; click **Apply**.

			- 0
🔿 💿 https://172.17.58.2	7/mgr/app/action/events.Al 🔎 👻 😵 Certificate error 🖒	🕲 SNMP Traps Setup - SMU 🛛 🗙	A 1
S Manager			HITA
Cluster-Gizmo - 172.17.5	3.28	Help About	Logged in: admin Sign Ou
tatus & Monitoring	Home > Status & Monitoring > SNMP Traps Setup		
SNMP Traps	Setup		
	Notification Frequency		
	Severe Alerts:	Immediately V	
	Warning Alerts:	Immediately V	
	Information Alerts:	Never V	
	SNMP Trans		
	Send Traps To Port: 16	2	
		trans upon authentication failure	
	Trap Recipients	aups upon automication failure	
	Enter hosts to which this sen	ver will send traps.	
	Host:	Community: 🛛 🔽 A	Add
	Host / Community		
	172.16.7.32 / public		
		×	
			Activate Windows
	ap	ply	Go to System in Control Panel to activate Windows
	ap	ply (Go to \$ystem in Control Panel : activate Windows.

12. Verify the confirmation message that the SNMP settings have been saved.

		_ 0 ×
🗲 🕘 🚳 https://172.17.58.27/mgr/app/action/events.Al 🔎 - 💈 Certificate error 🖒 🚳 SNMP Traps Setup	o-SMU ×	n 🛧 🛱
NAS Manager		HITACH
Oluster-Gizmo - 172.17.58.28	Help About	Logged in: admin Sign Out
Status & Monitoring Mome > Status & Monitoring > SNMP Traps Setup		
SNMP Traps Setup		
SNMP settings have been saved.		
Notification Frequency Severe Alerts: Immediately V Warning Alerts: Immediately V Information Alerts: Never V SNMP Traps Send Traps To Port: 162 Send traps upon authentical Trap Recipients Enter hosts to which this server will send traps. Host: Community IT2.16.7.32 / public	tion failure Image: Add mark Image: Add mark	ate Windows System in Control Panel to Windows.

Configuring SCOM to receive SNMP traps from a storage system

- 1. Stop and disable the SNMP Trap Windows service on the computer running SCOM; the SNMP Trap service may prevent traps from being directly received by SCOM.
- From the SCOM Administration screen, expand Network Management, then right-click on Network Devices; from the Action menu, select Discovery Wizard.

Network Devices - Kentucky - Operations Manager	
File Edit View Go Tasks Tools Help	
Search 🔻 🛫 🏭 Scope 👂 Find 🖸 Tasks 🔞 🛫	
Administration Ketwork Devices (0)	Tasks
Administration 🔨 🔍 Look for: Find Now Clear	
Connected Management Groups Name IP Address RunAs Account Access Mode	Actions
Bevice Management Agent Managed Agent Managed Agentiss Management Serves Agentiss Management Serves Management Serves Management Serves Management Serves Management Serves Management Serves Metwork Management Discovery Nues Metwork Devices Per Motifications Subscriptions Metwork Devices Per Motifications Motificatio	Actions Properties Rediscover Device Change Proxy Agent Delete Personalize view
K Add Management Group	
Discovery Wizard Refresh ES	

3. Click **Network devices**.



Notes

- 1. The Controller must be registered on the SCOM because SNMP traps from Unified NAS module subsystems are sent through the Controller (GUM).
- 2. Since Unified NAS module and Controller form a dual system, both must be registered on the SCOM.

.	Computer and Device Management Wizard	×
What would you	ı like to manage?	
Discovery Type		
General Properties	Choose the type of computers or devices to discover and manage.	
Discovery Method		
Default Accounts	Windows computers	
Devices	Discover Windows computers in your Active Directory	
Schedule Discovery	manage.	
Summary		
Completion	UNIX/Linux computers This enables you to discover UNIX and Linux computers in your environment and install agents on the ones you want to manage.	
	Network devices Discover and monitor network devices using Simple Network Management Protocol (SNMP).	
	Select a discovery type and click Next to continue.	
	< Previous Next > Create	Cancel

- 4. On the Discovery Method screen:
 - a. Enter an arbitrary name in **Name** field.
 - b. Select the SCOM server being used from the **Available servers** field.
 - c. Select a resource pool from the **Available pools** field. If you are not sure about which resource pool to select, accept the default *All Management Servers Resource Pool* value.
 - d. Click Next.

.	Computer and Device Management Wizar	rd 🛛 🗶
General Prop	perties	
Discovery Type		
General Properties	Specify general properties	
liscovery Method	Name:	
efault Accounts	Compute	
evices	Description (optional):	
chedule Discovery		^
ummary		~
	Available servers: robroy-win6.rbsqa.net	v
	Select a resource pool	Create Resource Pool
	Select an Operations Manager resource pool for monitoring Available pools:	of discovered network devices.
	All Management Servers Resource Pool	~



Note Since Hitachi arrays use SNMP v1 for sending traps, SCOM must be configured to use SNMP v1 or v2. If SCOM is configured to use a different SNMP version, the traps for the array will not appear in the SCOM.

5. On the **Discovery Method** screen, choose **Explicit discovery**, then click **Next**.



6. On the **Default Accounts** screen, click **Create Account**:

	Computer and Device Management Wizard	x
Default Accou		
Discovery Type General Properties Discovery Method Default Accounts Devices	Specify the default Run As accounts for discovery Select one or more SNMPv1 or SNMPv2 Run As accounts as the default accounts for discovering network devices. You can override the default accounts for individual network devices or add accounts for SNMPv3 devices later in this wizard.	
Schedule Discovery		Create Account
Completion	Run As accounts:	-1/
	Select All Clear All	
	More about Run As accounts	
	< Previous Next	t > Create Cancel

7. On the **Introduction** screen, click **Next**:

Reate Run As Account Wizard		x
Introduction		
General Properties	Introduction	
Credentials	Run As accounts are named sets of credentials that are presented by Run As profiles for authentication when monitors, rules, or tasks are run. A Run As account may be used by one or more Run As profiles.	
	To continue the Run As Account Wizard, click Next.	
	Do not show this page again	
	< Previous Next > V Create Cance	4

8. On the **General Properties** screen:

Enter an arbitrary name in the **Display Name** field, then click **Next**.

8	Create Run As Account Wizard	
General Properties		
Introduction		
General Properties	Specify general properties for the Run As account	
Credentials	Select the type of Run As account that you want to create, and then provide a display name and description.	
	Run As account type:	
	CommunityString	
	Display name:	
	Compute_Run_As_account	
	Description(optional):	
	< Previous Next > Create Cancel	

9. On the **Credentials** screen,

a. Enter the SNMP Community string configured on the storage array.

b. Click **Create**.

8	Create Run As Account Wizard	
Credentials		
Introduction		
General Properties	Provide account credentials Provide a community string for this Run As account for SNMPv1 or SNMPv2 devices.	
Credentials		
	community string:	
	< Previous Next > Create Cancel	

10. On the **Default Accounts** screen:

- a. Select the **Run As** account just created.
- b. Click **Next**.

	Computer and Device Management Wizard	x
Default Accoun		
Discovery Type General Properties Discovery Method Default Accounts Devices Schedule Discovery Summary Completion	Specify the default Run As accounts for discovery Select one or more SNMPv1 or SNMPv2 Run As accounts as the default accounts for individual network devices or add accounts for SNMPv3 devices later in this wizard. Create Account. Run As accounts Account Name Description Compute_Run_As_account Select All Clear All	
	More about Run As accounts	
	< Previous Next > Create Ca	ancel

11. On the **Devices** screen, click **Add**.

	Computer and Device Management Wizard	x
Devices		
Discovery Type General Properties Discovery Method Default Accounts Devices Schedule Discovery Summary Completion	Specify devices Specify the network devices that you want to discover and manage. You can also import a text file Import Add Edit Remove Devices: Add Edit Remove Device Run As Account SNMP Version Pot Access Mode Device Run As Account SNMP Version Pot Access Mode	
	< Previous Next > Create Cancel	
- 12. On the **Add a Device** screen:
 - a. Enter the IP address of the management interface for the array in the **Name or IP address** field.



For VSP, VSP G1000, and VSP G1500/F1500 arrays, use the IP address of the SVP—yet for VSP Gx00 and VSP Fx00 arrays, use one of its controller IP addresses instead.

- b. Select **ICMP and SNMP** from the **Access mode** field.
- c. Select **v1 or v2** from the **SNMP version** field.
- d. Enter the SNMP port number in the **Port number** field.
- e. Select the account created in Step 7 from the **SNMP V1 or V2 Run As** account field.

Add a Device		
Specify the settings for the network device you want to discove Name or IP address:	1. -	
192.168.101.80		
Access mode:	SNMP version:	
ICMP and SNMP V	v1 or v2 🗸	
Port number:	SNMP V1 or V2 Run As account:	
161	Compute_Run_As_account v	
	Add SNMP V1 or V2 Run As Account	
More about network discovery settings		
	OK Cancel	

13. On the **Devices** screen, click **Next**.



- 14. On the **Schedule Discovery** screen:
 - a. Select **Run the discovery rule manually**.
 - b. Click Next.

	Computer and Device Management Wizard	×
Schedule Dis	scovery	
Discovery Type General Properties Discovery Method Default Accounts Devices	Schedule the network discovery Run the discovery rule at scheduled times Time of day:	
Summary Completion	Days of the week: Sunday Monday Tuesday Wednesday Thursday Friday Saturday Run the discovery rule manually	
	< Previous Next > Create	Cancel

15. On the **Summary** screen, click **Create**.

. <u>#</u>	Computer and Device Management Wizard
Summary	
Discovery Type General Properties Discovery Method Default Accounts Devices Schedule Discovery Summary Completion	Confirm the settings Name: Compute Description: Run As accounts: Compute_Run_As_account Discovery method: Explicit Number of devices specified: 1 Schedule: Run Manually
	< Previous Next > Create Cancel

This screen is displayed while a discovery rule is created. This may take several minutes to complete.

	Computer and Device Management Wizard	x
Summary		
Discovery Type General Properties Discovery Method Default Accounts Devices Schedule Discovery Summary Completion	Creating the discovery Please wait while the discovery rule is created. This could take a minute depending on the speed of your computer.	
	< Previous Next > Create Cance	al

- 16. When the **Completion** screen appears:
 - a. Click the checkbox next to **Run the network discovery rule after the wizard** is closed.
 - b. Click **Close**.
 - c. Click Finish.



Monitoring SNMP Trap Alerts



SNMP traps from VSP Gx00 and VSP Fx00 arrays may appear in the SCOM console with unexpected source values. Instead of the IP address of the VSP Gx00 or VSP Fx00 controller which sent the trap, the source may have an appearance similar to *pw126255000015.9.panda-world.ne.jp*.

1. Open the SCOM Monitoring screen.

2. Select the **Hitachi Storage Systems Alerts** folder.

Monitoring
🔺 宿 Hitachi Storage Systems
a 🕝 Hitachi Storage Systems 3.10
🔛 Controller
🔢 Controller Port
E Drive
EVS EVS
🔠 File Server Node
📰 File System
🔢 Link Aggregation
🔢 Link Aggregation Port
👯 Logical Unit
👯 Quorum Device
🔢 Storage Pool
📰 Subsystem
4 🚰 Alerts
Alerts
Connector Alerts
SNMP Trap Alerts
👂 📴 Performance
Storage Replication
Microsoft Audit Collection Services
Microsoft Windows Client
D G Microsoft Windows Server
D G Network Monitoring
D Gerations Manager
Synthetic Transaction
System Center Advisor
D G UNIX/Linux Computers
Veb Application Transaction Monitoring
Vindows Service And Process Monitoring

3. Select **SNMP Trap Alerts**. All SNMP-based SNMP trap alerts received by SCOM appear in the center pane.

4	Alerts
	Alerts
	Connector Alerts
	SNMP Trap Alerts
Þ	Performance
D	📴 Storage Replication

4. To view details for an SNMP trap alert, right-click on the alert, then select **Properties**, and **Alert Context**.

Alert Properties			X
General Product Knowledge	Compan	v Knowledge History Alert Context Custom Fields	
	1		A
Date and 9/4/2012 6:08:	36 PM	Description:	
Log Name: SompEvent			
Source: Snmp Event			
Event 1501			
Level: 10			
Logging			
User:			
US CIT			
Event Data:			
Source		172.17.45.64	
Destination		127.0.0.1	
Community String		cAB1AGIAbABpAGMA	
Version		1	
ErrorCode		Success	
Object Identifier	Syntax	Value	
1.3.6.1.6.3.1.1.4.3.0	Oid	1.3.6.1.4.1.116.3.11.4.1.1	
1.3.6.1.3.1057.1	Ip Address	172.17.45.64	
1.3.6.1.4.1.116.5.11.4.2.7	Octets	This is a test code.	
1.3.6.1.4.1.116.5.11.4.2.6	Octets	18:10:15	
1.3.6.1.4.1.116.5.11.4.2.5	Octets	2012/09/04	
1.3.6.1.4.1.116.5.11.4.2.4	Oid	1.3.6.1.4.1.116.5.11.4.1.1.6.1.9	
1.3.6.1.4.1.116.5.11.4.2.3	Octets	7FFFF	
1.3.6.1.4.1.116.5.11.4.2.2	Octets	RAID700	
1.3.6.1.4.1.116.5.11.4.2.1	Integer	66209	
1.3.6.1.6.3.1.1.4.1.0	Oid	1.3.6.1.4.1.116.3.11.4.1.1.0.4	
1.3.6.1.2.1.1.3.0	Timeticks	274808717	
Previous Section Previous Section 100 Previous S		OK Cancel Apply	

The contents of the alert properties window are described in the following table.

Model	Тгар	OID	Alert	Severity
HUS VM/VSP/VSP G1000/VSP G1500/VSP F1500	RaidEventUserService	.1.3.6.1.4.1.116.3.11.4.1.1.0.4	Hitachi Storage VSP Service Alerts	Critical

Model	Тгар	OID	Alert	Severity
HUS VM/VSP/VSP G1000/ VSP G1500/VSP F1500	RaidEventModerateService	.1.3.6.1.4.1.116.3.11.4.1.1.0.3	Hitachi Storage VSP Moderate Alerts	Critical
HUS VM/VSP/VSP G1000/ VSP G1500/VSP F1500	RaidEventSeriousService	.1.3.6.1.4.1.116.3.11.4.1.1.0.2	Hitachi Storage VSP Serious Alerts	Critical
HUS VM/VSP/VSP G1000/ VSP G1500/VSP F1500	RaidEventAcuteService	.1.3.6.1.4.1.116.3.11.4.1.1.0.1	Hitachi Storage VSP Acute Alerts	Critical
VSP Gx00/VSP Fx00	RaidEventUserService	1.3.6.1.4.1.116.5.11.4.1.1.0.4	Hitachi Storage VSP Service Alerts	Critical
VSP Gx00/VSP Fx00	RaidEventModerateService	1.3.6.1.4.1.116.5.11.4.1.1.0.3	Hitachi Storage VSP Moderate Alerts	Critical
VSP Gx00/VSP Fx00	RaidEventSeriousService	1.3.6.1.4.1.116.5.11.4.1.1.0.2	Hitachi Storage VSP Serious Alerts	Critical
VSP Gx00/VSP Fx00	RaidEventAcuteService	1.3.6.1.4.1.116.5.11.4.1.1.0.1	Hitachi Storage VSP Acute Alerts	Critical
HNAS/Unified NAS module (VSP Gx00/VSP Fx00)	NAS Specific Trap	1.3.6.1.4.1.11096.6.1.1.0.0	NAS Event Alerts	Critical

Alerts Filtering

It is possible to filter out specific SVP alerts, after which they will no longer be monitored.

The filtering specifications used depend on which type of alert is being filtered: Trap or Server.



This function does not apply to SNMP-based alerts.

Alert Filter Setting (For HUS)

Note

Note

Once SIM codes have been added to this filtering screen, alerts corresponding to them will not be monitored.

This setting pertains to alerts with a Type value of **Trap**.

	_	-	
_	_	-0	
-	-	8	
_	74	99	
		-	
-	1		

This function does not apply to HUS, HUS VM, VSP G1000, VSP Gx00/Fx00, and VSP G1500/F1500 arrays.

- 1. Open Hitachi Storage Connector Configuration.
- 2. Click Connector Configuration.
- 3. Click Alert Filter Setting (Type = For the other models) displayed in the **Action** pane.

-	Hitachi Storage Connector Configuration - [Console Root\Hitachi Storage	Connector Configuration] 📃 🗖 🗙
<u>F</u> ile <u>A</u> ction <u>V</u> iew <u>H</u> elp		
Console Root	Hitachi Storage Connector Configuration	Actions
I Hitachi Storage Connect	Subsystems Connector Configuration Performance Advanced Configuration	Hitachi Storage Connector Configuration
		Start Service
	Operations Manager Setup Information	👸 Stop Service
	Enter server address	🔀 Test Connection
	LOCALHOST	🖷 Save Configuration
	Enter refresh rate, in minutes (1-1440)	😫 Refresh
	30	🕈 Uninstall Management Pack
		Alert Filter Setting (For HUS)
	Monitoring Options	Alert Filter Setting (For the other models)
	The following three checkhoves are unavailable in v01.9.0	View
	Please see the User's Guide for more information.	7 Help
	Monitor Healthy Storage Pools	
	Monitor Healthy Logical Units	
	Monitor Healthy File Systems	
	Display Storage Replication Data	
	Status Information	
	Test connection status : Connected to LOCALHOST	
	Test connection uses current user logon.	
	Connector service status: Bunning	
	Connector service uses defined security credentials	
< III >		
	,	

4. Enter one or more SIM codes to prevent the alerts associated with them from appearing in SCOM.

Alert Filter Setting (Type = Trap)	×
Enter a SIM code of a "Trap" type alert to prevent it from appearing in SCOM. When entering the SIM code, use "X" or "Y" or "Z" characters as wildcards. To find the SIM code for an alert, see its "Data" property in SCOM. Note: this filter applies only to "Trap" type alerts.	7FFA00 622xx 623xx
All Clear	ок

- 5. Click **OK**.
- 6. Restart the Connector service.

Setting Monitored Component Filtering

Monitored component filtering allows healthy components to be excluded from the SCOM display. By displaying only problematic components, the volume of data maintained in SCOM can be significantly reduced.

By default, all subsystem components are monitored.

- 1. Open Hitachi Storage Connector Configuration.
- 2. Click **Connector Configuration**.
- 3. To exclude a component category, uncheck the checkbox for the category. When a category is unchecked, the corresponding monitored components which are in a healthy state will not be displayed in SCOM. Monitoring options to disable include: Display Storage Replication Data

4. Click **Save Configuration**.

1. Sec. 1. Sec	Hitachi Storage Connector Configuration - [Console Root\Hitachi Storage	Connector Configuration] 📃 🗖 🗙
<u>F</u> ile <u>A</u> ction <u>V</u> iew <u>H</u> elp		
🏟 🙎 🖬 👔		
🚞 Console Root	Hitachi Storage Connector Configuration	Actions
📗 Hitachi Storage Connect	Subsystems Connector Configuration Performance Advanced Configuration	Hitachi Storage Connector Configuration
		Start Service
	Operations Manager Setup Information	🙆 Stop Service
	Enter server address	X Test Connection
	LOCALHOST	🖬 Save Configuration
	Enter refresh rate, in minutes (1-1440)	😫 Refresh
	30	🕈 Uninstall Management Pack
		Alert Filter Setting (For HUS)
	Monitoring Options	Alert Filter Setting (For the other models)
	The following three checkboxes are unavailable in v01.9.0.	View 🕨
	Manifor Healthy Storage Poole	👔 Help
	Monitor Healthy File Systems	
	Display Storage Replication Data	
	Status Information	
	Test connection status : Connected to LOCALHOST	
	Test connection uses current user logon.	
	Connector service status: Running	
	Connector service uses defined security credentials.	
	1	

Though monitoring may be configured to omit healthy components from the SCOM console, Hitachi Storage Connector Service continues to monitor all components. If a healthy component changes to a warning or critical state, the component will be displayed in SCOM, and an alert will be generated.

When the state of the component returns to healthy, it will be removed from the SCOM display and its corresponding alert will automatically be resolved.

Monitoring Enterprise Arrays

This information pertains to monitoring Enterprise family arrays (including VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500) with v01.7.0 and later of this software.

Prior to the v01.7.0 SCOM adapter, it was only necessary to map a storage array command device to the SCOM adapter host to monitor performance information. Since v01.7.0, a command device is also required for regular monitoring, even when performance information is not being collected.

In addition to mapping a command device, CCI must also be installed on the SCOM adapter host. It is not necessary to configure CCI after installing it. The SCOM adapter will configure the CCI automatically when you add a storage array monitoring configuration.

When it becomes necessary for either the Connector service for the SCOM adapter or the MMC snap-in to connect to the storage array, a CCI HORCM instance is created automatically. Since the SCOM adapter may be configured to monitor multiple Enterprise family arrays, and since both the Connector and the MMC snapin may need to simultaneously collect information from each monitored array, the HORCM instance numbers are chosen from a range of allowed values.

The default HORCM instance number range is [1000-1099], inclusive.

Under some conditions, it may be necessary to change the range of HORCM instance numbers used by the SCOM adapter. These conditions include:

• When pre-existing CCI installations are active on the same computer

When a pre-existing CCI installation on the same computer is already using one or more HORCM instance numbers which fall within the range of the SCOM adapter, it may be necessary to adjust the SCOM adapter range to avoid a HORCM instance number conflict.

• When a single hypervisor hosts multiple SCOM adapter instances

When a hypervisor (such as VMware ESXi or Microsoft Hyper-V) hosts VMs running guest operating systems, and the SCOM adapter instances have been installed in more than one of these guest operating systems, it may be necessary to configure each SCOM adapter instance to use its own, separate HORCM instance number range.

For example, if three SCOM adapter instances exist in this kind of environment, the first could use HORCM range [1000-1099], the second could use [1100-1199], and the third could use [1200-1299].

If two or more SCOM adapter instances attempt to use the same HORCM range, or even ranges which overlap at all, it is possible for I/O errors to occur when either the Connector service or the MMC snap-in attempts to collect information from the array.

To configure a non-default HORCM instance number range:

- 1. Stop the Connector service (if running), and close the MMC snap-in (if open).
- 2. Using a text editor, open the *HiScomConnectorService.exe.config* file from the installation directory.
- 3. Find the two lines which contain keywords **MinHORCMInstance** and **MaxHORCMInstance**. By default, these lines will look similar to this:

<add key="MinHORCMInstance" value="1000" /> <add key="MaxHORCMInstance" value="1099" />

4. Edit these two lines to establish a non-default range. For instance, to configure a range of [1100-1199], inclusive, change the lines to look like this:

<add< th=""><th>key="MinHORCMInstance"</th><th>value="1100"</th><th>/></th></add<>	key="MinHORCMInstance"	value="1100"	/>
<add< td=""><td>key="MaxHORCMInstance"</td><td>value="1199"</td><td>/></td></add<>	key="MaxHORCMInstance"	value="1199"	/>

5. Save the *HiScomConnectorService.exe.config* file, and close the text editor.

The new HORCM instance number range will be used the next time you start the Connector service for the SCOM adapter and the MMC snap-in,.

Some HORCM instance number ranges are reserved. Valid non-default ranges are [100-400], [500-600], [700-800] and [1000-2047], all inclusive. Either a complete range or a range subset, such as [1100-1199], may be used.



Monitoring Views

This chapter provides instructions for performing subsystem viewing operations with Hitachi Infrastructure Adapter for Microsoft® System Center Operations Manager.

- Controller View
- Controller Port View
- Drive View
- EVS View
- File Server Node View
- File System View
- Link Aggregation View
- Link Aggregation Port View
- Logical Unit View
- Quorum Device View
- Storage Pool View
- Subsystem View
- Performance Views
 - Controller Port Performance View
 - HDP Pool Performance View
 - Logical Unit Performance View
 - RAID Group Performance View
- Storage Replication Views
 - o HNAS Snapshot View
 - o Remote Storage Replication View
 - Storage Replication View

To switch between displaying and not displaying items, right click **Personalize View** in each view.

Controller View

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access the **Controller** view from the **Monitoring** pane of the Operations Manager console.

• Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Controller



With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The Subsystem field displays values which reflect the association between the Virtual DKC and the Physical DKCs upon which it resides. The Physical DKC information is shown in parentheses to the right of the Virtual DKC information, such as Virtual DKC (Physical DKC). If the target Virtual DKC shares the same Physical DKC with other Virtual DKCs, duplicate Physical DKCs are eliminated and displayed as Virtual DKC1, Virtual DKC2, ... (Physical DKC). There is an n:1 correlation between Virtual DKCs and Physical DKCs.

Controller - contoso - Operations Manager			٦×
<u>File Edit View Go Tasks Tools H</u> elp			
Search 🔻 🝦 🌆 Scope 👂 Find	🚺 Tasks 🕡 💡		
Monitoring	Controller (4)		<
🔺 🚔 Hitachi Storage Systems	Look for: Eind Now Gear	×	
a 🖓 Hitachi Storage Systems 3.8	Subsystem 🗸 Controller Controller IP Port Count		
E Controller	VSP_G1000_50002, VSP_G1000_54321 (VSP_G1000_50002) 2 - 16		
👯 Controller Port	VSP G1000 50002 VSP G1000 54321 VSP G1064 50002 1 - 16		
III Drive	VSP G1000 54321 VS G1000 50002 /VSP G1000 545 1 - 16		
EVS .	1 XSP G1000 54321 XZ 000 5002 XSP G1000 54321 2 16		
File Server Node			
File System			
Link Aggregation			
Link Aggregation Port	Virtual Physical		
iii Logical Unit	Virtual		
Quorum Device			
Subartem			
A lierts			
Alerts			
Connector Alerts			
SNMP Trap Alerts			-
4 🙀 Performance			as
> 🔀 Controller Port Performance			C Pa
4 🙀 HDP Pool Performance	Detail View	~	ane
🔀 Read Rate		4	
🔀 Read Transfer Rate	Hitachi Storage Controller properties of VSP_G1000_50002-CTL-02		
🔀 Transfer Rate	Display Name VSP_61000_50002-CTL-02		
🚾 Write Rate	Full Path Name Subsystem_VSP_G1000_50002+VSP_G1000_50002+CTL-02		
🔀 Write Transfer Rate	Object ID VSP_G1000_50002-CTL-02		
Channes I Gal Vanne	Controller 2		
snow or nice views	Status This component isn't monitored due to a Hitachi product design limitation. For current status information, please use Hitachi Command Suite's		
New View 🕨	Maintenance Utility.		
Monitoring	Port Court 16		
Monitoring	Connector ID SCOM-WIN2008R2.contoso.com		
Authoring			
Reporting			
🚳 Administration			
🔣 My Workspace			
		y	
Ready			
		_	

The Controller view contains the following columns and definitions.

Field	Description
State	Health state of Controller
	The Not Monitored state is perpetually displayed for these components for the following storage subsystems: VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 ² .
Maintenance Mode	N/A
Subsystem ¹	Name of the subsystem
Controller	The controller number of the subsystem controller
Controller IP	The controller IP address of the subsystem controller
Port Count	The total number of ports for that given subsystem controller

	Field	Description				
	Notes					
1. With global storage virtualization, Virtual DKC configurations. This field will resemble Virtual DK (Physical DKC).						
	2. Displayed as Not Monito	red since software version 1.5.0.				

Controller Port View

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access the **Controller Port** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Controller Port

Edit View Go Tasks Tools Help Search V _ Scope	🔎 Find 🚺 Tasks 👔						
toring	Controller Por	t (40)					_
🙀 Hitachi Storage Systems 3.8	📕 🔍 Look for:			Find Now Clear			×
👯 Controller	State	△ 🖉 Subsystem	△ Controller	A Controller Port	Protocol	Portal IP	
🔣 Controller Port	O Not monito	red VSP 69999	1	CL1-A	FIBRE	· ·	-7
👯 Drive	O Not monito	red VSP 69999	1	CL1-B	FIBRE		
EVS EVS	Not monito	00000 QVV here	1	CI1-C	FIRDE		
👯 File Server Node	Alot monito	red VSD 60000	-	CLI D	EIDDE	-	
🧱 File System	O Not monite	vieu VSP_69999	1	CLI-D	FIDRE	•	
👯 Link Aggregation	Not monito	ued A25-99993	1	CL3-A	FIBRE		
👯 Link Aggregation Port	O Not monito	red VSP_69999	1	CL3-B	FIBRE	•	-
👯 Logical Unit	O Not monito	red VSP_69999	1	CL3-C	FIBRE		
👯 Quorum Device	O Not monito	red VSP_69999	1	CL3-D	FIBRE		
👯 Storage Pool	🔾 Not monito	red VSP_69999	1	CL5-A	FIBRE		
🔢 Subsystem	🔘 Not monito	red VSP_69999	1	CL5-B	FIBRE		
alerts	🔵 Not monito	red VSP_69999	1	CL5-C	FIBRE		
Alerts	O Not monito	red VSP_69999	1	CL5-D	FIBRE		
Connector Alerts	O Not monito	red VSP_69999	1	CL7-A	FIBRE		
SNMP Trap Alerts	O Not monito	red VSP 69999	1	CL7-B	FIBRE		
Performance	Not monito	PPPP69999	1	C17-C	FIBRE		
Controller Port Performance	Not monito	00000 VSD 60000	-	(17.0	FIRDE		
HDP Pool Performance	Detail Vie		-	(11-0	TIDICE		
Logical Unit Performance	- Detail vie	w					
RAID Group Performance	B Hitschi	Storage Controller Por	t properties of US	D 60000-CTL-01-DODT-CL	1-0		
ing Storage Replication	Dinadu	storage controller Por	c properties of 45	P_03333-012-01-FORT-0E	1-74		
HINAS Shapshot	Display N Euli Dath	lame	VSP_69999-CTL-0	1-PORI-CL1-A	PORT-CI 1-A		
Kemote Storage Replication	Object IE	i indire	VSP 69999-CTL-0	1-PORT-CL1-A	FORT-CET-A		
storage Replication	Subsyste	m	VSP_69999				
or Hide Views	Controlle	r Port	CL1-A				
View »	Status		This component Maintenance Liti	isn't monitored due to a	Hitachi product	design limitation. For current status information, please use Hitachi Command Suite's	
	Controlle	r	1	niy.			
Monitoring	Protocol		FIBRE				
	Portal IP		-				
Authoring	Connecti	or ID	SCOM-WIN2008F	R2.contoso.com			
Reporting							
Administration							
My Workspace							

With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The Subsystem field displays values which reflect the association between the Virtual DKC and the Physical DKCs upon which it resides. The Physical DKC

information is shown in parentheses to the right of the Virtual DKC information, such as **Virtual DKC (Physical DKC)**. If the target Virtual DKC shares the same Physical DKC with other Virtual DKCs, duplicate Physical DKCs are eliminated and displayed as Virtual DKC1, Virtual DKC2, ... (Physical DKC). There is an n:1 correlation between Virtual DKCs and Physical DKCs.

Controller Port - contoso - Operations Manager									I X
File Edit View Go Tasks Tools Help									
Search V Scope Prind	7 Tasks 🚷 🝦								
Monitoring <	Controller Port (64)							•	:
🔺 宿 Hitachi Storage Systems 📃	Q_Look for:	Eind Now	⊡ear					x	
a 🙀 Hitachi Storage Systems 3.8	🛞 Subsystem		Controller	Controller Port	Protocol	Portal IP		-	
E Controller	VSP_G1000_50002, VSP_G1000_54321	VSP_G1000_50002)	1	CL1-A	FIBRE	-			
Controller Port	VSF_G1000_54581_05F_G1000_50002	VSP_G100_54321	1	CL1-A	FIBRE	-			
Drive	VSP_G1000_50002, VSP_G1000_54321	VSP_G1000_500021	1	CL1-B	FIBRE				
EVS	VSP_G1000_54321, V3 \$1000_50002	[VSP_G1000_54321]	4	CL1-B	FIBRE	-			
Elle Server Node	VSP_G1000_50002, VSP54321	VSP_G1000_50002)	i	CL1-C	FIBRE				
Link Aggregation	VSP_G1000_54321, VSP_G	VSP_G1000_54321)	1	CI1-C	FIBRE				
ink Aggregation	VSP_G1000_50002, V		1		BRE				
Ingital Unit	VSP G1000 54321 V	hual	1 [Physical	BRE				
Uuorum Device	VII VSP G1000 54321 V	luai	2	nysicai	BRE	-			
Storage Pool	VSP G1000 50002 VSP G1000 54321	NSP G1000 500021	, _	C12-A	FIBRE				
III Subsystem	VSP G1000 50002 VSP G1000 54321	VSP G1000 50002)	,	CL2-B	FIRRE				
4 🖓 Alerts	VSP_G1000_54321_VSP_G1000_50002	VSP G1000 54321)	2	CL2-B	FIRDE				
Alerts	VSD_C1000_54521, VSD_C1000_50002	VSD_C1000_54521)	-	(12-0	ETERE	-			
≽ Connector Alerts	VSP_G1000_54521, VSP_G1000_50002	VSP_G1000_54521	2	C12-C	FIDRE	-			
SNMP Trap Alerts	VSP_G1000_50002, VSP_G1000_54321	VSP_G1000_50002)	2	C12-C	FIBRE	-			H
4 🖓 Performance	VSP_G1000_50002, VSP_G1000_54321	VSP_G1000_50002)	2	CL2-D	FIBRE	-		-1	ask
👂 强 Controller Port Performance	VSP_G1000_54321, VSP_G1000_50002	VSP_G1000_54321)	2	CL2-D	FIBRE	-			Pa
4 🚰 HDP Pool Performance	Detail View							~	ne
Read Rate	R								
🗠 Read Transfer Rate	D Hitachi Storage Controller Port pr	operties of VSP_G1000_50	002-CTL-01-POF	T-CL1-A					
Martin Transfer Rate	Display Name VS	P_G1000_50002-CTL-01-PC	ORT-CL1-A	AND OT AL DODT OF					
044 Write Rate	Pull Path Name Su Object ID VS	DSYSTEM_VSP_G1000_5000 P_G1000_50002.CTL_01_PC	12\VSP_G1000_50 \RT_CL1_A	UU2-CIL-U1-PORI-CL	1-A				
Winte Transfer Rate	Subsystem VS	P_G1000_50002, VSP_G10	00_54321 (VSP_G	1000_50002)					
Show or Hide Views	Controller Port CL	1-A							
New View »	Status Th Mi	is component isn't moniti iintenance Litility	ored due to a Hi	achi product design	limitation. For cu	urrent status informati	on, please use Hitachi Command Suite's		
	Controller 1	internance orangi							
Monitoring	Protocol FIE	IRE							
	Portal IP								
Authoring	Connector ID SC	OM-WIN2008R2.contoso.	com						
Reporting									
🚳 Administration									
FM									
My Workspace									
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Ready								*	_
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The Controller Port view contains the following columns and definitions:

Field	Description
State	Availability state of Controller Port
	The Not Monitored state is perpetually displayed for these components for the following storage subsystems: VSP, HUS VM, VSP G1000, VSP Gx00, and VSP Fx00, VSP G1500, and VSP F1500 ² .
Maintenance Mode	N/A
Subsystem*1	Name of the subsystem
Controller	The controller number of the subsystem controller
Controller Port	Name of the controller port
Protocol	Possible values:
	Fibre or iSCSI
	 NAS Platform (User LU) or NAS Platform (System LU)

	Field	Description
Portal IF	D .	The IP address of the controller port
	Notes 1. With global storage virtu (Physical DKC). 2. Displayed as Not Monitor	alization Virtual DKC configurations, this field will resemble Virtual DKC red since software version 1.5.0.

Drive View

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, VSP F1500, and HNAS

Access the Drive view from the **Monitoring** pane of the Operations Manager console.

• Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Drive

Drive - contoso - Operations Manager										- 🗆 ×
<u>File Edit View Go Tasks Tools Help</u>										
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Monitoring	 Drive (108) 									<
a 🚰 Hitachi Storage Systems 3.8	▲ QLook for:			Find Now Clear						×
E Controller	State /	Subsystem	∠ Unit	△ Slot	△ Location	🛆 Capacity	Туре	Spare	Raid Group	F.
Controller Port	🕢 Healthy	HUS110_91200074	0	0	0-0	900 GB	SASSFF	No	0	
Drive	🕢 Healthy	HUS110_91200074	0	1	0-1	900 GB	SASSFF	No	0	-
EVS	🕢 Healthy	HUS110_91200074	0	10	0-10	900 GB	SASSFF	No	-	3
File Server Node	🕢 Healthy	HUS110_91200074	0	11	0-11	900 GB	SASSFF	No	3	-
Link Aggregation	🔄 🕢 Healthy	HUS110_91200074	0	12	0-12	900 GB	SASSFF	No	3	-
Link Aggregation Port	🕢 Healthy	HUS110_91200074	0	13	0-13	900 GB	SASSFF	No	3	-
Logical Unit	🕢 Healthy	HUS110_91200074	0	15	0-15	900 GB	SASSEF	No	3	-
Uuorum Device	🕢 Healthy	HUS110_91200074	0	16	0-16	900 GB	SASSFF	No	-	:
👯 Storage Pool	🕢 Healthy	HUS110_91200074	0	17	0-17	900 GB	SASSEF	No	-	:
🔢 Subsystem	Healthy	HUS110_91200074	0	18	0-18	900 GB	SASSFF	No	-	:
4 🚰 Alerts	🕢 Healthy	HUS110_91200074	0	2	0-2	900 GB	SASSEF	No	0	-
Alerts	Healthy	HUS110_91200074	0	20	0-20	900 GB	SASSFF	No	26	_
Connector Alerts	Healthy	HUS110_91200074	0	23	0-23	900 GB	SASSFF	No	26	
SNMP Trap Alerts	Healthy	HUS110_91200074	0	3	0-3	900 GB	SASSFF	No	-	(
A Leg Performance	Healthy	HUS110_91200074	0	4	0-4	900 GB	SASSFF	No		
HDP Pool Performance	1									J ×
b Ca Logical Unit Performance	Detail View									van
RAID Group Performance										(D)
A C Storage Replication	🚡 🛛 Hitachi St	orage Drive properties of H	US110_9120	10074-LOC-0-0						
👯 HNAS Snapshot	Display Nar	ne HUS1	10_91200074	4-LOC-0-0						
👯 Remote Storage Replication	Full Path N	ame Subs	stem_172.16	5.105.7_172.16.105.8\ HU	\$110_91200074-LOC-	0-0				
👯 Storage Replication	Object ID Subcustam	HUS1	10_9120007+ 10_9120007+	4-LOC-0-0 4						
Charupa Hida Vigura	Unit	0	10_31200074	•						
New View A	Slot	0								
INCOLUCION P	Location	0-0								
Monitoring	Type	SAS2	:F							
	Spare	No								
Authoring	Status	NOR	4AL							
Reporting	Raid Group	0								
<u>A</u>	Parity Grou	р -								
Mathematical Administration	Connector	ID SCON	1-WIN2008R	2.contoso.com						
My Workspace										
	-									
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Ready										1

With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The Subsystem field displays values which reflect the association between the Virtual DKC and the Physical DKCs upon which it resides. The Physical DKC

information is shown in parenthesis to the right of the Virtual DKC information, such as **Virtual DKC (Physical DKC)**. If the target Virtual DKC shares the same Physical DKC with other Virtual DKCs, duplicate Physical DKCs are eliminated and displayed as Virtual DKC1, Virtual DKC2, ... (Physical DKC). There is an n:1 correlation between Virtual DKCs and Physical DKCs.

Drive - contoso - Operations Manager								_	
<u>File Edit View Go Tasks Tools H</u> elp									
Search 🔻 🝦 🌆 Scope 👂 Find	🚺 Tasks 🕡 🝦								
Monitoring <	Drive (248)								۰
🔺 👰 Hitachi Storage Systems 📃	🖌 🔍 Look for:	Eind Now	<u>C</u> lear					×	
a 済 Hitachi Storage Systems 3.8	🛞 Subsystem	Unit	🛆 Slot	Location	Capacity	Type	Spare	Raid G	1
iii Controller	VSP_G1000_54321, VSP_G100	10_50002 (VSP_G1000_54321) 0	23	0-23	864.64 GB	SAS	Yes		
E Controller Port	VSP_G1000_54321 VSP_G100	0_50002 (VSP_G1000_54321) 0	3	0-3	864.64 GB	SAS	No		
Drive	VSP_G1000_50002, V% G100	10_54321 (VSP_G1000_50002) 0	5	0-5	864.64 GB	SAS	No		
EVS	VSP_G1000_54321, VSP_00	10_50002 (VSP_G1000_54321)	10	0-10	787.69 GB	SSD	No		
III File Server Node	VSP_G1000_50002, VSP_G	\$4321 (VSP_G1000_50002) 0	4	0-4	864.64 GB	SAS	No		
Link Lagrantian	VSP G1000 54321, VSP G10	VSP G1000 54321) 0	\sim	0-4	864.64 GB	SAS	No		
Link Aggregation	VSP G1000 54321 VSP		\sim \sim		864.64 GB	SAS	No		
	VSP G1000 50002, VSP				864.64 GB	SAS	No		
Uuorum Device	VSP G1000 50002 VSP	Virtual	Phys	sical	864.64 GB	SAS	No		
Storage Pool	VSP G1000 54321 VSP 0100				864.64 GB	242	No		
🗱 Subsystem	VSP G1000 50002 VSP G100	IO 54321 O/SP (51000 50002) 0	° 0	0-0	864.64 GB	242	No		
4 済 Alerts	VSP G1000 54321 VSP G100	IO_50002.0/SP_G1000_54321) 0	6	0.6	864.64 GB	242	No		
≽ Alerts	VSP G1000 50002 VSP G100	10_54321 (VSF_01000_54521) 0	1	0.1	864.64 GB	242	No		
Connector Alerts	VSP_G1000_50882, VSP_G100	10_54921 (45F_G1000_50002) 0	•	0.9	864.64 GB	CAC	No		
SNMP Trap Alerts	VSP_G1000_54521, VSP_G100	0 50002 (05F_G1000_54521) 0	0	0-0	004.04 GD	545	No		1
4 🖓 Performance	VSP_G1000_54521, VSP_G100	10_50002 (VSP_G1000_54521) 0	3	0-9	004.04 GD	SAS	NO	· •	- isk
Controller Port Performance									Pa
4 🦓 HDP Pool Performance	Detail View							~	ne
🗠 Read Rate	B Hitschi Storage Drine pr	posties of USD_C1000_E4221_LOC_0_22						*	J
Read Transfer Rate	Mitachi storage Drive pro	obecues of A26.7000.24351-FOC-0-53							
Iransfer Rate	Display Name	VSP_G1000_54321-LOC-0-23 Subortem VSB_G1000_542211VS	D C1000 54221-LOC-0-2	a					
Virite Rate	Object ID	VSP G1000 54321-LOC-0-23	F_01000_J4J21-LOC-0-2						
	Subsystem	VSP_G1000_54321, VSP_G1000_5	0002 (VSP_G1000_54321)						
Show or Hide Views	Unit	0							
New View 🕨	Slot	23							
	Capacity	864.64 GB							
Monitoring	Type	SAS							
Authoring	Spare	Yes							
	Status Paid Group	STANDBY							
Reporting	Pool								
Administration	Parity Group	-							
	Connector ID	SCOM-WIN2008R2.contoso.com							
My Workspace									
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Ready									11

The Drive view contains the following columns and definitions.

Field	Description
State	Monitored Drive State – Healthy, Warning or Critical
Maintenance Mode	N/A
Subsystem ¹	Name of the subsystem
Unit	The unit location number of the drive inside the subsystem This field is blank for VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500.
Slot	The slot number of the drive inside the subsystem This field is blank for VSP, HUS VM, VSP G1000,VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500.

Field	Description
Capacity	The total physical capacity of the drive.
	For VSP/VSP Gx00/HUS VM/VSP Fx00 storage systems, the value displayed indicates the capacity that can actually be used.
Туре	Possible drive types are SATA, SAS, SSD, and FMD
Spare	True if the drive is a spare, false if drive is in use
RAID Group	The RAID Group number the drive belongs to
HDP Pool	The HDP Pool number the drive belongs to
Location	Location of the disk drive
Parity Group	VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500: Parity Group ID



Note

With global storage virtualization Virtual DKC configurations, this field will resemble **Virtual DKC** (Physical DKC).

HNAS, Unified NAS Module

Access the **EVS** view from the **Monitoring** pane of the Operations Manager console.

• Hitachi Storage Systems > Hitachi Storage Systems 3.11 > EVS

EVS - contoso - Operations Manager		_	
File Edit View Go Tasks Tools Help			
Search ▼			
Monitoring	< EVS (7)		<
a 📬 Hitachi Storage Systems 🔺	Q_Look for: Eind Now Clear	×	
a 🚰 Hitachi Storage Systems 3.8	State 🔺 🧭 File Server 🔺 EVS 🔺 EVS IP 🔺 File Server Node 🛛 Link Aggregation		
Controller	Not monitored HNAS-Cluster EVS01 172.16.16.205,1 HNAS-Cluster-1 ag1,ag1		
Controller Part	O Not monitored HNAS-Cluster EV502 172.16.16.207 HNAS-Cluster-2 ag1		
Drive	O Not monitored HNAS-Cluster hnas4000-1 10.0.0.20,172.16 HNAS-Cluster-1 eth1,ag1,eth0,e		
EVS	O Not monitored HNAS-Cluster PSDFileServiEVS 172.16.14.197 HNAS-Cluster-1 ag2		
Elle Surtem	O Not monitored HNAS-Cluster QE-VASA-EVS 172.16.41.17 HNAS-Cluster-1 ag1		
Link Aggregation	Not monitored HNAS-Cluster QE-VASA-EVS2 172.16.41.22 HNAS-Cluster-1 ag1		
Inter aggregation Port	Not monitored HNAS-Cluster testEVS 172.16.16.208 HNAS-Cluster-1 ag1		
Logical Unit	-		
Uuorum Device			
🔢 Storage Pool			
👯 Subsystem			
4 🚰 Alerts			
Alerts			
Connector Alerts			
SNMP Trap Alerts			Ta
4 🦾 Performance			×
Controller Port Performance	Detail View		Par
A point of the program of the p	Detail view		le
Ditto Group Performance	hilachi Storare HNAS FVS prometties of HNAS-Cluster-FVS-FVS01	<u>^</u>	
A C Storage Penlication	Dirabut Name HANS Clurter BVS BVS1		
HNAS Snanshot	Full Path Name HNAS-Cluster-FileSever/HNAS-Cluster-FVS-EVS01		
E Remote Storage Replication	Object ID HNAS-Cluster-EVS-EVS01		
	File Server HNAS-Cluster		
Show or Hide Views	EVS EVSUI Status Opine		
New View 🕨	EVS IP 172.16.16.205,172.16.16.209		
	File Server Node HNAS-Cluster-1		
Monitoring	Link Aggregation aglag1		
Authoring	Connector ID SCOM-WIN2UURALCONTOSO.com		
Reporting			
Administration			
My Workspace			
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Ready		<u>···</u>	/

The EVS view contains the following columns and definitions.

Field	Description
State	Health state of EVS
Maintenance Mode	N/A
File Server	File server name
EVS	EVS
EVS IP	EVS IP
File Server Node	File server node name
Link Aggregation	Port/Link Aggregation name

File Server Node View

HNAS, Unified NAS Module

Access the **File Server Node** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > File Server Node

File Server Node - contoso - Operations Manager						_ 🗆 ×
<u>File Edit View Go Tasks Tools Help</u>						
Search ▼	🖸 Tasks 🕡 🝦					
Monitoring <	File Server Node (2)					<
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a 🖓 Hitachi Storage Systems 3.8	State 🔺 🖉 File Server	🛆 File Server Node	File Server Nod SMI	U 🔺	Is Active Node	
Controller	Not monitored HNAS-Clu:	ter HNAS-Cluster-1	10.0.0.51 SM	10	False	
Controller Port	O Not monitored HNAS-Clu:	ter HNAS-Cluster-2	10.0.0.52 SM	1U	True	
Drive						
Elle ServerNode						
File System						
Link Aggregation						
Link Aggregation Port						
🔢 Logical Unit						
🔛 Quorum Device						
iii Storage Pool						
Subsystem						
Alerts						
Alerts						
Shimetor Alerts						
A Ca Performance						fas
Controller Port Performance						- FP
D 🙀 HDP Pool Performance	Detail View					ane
🕨 🛱 Logical Unit Performance						-
RAID Group Performance	🆒 Hitachi Storage HNAS File Serv	er Node properties of HNAS	-Cluster-FileServerNod	le-HNAS-Cluster	-1	
4 🖓 Storage Replication	Display Name	HNAS-Cluster-FileServerNod	e-HNAS-Cluster-1			
III HNAS Snapshot	Full Path Name	HNAS-Cluster-FileServer/HN	AS-Cluster-FileServerNo	ode-HNAS-Clust	ter-1	
🔛 Remote Storage Replication	File Server	HNAS-Cluster-FileServerNod HNAS-Cluster	e-HIVAS-Cluster-1			
Show or Hide Views	File Server Node	HNAS-Cluster-1				
New View .	File Server Node IP	10.0.0.51				
	SMU Ts Active Node	SMU False				
Monitoring	Status	Online				
	Connector ID	SCOM-WIN2008R2.contoso.	com			
Authoring						
Reporting						
🚳 Administration						
My Workspace						
						T
(NUCL)						11.

The File Server Node View contains the following columns and definitions.

Field	Description
State	Health state of File Server Node
Maintenance Mode	N/A
File Server	File server name
File Server Node	File server node name
File Server Node IP	File server node IP address
SMU	SMU name
Is Active Node	Is active node

File System View

HNAS, Unified NAS Module

Access the **File System** view from the **Monitoring** pane of the Operations Manager console.

• Hitachi Storage Systems > Hitachi Storage Systems 3.11 > File System

File System - contoso - Operations Mana	nager	
ile Edit View Go Tasks Tools Help		
onitoring	< File System (15)	
4 🙀 Hitachi Storage Systems	Eind Now Gear	×
a 🙀 Hitachi Storage Systems 3.8	State / File Server / Storage Pool / EVS	
E Controller	Not monitored HNAS-Cluster OE VASA EVS01	
🔛 Controller Port	Not monitored HNAS-Cluster OE VASA OE-VASA-EVS	
E Drive	Not monitored HNAS-Cluster OF VASA OF-VASA-EVS	
EVS	Not monitored HNAS-Cluster OF VASA EVS01	
File Server Node	O Not monitored HNAS-Cluster OF VASA OF VASA EVC2	
File System	Not monitored Hilds Cluster OF V/G4 FV/G4 FV/G4	
Link Aggregation		
Link Aggregation Port	O Not monitored HNAS-cluster QE_VASA QE-VASA-EVS2	
Logical Unit	Not monitored HNAS-Cluster QE_VASA EVSUI	
ti Quorum Device	O Not monitored HNAS-Cluster QE_VASA EVS01	
Storage Pool	O Not monitored HNAS-Cluster QE_VASA QE-VASA-EVS	
a Consistent	O Not monitored HNAS-Cluster QE_VASA QE-VASA-EVS	
Alerts	O Not monitored HNAS-Cluster QE_VASA QE-VASA-EVS2	
Connector Alerts	O Not monitored HNAS-Cluster testpool2_HNAS testEVS	
SNMP Tran Alerts	Not monitored HNAS-Cluster testpool2_HNAS EVS01	
4 Refformance	Not monitored HNAS-Cluster vROps_Pool PSDFileServiEVS	
Controller Port Performance		
HDP Pool Performance	Detail View	*
👂 🙀 Logical Unit Performance		*
👂 📴 RAID Group Performance	Hitachi Storage HNAS File System properties of HNAS-Cluster-FileSystem-Qe_Test	
🖌 🚰 Storage Replication	Display Name HNAS-Cluster-FileSystem-Qe_Test	
🔢 HNAS Snapshot	Full Path Name HNAS-Cluster-FileServer/HNAS-Cluster-FileSystem-Qe_Test	
👯 Remote Storage Replication	Object ID HNAS-Cluster-FileSystem-Qe_Test	
*** • • •	File Server HNAS-Cluster	
how or Hide Views	Status Mounted	
lew View 🕨	Storage Pool QE_VASA	
Monitoring	EVS EV501 Connector ID SCOM-WIN2008R2.contoso.com	
Authoring		
Reporting		
Administration		
🔏 My Workspace		
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eady		

The File System View contains the following columns and definitions.

Field	Description
State	Health state of File System
Maintenance Mode	N/A
File Server	File server name
File System	File system name
Storage Pool	Storage Pool
EVS	EVS name

Link Aggregation View

HNAS, Unified NAS Module

Access the **Link Aggregation** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Link Aggregation

Link Aggregation - contoso - Operations Manage		
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Monitoring	Link Aggregation (2)	٠
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a 🖓 Hitachi Storage Systems 3.8	State 🛆 🧭 File Server 🛆 Link Aggregation Load Balancing Use LACP 🛆 Ports 🛆	
Controller	Not monitored HNAS-Cluster ag1 Normal No tg1	
Controller Port	Not monitored HNAS-Cluster ag2 Normal No tg2	
EVS		
III File Server Node		
File System	1	
III Link Aggregation		
🔢 Link Aggregation Port		
🔢 Logical Unit		
🔛 Quorum Device		
🗰 Storage Pool		
🛄 Subsystem		
4 Ga Alerts		
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Connector Alerts		
Signer Trap Alero		Tas
Controller Port Performance		۲. P
HDP Pool Performance	Detail View	> and
Logical Unit Performance		
🗅 🛱 RAID Group Performance	Hitachi Storage HNAS Link Aggregation properties of HNAS-Cluster-LinkAggr-ag1	
🔺 宿 Storage Replication	Display Name HNAS-Cluster-LinkAggr-ag1	
👯 HNAS Snapshot	Full Path Name HNAS-Cluster-FileServer/HNAS-Cluster-LinkAggr-ag1	
🗰 Remote Storage Replication	Object ID HNAS-Cluster-LinkAggr-ag1	
Charles Hide Your	Link Aggregation ag1	
New York a	Load Balancing Normal	
14600 01600 P	Use LACP No	
Monitoring	status Un	
	Connector ID SCOM-WIN2008R2.contoso.com	
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The Link Aggregation view contains the following columns and definitions.

Field	Description
State	Health state of Link Aggregation object
Maintenance Mode	N/A
Subsystem	File server name
Link Aggregation	Name
Load Balancing	Load balancing value: Normal or Round Robin
Use LACP	Value: Yes or No
Ports	Ethernet ports separated by commas

Link Aggregation Port View

HNAS, Unified NAS Module

Access the **Link Aggregation Port** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Link Aggregation Port

Link Aggregation Port - contoso - Opera	rations Manager	_[0
ile Edit View Go Tasks Tools Hel		
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a 🦰 Hitashi Stavaga Sustama	Link Aggregation Port (2) End Now Clear	
A G Hitachi Storage Systems 3.8	Chate (C Ella Caruer / Dayt / Link Assessmention	*
Controller	Not monitored HNAS-Cluster to1 ao1	
👯 Controller Port	Not monitored HNAS-Cluster to2 ao2	
1 Drive		
👯 EVS		
🛄 File Server Node		
🔣 File System		
Link Aggregation		
Link Aggregation Port		
E Logical Unit		
Uuorum Device		
Storage Pool		
a Callasta		
Alerts		
Connector Alerts		
SNMP Tran Alerts		
4 🙀 Performance		
Controller Port Performance		
Image: Book of the second s	Detail View	*
🗅 ᇘ Logical Unit Performance		*
▷ 📴 RAID Group Performance	B Hitachi Storage HNAS Link Aggregation Port properties of HNAS-Cluster-LinkAggrPort-tg1	
🔺 宿 Storage Replication	Display Name HNAS-Cluster-LinkAggrPort-tg1	
👯 HNAS Snapshot	Full Path Name HNAS-Cluster-FileServer/HNAS-Cluster-LinkAggiPort-tg1	
🧱 Remote Storage Replication	Object ID HNAS-Cluster-LinkAggrPort-tg1	
	Status IIn	
Show of Hide Views	Port tg1	
New View 🕨	Link Aggregation ag1	
Monitoring	Connector ID SCOM-WIN2008R2.contoso.com	
Authoring		
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7		
My Workspace		

The Link Aggregation Port view contains the following columns and definitions.

Property	Description
State	Health state of Link Aggregation Port
Maintenance Mode	N/A
File Server	File server name
Port	Ethernet port name
Link Aggregation	Link aggregation name (if available)

Logical Unit View

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access the **Logical Unit** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Logical Unit

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I gearch * ; ; \$# scope // rigo	1 1 2585 W =										
Monitoring	Logical Unit (1/9)			ind Name							
Hitachi Storage Systems 3.8		21	0	ind Now Gear	1	1-		1	1	×	
E Controller Port	State A	Subsystem	× LU	∠ Type	RAID Level	Size	Storage Pool	Pool Type		-	
III Drive	A Warning	HUS110_91200074	0039	NORMAL	DAIDS	100 MB	26	RG DC			
EVS	A Warning	HUS110_91200074	0040	DADENT	RAIDS	200 GB	26	RG DC			
👯 File Server Node	A Warning	HUS110_91200074	0040	PAREINI	DAIDS	100 GB	26	RG DC			
File System	A Warning	HUS110_91200074	0054	NORMAL	DAIDS	10 GB	26	PC			
E Link Aggregation	Warning Warning	HUS110_91200074	0054	NORMAL	DAIDS	15 GB	20	PG			
Link Aggregation Port	A Warning	HUS110_91200074	0076	NORMAL	PAIDS	3.68	3	PG			
El Logical Unit	A Warning	HUS110_91200074	0020	NORMAL	PAIDS	15 GR	3	PG			
Storage Pool	A Warning	HUS110_91200074	0083	NORMAL	PAIDS	3.68	3	P.G			
E Subsystem	A Warning	HUS110_91200074	0085	NORMAL	PAIDS	15 GR	3	RG			
Alerts	A Warning	HUS110_91200074	0098	NORMAL	RAIDS	10 GB	26	RG			
Alerts	A Warning	HUS110_91200074	0090	PADENT	PAIDS	100 GB	26	PG			
Connector Alerts	A Warning	HUS110_91200074	0109	NORMAL	RAIDS	333 MB	3	RG			
SNMP Trap Alerts	A Warning	HUS110 91200074	0112	NORMAL	PAIDS	3.68	3	PG			
4 🤷 Performance	A Warning	HUS110_91200074	0113	NORMAL	PAIDS	15 GR	3	PG			Ta
Controller Port Performance	A Warning	HUS110_91200074	0114	NORMAL	PAIDS	3.68	3	PG		-	sk
HDP Pool Performance	Detail View	1105110_51200074	0114	NORMAL	10403	500	,	10			Par
Dallo Group Performance	Detail view										ie
A Castorage Replication	🔒 Hitachi Stora	ge Logical Unit properti	es of HUS110	91200074-LU-0039							
HNAS Snapshot	Display Name	HUS1:	10 91200074	LU-0039							
Remote Storage Replication	Full Path Name	Subsy	stem_172.16.1	105.7_172.16.105.8\HUS1	10_91200074-LU-003	9					
👯 Storage Replication	Object ID	HUS1:	10_91200074-0	LU-0039							
	Subsystem	HUS1:	10_91200074								
Show or Hide Views	Status	REGRI	ESSED								
New View +	Туре	NORM	1AL								
Monitoring	RAID Level	RAIDS									
Montoling	Storage Pool	26	b								
📝 Authoring	Pool Type	RG									
Reporting	Connector ID	SCOM	-WIN2008R2,	contoso.com							
🔇 Administration											
Wy Workspace											
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With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The Subsystem and LU fields display values which reflect the association between the Virtual DKC and the Physical DKCs upon which it resides. The Physical DKC information is shown in parentheses to the right of the Virtual DKC information, such as **Virtual DKC (Physical DKC)**. If a Virtual DKC resides upon multiple Physical DKCs, each Physical DKC is listed within parentheses.

The LUs which correspond to all of the Physical DKCs upon which a Virtual DKC resides are displayed without the elimination of duplicates.

Logical Unit - contoso - Operations Manager								_ [l ×
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Monitoring <	Logical Unit (76)								¢
🔺 🚘 Hitachi Storage Systems 💻	QLook for:	Eind Now	<u>C</u> lear					×	
a 🙀 Hitachi Storage Systems 3.8	Subsystem	LU A	Туре	RAID Level	Size	Storage Pool	Pool Type	▲	
	VSP_G1000_54321 (VSP_G1000_54321)	00:00:0A (00:00:0A)	EXTERNAL	RAID 5	20 GB	E1-10	EXTERNAL		
Controller Port	VSP_G1000_50002 (VSP_G1000_50002)	00:00:3F (00:00:3F)	EXTERNAL	RAID5	20 GB	E1-9	EXTERNAL		
Drive	VSP_0 00_50002 (VSP_G1000_500-21	00:01:9C (00:01:9C)	EXTERNAL	RAID 5	20 GB	E1-17	EXTERNAL		
EVS	VSP0_50002 (VSP_G1000_50002)	91:A6 (00:01:A6)	NORMAL	RAID5	50 MB	5-2	PG		
File System	VSP54321 (VSP_G1000_54321)	00:02:> 92:94)	NORMAL	RAID 5	10 GB	1-5	PG		
Link Aggregation	321)	00:02		RAID5	10 GB	1-11	PG		
Iink Aggregation Port	102)	00:0F	aiaal	RAID 5	400 GB	1-10	PG		
👯 Logical Unit	Virtual 102)	00:33 PNY	sical	RAID 5	20 GB	E1-11	EXTERNAL		
👯 Quorum Device	321)	00:33).	20 GB	E1-4	EXTERNAL		
👯 Storage Pool	VSP_G1000_50002 (VSP_G1000_50002)	00:38:01 (00:38:01)	NORMAL	RAID 5	3 GB	5-2	PG		
subsystem 5	VSP_G1000_50002 (VSP_G1000_50002)	00:38:20 (00:38:20)	NORMAL	RAID5	3 GB	5-2	PG		
▲ Contact Alerts	VSP_G1000_50002 (VSP_G1000_50002)	00:38:21 (00:38:21)	NORMAL	RAID 5	3 GB	5-2	PG		
Alerts	VSP_G1000_50002 (VSP_G1000_50002)	00:38:22 (00:38:22)	NORMAL	RAID5	3 GB	5-2	PG		
Connector Alerts	VSP_G1000_50002 (VSP_G1000_50002)	00:38:23 (00:38:23)	NORMAL	RAID5	3 GB	5-2	PG		
SNMP Trap Alerts	VSP G1000 50002 (VSP G1000 50002)	00:38:24 (00:38:24)	NORMAL	RAID 5	3 GB	5-2	PG		Tag
Controller Port Performance	VSP G1000 50002 (VSP G1000 50002)	00:38:25 (00:38:25)	NORMAL	RAID 5	3 GB	5-2	PG	-	SK F
A Concroller Porceentoniance	Detail View							~	Jan
Read Rate								A	e
Read Transfer Rate	🚡 Hitachi Storage Logical Unit propert	ies of VSP_G1000_54321	LU-00:00:0A						
🖂 Transfer Rate	Display Name VSP	G1000 54321-LU-00:00:0	۹.						
Write Rate	Full Path Name Subs	vstem_VSP_G1000_54321	VSP_G1000_54	1321-LU-00:00:0A					
🔀 Write Transfer Rate	Object ID VSP_	G1000_54321-LU-00:00:0	9						
a	Subsystem VSP_	G1000_54321 (VSP_G100))_54321)						
Show or Hide Views	Status BLOG	KED							
New View >	Type EXTER	RNAL							
Munituring	RAID Level RAID	5							
Monitoring	Storage Pool F1-10	3							
Authoring	Pool Type EXTER	RNAL							
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🚳 Administration									
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									- 11,

There is a 1:*n* correlation between Virtual DKCs and Physical DKCs.

The Logical Unit view contains the following columns and definitions:

Field	Description					
State	Health state of Logical Unit					
Maintenance Mode	N/A					
Subsystem ¹	Name of the subsystem					
LU ¹	LU number					
Туре	Possible LU types:					
	Single, Parent, or V-VOLNAS Platform (User LU) or NAS Platform (System LU)					
RAID Level	Possible RAID Levels are 0, 1, 5, 6 or 10					
Size	Total available capacity of the LU					
Storage Pool	Storage pool					
Pool Type	Pool Type: RG, HDP, HDT, HRT, COW or Parity Group					
Pool Type Pool Type: RG, HDP, HDT, HRT, COW or Parity Group Image: State of the						

Quorum Device View

HNAS, Unified NAS Module

Access the **Quorum Device** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Quorum Device

Quorum Device - contoso - Operations Manager		_ 0	×
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	State A Guorum Device Quorum Device Quorum Device IP HNAS-Cluster SMU 10.0.0.50		Task P
DP Pool Performance	Detail View	~	ane
Logical Unit Performance RAID Group Performance Image: Comparison of Comparison o	Hitachi Storage HNAS Quorum Device properties of HNAS-Cluster-Quorum-SMU	*	
Storage Replication HNAS Snapshot HNAS Snapshot Henote Storage Replication Monitoring Authoring Authoring Reporting Monitoring Mon	Display Name HNAS-Cluster-Quorum-SMU Full Path Name HNAS-Cluster-Quorum-SMU Object JD HNAS-Cluster-Quorum-SMU File Server HNAS-Cluster-Quorum-SMU Vorum Device SMU Status Configured Quorum Device IP 10.0509 Connector ID SCOM-WIN2008R2.contose.com		
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The Quorum Device view contains the following columns and definitions.

Field	Description
State	Health state of Quorum Device
Maintenance Mode	N/A
File Server	File server name
Quorum Device	Quorum Device name
Quorum Device IP	Quorum Device IP

Monitoring Views

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Storage Pool View

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, VSP F1500, and HNAS

Access the **Storage Pool** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Storage Pool

Storage Pool - contoso - Operations Manager							_ 🗆 ×
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Controller Part	State A	E Subsystem	≜ Pool	△ Pool Typ	e RAID Level		
III Drive	4 Warning	HUS110_91200074	2	DP	RAID1		
EVS	4 Warning	VSP_69999	21	DP	RAID5		
File Server Node	(1) Warning	VSP_69999	31	DP	RAID5		
III File System	A Warning	VSP_69999	32	DP	RAID5		
🔛 Link Aggregation	Critical	VSP_69999	13	DT	RAID5		
🔣 Link Aggregation Port	🕴 Critical	VSP_69999	24	DP	RAID5		
🔢 Logical Unit	😵 Critical	VSP_69999	30	DP	RAID5		
uorum Device	🕺 Critical	VSP_69999	33	DP	RAID5		
iii Storage Pool	🔞 Critical	VSP_69999	9	DP	RAID5		
Subsystem							
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4 🕝 Storage Replication	📙 Hitachi Stor	age Storage Pool prop	erties of HUS1	10_91200074-POOL-	DP-2		
III HNAS Snapshot	Display Name	HU	S110_91200074	-POOL-DP-2			
🔛 Remote Storage Replication	Full Path Nam	ie Sul	osystem_172.16	.105.7_172.16.105.8	HUS110_91200074-POOL-DI	1.2	
III Storage Replication	Object ID Subsystem	HU	\$110_91200074 \$110_91200074	-POOL-DP-2			
Show or Hide Views	Pool	2	5110_5120001-				
New View b	Pool Type	DP					
	RAID Level	RA	D1 EDTUDECHOLD				
Monitoring	Volume Cour	t 24	ERIFICESHOLD				
	Total Capacity	1.7	8 TB				
Authoring	Free Capacity	854	GB				
Reporting	Used Capacity	965	GB				
	Connector ID	55. SCI	0.5% DM-WIN2008R	.contoso.com			
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With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The Subsystem field displays values which reflect the association between the Virtual DKC and the Physical DKCs upon which it resides. The Physical DKC information is shown in parenthesis to the right of the Virtual DKC information, such as **Virtual DKC (Physical DKC)**. If the target Virtual DKC shares the same Physical DKC with other Virtual DKCs, duplicate Physical DKCs are eliminated and displayed as Virtual DKC1, Virtual DKC2, ... (Physical DKC). There is an *n*:1 correlation between Virtual DKCs and Physical DKCs.



The Storage Pool view contains the following columns and definitions.

Field	Description
State	Storage pool health: Healthy, Warning or Critical
Maintenance Mode	N/A
Subsystem ¹	Name of the subsystem
Pool	Subsystem pool number
Pool Type	Pool type: DP , DT, RT, COW, RG , PG, MJNL, RJNL, INITJNL, EMPTYJNL, MJNL_RJNL_UR, MJNL_UR, RJNL_UR, INITJNL_MF, HDP_MF
RAID Level	Possible RAID levels are RAID0, RAID1, RAID5, RAID6, or RAID10.



Note With global storage virtualization Virtual DKC configurations, this field will resemble Virtual DKC (Physical DKC).

Subsystem View

Access the **Subsystem** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Subsystem

ubsystem - contoso - Operations Mana	ger										
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oring	(Subsystem (2)	Ŧ								
🙀 Hitachi Storage Systems 3.8	-	Q Look for:			Find Now	Clear					,
E Controller		State	🛆 🎉 Subsystem		File Server IP	Model	Serial Number	Firmware	Controller 0 IP	Controller 1 IP	
👯 Controller Port		🔀 Critical	HUS110_9120	0074 -	1	HUS110	91200074	0975/A-W	172.16.105.7	172.16.105.8	
Drive		🔞 Critical	VSP_69999			VSP	69999	70-06-09/00			
EVS											
File Server Node											
File System											
Link Aggregation Part											
Ingical Unit											
Ouorum Device											
E Storage Pool											
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Connector Alerts											
SNMP Trap Alerts											
Performance											
Controller Port Performance											
HDP Pool Performance		0-1-111									
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RAID Group Performance		Hitachi	Storage Subsystem or	operties of Subs	velem 172.16.1	05 7 172 16 105 5					
Ling Storage Replication		Disalauk	bene	Cubautan 17	16 105 7 173 1	12 105 0					
Remote Storage Replication		Full Path	Name	Subsystem_172 Subsystem 172	2.16.105.7 172.1	16.105.8					
Storage Replication		Object II)	Subsystem_172	2.16.105.7_172.1	16.105.8					
	•	Subsyste	m	HUS110_91200	1074						
or Hide Views		Status	10	Online							
iew »		Model	tr 1P	- HUS110							
		Firmware		0975/A-W							
Monitoring		Controlle	er 0 IP	172.16.105.7							
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With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The Subsystem, Model and Serial Number fields display values which reflect the association between the Virtual DKC and the Physical DKCs upon which it resides. The Physical DKC information is shown in parenthesis to the right of information for the Virtual DKC, such as Virtual DKC (Physical DKC). If the target Virtual DKC shares the same Physical DKC with other Virtual DKCs, duplicate Physical DKCs are

eliminated and displayed as Virtual DKC1, Virtual DKC2, ... (Physical DKC). There is an *n*:1 correlation between Virtual DKCs and Physical DKCs.

nitoring	< Su	ubsystem (2)								
🚰 Hitachi Storage Systems	<u> </u>	Look for:	Ein	d Now <u>C</u> lear						×
Gantachi Storage Systems 3.8	C	Subsystem		A File Server IP	Model	Serial Number	Firmware	Controller 0 IP	Controller 1 IP	ρ
Controller		VSP_G1000_50002, VSP_	G1000_54321 [VSP_G1000_50002]	, -	VSP_G1000, VSP_G1000 (VSP_G1000) 50002, 54321 (50002)	80-04-01/00			
Drive		VSP_G1000_54321, VSP_	G1000_50002 (VSP_G1000_54321)		VSP_G1000, VSP_G1000 (VSP_G1000) 54321, 50002 (54321)	80-04-01/00			
EVS										
E File Server Node			\	\backslash						
III File System			لے _ا							
Eink Aggregation										
👯 Link Aggregation Port		Virtua	al	Physica	al					
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Alerts Alerts Connector Alerts Connector Alerts NNP Trap Alerts Sinder Trap Alerts Gontroller Port Performance Alert DP Pool Performance More Rate		 Detail View								
	×	Detail View	system properties of Subsystem	.vsp_g1000_50002						
		Detail View httachi Storage Sub Display Name	system properties of Subsystem, Subsystem, VSP, G100	.VSP_G1000_50002						
		Detail View B Hitachi Storage Sub Display Name Full Path Name	system properties of Subsystem, Subsystem, VSP_G100 Subsystem, VSP _G100	.VSP_G1000_50002 0_50002 10_50002						
		Detail View Hitachi Storage Sub Display Name Full Path Name Object ID	system properties of Subsystem Subsystem_VSP_G100 Subsystem_VSP_G100 Subsystem_VSP_G100	_YSP_G1000_50002 0_50002 0_50002 0_50002						
Alerts Alerts Alerts Alerts Connector Alerts Onnector Alerts Marks Alerts Alerts		Hitachi Storage Sub Display Name Full Path Name Object ID Subsystem	system properties of Subsystem, Subsystem, VSP, G100 Subsystem, VSP, G100 VSP, G1000, 50002, VS Oviker		5P_G1000_50002)					
	×	betail View bisplay Name Full Path Name Object ID Subsystem Status File Sener IP	system properties of Subsystem Subsystem_VSP_G100 Subsystem_VSP_G100 VSP_G1000_50002, VS Online -	.YSP_G1000_50002 0_50002 0 _50002 0_50002 0_50002 0.50002 0.5000_54321 (V	5P_G1000_50002)					× ×
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The Subsystem view contains the following columns and definitions:

Field	Description						
State	Availability State of Subsystem						
Maintenance Mode	N/A						
Subsystem ¹	Name of the Subsystem						
File Server IP	HNAS IP Address						
Model ¹	Model of the HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, VSP F1500, HNAS (Unified NAS module only) storage device						
Serial Number ¹	Subsystem Serial Number						
Firmware	Microcode level of the storage array						
Controller 0 IP ²	Subsystem Controller 0 IP address						
Controller 1 IP ²	Subsystem Controller 1 IP address						
Notes 1. With global stora (Physical DKC). 2. When VSB CY20	ige virtualization Virtual DKC configurations, this field will resemble Virtual DKC						

2. When VSP Gx00 and Fx00 arrays are being used, the Controller 0 IP field corresponds to Controller 1 for the array, while the Controller 1 IP field corresponds to Controller 2.

Controller Port Performance

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access the **Controller Port Performance** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Performance > Controller Port Performance

You can choose from the following performance views:

- IO Rate
- Read Rate (HUS only)
- Read Transfer Rate (HUS only)
- Transfer Rate
- Write Rate (HUS only)
- Write Transfer Rate (HUS only)



With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

HDP Pool Performance

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access the **HDP Pool Performance** view from the **Monitoring** pane of the Operations Manager console.

Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Performance > HDP Pool Performance

You can choose from the following performance views:

- Read Rate
- Read Transfer Rate
- Transfer Rate
- Write Rate
- Write Transfer Rate



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Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager User's Guide for Storage Systems
With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The LUs which correspond to all of the Physical DKCs upon which a Virtual DKC resides are displayed without the elimination of duplicates.



There is a 1:*n* correlation between Virtual DKCs and Physical DKCs.

Logical Unit Performance

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access the **Logical Unit Performance** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Performance > Logical Unit Performance

You can choose from the following performance views:

- Read Rate
- Read Transfer Rate
- Transfer Rate
- Write Rate
- Write Transfer Rate

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RAID Group Performance		
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Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager User's Guide for Storage Systems

With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The LUs which correspond to all of the Physical DKCs upon which a Virtual DKC resides are displayed without the elimination of duplicates.

There is a 1:*n* correlation between Virtual DKCs and Physical DKCs.

RAID Group Performance

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access **RAID Group Performance** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Performance > RAID Group Performance

You can choose from the following performance views:

- Read Rate
- Read Transfer Rate
- Transfer Rate
- Write Rate
- Write Transfer Rate

	Note
-	

PG performance values may not be properly acquired for VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500 sub-systems if pool configuration elements are included in the RAID group.

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With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The LUs which correspond to all of the Physical DKCs upon which a Virtual DKC resides are displayed without the elimination of duplicates.

There is a 1:*n* correlation between Virtual DKCs and Physical DKCs.

HNAS Snapshot

HNAS/Unified HNAS

Access the **HNAS Snapshot** view from the **Monitoring** pane of the Operations Manager console.

• Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Storage Replication > HNAS Snapshot

Remote Storage Replication

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access the **Remote Storage Replication** view from the **Monitoring** pane of the Operations Manager console.

• Hitachi Storage Systems > Hitachi Storage Systems 3.11> Storage Replication > Remote Storage Replication



With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed. GAD pairs, if any, are displayed in this view.

The Subsystem, Primary Volume, Remote Subsystem and Secondary Volume fields display values which reflect the association between the Virtual DKC and the Physical DKCs upon which it resides. The Physical DKC information is shown in parenthesis to the right of the Virtual DKCs, such as **Virtual DKC (Physical DKC)**. If a Virtual DKC resides upon multiple Physical DKCs, each Physical DKC is listed within parentheses like **Virtual DKC (Physical DKC1, Physical DKC2)**.

The LUs which correspond to all of the Physical DKCs upon which a Virtual DKC resides are displayed without the elimination of duplicates.

There is a 1:*n* correlation between Virtual DKCs and Physical DKCs.

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Storage Replication

HUS, VSP, HUS VM, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, and VSP F1500

Access the **Storage Replication** view from the **Monitoring** pane of the Operations Manager console.

 Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Storage Replication > Storage Replication

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Caution

When monitoring Thin Image pair snapshot groups and cascade types, only users with permission to access all resource groups can add storage systems.

With global storage virtualization Virtual DKC configurations, information pertaining to the Physical DKCs upon which the Virtual DKC resides is displayed.

The Subsystem, Primary Volume and Secondary Volume fields display values which reflect the association between the Virtual DKC and the Physical DKCs upon which it resides. The Physical DKC information is shown in parentheses to the right of the Virtual DKC information, such as Virtual DKC (Physical DKC). If a Virtual DKC resides upon multiple Physical DKCs, each Physical DKC is listed within parenthesis like Virtual DKC (Physical DKC1, Physical DKC2).

The LUs which correspond to all of the Physical DKCs upon which a Virtual DKC resides are displayed without the elimination of duplicates.

There is a 1:*n* correlation between Virtual DKCs and Physical DKCs.

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Performance Collection

Performance collection enables you to store accumulated performance information for storage devices and then display that information in graph form in the Performance view. This chapter describes how to set up performance collection and display it in the Performance view. It also describes how to optimize settings for additional functions of the Hitachi Infrastructure Adapter for Microsoft[®] System Center Operations Manager.



Changes to the Monitoring directory tree

In prior versions of the software, whenever a management pack was upgraded, the old management pack was replaced with the new one; however, in the current version of the software older management packs can be kept even though a newer version of a management pack is installed. This enables performance information to be retained from version to version. The directory tree in the Monitoring pane has been rearranged to show sub-directories at the management pack version level. The Alerts view directory is now one level higher.



Limitations

There are some limitations regarding performance collection.

Installation to the environment with an old version

When installing the current version of the software, you must first uninstall the v01.6.0 or earlier version.

SCOM and SQL Server Performance Requirements

The SCOM server and SQL server must both be high performance in order to collect storage performance information because the memory that both require increases as the amount of collected performance information increases. The SCOM and SQL Server themselves require a minimum of 8GB of memory, even if there is only one device collecting performance information for all the LUs and even if it is disabled. Since a single device can contain many LUs, a large amount of memory is required to collect all of the performance information and display it in graph form.

When you collect performance information for an LU in a device where many LUs have been created, depending on the hardware performance of the server on which the SCOM and SQL Server are installed, you can set up a counter for performance collection and thus narrow the Target Logical Unit.

Because such large amounts of memory are required and because a high-speed disk is required to write the large amounts of performance information to the disk, use the Microsoft Operations Manager Sizing Helper Tool to calculate the actual hardware you will need. Make your calculations using the equivalency of one Windows computer per Logical Unit targeted for performance collection.



Example configuration of 500 LUs targeted for performance collection

If you install SCOM and SQL on the same server and run on an independent HDD, limit the number of Logical Units targeted for performance collection to about 100 units at most.

Collecting performance information from a large number of LUs will overload writing to the SCOM and SQL disk. Loading up on the SCOM and SQL queue will deplete memory and may cause SCOM to crash.



Example configuration of 100 LUs targeted for performance collection

Performance Collection Settings

Setting up performance collection is a two-step procedure: setting the target items for performance collection, and optimizing the amount of performance data to be collected.

Setting targets

You can control how much performance information is collected through the combination of devices and performance information items. The default settings enable collection of all performance information except Logical Unit.



Note

The settings for HNAS cannot be changed. HNAS does not support collection of performance information.

As the number of performance collection items increases, the amount of data being written to the SCOM and SQL server database also increases; however, you can economize the drive by disabling any performance collection items you do not need by using the **Custom** setting to narrow the collection target.

Setting Procedure

1. In the Hitachi Storage Connector Configuration console, click the **Performance** tab.

🚟 Hitachi Storage Connector C	onfiguration - [Con	sole Root\Hita	chi Storage Conn	ector Configuratio	on]					- 8 ×
🚠 Eile Action View Window	v <u>H</u> elp								-	- 8 ×
🗇 🔿 🙍 🖬										
Console Root	Hitachi Storage Co	onnector Config	juration						Actions	
🚊 Hitachi Storage Connector	Subsystems Ci	onnector Confi	guration Perfor	mance Acvanc	ed Configuration	1			Hitachi Storage Connector Config	ju 🔺
	Subsystem	Model	Serial Number	I CILL	CTL1	SVPIP	Admin EVS IP	1	🔶 Add Subsystem	
	HUS110_912	HUS110	91200074	172.16.105.7	172.16.105.8				🔀 Remove Subsystem	
	VSP_69999	VSP	69999			172.16.105.11			View	•
	HUS_VM_20	HUS_VM	200001			172.16.105.12			New Window from Here	
	VSP_G1000	VSP_G10	54321			172.16.105.15			Help	
	VSP_G400/G	VSP_G40	400003	172.16.105.17	172.16.105.18	172.16.105.23			-	
	HNAS-CLUS		55-1E-ED-64				172.16.16.51			
			i.			i				
	⊟-HUS110_91: Model : H	200074 UIS110								
	-Serial Nu	mber: 912000	74							
	-CTL0 IP :	172.16.105.7								
	CTL1 IP:	172.16.105.8								
	•••									

2. From the **Counter Settings** pane, select a subsystem.



3. Change the setting to **Disable** for any performance information item you do not want to collect.

🚟 Hitachi Storage Connector C	onfiguration - [Console Root\Hitac	hi Storage Connector Con	figuration]				_ @ ×
Eile Action View Window	v <u>H</u> elp						_ B ×
Console Root	Hitachi Storage Connector Config	uration					Actions
E nicacii scorage connector	Subsystems Connector Config	guration Performance	Advanced Configuration				Hitachi Storage Connector Configu 🔺
	VSP_G400/G600_400 Ena	able	Enable	Enable	Enable	▲	Start
	HNAS-CLUSTI N/A	4	N/A	N/A	N/A	Н	Stop
					<u> </u>	U	Save Configuration
	Controller Port				_		😂 Refresh
	Read Rate (IOPS)	Enable 💌	Read Transfer Rate (MB/S) Enable	<u> </u>		View
	Write Rate (IOPS)	Enable 💌	Write Transfer Rate (MB/S)) Enable	•		New Window from Here
	IO Rate (IOPS)	Enable 💌	Transfer Rate (MB/S)	Enable	•		👔 Help
	HDP Pool						
	Read Rate (IOPS)	Enable 💌	Read Transfer Rate (MB/S) Enable	•		
	Write Rate (IOPS)	Enable -	Write Transfer Rate (MB/S) Enable	-		
		, _	Transfer Rate (MB/S)	Enable	Ī		
	Logical Unit						
	Read Rate (IOPS)	Enable 👻	Target Logical Unit				
	Write Rate (IOPS)	Enable 💌	• All				
	Read Transfer Rate (MB/S)) Enable 🔻	C Custom	Add			
	Write Transfer Rate (MB/S)	Enable -					
	Transfer Bate (MB/S)	Enable V					
	(10,0)			Remove			
			Use "X"	character as wildcard.			
Logical Unit Read Rate (IOPS) Enable Write Rate (IDPS) Enable Write Transfer Rate (MB/S) Enable Transfer Rate (MB/S) Enable Remove Use "%" character as wildcard. Reid Group Read Rate (IOPS) Enable Write Rate (IDPS) Enable Write Rate (IDPS) Enable Write Transfer Rate (MB/S) Enable							
	Read Rate (IOPS)	Enable 💌	Read Transfer Rate (MB/S) [Enable			
	Write Rate (IOPS)	Enable 💌	Write Transfer Rate (MB/S)) Enable	<u> </u>		
			Transfer Rate (MB/S)	Enable	·		



Note

For any Logical Unit numbers set in the Target Logical Unit pane, set the physical LDEV numbers (physical LDEV IDs).

4. Save the configuration.

In the Actions pane, click Save Configuration.

Optimizing collection precision

You can optimize the precision of the amount performance information collected; by lowering the precision, you can economize a drive.

Setting procedure

1. In the Hitachi Storage Connector Configuration console, click the **Advanced Configuration**.

Bit Distanti Bit Distanti Bit Distanti Bit Distanti Attain Attain Image: Stanting of Construction Stanting of Construction Attain	🚟 Hitachi Storage Connector C	onfiguration - [Con	sole Root\Hit	achi Storage Conn	ector Configuratio	on]				_ @ ×
Conceleration Concele	Elle Action View Window	/ <u>H</u> elp								_ 8 ×
Concentration Actives Bidde States of Contraguration Subsystem Subsystem Contraguration Advanced Configuration Reference Hiskel States of Contraguration Subsystem Contraguration Contraguration Advanced Configuration Reference Hiskel States of Contraguration Subsystem Contraguration Contraguration Contraguration Reference Referen	(= =) 🖄 🖬 🚺 🖬									
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Subsystem Model Seriel Number CTL0 CTL1 SVP IP Admin EVS IP Add Subsystem M Add Subsystem HUS 10, 912 HUS 10, 912 HUS 10, 912 929, 6999 VSP 60001 12161051 VSP 60001 VSP 6	📙 Hitachi Storage Connector	Subsystems C	onnector Con	figuration Perfor	mance Advanc	ed Configuration	1			Hitachi Storage Connector Configu 🔺
HUST 10:012		Subsystem	Model	Serial Number	I CTU			Admin EVS IP	<u> </u>	💠 Add Subsystem
VSP_ 69999 VSP_ V12 89999 172 10511 Image: Constraint of the second sec		HUS110 912	HUS110	91200074	172.16.105.7	172.16.105.8	10011	//dnini Evon		💢 Remove Subsystem
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VSP_G100VSP_G40_0 4212 172.16.105.17 172.16.105.15 1000 VMAS-CLUS_ 55-1E-ED-64		HUS_VM_20	HUS_VM	200001			172.16.105.12			New Window from Here
VSP_0400(C, VSP_040 00003 122.16.105.17 172.16.105.18 172.16.105.23 122.16.105.17 172.16.105.18 172.16.105.13 172.16.105.13 172.16.105.14 172.16.14 172.16.14 172.16.14 172.16.14 172.16.14 172.16.14 172.16.14 172.16.14 17		VSP_G1000	VSP_G10	54321			172.16.105.15			? Help
HASCLUS. 55-1E-ED-64 172.16.16.51		VSP_G400/G	VSP_G40	400003	172.16.105.17	172.16.105.18	172.16.105.23			
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B HUS110_91200074 										
Image: HUS110_91200074 Model: HUS110 Serial Number: 91200074 -Strial Number: 9120074 -Strial Number: 91200074 -Strial Number: 9120074 </td <td></td>										
E HUS110_91200074 Model : HUS110 Serial Number : 91200074 - CTL0 IP : 172.16.105.7 - CTL1 IP : 172.16.105.8										
E: HUS110_91200074 - Modal: HUS110 - Seniel Number: 3120074 - CTLUI F: 17216105.7 - CTL1 IP: 17216105.8										
 HUGI10_91200074 HUGI11 HUG111 HUG1										
- Model: HUS II - Seriel Number: 9120074 - CTL0 IP: 17216:105.8 - CTL1 IP: 17216:105.8		B-HUS110_91	200074							
		- Model : F	105110 mbor:91200	074						
CTL1 IP: 172.16.105.8		-CTL0 IP :	172.16.105.7							
		CTL1 IP:	172.16.105.8							
	•	1								

2. In the **Performance Collection Precision Settings** pane, check the **Use Custom Precision** option.

Console Root	Hitachi Storage Connector Configuration				A	ctions	
🖳 Hitachi Storage	Subsystems Connector Configuration	Performance Adva	nced Configuration		н	litachi Storage Connector Configuration	
			··· ···			Test Connection	
	Performance Collection Precision Se	ttings			4	Save Configuration	
	Use Custom Precision	J	11 - 17 - 11 - 11 - 12 - 12 - 12 - 12 -			View	
	in SCOM to be adjusted. Storing data points in performance graphs to lose precision, yet will consumed less rapidly. Please see the User's	SCOM less frequently will of all of the second seco	a's stored ause ty to be		2	elp	
	Controller Port IO Rate		Controller Port Transfer Rate				
	Set tolerance to:		Set tolerance to:				
	O Absolute number (0-65535):	1 IOPS	O Absolute number (0-65535):	1 MB/s			
	Percentage (0-100):	5 %	Percentage (0-100):	5 %			
	Maximum Sample Separation:	10 Count	Maximum Sample Separation:	10 Count			
	HDP Pool IO Rate		HDP Pool Transfer Rate				
	Set tolerance to:		Set tolerance to:				
	O Absolute number (0-65535):	1 IOPS	O Absolute number (0-65535):	1 MB/s			
	Percentage (0-100):	5 %	Percentage (0-100):	5 %	=		
	Maximum Sample Separation:	10 Count	Maximum Sample Separation:	10 Count			
	Logical Unit IO Rate		Logical Unit Transfer Rate				
	Set tolerance to:		Set tolerance to:				
	O Absolute number (0-65535):	1 IOPS	O Absolute number (0-65535):	1 MB/s			
	Percentage (0-100):	5 %	Percentage (0-100):	5 %			
	Maximum Sample Separation:	30 Count	Maximum Sample Separation:	30 Count			
					~		

3. For each of the performance collection items, modify the level of precision by adjusting the tolerance and maximum sample separation counts. See the table below for the optimization parameters. When done, click **Save Configuration**.



Optimization Parameter	Description
Tolerance	Specifies the maximum value of the variation to skip storing in the database. When the difference with the previously stored value is smaller than the current value, the value is not stored in the database. The larger the tolerance value, the lower the precision and less data is stored in the database.
Maximum Sample Separation	Specifies the maximum continuous interval that storing of performance information to the database can be skipped. The larger the interval, the lower the precision and less data is stored in the database; however, as the interval increases, more time is required to plot the latest value on the graph.



Collected sample

Viewing Performance graphs

After you start collecting performance information, you can view graphs of the information in the SCOM console Monitoring directory tree either directly from the tree or from within a State view.

Viewing graphs from the Monitoring directory tree

View a performance graph by selecting the item you want to view from the **Performance** folder in the Monitoring directory tree.

In the Monitoring pane of the SCOM console, select,

Hitachi Storage Systems > Hitachi Storage Systems 3.11 > Performance



Notes

The Performance information listed below is supported only by the subsystems indicated in parentheses.

- Controller Port Performance -> Read Rate View (HUS only)
- Controller Port Performance -> Write Rate View (HUS only)
- Controller Port Performance -> IO Rate View (HUS, HUS VM, VSP, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, VSP F1500)
- Controller Port Performance -> Read Transfer Rate View (HUS only)
- Controller Port Performance -> Write Transfer Rate View (HUS only)
- Controller Port Performance -> Transfer Rate View (HUS, HUS VM, VSP, VSP G1000, VSP Gx00, VSP Fx00, VSP G1500, VSP F1500)

Viewing graphs from within a State view

You can display Performance views for selected storage devices from within the State view. This narrows the displayed results to the components for the selected storage devices only. You can display performance for the State views listed below.

- Controller
- Controller Port
- Storage Pool (where pool type is DP, DT or DT (Active Flash), PG or RG only)
- Logical Unit

Performance graphs cannot be displayed for State views other than those listed above because the connected performance information does not exist.

With a State view open, you can open a **Performance** view in two ways.

1. Right-click on a subsystem, then select **Open > Performance View**.





2. Select a subsystem, then in the Navigation pane, click **Performance View**.



Hitachi Storage Service Monitoring

This chapter provides instructions for performing Hitachi Storage Connector Service monitoring with Hitachi Storage Adapter for ${\rm Microsoft}^{\circledast}$ System Center Operations Manager.

□ <u>Monitoring Setting Procedure</u>

Monitoring Setting Procedure

By executing the following procedure with SCOM, the operation status of Hitachi Storage Connector Service can be monitored. The operation status can be checked in **Monitoring > Active Alerts**, or **Monitoring > Hitachi Storage Systems** Alerts > Connector Alerts.

A "New" resolution state indicates that Hitachi Storage Connector Service stopped running. When this happens, SCOM will appear as follows:

Monitoring	<	Active Alerts (17)					
🔺 🧱 Monitoring		Q_Look for:		Eind Now Clear			×
Active Alerts		🚯 I. Source	Ø	Name	Resolutio	n State Crea	ted
🔝 Discovered Inventory		4 Severity: Critical (3)	10			1	
Distributed Applications		🚳 Hitachi Storage S	envice Monitoring	Hitachi Storage Connector Service Stopped	New	4/7/	2014 4:21:07
嚢 Task Status		Hitachi Server Ser	vice Monitoring	Hitschi Compute Connector Service Stopped	New	4/7/	2014 4:06:23
🗰 UNDK/Linux Computers		Dete Assess Cond	and Monitoring	Parts Assess Condex CPN Not Paralities d	New		0014 5-52-53
iii Windows Computers		Data Access Servi	ce - SCOMBL.contoso.c	Data Access Service SPN Not Registered	New	5/51	/2014 5:53:57
Agentless Exception Monitoring		Severity: Warning ()	4)				
Application Monitoring		A SCOM81.contosc	com	An error occurred during computer verification from the	disc New	4/7/.	2014 4:07:02
🔺 🚰 Data Warehouse	-	A SCOM81.contosc	.com	An error occurred during computer verification from the	disc New	4/7/.	2014 4:07:02
Active Alerts		A SCOM81.contosc	com	An error occurred during computer verification from the	disc New	4/7/.	2014 4:07:02
All Event View		A SCOM81.contosc	com	An error occurred during computer verification from the	edisc New	4/7/3	2014 4:07:02
Collection Performance		A SCOM81.contosc	com	An error occurred during computer verification from the	a disc New	4/7/.	2014 4:07:02
Collection Servers		A SCOM81.contosc	com	Product evaluation is expiring today	New	4/4/.	2014 10:26:0;
Synchronization Performance		A SCOM81.contosc	com	Product evaluation is expiring in less than 24 hours	New	4/3/3	2014 10:26:14
4 🕼 Hitachi		A SCOM81.contosc	com	Product evaluation is expiring in less than 30 days	New	4/3/	2014 10:26:14
Comprehensive Diagram	•	A SCOM81.contosc	com	Power Shell Script failed to run	New	4/1/	2014 5:18:12
		<u>^</u>					
Monitoring	<	Connector Alerts (1)					
🔺 宿 Hitachi Storage Systems Alerts	-	QLook for:		Eind Now Clear			×
≽ Alerts		🚯 1 Path	Source	Name	Resolution State	Created	N
Connector Alerts		▲ Severity: Critical (1)				1	
VSP Alerts		SVRWEB61.c.,	Hitachi Storage Service Monito	ring Hitachi Storage Connector Service Stopped	New	4/21/2014 2:03	3:09 AM
Microsoft Audit Collection Services							
Microsoft Windows Client		1					
Microsoft Windows Server							
Network Monitoring	-						

Network Discovery

- If the Hitachi Storage Connector Service and SCOM are running on different servers, execute the following procedure.
 - 1. From the SCOM Administration screen, select **Device Management**, **Agentless Managed**. Right-click on **Agentless Managed**, and select **Discovery Wizard**.

🔄 Agentless Managed - contoso -	Operations Manager											
<u>File E</u> dit <u>V</u> iew <u>G</u> o Tas <u>k</u> s <u>T</u> o	ols <u>H</u> elp											
Search 🔻 🝦	🙀 Scope 👂 Find 🚺 Tasks 🔞 🝦											
Administration	 Agentless Managed (0) 											
🔺 🌼 Administration	Health State FQDN											
👼 Connected Management Gro	ups											
Construction Construction Construction Construction Construction Construction												
Management Servers	Discovery Wizard											
🔮 Pending Management 🚟	К Create Management Pack											
🚦 UNIX/Linux Computer: 🚟	Download Management Packs											
鞽 Management Packs 🛛 🗮	Import Management Packs											
A Log Network Management Discovery Rules	New User Role 🕨 🕨											
Retwork Devices 👔 Create Run As Account												
😤 Network Devices Pend 🇞	Create Run As Profile											
A Motifications	New channel											
Subscribers	New subscriber											
Subscriptions	New subscription											
Product Connectors	Add Management Group											
Discovery Wizard	Refresh F5											

2. Select Windows computers.



3. Select Automatic computer discovery.

Computer and Device Manager	ment Wizard
Auto or Advanced	
Discovery Type	
Auto or Advanced?	Choose automatic or advanced discovery
Administrator Account Select Objects to Manage Summary	Automatic computer discovery Scans the "CONTOSO" domain for all Windows-based computers.
	C Advanced discovery Allows youto specify advanced discovery options and settings. Computer and Device Classes: Servers and Clients Note: This setting applies only when scanning Active Directory. You can configure how these objects will be discovered, on the next screen(s). Management Server SCOM04.contoso.com
	Verify discovered computers can be contacted
	< Previous Next > Discover Cancel

4. Select **Other user account**.

Enter an account with domain Administrator rights on the computers you will scan; click **Discover**.

🚊 Computer and Device Manager	nent Wizard	x
Administrator Acc	ount	
Discovery Type		
Auto or Advanced?	Administrator Account	
Administrator Account Select Objects to Manage Summary	Select a user account with Administrator rights on the computers you will scan. These credentials will also be used when installing the agents on managed computers. C Use selected Management Server Action Account C Other user account User name: Administrator Password:	
	Domain: CONTOSO This is a local computer account, not a domain account Note: When selecting the local account option, the agent installation task will be run as the local account, while the Discovery task will be run using the Management Server Action Account.	
	< Previous Next > Discover Cancel	

5. Select the devices you want to manage.

🚆 Computer and Device Managem	ent Wizard	×
Select Objects to N	Nanage	
Discovery Type		
Auto or Advanced?	Discovery Results	
Administrator Account	The discovery process found the following un-managed devices	
Select Objects to Manage	The discovery process round the ronowing un-managed devices.	
Summary	Select the devices you want to manage: Select All Deselect All	
	AD-CONTOSO.contoso.com	
	Note: If you do not see all of the computers you expect to see you can obtain	
	information on troubleshooting discovery issues at <u>http://go.microsoft.com/fwlink/?</u> LinkID=128940.	
	Proxy Agent	
	SCOM04.contoso.com Change	
	Management Mode:	
	Agenuess	
	< Previous Next > Finish Cancel	

Select Agentless in Management Mode, and click Next.

6. Click Finish.

Computer and Device Manager	nent Wizard
Summary	
Discovery Type	
Auto or Advanced?	Summary
Administrator Account	New semantary to be managed. 1
Select Objects to Manage	New computers to be managed: 1
Summary	
	To close the wizard and start managing the computers, click Finish.
	< Previous Next> Finish Cancel

7. The operation's status can be checked by selecting **Administration > Device Management > Agentless Managed**.

Agentless Managed - contoso - Ope	erations Manager						_ 8 ×
<u>File E</u> dit <u>V</u> iew <u>G</u> o Tas <u>k</u> s <u>T</u> ools	<u>H</u> elp						
Search 🔻 🝦 🎼 S	icope 👂 Fi <u>n</u> d [🛛 Ta	sks 🔞 💡					
Administration <	Agentless Managed	(2)			>	Tasks	
4 🍄 Administration 🔺	Health State	FQDN A	Name	Domain		•	
🚜 Connected Management Group	▲ Monitored By: SCO	OM81.contoso.com (2)	1			•	
🔺 🔚 Device Management	Healthy	AD-CONTOSO.contoso.com	AD-CONTOSO	contoso	AC	uons	^
agent Managed	Healthy	SVRWEB8.contoso.com	SVRWEB8	CONTOSO	1111	Properties	
by Agentless Managed						Change Proxy Agent	
🔛 Management Servers					X	Delete	
🕎 Pending Management						Personalize view	
UNIX/Linux Computers							
🏘 Management Packs							
Image: Imag							
Discovery Rules	J						
Network Devices							
Network Devices Pending Mar							
Subscriptions							
Product Connectors	1						
Discovery Wizard							
Monitoring							
📝 Authoring							
Provide the second seco							
Administration							
My Workspace							
-	•						
Ready							

 If the Connector service stops, SCOM will display an alert in Monitoring > Active Alerts. These alerts can also be viewed in Monitoring > Hitachi Storage Systems Alerts > Connector Alerts.



Hitachi Storage Service Monitoring

Gamma Microsoft Windows Client
 Gamma Microsoft Windows Server
 Gamma Microsoft Windows Server

-

Glossary

This chapter defines the special terms, acronyms, and abbreviations used in this document. Click the desired letter below to display the glossary entries that start with that letter.

<u>#</u>	<u>A</u>	B	<u>C</u>	D	E	<u>F</u>	<u>G</u>	Н	Ī	J	<u>K</u>	Ŀ	M	<u>N</u>	<u>0</u>	<u>P</u>	Q	<u>R</u>	<u>S</u>	Τ	<u>U</u>	V	<u>w</u>	X	<u>Y</u>	<u>Z</u>
----------	----------	---	----------	---	---	----------	----------	---	---	---	----------	---	---	----------	----------	----------	---	----------	----------	---	----------	---	----------	---	----------	----------

В

BIOS

Basic Input Output System

BMC

Baseboard Management Controller

С

CCI

Hitachi Command Control Interface

CLI

Command Line Interface

CPU

Central Processing Unit

D

DNS

Domain Name System

Ε

EFI

Extensible Firmware Interface

EVS

Enterprise Virtual Server

F

FC

Fibre Channel

FRU

Field Replaceable Unit

G

GUI

Graphical User Interface

GUID

Globally Unique Identifier

Η

HORCM

Hitachi Open Remote Copy Manager

Ι

ICMP

Internet Control Message Protocol

IP

Internet Protocol

IP Address

Internet Protocol Address

L

LAN

Local Area Network

142

LED

Light Emitting Diode

LOM

Lights Out Management—a remote server management system

LP

Logical Partitioning

LUN

Logical Unit Number

Μ

Management

Management includes discovery, initialization, configuration, provisioning, health and performance monitoring, alarms and alerts, and other system management functions.

Management IP address

IP address assigned to the management LAN for the external connection. Management IP address is used to manage the device.

MIB

Management Information Base

ммс

Microsoft Management Console

MP

Management Pack

0

OID

Object Identifier

Ρ

PCI Card

PCI Card mounted on Motherboard

R

RPM

Rotations Per Minute

S

SCOM

System Center Operations Manager

SMASH

A standard server hardware management interface

SNMP

Simple Network Management Protocol

W

WMI

Windows Management Instrumentation

WS-Management

A Web service for device management
Hitachi Data Systems

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