

ApplianceWatch 1.2 for Microsoft® System Center Operations Manager **Installation and Setup Guide for SCOM 2007**

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Preface

About this guide

This guide describes how to install the ApplianceWatch for Microsoft System Center Operations Manager (SCOM) management pack. SCOM was previously known as Microsoft Operations Manager. The management pack contains the required files and registry settings to support NetApp storage system and NetApp Operations® Manager (formerly known as DataFabric® Manager) monitoring via SCOM.

Before installing this product, you must have:

- ◆ Ensured that your configuration is supported by referring to the *Compatibility and Configuration Guide for NetApp's FCP and iSCSI Products*, available on the NetApp on the Web™ (NOW) site at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/.
- ◆ your storage system according to the instructions in the documentation for your specific storage system.
- ◆ Configured your storage system according to the instructions in the following documents:
 - ❖ *Data ONTAP® Software Setup Guide*
 - ❖ *iSCSI Support Kit* for your specific host
 - ❖ *SAN Setup Overview for FCP*
 - ❖ *SAN Host Attach Kit for Fibre Channel Protocol* for your specific host
 - ❖ Any SAN switch documentation for your specific FCP switch, which you can find at <http://now.netapp.com/NOW/knowledge/docs/san/>

Audience

This guide is for system and network administrators responsible for monitoring NetApp storage systems and NetApp Operations Manager server via the SCOM.

Terminology

This guide uses the following terms:

- ◆ NetApp storage products (filers, FAS appliances, and NearStore® systems) are all *storage systems*—also sometimes called filers or storage appliances.
- ◆ *Enter* refers to pressing one or more keys on the keyboard and then pressing the Enter key.
- ◆ *Type* refers to pressing one or more keys on the keyboard.

Command conventions

In examples that illustrate commands executed on a UNIX workstation, the command syntax and output shown in this guide might differ from what you see on your display, depending on your version of UNIX.

Keyboard conventions

When describing key combinations, this guide uses the hyphen (-) to separate individual keys that you press at the same time. For example, *Ctrl-D* means pressing the Control and D keys simultaneously. This guide uses the term *Enter* to refer to the key that generates a carriage return, although the key is named Return on some keyboards.

Typographic conventions

The following table describes typographic conventions used in this guide.

Convention	Type of information
<i>Italic font</i>	Words or characters that require special attention. Placeholders for information you must supply. For example, if the guide says to enter the <code>arp -d hostname</code> command, you enter the characters <i>arp -d</i> followed by the actual name of the host. Book titles in cross-references.
Monospaced font	Command and daemon names. Information displayed on the system console or other computer monitors. The contents of files.
Bold monospaced font	Words or characters you type. What you type is always shown in lowercase letters, unless you must type it in upper case.

Special messages

This guide contains special messages that are described as follows:

Note

A note contains important information that helps you install or operate the system efficiently.

CAUTION

An attention contains instructions that you must follow to avoid damage to the equipment, a system crash, or loss of data.

About this chapter

This chapter provides a brief overview of the ApplianceWatch for SCOM management pack, and lists the prerequisites for installing it.

Topics in this chapter

This chapter discusses the following topic(s):

- ◆ [“What ApplianceWatch for SCOM is”](#) on page 2

What ApplianceWatch for SCOM is

What is ApplianceWatch for SCOM?

SCOM is an enterprise level software tool designed to monitor events, collect performance statistics, and report alert conditions across a Microsoft OS-based enterprise

ApplianceWatch for SCOM is designed to be installed on the SCOM server and to interpret SNMP traps from NetApp systems, thus allowing SCOM's standard event classification and response rules to be applied to NetApp systems.

Support matrix for ApplianceWatch for SCOM includes the following:

- ◆ Data ONTAP 7.2.4 and earlier releases
- ◆ NetApp Operations Manager 3.6 and earlier releases
- ◆ SCOM 2007

ApplianceWatch for SCOM components

The ApplianceWatch for SCOM management pack contains the required files to support NetApp storage systems and NetApp Operations Manager server monitoring via SCOM. Follow the instructions in this document to install the management pack.

The ApplianceWatch for SCOM installation package installs the following files on the SCOM server:

- ◆ dfm.mof - converted NetApp Operations Manager MIB file.
- ◆ netapp.mof - converted NetApp storage system MIB file.
- ◆ license.txt - licensing information for ApplianceWatch for SCOM..
- ◆ netapp.xml - ApplianceWatch for SCOM management pack.
- ◆ installMOF.bat - batch file to register dfm.mof and netapp.mof files with Windows Management Instrumentation (WMI). Microsoft's mofcomp.exe must be installed on the computer.
- ◆ uninstall.exe - uninstall program to remove NetApp support for SCOM.

About this chapter This chapter describes how to install ApplianceWatch for SCOM.

Topics in this chapter This chapter discusses the following topics:

- ◆ [“Before you begin”](#) on page 4
- ◆ [“Installing the ApplianceWatch for SCOM support files”](#) on page 8
- ◆ [“Installing the ApplianceWatch for SCOM management pack”](#) on page 12
- ◆ [“Verifying the management pack installation”](#) on page 16
- ◆ [“Discovering the NetApp Storage Systems and NetApp Operations Manager servers”](#) on page 20
- ◆ [“Checking if the NetApp Devices are populated in the NetApp Group”](#) on page 23

Before you begin

Prerequisites

Before installing the management pack, ensure you meet the following prerequisites:

- ◆ SCOM SP1 is installed on the computer.
- ◆ You have administrative privileges on the computer on which the management pack is to be installed.
- ◆ You have the privileges required to provision the NetApp storage systems and NetApp Operations Manager servers being monitored via ApplianceWatch for SCOM.
- ◆ Simple Network Management Protocol (SNMP) and WMI SNMP Provider are installed on the SCOM server, and the SNMP trap service is properly configured.

Provisioning SNMP and SNMP trap services

Before installing ApplianceWatch for SCOM, you must install SNMP and SNMP trap services. You should:

1. Verify that these items are installed. See [“Verifying SNMP and SNMP trap services are installed”](#) on page 4.
2. Install the services on the SCOM server, if they are not already installed. See [“Adding SNMP and WMI SNMP Provider to the SCOM server”](#) on page 5.
3. Configure the SNMP service. See [“Configuring the SNMP service”](#) on page 5.
4. Configure SNMP trap service. See [“Configuring the SNMP trap service”](#) on page 6.

Verifying SNMP and SNMP trap services are installed: Follow these instructions to determine if SNMP and SNMP trap services are already installed on the SCOM server.

Step	Action
1	From the SCOM server desktop, right-click My Computer and select Manage.
2	Expand Services and Applications; then click Services.

Step	Action
3	Verify that SNMP Service and SNMP Trap Service appear in the list of services. If they are not installed, see “Adding SNMP and WMI SNMP Provider to the SCOM server” on page 5 to install them.

Adding SNMP and WMI SNMP Provider to the SCOM server: Follow these instructions to add SNMP and WMI SNMP Provider to the SCOM server if they are not already installed.

Step	Action
1	Open the Add/Remove software control panel.
2	Select the Add/Remove Windows components.
3	Select Management and Monitoring Tools.
4	Select Simple Network Management Protocol and WMI SNMP Provider.
5	Click OK.

Configuring the SNMP service: Follow these instructions to install the SNMP service on the SCOM server.

Step	Action
1	From the SCOM server desktop, right-click My Computer and select Manage.
2	Expand Services and Applications; then click Services.
3	Right-click SNMP Trap Service and select Properties.
4	Click the General tab.
5	Select the Automatic startup type.
6	Click the Traps tab.
7	Type <i>public</i> in the Community Name drop-down list and select Add to List.
8	Click the Security tab.

Step	Action
9	Select Accept SNMP Packets from any Host.
10	Click Apply; then click OK.

Configuring the SNMP trap service: Follow these instructions to install the SNMP trap service on the SCOM server.

Step	Action
1	From the SCOM server desktop, right-click on My Computer and select Manage.
2	Expand Services and Applications; then click Services.
3	Right-click on SNMP Trap Service and select Properties.
4	Click on General tab.
5	Select the Automatic startup type.
6	Click Apply; then click OK.

Installation process overview

The ApplianceWatch for SCOM installation process consists of the following main steps:

1. Downloading the ApplianceWatch for SCOM management pack from NetApp on the Web (NOW).
2. Discovering the NetApp Storage Systems and NetApp Operations Manager servers.
3. Installing the ApplianceWatch for SCOM support files.
4. Installing the ApplianceWatch for SCOM management pack.
5. Configuring the appropriate devices to forward all SNMP traps to the SCOM server:
 - ❖ To directly monitor storage systems from SCOM, configure each storage system to forward all SNMP traps to the SCOM server.

- ❖ To monitor the storage systems via NetApp Operations Manager server, configure NetApp Operations Manager server to forward all SNMP traps to the SCOM server.

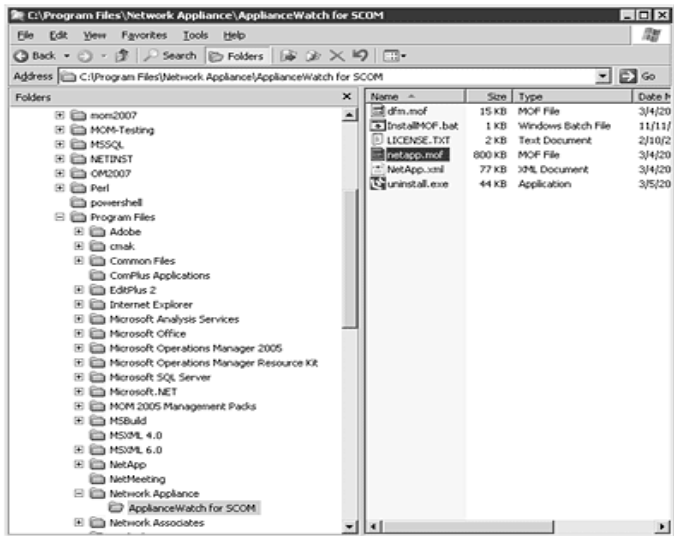
Installing the ApplianceWatch for SCOM support files

Follow these steps to install the ApplianceWatch for SCOM support files.

Step	Action
1	Copy the awSCOM2007setup-1-2-win.exe file to a directory on the computer running SCOM server.
2	Double-click awSCOM2007setup-1-2-win.exe. Result: The Choose Components dialog box appears. 
3	Select Network Appliance MOF Registration. Result: The Netapp .mof files are registered with WMI. Note _____ The SCOM server will not be able to monitor NetApp storage systems and NetApp Operations Manager servers without registering the .mof files.

Step	Action
4	Click Next. Result: The Choose Install Location dialog box appears. 
5	Type the install directory in the Destination Folder field, or click Browse to select a directory.
6	Click Install. Result: The NetApp support files are installed.

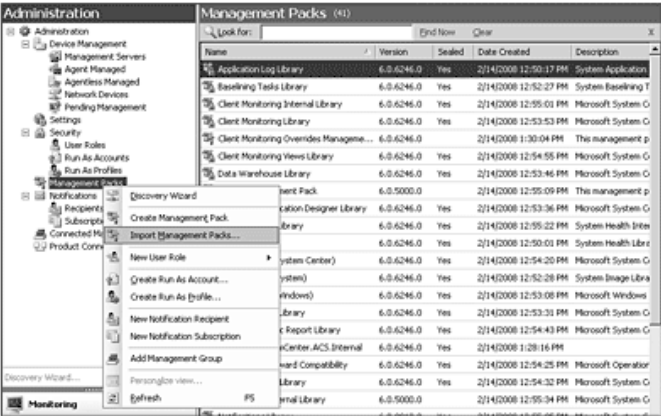
Step	Action
7	Click Show Details to view the installed files, and click Next to continue. Result: Completing the NetApp SCOM Support Setup Wizard dialog box appears. 
8	Select Show Readme to view the Readme file; then click Finish.

Step	Action
9	Verify that the installation is complete by opening Windows Explorer and navigating to the install directory. The following files should appear. 

Installing the ApplianceWatch for SCOM management pack

After you install the NetApp support files, follow these steps to install the ApplianceWatch for SCOM management pack.

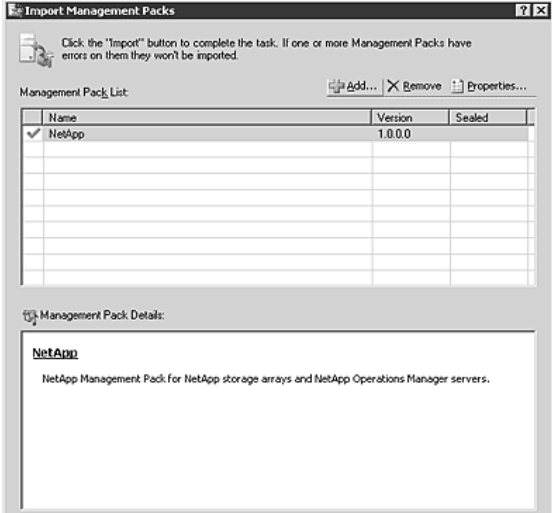
Step	Action
1	Open the Administrator Pane in the Operation Console.
2	Right-click Management Packs.
3	Select Import Management Packs option from the pop-up menu.

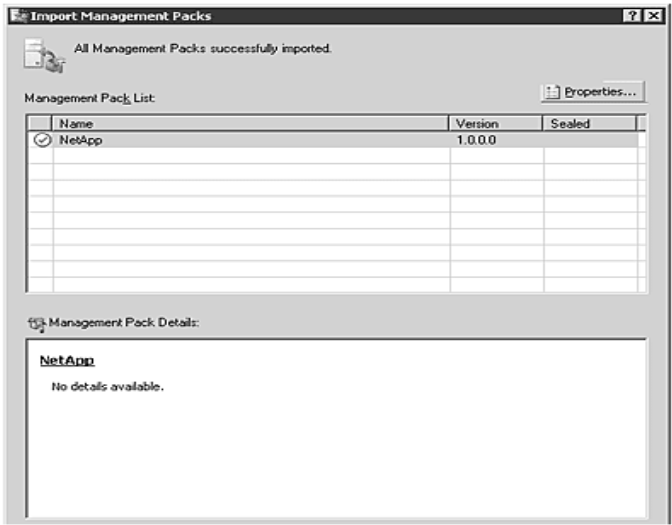


The screenshot shows the SCOM Administration console. On the left, the 'Administration' tree is expanded to 'Management Packs'. A right-click context menu is open, showing options like 'Discovery Wizard', 'Create Management Pack...', 'Import Management Packs...', 'New User Role', etc. The 'Import Management Packs...' option is highlighted. The main pane displays a table of installed management packs.

Name	Version	Sealed	Date Created	Description
Application Log Library	6.0.6246.0	Yes	2/14/2008 12:50:17 PM	System Application
Baselining Tasks Library	6.0.6246.0	Yes	2/14/2008 12:52:37 PM	System Baselining T
Client Monitoring Internal Library	6.0.6246.0	Yes	2/14/2008 12:55:01 PM	Microsoft System C
Client Monitoring Library	6.0.6246.0	Yes	2/14/2008 12:53:53 PM	Microsoft System C
Client Monitoring Overrides Manage...	6.0.6246.0		2/14/2008 1:30:04 PM	This management p
Client Monitoring Views Library	6.0.6246.0	Yes	2/14/2008 12:54:55 PM	Microsoft System C
Data Warehouse Library	6.0.6246.0	Yes	2/14/2008 12:53:46 PM	Microsoft System C
Discovery Wizard	6.0.5000.0		2/14/2008 12:55:09 PM	This management p
Operation Designer Library	6.0.6246.0	Yes	2/14/2008 12:53:36 PM	Microsoft System C
System Health Library	6.0.6246.0	Yes	2/14/2008 12:55:22 PM	System Health Inte
System Health Library	6.0.6246.0	Yes	2/14/2008 12:50:01 PM	System Health Libr
System Center	6.0.6246.0	Yes	2/14/2008 12:54:20 PM	Microsoft System C
System Image Library	6.0.6246.0	Yes	2/14/2008 12:52:28 PM	System Image Libr
Microsoft Windows	6.0.6246.0	Yes	2/14/2008 12:53:08 PM	Microsoft Windows
Microsoft System C	6.0.6246.0	Yes	2/14/2008 12:53:31 PM	Microsoft System C
Microsoft System C	6.0.6246.0	Yes	2/14/2008 12:54:43 PM	Microsoft System C
Microsoft System C	6.0.6246.0	Yes	2/14/2008 1:28:16 PM	Microsoft System C
Microsoft System C	6.0.6246.0	Yes	2/14/2008 12:54:25 PM	Microsoft System C
Microsoft System C	6.0.6246.0	Yes	2/14/2008 12:54:32 PM	Microsoft System C
Microsoft System C	6.0.5000.0		2/14/2008 12:55:34 PM	Microsoft System C

Step	Action
4	Select Management Pack to Import dialog box appears. 
5	Enter the path where you installed the NetApp support files, or click Browse and locate the correct path; the default is c:\Program Files\Network Appliance\ApplianceWatch for SCOM.

Step	Action
6	Select NetApp.xml and click Open to install the management pack. Result: Import Management Pack dialog box appears. 
7	Click on Import.

Step	Action
8	Verify that the management pack gets imported without any errors.  The screenshot shows a window titled "Import Management Packs". At the top, it says "All Management Packs successfully imported." Below this is a section titled "Management Pack List:" which contains a table with three columns: "Name", "Version", and "Sealed". The first row of the table is checked and contains the text "NetApp", "1.0.0.0", and an empty "Sealed" cell. Below the table is a section titled "Management Pack Details:" which shows "NetApp" and the text "No details available." There is also a "Properties..." button in the top right corner of the dialog.

Verifying the management pack installation

After you install the ApplianceWatch for SCOM management pack, follow these steps to verify the installation.

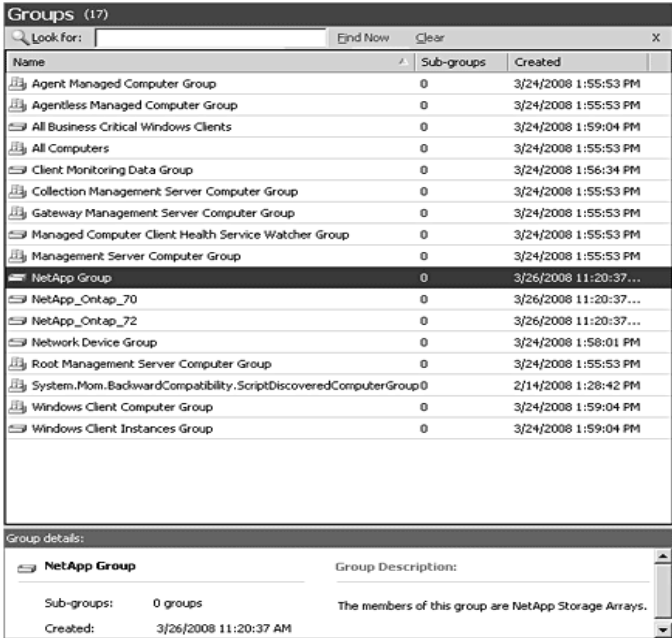
The NetApp Management Pack contains the following entries in the SCOM Administrator Console. Verify that each entry exists after installation.

- ◆ Groups
- ◆ Rules

Verifying the Group entry

Follow these steps to verify that the NetApp Group entry exists. The NetApp Group contains the NetApp storage systems discovered by the SCOM server.

Step	Action
1	Open the SCOM 2007 Authoring Pane.
2	Click on Groups . Result: The list of computer groups appears.

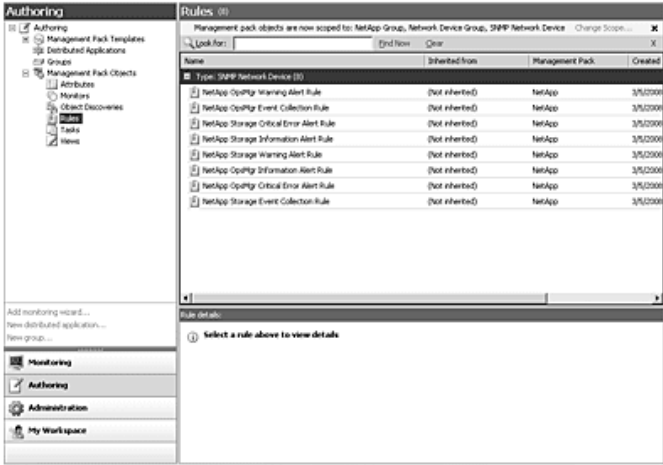
Step	Action
3	Verify that the NetApp Group appears under Groups.  The screenshot shows a window titled 'Groups (17)' with a search bar and a table of groups. The table has columns for Name, Sub-groups, and Created. The 'NetApp Group' is highlighted in the list. Below the table, the 'Group details' for the 'NetApp Group' are displayed, showing 0 sub-groups and a creation date of 3/26/2008 11:20:37 AM. The description states: 'The members of this group are NetApp Storage Arrays.'
4	Right click on NetApp Group and select Properties.
5	Click on General tab.

Step	Action
6	Deselect and select 'Enable Group population'; then click 'OK'. The screenshot shows the 'Groups (15)' dialog box. It has a search bar at the top with 'Look for:' and buttons for 'Find Now' and 'Clear'. Below is a table with columns 'Name', 'Sub-groups', and 'Created'. The 'NetApp Group' is highlighted, showing 2 sub-groups and a creation date of 3/25/2008 7:17:59 PM. Below the table, the 'Group details' section shows the 'NetApp Group' description: 'The members of this group are NetApp Storage Arrays.'

Verifying the Rules Group entries

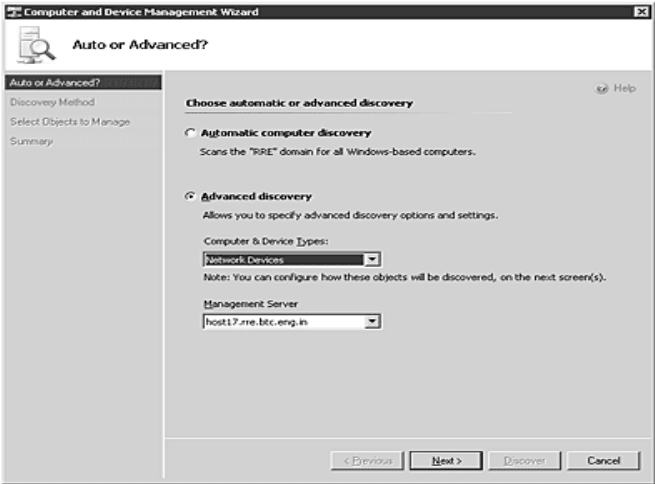
Follow these steps to verify that the NetApp rules are installed. The rules developed for NetApp are used to generate alerts when SCOM receives an event (SNMP trap) from a NetApp Operations Manager server or storage system.

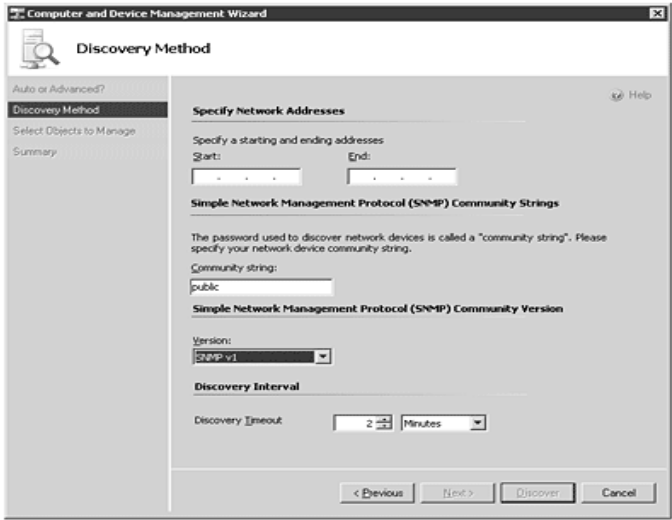
Step	Action
1	Open the SCOM 2007 Authoring Pane.
2	Click on Rules under Management Pack Objects.

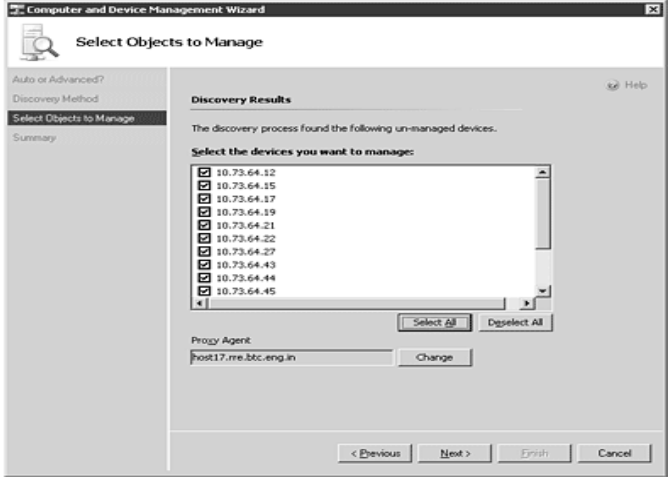
Step	Action
3	Under “SNMP Network Device” type, verify that NetApp Rules appear. 

Discovering the NetApp Storage Systems and NetApp Operations Manager servers

After installing the management pack for SCOM 2007, identify the NetApp Storage Systems and NetApp Operation Manager servers in the SCOM Administrator Console by following this procedure.

Step	Action
1	From the Administration pane in the Console, start the Discovery Wizard.
2	In the Auto or Automatic dialog box, select Advanced Discovery. 
3	In the drop-down menu, select Network Devices and click Next.

Step	Action
4	In the Discovery Method dialog box, add the IP-range you want to scan in and the SNMP community string. Choose to scan for SNMP v1. Result: The Security box appears. 

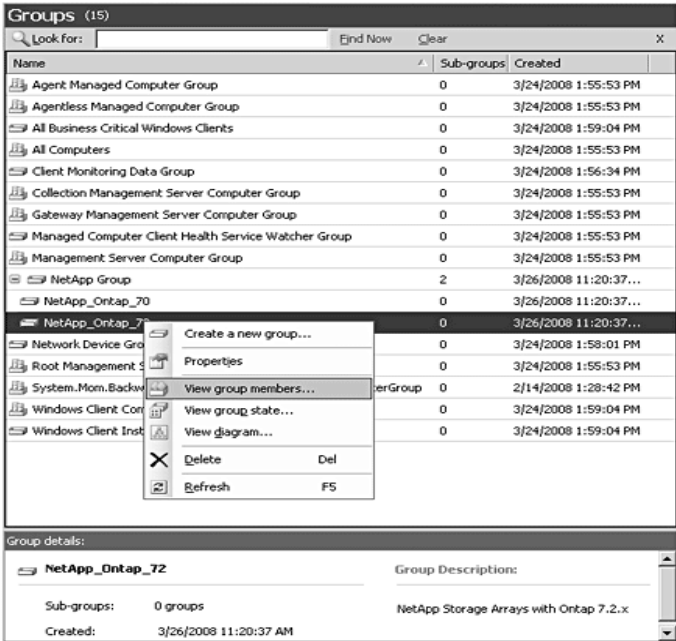
Step	Action
5	In the Select Objects to Manage Method dialog box, choose the devices you want to manage.  The screenshot shows the 'Computer and Device Management Wizard' window. The left sidebar has four tabs: 'Auto or Advanced?', 'Discovery Method', 'Select Objects to Manage' (which is selected), and 'Summary'. The main area is titled 'Select Objects to Manage'. Under the 'Discovery Results' heading, it says 'The discovery process found the following un-managed devices.' Below this is a list box titled 'Select the devices you want to manage:' containing the following IP addresses, each with a checked checkbox: 10.73.64.12, 10.73.64.15, 10.73.64.17, 10.73.64.19, 10.73.64.21, 10.73.64.22, 10.73.64.27, 10.73.64.43, 10.73.64.44, and 10.73.64.45. Below the list are 'Select All' and 'Deselect All' buttons. At the bottom of the main area is a 'Proxy Agent' section with a text field containing 'Post17.mre.bbc.eng.in' and a 'Change' button. The bottom of the wizard has four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.
6	Click Next; then click Finish.

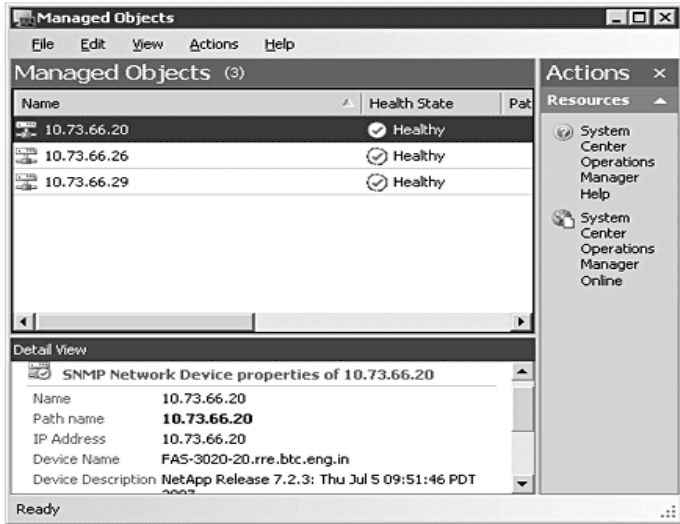
Checking if the NetApp Devices are populated in the NetApp Group

Checking if the NetApp Devices are populated in the NetApp Group

Follow these steps to confirm that the NetApp Storage Arrays are populated in the NetApp Group.

Step	Action
1	Open the SCOM 2007 Authoring Pane
2	Click on Groups. Result: The list of computer groups appears.

Step	Action																																																						
3	Under NetApp Group, right click on NetApp_Ontap_70 or NetApp_Ontap_72 and select View group members.  The screenshot displays the NetApp Groups management interface. At the top, there is a search bar labeled 'Look for:' and buttons for 'Find Now' and 'Clear'. Below this is a table listing 15 groups. The table has columns for 'Name', 'Sub-groups', and 'Created'. The 'NetApp Group' is highlighted, and a context menu is open over the 'NetApp_Ontap_72' entry. The context menu includes options: 'Create a new group...', 'Properties', 'View group members...' (which is highlighted), 'View group state...', 'View diagram...', 'Delete' (with a keyboard shortcut 'Del'), and 'Refresh' (with a keyboard shortcut 'F5'). Below the table, the 'Group details' section for 'NetApp_Ontap_72' is visible, showing 'Sub-groups: 0 groups' and 'Created: 3/26/2008 11:20:37 AM'. The 'Group Description' field contains the text 'NetApp Storage Arrays with Ontap 7.2.x'. <table><tr><th>Name</th><th>Sub-groups</th><th>Created</th></tr><tr><td>Agent Managed Computer Group</td><td>0</td><td>3/24/2008 1:55:53 PM</td></tr><tr><td>Agentless Managed Computer Group</td><td>0</td><td>3/24/2008 1:55:53 PM</td></tr><tr><td>All Business Critical Windows Clients</td><td>0</td><td>3/24/2008 1:59:04 PM</td></tr><tr><td>All Computers</td><td>0</td><td>3/24/2008 1:55:53 PM</td></tr><tr><td>Client Monitoring Data Group</td><td>0</td><td>3/24/2008 1:56:34 PM</td></tr><tr><td>Collection Management Server Computer Group</td><td>0</td><td>3/24/2008 1:55:53 PM</td></tr><tr><td>Gateway Management Server Computer Group</td><td>0</td><td>3/24/2008 1:55:53 PM</td></tr><tr><td>Managed Computer Client Health Service Watcher Group</td><td>0</td><td>3/24/2008 1:55:53 PM</td></tr><tr><td>Management Server Computer Group</td><td>0</td><td>3/24/2008 1:55:53 PM</td></tr><tr><td>NetApp Group</td><td>2</td><td>3/26/2008 11:20:37...</td></tr><tr><td>NetApp_Ontap_70</td><td>0</td><td>3/26/2008 11:20:37...</td></tr><tr><td>NetApp_Ontap_72</td><td>0</td><td>3/26/2008 11:20:37...</td></tr><tr><td>Network Device Group</td><td>0</td><td>3/24/2008 1:58:01 PM</td></tr><tr><td>Root Management System</td><td>0</td><td>3/24/2008 1:55:53 PM</td></tr><tr><td>System.Mom.Backward</td><td>0</td><td>2/14/2008 1:28:42 PM</td></tr><tr><td>Windows Client Configuration</td><td>0</td><td>3/24/2008 1:59:04 PM</td></tr><tr><td>Windows Client Installation</td><td>0</td><td>3/24/2008 1:59:04 PM</td></tr></table> Group details: NetApp_Ontap_72 Sub-groups: 0 groups Created: 3/26/2008 11:20:37 AM Group Description: NetApp Storage Arrays with Ontap 7.2.x	Name	Sub-groups	Created	Agent Managed Computer Group	0	3/24/2008 1:55:53 PM	Agentless Managed Computer Group	0	3/24/2008 1:55:53 PM	All Business Critical Windows Clients	0	3/24/2008 1:59:04 PM	All Computers	0	3/24/2008 1:55:53 PM	Client Monitoring Data Group	0	3/24/2008 1:56:34 PM	Collection Management Server Computer Group	0	3/24/2008 1:55:53 PM	Gateway Management Server Computer Group	0	3/24/2008 1:55:53 PM	Managed Computer Client Health Service Watcher Group	0	3/24/2008 1:55:53 PM	Management Server Computer Group	0	3/24/2008 1:55:53 PM	NetApp Group	2	3/26/2008 11:20:37...	NetApp_Ontap_70	0	3/26/2008 11:20:37...	NetApp_Ontap_72	0	3/26/2008 11:20:37...	Network Device Group	0	3/24/2008 1:58:01 PM	Root Management System	0	3/24/2008 1:55:53 PM	System.Mom.Backward	0	2/14/2008 1:28:42 PM	Windows Client Configuration	0	3/24/2008 1:59:04 PM	Windows Client Installation	0	3/24/2008 1:59:04 PM
Name	Sub-groups	Created																																																					
Agent Managed Computer Group	0	3/24/2008 1:55:53 PM																																																					
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Management Server Computer Group	0	3/24/2008 1:55:53 PM																																																					
NetApp Group	2	3/26/2008 11:20:37...																																																					
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Root Management System	0	3/24/2008 1:55:53 PM																																																					
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Windows Client Configuration	0	3/24/2008 1:59:04 PM																																																					
Windows Client Installation	0	3/24/2008 1:59:04 PM																																																					

Step	Action
4	A new window Managed Objects opens with the list of NetApp Storage Arrays which have been discovered earlier under Network discovery. 
5	If you do not see the NetApp Storage Arrays listed in the window, go to Administration Pane, delete all the NetApp Storage Arrays listed under the Network Devices. Then see “Installing the ApplianceWatch for SCOM support files” on page 8 to rediscover the devices.

About this chapter

This chapter describes how to configure your storage systems and NetApp Operations Manager servers to forward their SNMP traps to the SCOM server.

Topics in this chapter

This chapter discusses the following topic:

- ◆ [“Configuring storage systems”](#) on page 28
- ◆ [“Configuring NetApp Operations Manager servers”](#) on page 32

Configuring storage systems

There are two ways to configure your storage systems:

- ◆ Use the CLI.
- ◆ Use the FilerView® administration tool.

Using the CLI to configure storage systems

After you connect to the storage system via the CLI, follow these steps to set the SNMP settings. Type `snmp options` at the command prompt for a list of options:

```
usage: snmp options
Options are:

                                (no option => display current settings)
authtrap    [ 0|1 ]           (0 => disabled, 1 => enabled)
community   [ add ro <community> ]
community   [ delete { all | ro <community> } ]
contact     [ <contact> ]
init        [ 1 ]             (0 => uninitialized, 1 => initialized)
location    [ <location> ]
traphost    [ add|delete <hostname|ipaddress> ]
traps       [ enable|disable|reset|delete ] [ <trapname> ]
traps       <trapname>.<parm> <value>
traps       walk <prefix>
traps       load <filename>
```

Note—
Use single quotes (for example, 'abc def') to enclose strings that include spaces or tabs.

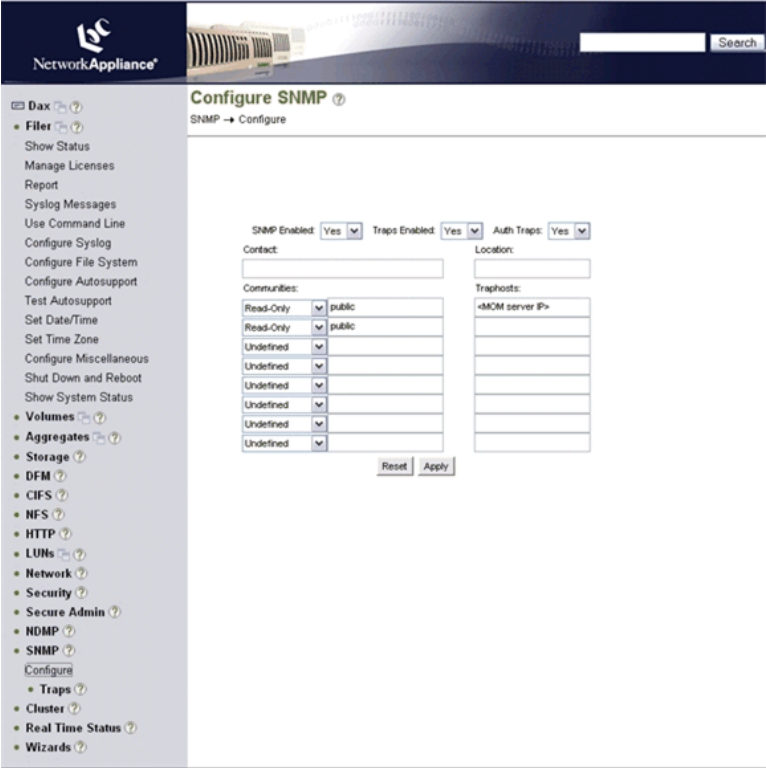
Step	Action
1	From the command prompt, enter the following command: <code>snmp init</code>
2	Enter the following command: <code>snmp authtrap 1</code>
3	Enter the following command: <code>snmp contact <contact person></code>

Step	Action
4	Enter the following command: snmp community add ro public
5	Enter the following command: snmp location <filer location>
6	Enter the following command: snmp trapshot add <SCOM server IP>
7	Enter the following command: snmp Example: Dax*> snmp contact: <contact person> location: <filer location> authtrap: 1 community: ro public traphost: SCOM server IP (SCOM server IP) < SCOM server IP > init: 1
8	Repeat these steps for each storage system.

Using FilerView to configure storage systems

To configure storage systems via FilerView, you can either connect through your Web browser or access FilerView through the Operations Manager application.

Step	Action
1	Open FilerView.
2	From the left pane, click SNMP.

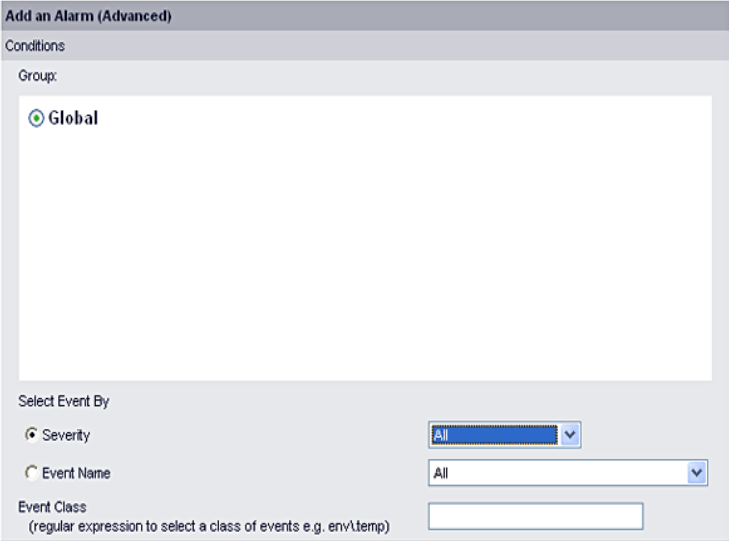
Step	Action
3	Under SNMP, click Configure. Result: The Configure SNMP options appear. 
4	Select Yes from the SNMP Enabled drop-down list.
5	Select Yes from the Traps Enabled drop-down list.
6	Select Yes from the Auth Traps drop-down list.
7	Type a contact name in the Contact field.
8	Type the location of the storage system in the Location field.
9	In the Communities section, select an open row and select Read Only from the drop-down list; then type Public in the text box.

Step	Action
10	In the Traphosts section, type the SCOM server IP address in the text box in the same row from Step 9 (see the illustration above, for example).
11	Click Apply. Result: The configuration settings are saved.
12	Repeat these steps for each storage system.

Configuring NetApp Operations Manager servers

To enable SCOM to monitor NetApp Operations Manager servers, you must configure the NetApp Operations Manager server to forward its events to SCOM via SNMP traps.

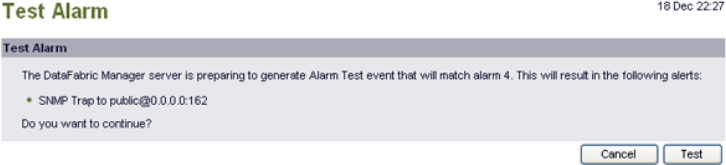
Selecting the configuration settings

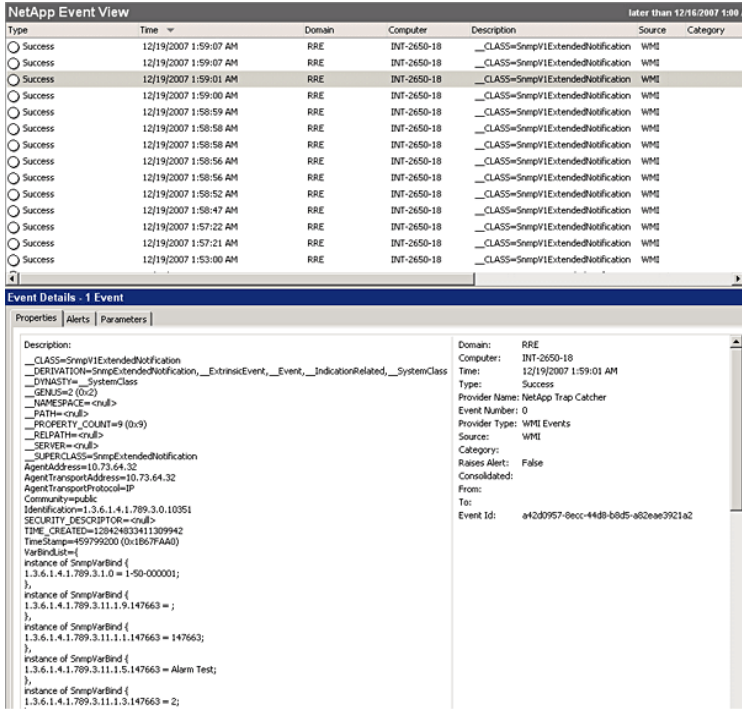
Step	Action
1	Connect to the NetApp Operations Manager server via your Web browser.
2	Click the Alarms menu at the top of the window.
3	Click Advanced Version near the bottom of the window. Result: The Alarms options appear. 

Step	Action														
4	Under Select Event By, select Severity, then select All from the drop list. Result: The NetApp Operations Manager server will forward all events to the SCOM server.														
5	In the SNMP Trap Hosts field, enter the community string, IP address, and trap port for the SCOM server. Note_____ The default community string is <i>public</i> and the default trap port is <i>162</i>. _____ Example: public@<SCOM Server IP address>:162														
6	Click Add. Result: The new details appear at the bottom of the window. Recipients Email Recipients - Admins (specify full login names of administrators) Email Recipients - Non-Admins (specify email addresses) Page Recipients - Admins (specify full login names of administrators) Page Recipients - Non-Admins (specify pager addresses) SNMP Trap Hosts Other Options Time From 00:00 Time To 23:59 Repeat Notify No Repeat Interval 30 Disable No Simple Version Add Show all columns <table><tr><th>Event</th><th>Severity</th><th>Group</th><th>Recipients</th><th>Edit</th><th>Test</th><th>Delete</th></tr><tr><td>All</td><td>All</td><td>Global</td><td> public@0.0.0.0:162</td><td>edit</td><td>test</td><td>☐</td></tr></table> Delete Selected	Event	Severity	Group	Recipients	Edit	Test	Delete	All	All	Global	public@0.0.0.0:162	edit	test	☐
Event	Severity	Group	Recipients	Edit	Test	Delete									
All	All	Global	public@0.0.0.0:162	edit	test	☐									

Testing the configuration settings

To verify that the NetApp Operations Manager server is configured correctly, you can send a test SNMP trap to the SCOM server. Follow these steps to test the configuration settings.

Step	Action
1	Click Test at the bottom of the window, as shown in the previous illustration. Result: The Test Alarm window appears. 
2	Click Test. Result: A test SNMP trap is sent to the SCOM server.
3	Open the SCOM Operator Console and expand the All Event Views folder.

Step	Action
4	Select Events. Result: The test SNMP event appears.  The screenshot shows the NetApp Event View interface. It displays a table of events with columns: Type, Time, Domain, Computer, Description, Source, and Category. The events are filtered for 'later than 12/16/2007 1:50'. The selected event is expanded to show details in the 'Event Details - 1 Event' pane. The details include Properties, Alerts, and Parameters. The Description field contains a long string of text, including 'CLASS=SnmpV1ExtendedNotification', 'DERIVATION=SnmpExtendedNotification', 'DYNASTY=SystemClass', 'GENUS=0x2', 'NAMESPACE=cnul', 'PATH=cnul', 'PROPERTY_COUNT=9 (0x9)', 'RELPATH=cnul', 'SERVER=cnul', 'SUPERCLASS=SnmpExtendedNotification', 'AgentAddress=10.73.64.32', 'AgentTransportAddress=10.73.64.32', 'AgentTransportProtocol=IP', 'Community=public', 'Identification=1.3.6.1.4.1.789.3.0.10351', 'SECURITY_DESCRIPTOR=cnul', 'TIME_CREATED=129424833411309942', 'TimeStamp=459799200 (0x1867FAAD)', 'VarBindList=[', 'Instance of SnmpVarBind {', '1.3.6.1.4.1.789.3.1.0 = 1-50-000001;', '}', 'Instance of SnmpVarBind {', '1.3.6.1.4.1.789.3.11.1.9.147663 = ;', '}', 'Instance of SnmpVarBind {', '1.3.6.1.4.1.789.3.11.1.1.147663 = 147663;', '}', 'Instance of SnmpVarBind {', '1.3.6.1.4.1.789.3.11.1.5.147663 = Alarm Test;', '}', 'Instance of SnmpVarBind {', '1.3.6.1.4.1.789.3.11.1.3.147663 = 2;', '}'.
5	In the SCOM Operator Console, open the Alert View and expand the All Alert Views folder.

Step	Action
------	--------

6	Select Alerts.
---	----------------

Result: The Information alert appears in the right pane, describing the test event.

The screenshot displays the NetApp Alert View interface. At the top, a table lists various alerts with columns for Time Last Modified, Severity, Computer, Source, Description, and Name. The alert 'Test event was general...' is highlighted. Below the table, the 'Alert Details - 1 Alert' section is shown, with tabs for Properties, Custom Properties, Events, Product Knowledge, Company Knowledge, and History. The 'Properties' tab is active, showing details for the 'TestAlarm' alert, including its severity (Information), resolution state (New), domain (RRE), computer (10-73-64-32), and time of first event (12/19/2007 1:59:01 AM).

Time Last Modified	Severity	Computer	Source	Description	Name
12/19/2007 1:59:08 AM	Critical Error	FAS-3050-47-rre-btc-eng-in	NetApp ApplianceWatch	A disk storage shelf re...	shelfFault
12/19/2007 1:59:08 AM	Critical Error	FAS-3050-48-rre-btc-eng-in	NetApp ApplianceWatch	A disk storage shelf re...	shelfFault
12/19/2007 1:59:01 AM	Information	10-73-64-32	NetApp ApplianceWatch	Test event was general...	TestAlarm
12/19/2007 1:59:00 AM	Critical Error	FAS-940-54-rre-btc-eng-in	NetApp ApplianceWatch	The appliance's overa...	globalStatusCritical
12/19/2007 1:58:59 AM	Warning	FAS-940-55-rre-btc-eng-in	NetApp ApplianceWatch	The clustered host br...	CfioSettingsThidNode
12/19/2007 1:58:56 AM	Error	FAS-940-54-rre-btc-eng-in	NetApp ApplianceWatch	Unable to send autosu...	autosupportSendErr
12/19/2007 1:58:56 AM	Warning	FAS-940-54-rre-btc-eng-in	NetApp ApplianceWatch	The partner has taken...	clusterNodeTakenOv
12/19/2007 1:58:53 AM	Critical Error	FAS-3020-19-rre-btc-eng-in	NetApp ApplianceWatch	A disk storage shelf re...	shelfFault
12/19/2007 1:58:47 AM	Critical Error	10-73-66-54	NetApp ApplianceWatch	A node in a Cluster f...	clusterNodeFailed
12/19/2007 1:57:22 AM	Critical Error	fas-920-24-rre-btc-eng-in	NetApp ApplianceWatch	One or more disks fail...	diskFailed
12/19/2007 1:57:22 AM	Error	FAS-6030-42-rre-btc-eng-in	NetApp ApplianceWatch	Unable to send autosu...	autosupportSendErr
12/19/2007 1:53:01 AM	Error	FAS-940-54-rre-btc-eng-in	NetApp ApplianceWatch	The appliance's overa...	globalStatusCritik
12/19/2007 1:52:23 AM	Information	FAS-940-54-rre-btc-eng-in	NetApp ApplianceWatch	Volume is online now...	volumeOnline
12/19/2007 1:52:23 AM	Information	FAS-940-54-rre-btc-eng-in	NetApp ApplianceWatch	Volume is online now...	volumeOnline

Properties	Custom Properties	Events	Product Knowledge	Company Knowledge	History
Description: Test event was generated to test operation of an alarm. Information event on IBM-IC36-32 (Alarm Test) - Testing alarm 10			Name: TestAlarm Severity: Information Resolution State: New Domain: RRE Computer: 10-73-64-32 Time of First Event: 12/19/2007 1:59:01 AM Time of Last Event: 12/19/2007 1:59:01 AM Alert latency: 0 sec Problem State: Investigate Repeat Count: 0 Ages: Source: NetApp ApplianceWatch Alert Id: bb11d1d0-87fe-4760-83e0-2a49e1099e1e Rule (enabled): NetApp\NetApp Storage Event Rule		

Understanding how NetApp SNMP events map to SCOM events

The current SCOM management pack allows the SCOM server to process all SNMP traps generated by both the NetApp Operations Manager servers and storage systems. You can simultaneously monitor both the devices. Keep in mind that if you have a NetApp Operations Manager server monitoring storage systems and you are also individually monitoring one of the storage systems, you will receive duplicate alerts.

The follow tables list the NetApp storage system and Operations Manager severities and their corresponding SCOM severities.

Operations Manager Event Severity	SCOM Severity
1 (Normal)	Information
2 (Information)	Information
3 (Warning)	Warning
4 (Error)	Critical
5 (Critical)	Critical
6 (Emergency)	Critical

Storage System SNMP Severity	SCOM Severity
1 (Emergency)	Critical
2 (Alert)	Critical
3 (Critical)	Critical
4 (Error)	Critical
5 (Warning)	Warning
6 (Notification)	Information
7 (Information)	Information
8 (Debug)	Information

