



**Supermicro Server Monitoring  
with SuperDoctor 5<sup>®</sup> and SCOM 2012**

**User's Guide**

Revision 1.0

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Manual Revision 1.0

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## Revision History

Date	Rev	Description
May-29-2015	1.0	1. Initial document.

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# 1 Introduction

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In this guide, we will show you the four methods of using System Center 2012 R2 Operations Manager (SCOM 2012 R2) to check the health status of a system monitored by SuperDoctor 5<sup>®</sup>. You can use SCOM 2012 to monitor SD5 by checking event logs, SNMP GET or SNMP trap, allowing you to choose the method that suits your needs.

## 2 Prerequisites

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### 2.1 Managed Systems - SD5

To install SuperDoctor 5<sup>®</sup>, please refer to “Chapter 2 Setting Up SD5” in *SuperDoctor 5 User's Guide* for details. To quickly install SD5 to multiple systems, see “2.1.4 Tips for Deploying a Large Number of SD5s” in *SuperDoctor 5 User's Guide*.

### 2.2 Management Server - SCOM 2012 R2

To install SCOM 2012 R2, refer to Microsoft's website at <https://technet.microsoft.com/en-us/library/hh205987.aspx> for more information.

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## 3 Creating an NT Event Rule to Monitor SD5

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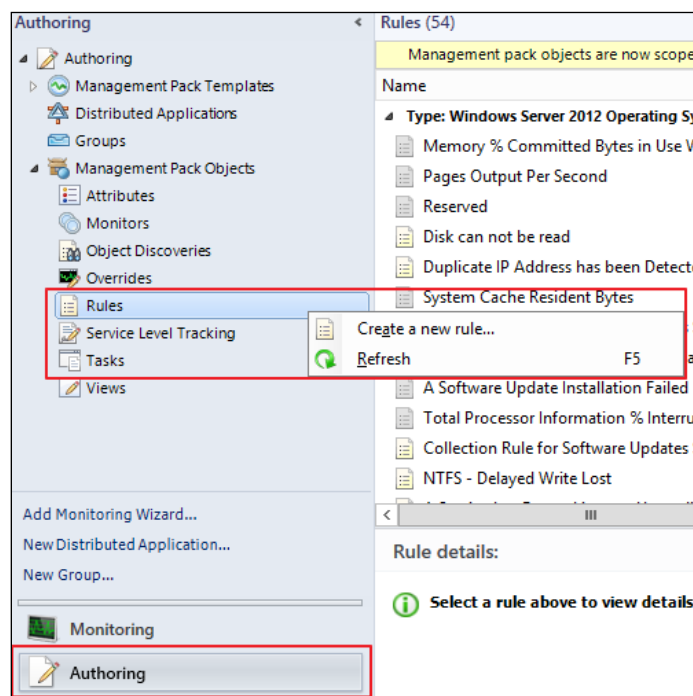
The example below illustrates the use of SCOM 2012 to check a managed system's event log that was written by SD5 when a monitored item was triggered or recovered. In this example, two conditions must be met,

- The SD5 event log function must be enabled. You have to configure the SD5 notification methods in advance. See *4.5.1 Alert Configuration in SuperDoctor 5 User's Guide* for more information.
- The Windows computer with SD5 must be discovered/managed by SCOM 2012.

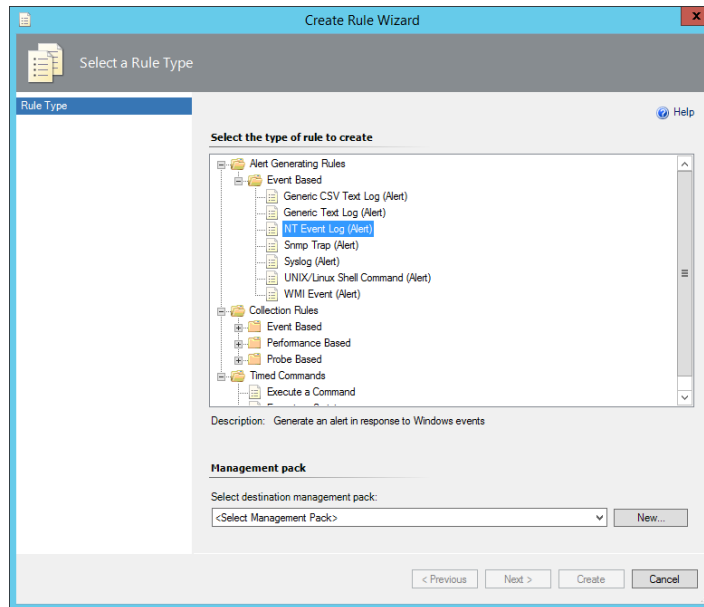
If the above conditions are met, follow these steps:

**Step 1:** In the **Operations Console**, click the **Authoring** Tab.

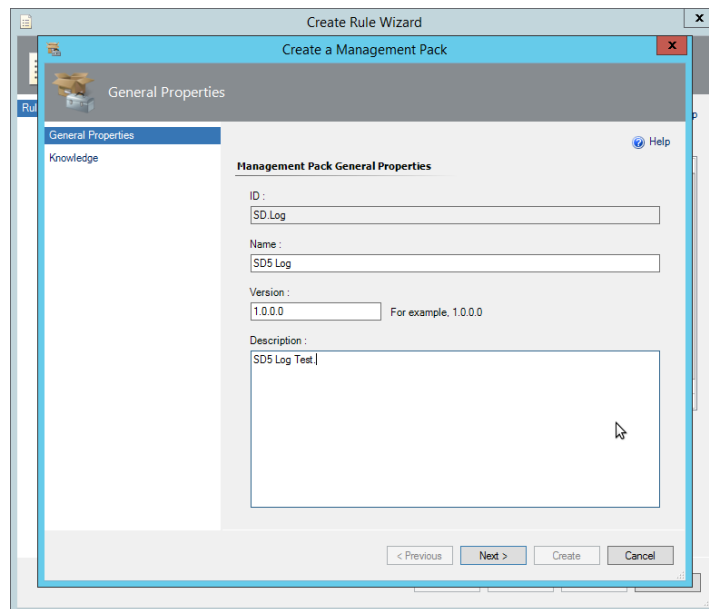
**Step 2:** Go to **Management Pack Objects > Rules**. Right-click **Rules** and select **Create a new rule**.



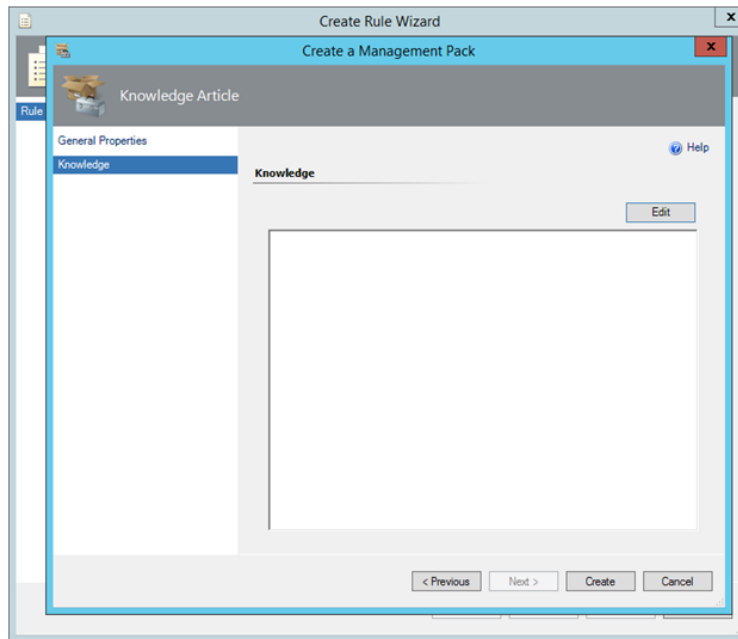
**Step 3:** In the Rule Type section, select **NT Event Log (Alert)** and click **New** to create a custom SD5 management pack.



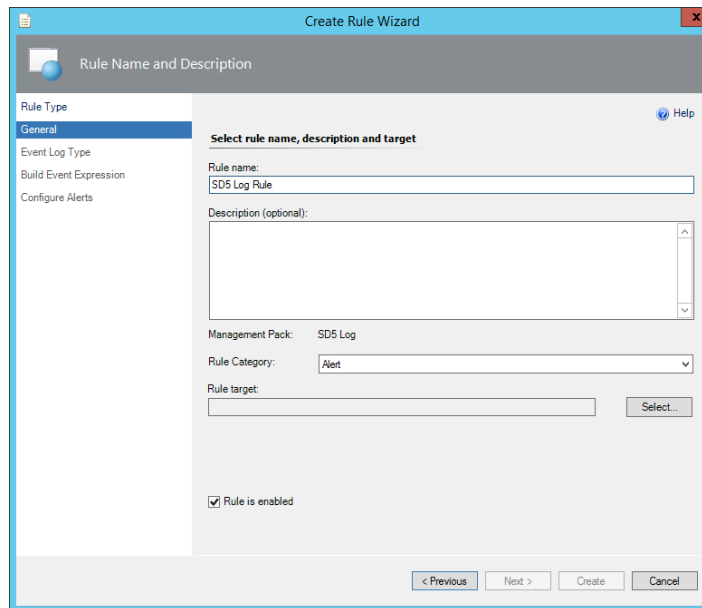
**Step 4:** Type the name, version and description. Click **Next** to continue.



**Step 5:** Click **Create** to start creating the management pack and return to the Create Rule Wizard.

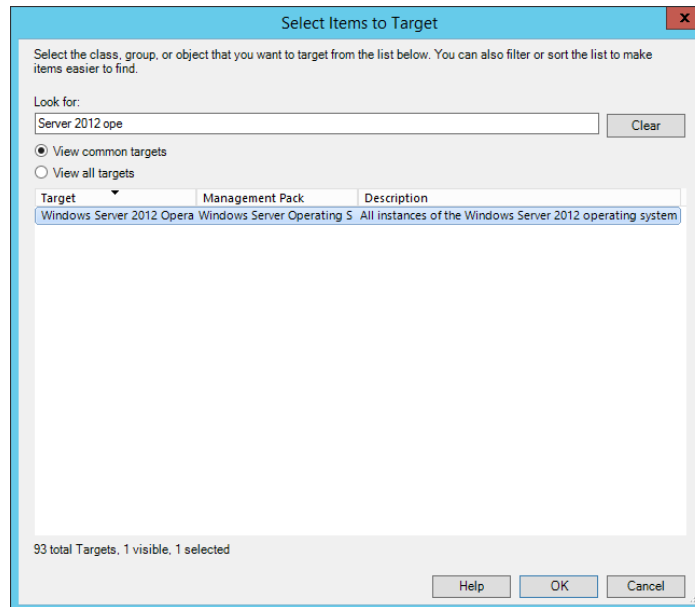


**Step 6:** In the General section, input the rule name and click **Select** to set up the Rule target.

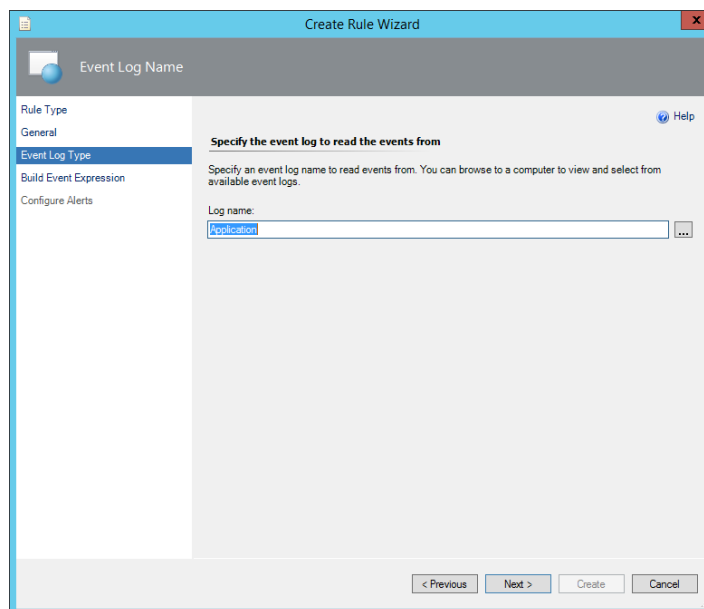


**Step 7:** Find “Windows Server 2012 Operating System” and click **OK**. Note that if you cannot find the target, go to the Microsoft Download Center <https://www.microsoft.com/en-us/download/> to find “System Center Management Pack for Windows Server Operating System”, then import it into your SCOM 2012.

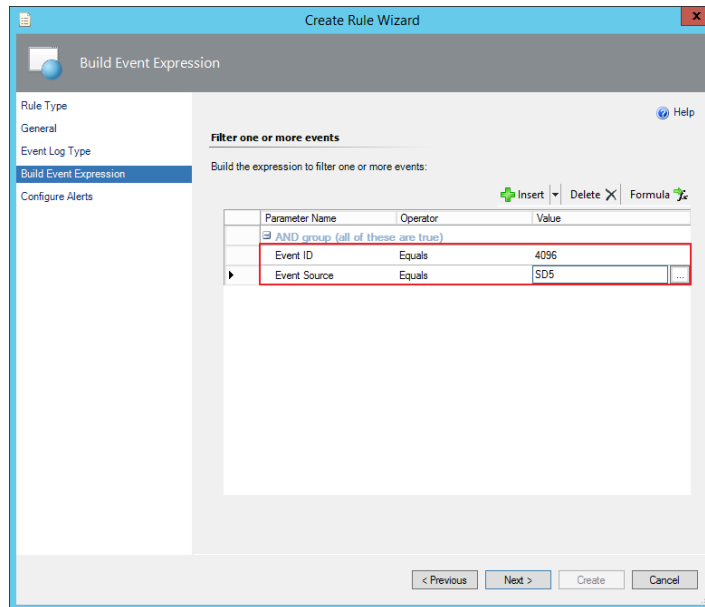




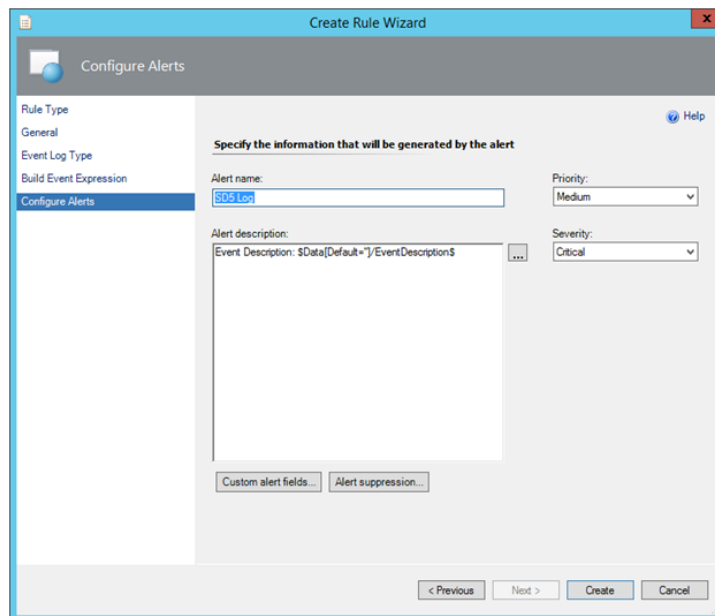
**Step 8:** Select the type of event log. **Application** is selected by default and click **Next**.



**Step 9:** In the Value fields, type **4096** for Event ID and **SD5** for Event Source. Click **Next** to continue.



**Step 10:** Click **Create** to start creating a rule for SD5. The dialog box will close.



**Step 11:** In the **Operations Console**, click the **Monitoring** Tab and go to **Monitoring > Active Alerts**. In the figure below, you can see that a hard disk error (\\.\PHYSICALDRIVE 0 is Unavailable) occurred on the managed system (Slave.TEST.SSM).

The screenshot displays the Active Alerts console with a table of alerts and a detailed view of a selected alert.

Severity	Icon	Source	Name	Resolution State	Created	Age
Critical (1)		Microsoft Windows Server 2012 R2 Datacenter	SDS Log Rule	New	5/13/2015 1:47:51 AM	< 1 Minute
Warning (1)		SCOM.TEST.SSM	Operations Manager Failed to Access the Wi...	New	5/13/2015 1:21:06 AM	27 Minutes

**Alert Details**

**SDS Log Rule**

Source: Microsoft Windows Server 2012 R2 Datacenter

Full Path Name: Slave.TEST.SSM:Microsoft Windows Server 2012 R2 Datacenter

Alert Rule: SDS Log Rule

Created: 5/13/2015 1:47:51 AM

**Alert Description**

Event Description: 2015-05-13,01:47:51,UNKNOWN,\\.\PHYSICALDRIVE 0 is Unavailable

Knowledge: No knowledge was available for this alert.

[View additional knowledge...](#)

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## 4 Creating an SNMP Probe Monitor for SD5

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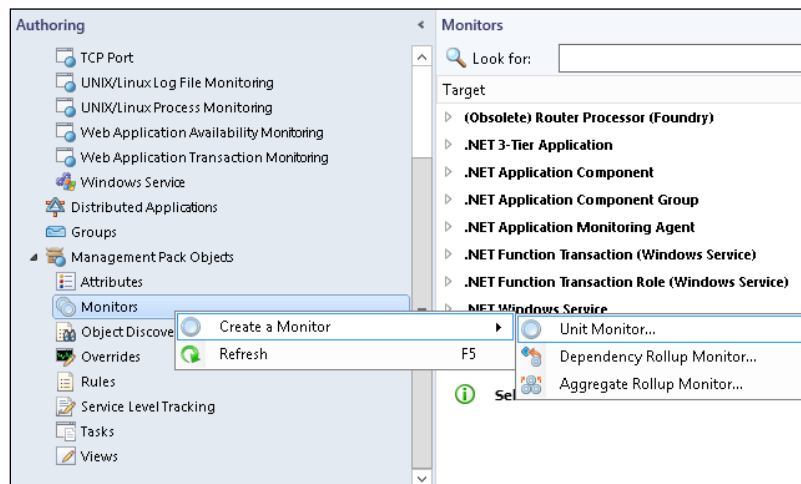
The example below illustrates the use of SCOM 2012 to probe a managed system's SNMP OID value. The value changes when a health-monitored item is triggered or recovered. In this example, two conditions must be met:

- SD5 must be set up with the SD5 SNMP extensions configured in advance. See *5 SNMP Extension* in *SuperDoctor 5 User's Guide* for more information.
- SNMP device SD5 must be discovered/managed by SCOM 2012.

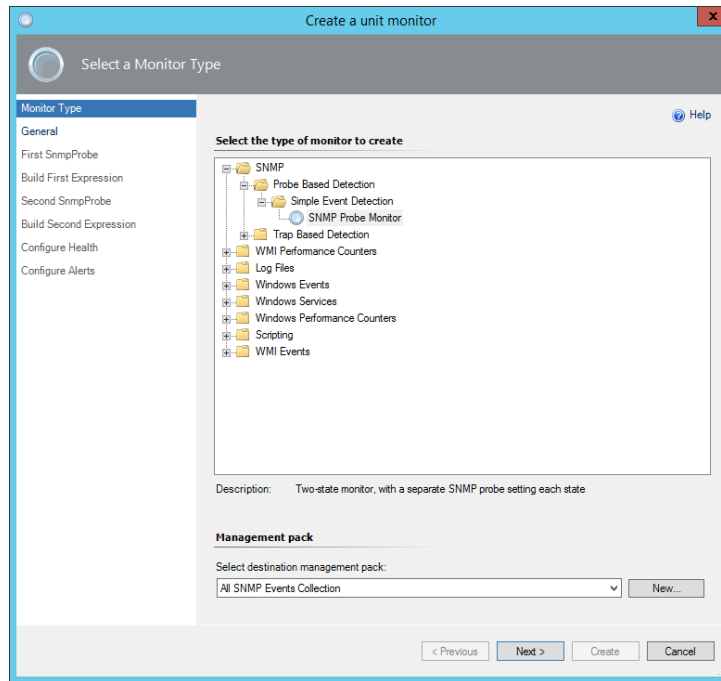
If the conditions above are met, follow these steps:

**Step 1:** In the **Operations Console**, click the **Authoring** Tab.

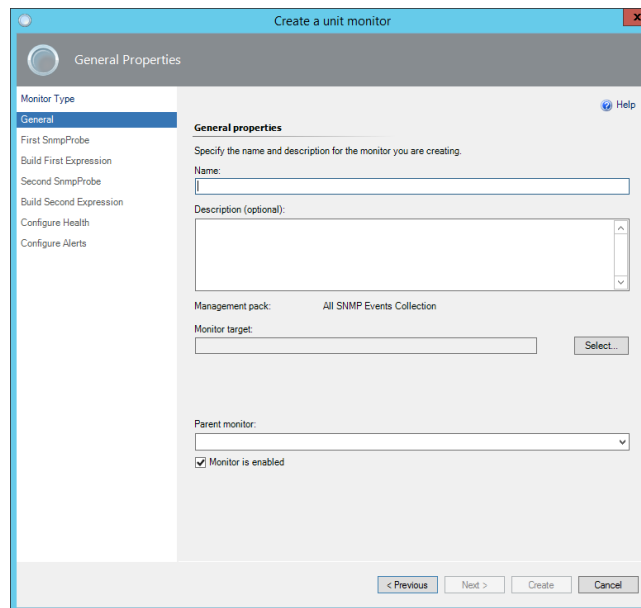
**Step 2:** Go to **Management Pack Objects > Monitors**. Right-click **Monitors** and select **Create a Monitor > Unit Monitor**.



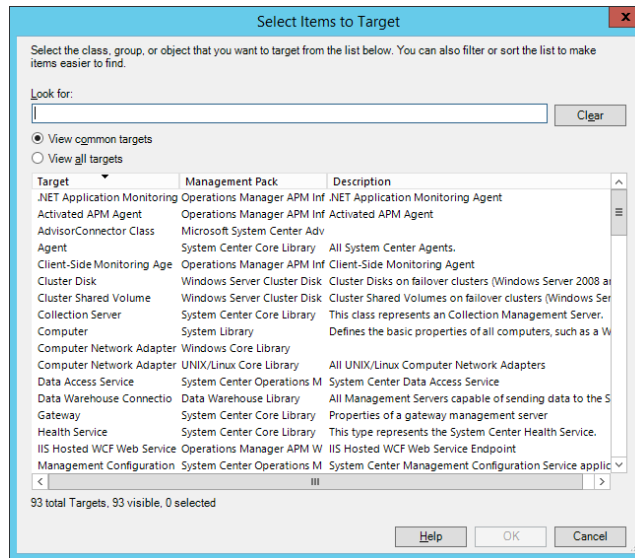
**Step 3:** The **Create a unit monitor** wizard shows up. Go to **SNMP > Probe Based Detection > Simple Event Detection > SNMP Probe Monitor** and select **All SNMP Events Collection** as destination management pack. Note that “All SNMP Events Collection” is predefined. Alternatively, you can click **New** to create a custom management pack.



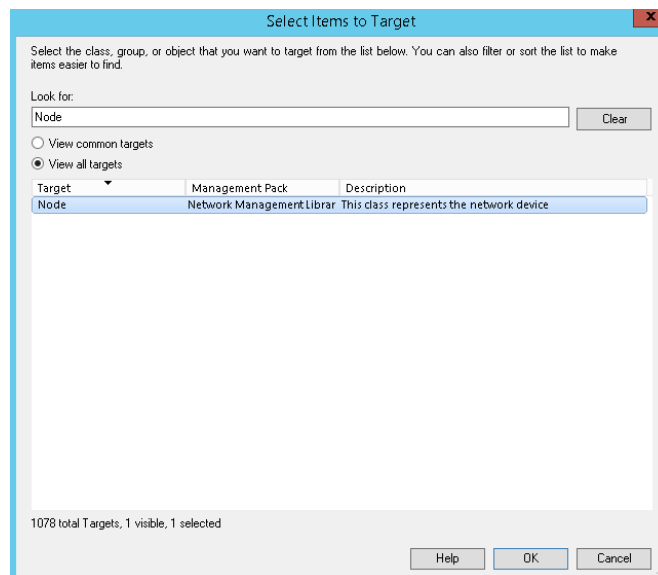
**Step 4:** In the **General** section, click **Select**.



**Step 5:** A **Select Items to Target** dialog box pops up.



**Step 6:** Look for the **Node** Type, select to **View all targets** and click **OK** to continue.



**Step 7:** Enter the **Name** of the monitor you are creating and click **Next** to continue.

**General properties**

Specify the name and description for the monitor you are creating.

Name:

Description (optional):

Management pack: All SNMP Events Collection

Monitor target:

Parent monitor:

Monitor is enabled

**Step 8:** In the **First SnmpProbe** section, enter `.1.3.6.1.4.1.10876.2.2`<sup>1</sup> for the Object Identifier and click **Next** to continue.

Frequency:

Object Identifier Properties

Object Identifier
.1.3.6.1.4.1.10876.2.2

**Step 9:** In the **Build First Expression** section of the Create a unit monitor wizard,

- 1) Click the **Insert** button to add a new row.
- 2) Enter `SnmpVarBinds/SnmpVarBind[OID=".1.3.6.1.4.1.10876.2.2"]/Value` to the **Parameter Name** field.
- 3) Click **Does not equal** in the **Operator** field.
- 4) Enter `0` to the **Value** field.
- 5) Click **Next** to continue.

**Filter one or more events**

Build the expression to filter one or more events:

Parameter Name	Operator	Value
SnmpVarBinds/SnmpVarBin...	Does not equal	0

<sup>1</sup> This specifies the all-in-one health status of built-in sensors monitored by SD5.

**Step 10:** In the **Second SnmpProbe** section, enter **.1.3.6.1.4.1.10876.2.2** for the Object Identifier and click **Next** to continue.

Frequency: 2 Minutes

Object Identifier Properties

Object Identifier
.1.3.6.1.4.1.10876.2.2

**Step 11:** In the **Build Second Expression** section ,

- 1) Click **Insert** to add a new row.
- 2) Enter **SnmpVarBinds/SnmpVarBind[OID=".1.3.6.1.4.1.10876.2.2"]/Value** in the **Parameter Name** field.
- 3) Click **Equals** in the Operator field.
- 4) Enter **0** in the Value field.
- 5) Click **Next** to continue.

Filter one or more events

Build the expression to filter one or more events:

+ Insert | Delete X | Formula

Parameter Name	Operator	Value
SnmpVarBinds/SnmpVarBind[OID=".1.3.6.1.4.1.10876.2.2"]/Value	Equals	0

**Step 12:** In the **Configure Health** section, change the **Operational State** and Health State (see the figure below) and click **Next** to continue.

Map monitor conditions to health states

Specify what health state should be generated for each of the conditions that this monitor will detect:

Monitor Condition	Operational State	Health State
Second Probe Raised	Built-in Sensors are OK.	Healthy
First Probe Raised	Built-in Sensors contain Critical.	Critical

**Step 13:** In the **Configure Alerts** section,

- 1) Select **Generate alerts for this monitor.**
- 2) Use the drop-down list to select **The monitor is in a critical health state.**
- 3) Click **Create** to continue.



**Alert settings**

Generate alerts for this monitor

Generate an alert when:  
 The monitor is in a critical health state

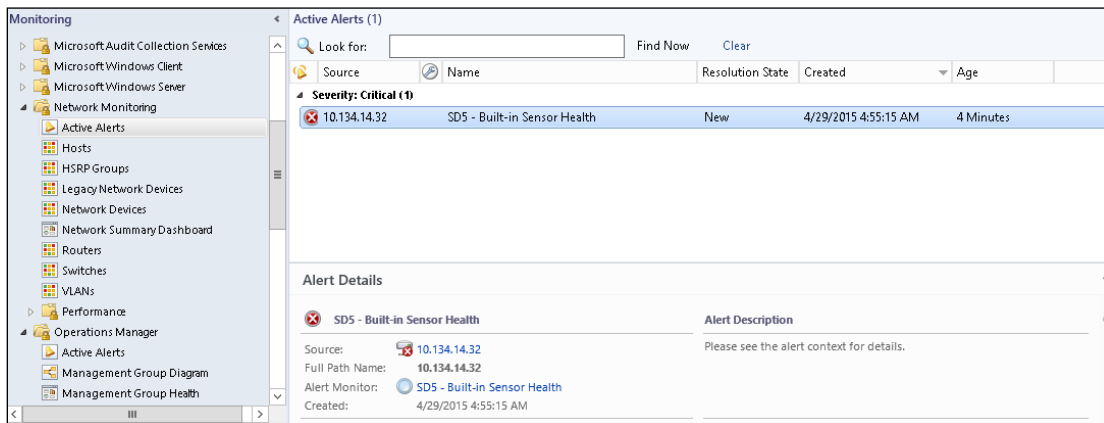
Automatically resolve the alert when the monitor returns to a healthy state

**Alert properties**

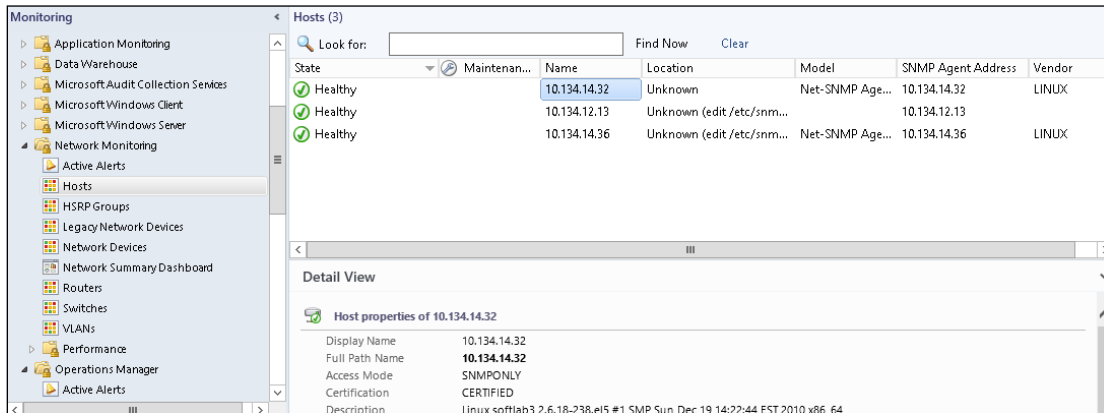
Alert name: SD5 - Built-in Sensor Health Priority: Medium

Alert description: Please see the alert context for details. Severity: Critical

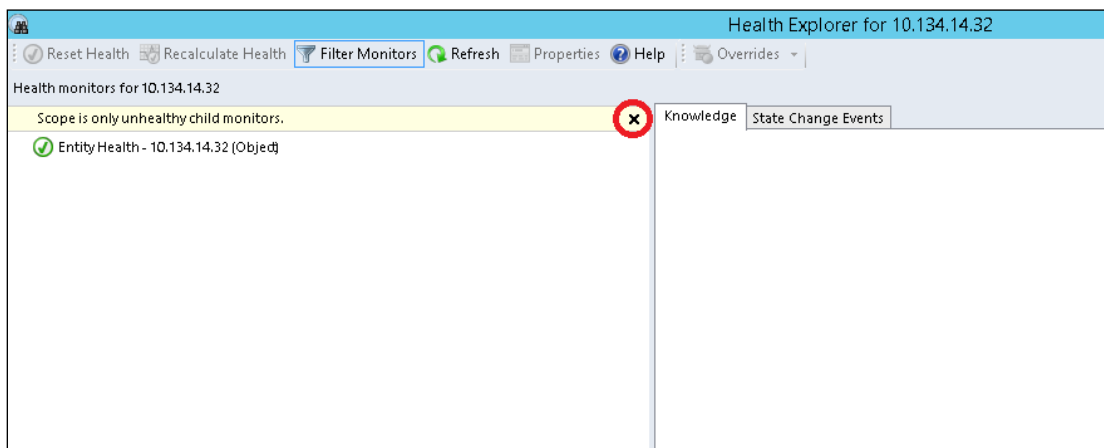
**Step 14:** In the **Operations Console**, click the **Monitoring** Tab and go to **Network Monitoring > Active Alerts**. In the figure below, you can see that the managed system (10.134.14.32) is in a critical state.



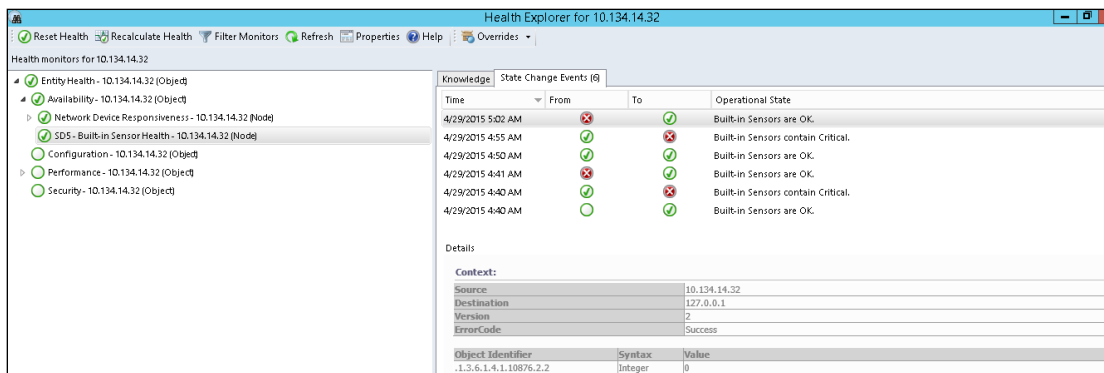
**Step 15:** Go to **Network Monitoring > Hosts**. In the figure below, you can see the managed systems (10.134.14.32, 10.134.12.13, and 10.134.14.36) are healthy.



**Step 16:** Double-click one of the selected hosts and a **Health Explorer dialog box** pops up. Click **Close** to show all monitors.



**Step 17:** Go to **Entity Health > Availability > SD5 - Built-in Sensor Health** in the left pane. All state change events for SD5 - Built-in Sensor Health are shown on the State Change Events tab in the right pane.



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## 5 Creating an SNMP Trap Monitor for SD5

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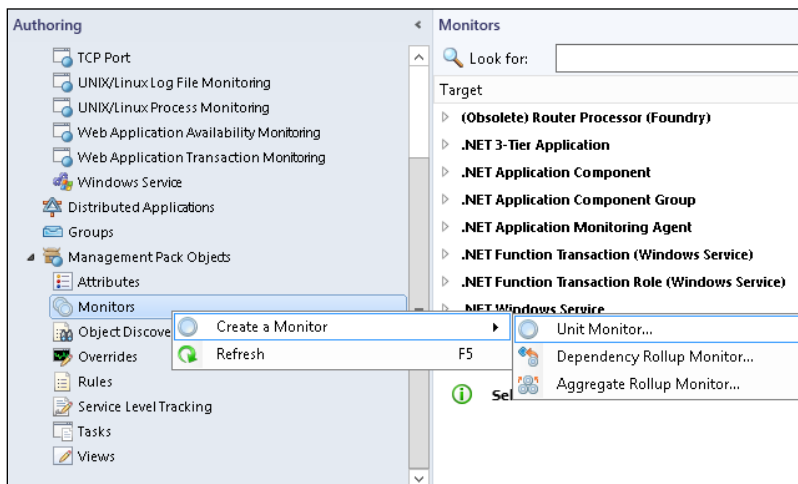
The example below illustrates the use of SCOM 2012 to probe a managed system's SNMP trap that has changed when a health-monitored item is triggered or recovered. In this example, three conditions must be met,

- SD5 SNMP trap function must be enabled. You have to configure SD5 notification methods in advance. See *4.5.1 Alert Configuration in SuperDoctor 5 User's Guide* for more information.
- SD5 must be set up with SD5 SNMP extensions configured in advance. See *5 SNMP Extension in SuperDoctor 5 User's Guide* for more information. Note that this condition is for SD5 to be discovered as an SNMP device.
- SNMP device SD5 must be discovered/managed by SCOM 2012.

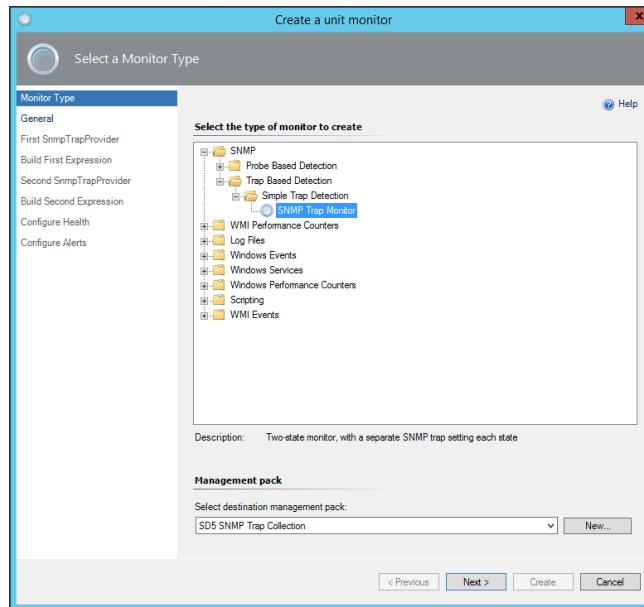
If the above conditions are met, follow these steps:

**Step 1:** In the **Operations Console**, click the **Authoring** Tab.

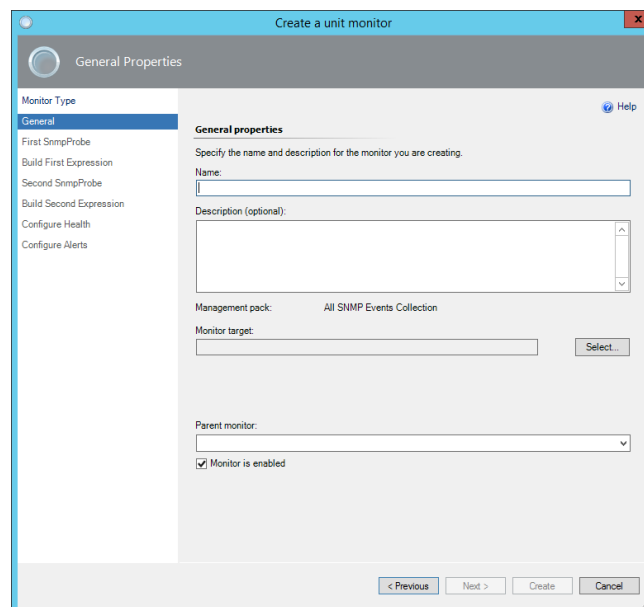
**Step 2:** Go to **Management Pack Objects > Monitors**. Right-click **Monitors** and select **Create a Monitor > Unit Monitor**.



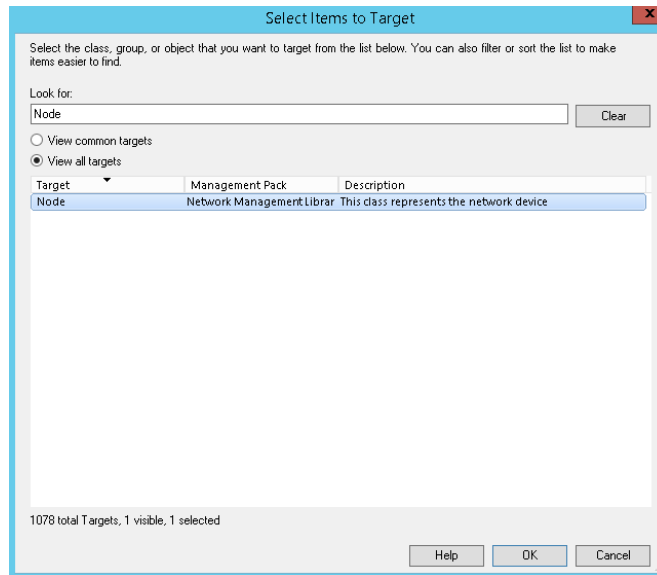
**Step 3:** The **Create a unit monitor** wizard is shown below. Go to **SNMP > Trap Based Detection > Simple Trap Detection > SNMP Trap Monitor** and select **SD5 SNMP Trap Collection** as the destination management pack. Note that "SD5 SNMP Trap Collection" is predefined. Alternatively you can create a custom management pack by clicking **New**.



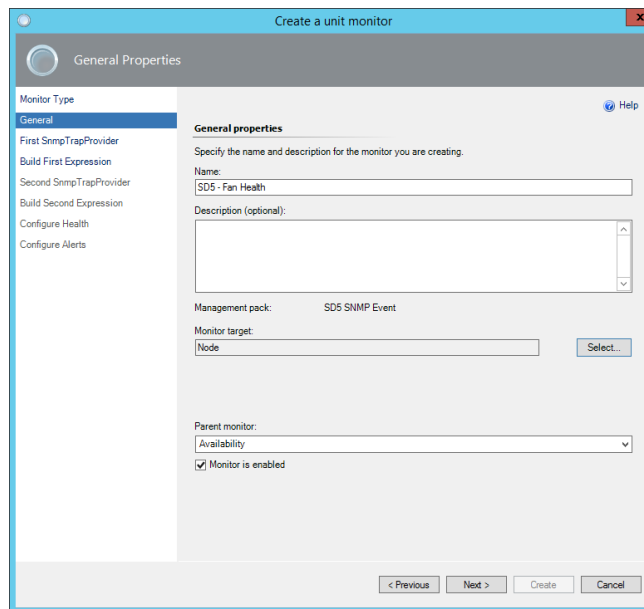
**Step 4:** In the **General** section, click **Select**. The **Select Items to Target** dialog box pops up.



**Step 5:** In the **Look for** field, type **“Node”**, select to **View all targets** and click **OK** to continue.

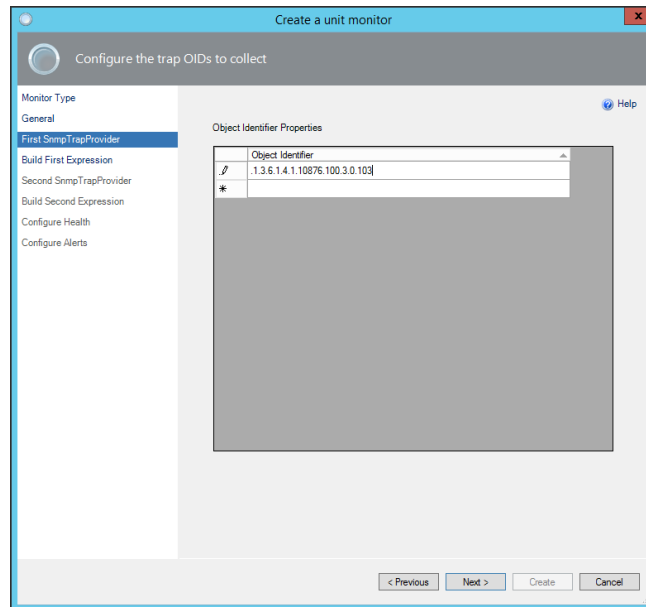


**Step 6:** Enter the **Name** of the monitor you are creating and click **Next** to continue.



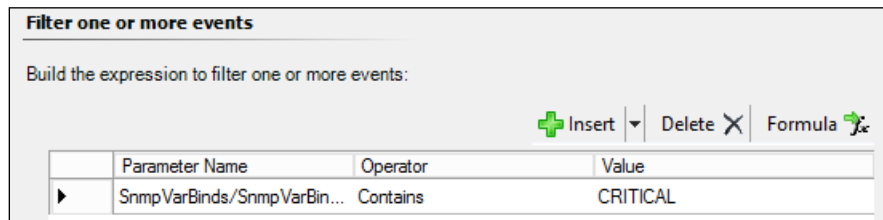
**Step 7:** In the **First SnmpTrapProvider** step, enter `.1.3.6.1.4.1.10876.100.3.0.1032` for the Object Identifier and click **Next** to continue.

<sup>2</sup> This means that the fan is critical.

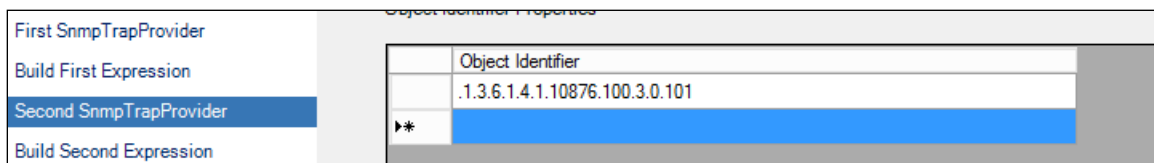


**Step 8:** In the **Build First Expression** section,

- 1) Click **Insert** to add a new row.
- 2) Enter **SnmpVarBinds/SnmpVarBind[OID=".1.3.6.1.4.1.10876.100.3.0.103"]/Value** in the Parameter Name field.
- 3) Click **Contains** in the Operator field.
- 4) Enter **CRITICAL** in the Value field.
- 5) Click **Next** to continue.



**Step 9:** In the **Second SnmpTrapProvider** section, enter **.1.3.6.1.4.1.10876.100.3.0.101<sup>3</sup>** as the Object Identifier and click **Next** to continue.



**Step 10:** In the **Build Second Expression** section,

<sup>3</sup> This means the fan is OK.

- 1) Click **Insert** to add a new row.
- 2) Enter **SnmpVarBinds/SnmpVarBind[OID=".1.3.6.1.4.1.10876.100.3.0.101"]/Value** in the **Parameter Name** field.
- 3) Click **Contains** in the Operator field.
- 4) Enter **OK** in the Value field.
- 5) Click **Next** to continue.

**Filter one or more events**

Build the expression to filter one or more events:

+ Insert | Delete X | Formula f

	Parameter Name	Operator	Value
▶	SnmpVarBinds/SnmpVarBin...	Contains	OK

**Step 11:** In the **Configure Health** section , change the **Operational State** and Health State as shown below and click **Next** to continue.

**Map monitor conditions to health states**

Specify what health state should be generated for each of the conditions that this monitor will detect:

	Monitor Condition	Operational State	Health State
	First Trap Raised	Fans contain Critical	<span style="color: red;">X</span> Critical
▶	Second Trap Raised	Fans are OK	<span style="color: green;">✓</span> Healthy

**Step 12:** In the **Configure Alerts** section,

- 1) Select **Generate alerts for this monitor**.
- 2) Use the drop-down list to select **The monitor is in a critical health state**.
- 3) Click **Create** to continue.

**Alert settings**

Generate alerts for this monitor

Generate an alert when:  
 The monitor is in a critical health state

Automatically resolve the alert when the monitor returns to a healthy state

**Alert properties**

Alert name: SD5 - Fan Health Priority: Medium

Alert description: Please see the alert context for details. Severity: Critical

**Step 13:** In the **Operations Console**, click the **Monitoring** tab and go to **Network Monitoring > Active Alerts**. In the figure below, you can see the managed system (10.134.14.32) is in a critical condition.

The screenshot shows the Monitoring console interface. On the left is a navigation tree with categories like Microsoft Windows Server, Network Monitoring, Performance, and Operations Manager. Under Network Monitoring, 'Active Alerts' is selected. The main pane shows 'Active Alerts (1)' with a table listing one alert:

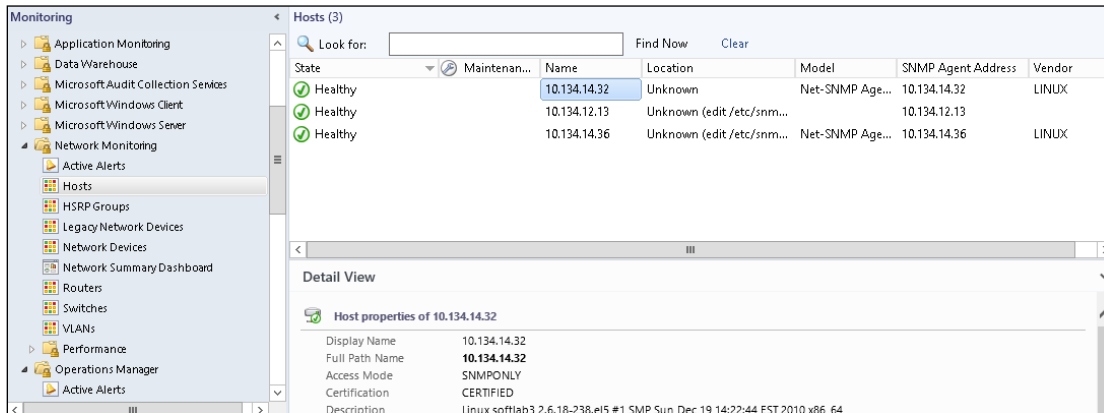
Source	Name	Resolution State	Created	Age
10.134.14.32	SD5 - Fan Health	New	5/18/2015 8:32:07 PM	1 Minute

Below the table, the 'Alert Details' for 'SD5 - Fan Health' are shown:

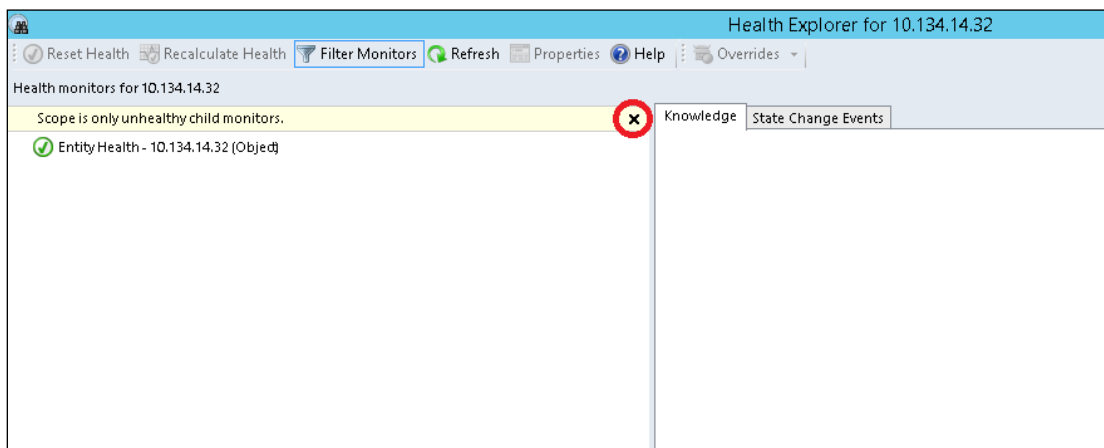
- Source: 10.134.14.32
- Full Path Name: 10.134.14.32
- Alert Monitor: SD5 - Fan Health
- Created: 5/18/2015 8:32:07 PM
- Alert Description: Please see the alert context for details.

**Step 14:** Go to **Network Monitoring > Hosts**. In the figure below, you can see that the managed systems (10.134.14.32, 10.134.12.13, and 10.134.14.36) are healthy.





**Step 15:** Double-click one of the selected hosts and a **Health Explorer dialog box** pops up. Click **Close** to show all monitors.



**Step 16:** Go to **Entity Health > Availability > SD5 - Fan Health** on the left pane. On the right pane are shown all state change events for SD5 with Fan Health are shown on the State Change Events.

Health Explorer for 10.134.14.32

Reset Health Recalculate Health Filter Monitors Refresh Properties Help Overrides

Health monitors for 10.134.14.32

- Entity Health - 10.134.14.32 (Object)
  - Availability - 10.134.14.32 (Object)
    - Network Device Responsiveness - 10.134.14.32 (Node)
      - SDS - Fan Health - 10.134.14.32 (Node)
      - Configuration - 10.134.14.32 (Object)
      - Performance - 10.134.14.32 (Object)
      - Security - 10.134.14.32 (Object)

Knowledge State Change Events (5)

Time	From	To	Operational State
5/18/2015 8:33 PM	✗	✓	Second Trap Raised
5/18/2015 8:32 PM	✓	✗	First Trap Raised
5/18/2015 8:19 PM	✗	✓	Second Trap Raised
5/18/2015 8:19 PM	✓	✗	First Trap Raised
5/18/2015 8:18 PM	○	✓	Second Trap Raised

Details

Context:

Source	10.134.14.32
Destination	127.0.0.1
Version	1
ErrorCode	Success

Object Identifier	Syntax	Value
.1.3.6.1.2.1.1.3.0	Timeticks	6678241
.1.3.6.1.6.3.1.1.4.1.0	OID	.1.3.6.1.4.1.10876.100.3.0.101
.1.3.6.1.2.1.1.3.0	Timeticks	6678241
.1.3.6.1.6.3.1.1.4.1.0	OID	.1.3.6.1.4.1.10876.100.3.0.101
.1.3.6.1.4.1.10876.100.3.0.101	Octets	Recovery: FAN 5 is OK at 2015-05-19 11:33:52. FAN 5 is 3025.0 RPM, low limit = 576.0 RPM
.1.3.6.1.6.3.1.1.4.3.0	OID	.1.3.6.1.4.1.10876.100.3

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## 6 Creating a Rule for an SNMP Trap to Check SD5 Status

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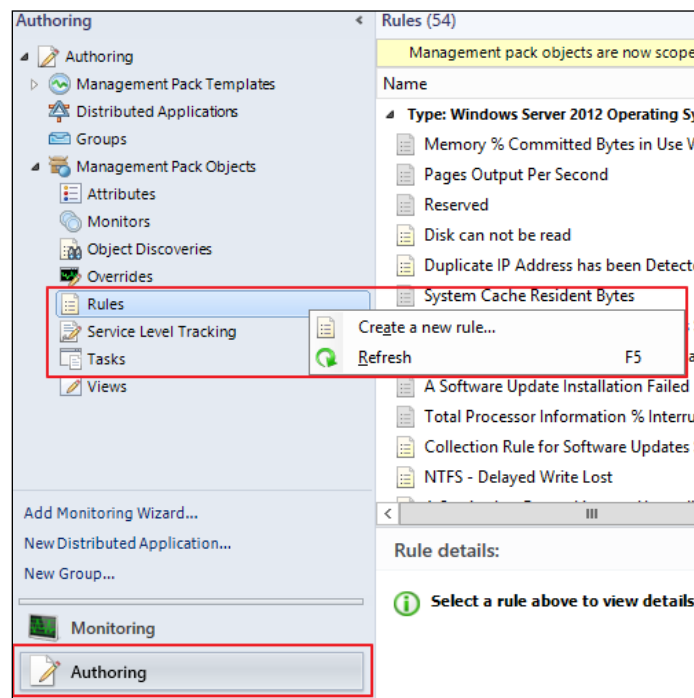
The example below illustrates the use of SCOM 2012 to receive a managed system's SNMP trap that is sent when a health-monitored item is triggered or recovered. In this example, three conditions must be met,

- The SD5 SNMP trap function must be enabled with SD5 notification methods configured in advance. See *4.5.1 Alert Configuration in SuperDoctor 5 User's Guide* for more information.
- SD5 must be set up with SD5 SNMP extensions configured in advance. See *5 SNMP Extension in SuperDoctor 5 User's Guide* for more information. Note that this condition is for SD5 to be discovered as an SNMP device.
- SNMP device SD5 must be discovered/managed by SCOM 2012.

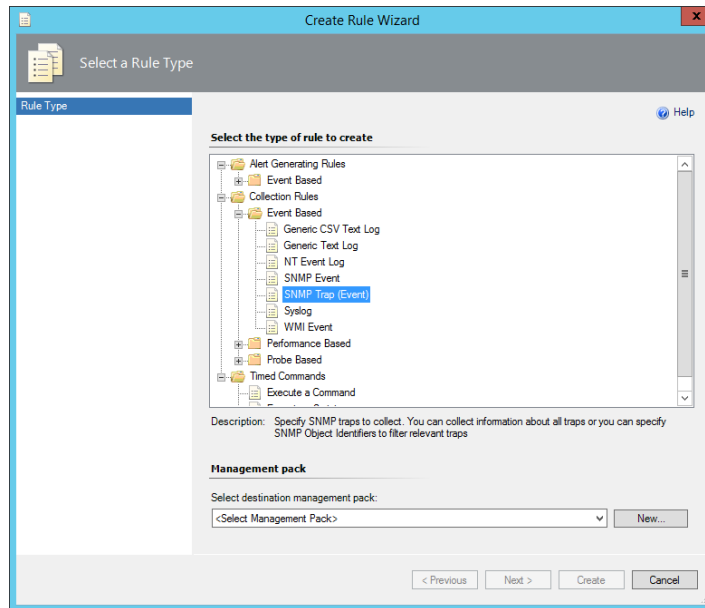
If the above conditions are met, follow these steps:

**Step 1:** In the Operations Console, click the **Authoring** Tab.

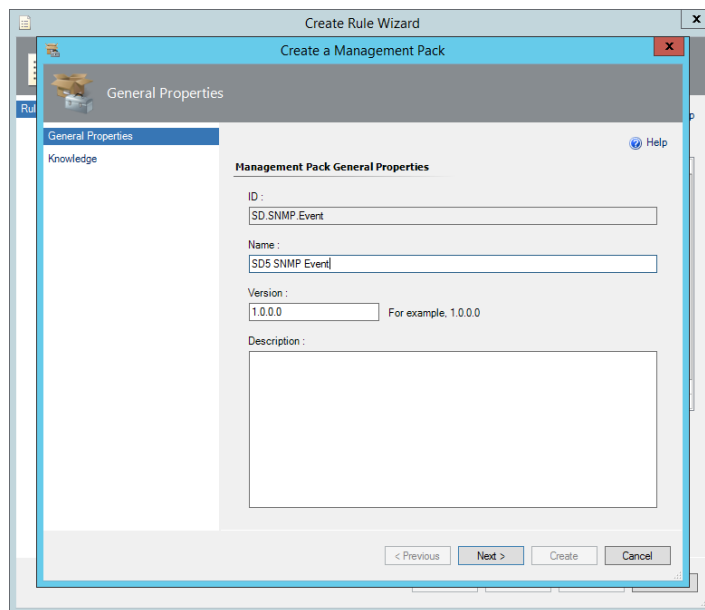
**Step 2:** Go to **Management Pack Objects > Rules**. Right-click **Rules** and select **Create a new rule**.



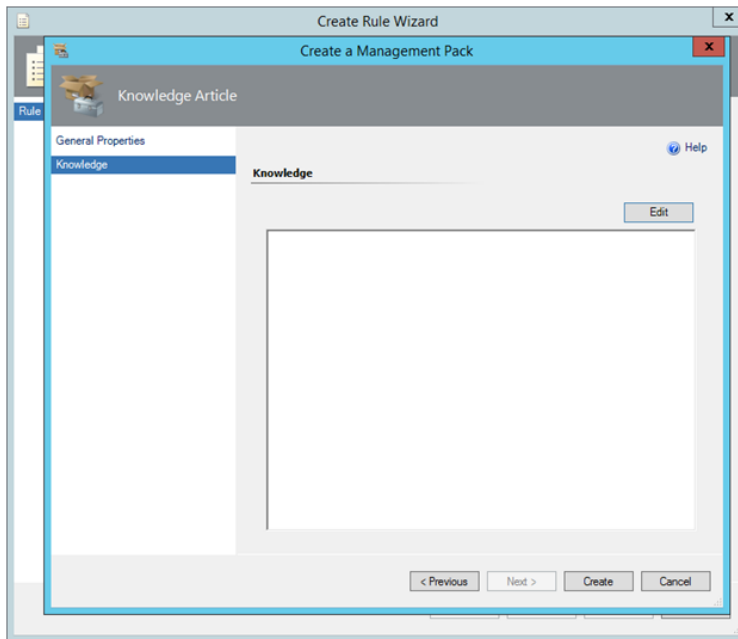
**Step 3:** In the Rule Type section, select **SNMP Trap (Event)** and click **New** to create a custom SD5 management pack.



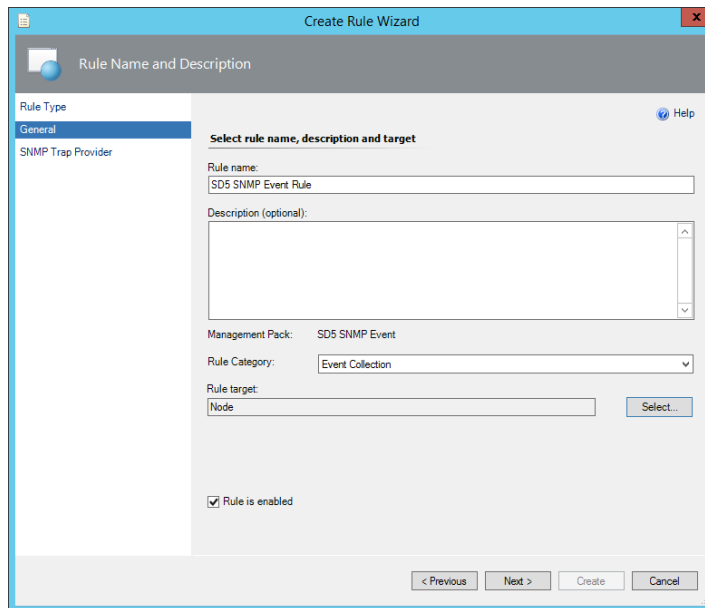
**Step 4:** Type the name, version and description. Click **Next** to continue.



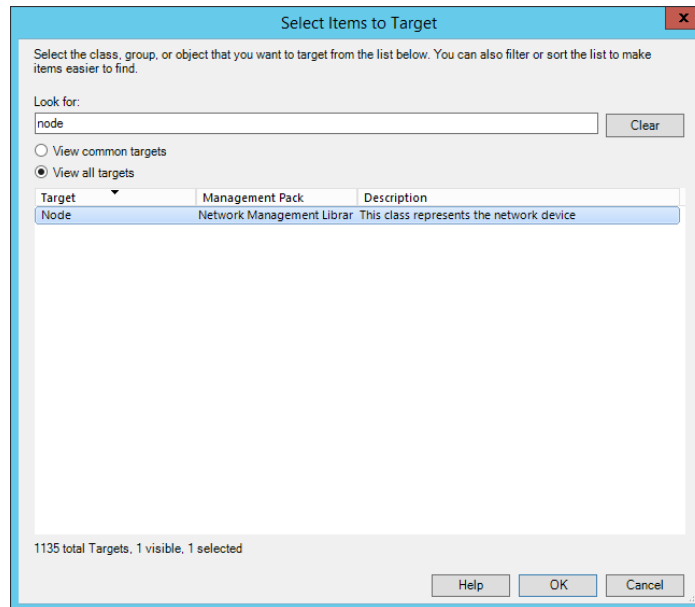
**Step 5:** Click **Create** to start creating the management pack and return to the Create Rule Wizard.



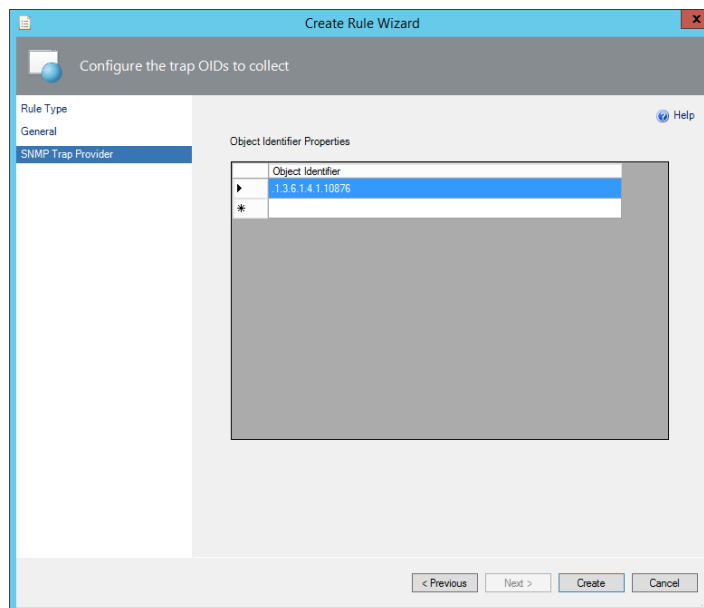
**Step 6:** In the General section, input the rule name and click **Select** to set up the Rule target.



**Step 7:** In the Look for field, type "Node", select **View all targets** and click **OK**.

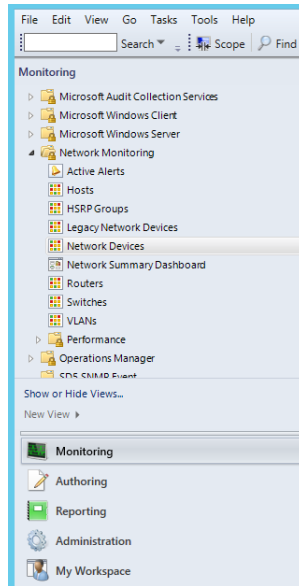


**Step 8:** In the SNMP Trap Provider step, input **.1.3.6.1.4.1.10876<sup>4</sup>** as the Object Identifier and click **Create** to start creating a rule for SD5.

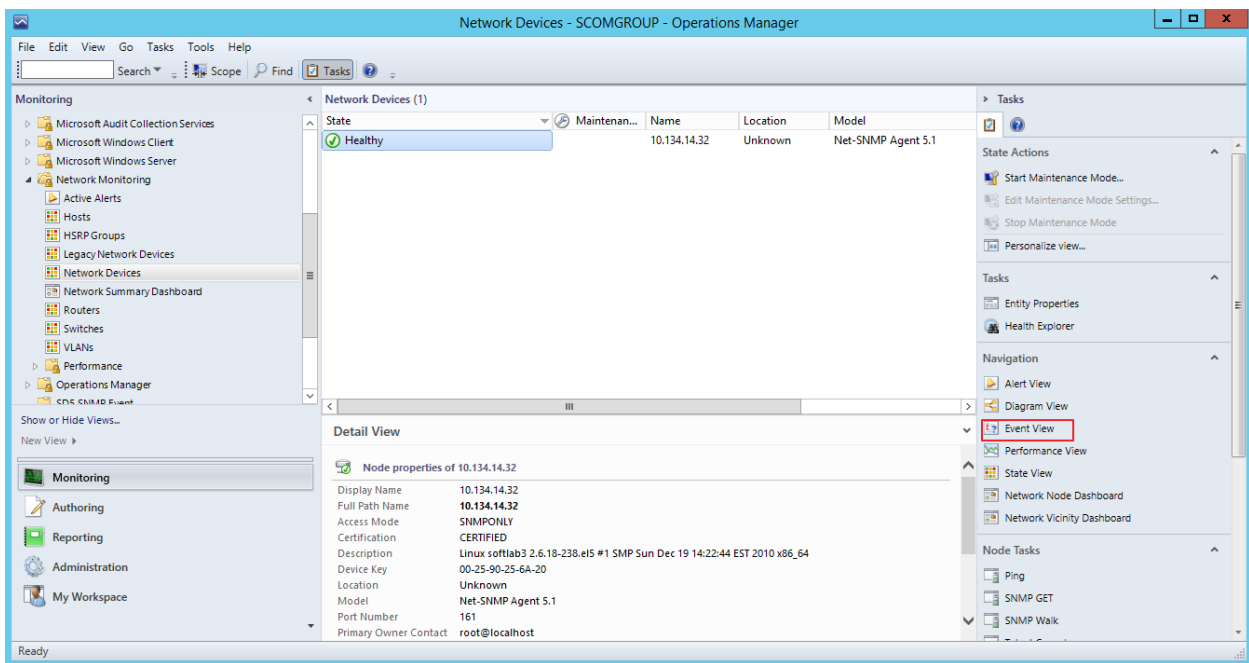


**Step 9:** In the **Operations Console**, click the **Monitoring** tab and go to **Monitoring > Network Monitoring > Network Devices**.

<sup>4</sup> For more information regarding the Supermicro MIB tree (.1.3.6.1.4.1.10876 OID tree), refer to 5.3 *Supermicro MIB* in the *SuperDoctor 5 User's Guide*.



**Step 10:** Select the SNMP device (Name: 10.134.14.32) and click **Event View** on the Navigation panel.



**Step 11:** In the figure below, the managed system has sent a recovery trap which denotes that the FAN 5 changes from a non-OK state to an OK state.

Events - SCOMGROUP - Operations Manager

File Edit View Go Tasks Tools Help

Search Overrides Scope Find Tasks

Events (12)

Level	Date and Time	Source	Name	User	Event Number	Log Name
Other	5/17/2015 10:44:04 ...	Snmp Event	10.134.14.32		1501	SnmpEvent
Other	5/17/2015 10:44:58 ...	Snmp Event	10.134.14.32		1501	SnmpEvent
Other	5/17/2015 10:45:16 ...	Snmp Event	10.134.14.32		1501	SnmpEvent

Details

Date and Time: 5/17/2015 10:45:16 PM Description:

Log Name: SnmpEvent

Source: Snmp Event

Generating Rule: SDS SNMP Event Rule

Event Number: 1501

Level: Other

Logging Computer: User:

Event Data: [View Event Data](#)

Source	10.134.14.32
Destination	127.0.0.1
Version	1
ErrorCode	Success

Object Identifier	Syntax	Value
.1.3.6.1.2.1.1.3.0	Timeticks	7466322
.1.3.6.1.6.3.1.1.4.1.0	Oid	.1.3.6.1.4.1.10876.100.3.0.101
.1.3.6.1.2.1.1.3.0	Timeticks	7466322
.1.3.6.1.6.3.1.1.4.1.0	Oid	.1.3.6.1.4.1.10876.100.3.0.101
.1.3.6.1.4.1.10876.100.3.0.101	Octets	Recovery: FAN 5 is OK at 2015-05-18 13:45:16. FAN 5 is 3025.0 RPM, low limit = 576.0 RPM
.1.3.6.1.6.3.1.1.4.3.0	Oid	.1.3.6.1.4.1.10876.100.3

Click here to hide event data

Ready

Tasks

Event Actions

- Show Associated Rule Properties...
- Overrides
- Personalize view...

Navigation

- Alert View
- Diagram View
- Event View
- Performance View
- State View
- Network Node Dashboard
- Network Vicinity Dashboard

Tasks

- Entity Properties
- Health Explorer

Node Tasks

- Ping
- SNMP GET
- SNMP Walk
- Telnet Console
- Traceroute



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# Contacting Supermicro

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