



**Hewlett Packard**  
Enterprise

# **HPE Network Node Manager i Software 10.20**

Step-by-Step Guide to Custom Poller

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## Custom Poller

This document steps through an example of setting up the Custom Poller to monitor a MIB that NNMi does not monitor by default.

### Note the following:

- This example uses a Unix NNMi server, but can be followed on a Windows server.
- Some screen captures might slightly be different than those that appear in the NNMi graphical user interface.

## Setting Up Your MIB

### Step 1: Identify the MIB Variable You Want to Poll

To begin, identify a MIB variable that you want to poll.

This example monitors the disk usage on Microsoft PCs using the rfc2790-HOST-RESOURCES-MIB. This MIB is shipped with NNMi under the following directory:

```
%NnmInstalldir%\misc\%nm%\snmp-mibs\Standard
```

The %NnmInstalldir% location depends on your operating system:

- Windows 2008  

```
%NnmInstalldir% = <drive>\Program Files(x86)\HP\HP BTO Software\
```
- Linux  

```
$NnmInstalldir = /opt/OV/
```

This example uses rfc2790-HOST-RESOURCES-MIB for the following reasons:

- The availability of Microsoft PCs makes this example easy to test
- You can easily increase disk space usage to change the resultant query and trigger a State change

### Step 2: Ensure the MIB Includes Supported Types

Make sure you are familiar with the MIB you will be using. This is especially important because the variables used must have a type that NNMi supports. See *Troubleshooting Tips* for a list of supported MIB variables.

1. Check whether the MIB is loaded by selecting **Configuration > MIBs > Loaded MIBs**. If the MIB is loaded in NNMi, you can study the MIB using the Loaded MIBs view:
  - a. Select the row that represents the MIB you want to view.
  - b. Select **Actions > Display MIB File**.
2. To check the MIBs that are available to load use the **Tools > Load/Unload MIB** menu:
  - a. Select Tools > Load/Unload MIB.
  - b. Look for the MIB in the MIBs Available to Load (NNMi Provided) table.
  - c. If the MIB is listed, click Display in the Actions column that appears next to the MIB name.

---

#### Note

To study the MIB, you can also use the HP tool `nnmsnmpwalk.ovpl` or read through the MIB with a text editor.

---

An excerpt from the rfc2790-HOST-RESOURCES-MIB is shown below:

```
HrStorageEntry:: = SEQUENCE
{
  hrStorageIndex Integer32,
```

```

hrStorageType AutonomousType,
hrStorageDescr DisplayString,
hrStorageAllocationUnits Integer32,
hrStorageSize Integer32,
hrStorageUsed Integer32,
hrStorageAllocationFailures Counter32
}

```

As shown in the example excerpt, `hrStorageDescr` is of type `DisplayString`. `hrStorageUsed` is of type `Integer32` and `hrStorageAllocationUnits` is of type `Integer32`. The NNMi Custom Poller supports both of these types.

According to the MIB definition, `hrStorageSize` is the size of the storage measured in `hrStorageAllocationUnits`. To show the amount of storage in kilobytes (KB) on the C drive, this example uses the following MIB expression:

$((\text{hrStorageSize} / 1000) * \text{hrStorageAllocationUnits})$

### Step 3: Load the Required MIB

NNMi's Custom Poller requires that the MIB be loaded onto the NNMi management server.

Use the **Actions > MIBs > Loaded MIBs** view to determine whether the `rfc2790-HOST-RESOURCES-MIB` is loaded in NNMi as shown in the following example:

The screenshot displays the Network Node Manager i web interface. On the left, a dark sidebar contains a navigation menu with categories like Dashboards, Incident Management, Topology Maps, Monitoring, Troubleshooting, Inventory, Management Mode, Incident Browsing, Integration Module Configuration, and Configuration. Under Configuration, there are sub-menus for Communication Configuration, Discovery, Monitoring, Incidents, Status Configuration, Global Network Management, User Interface, Security, and MIBs. The 'MIBs' menu is expanded, and 'Loaded MIBs' is highlighted with a red circle.

The main content area has a top bar with 'File', 'View', 'Tools', 'Actions', and 'Help' menus. Below this is a 'Loaded MIBs' tab. A table lists loaded MIBs with columns 'Name' and 'MIB File'. The entry 'HOST-RESOURCES-MIB' is highlighted with a red rectangle. Below the table, there is an 'Analysis' section with a 'MIB Summary' for 'HOST-RESOURCES-MIB', showing its name and file path.

Name	MIB File
FDDI-SMT73-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Standard/Historic/rfc1512-FDDI-SMT73-MIB.mib
FOUNDRY-SN-ROOT-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Foundry/FOUNDRY-SN-ROOT-MIB.mib
FRAME-RELAY-DTE-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc2115-FRAME-RELAY-DTE-MIB.mib
FtpServer-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Microsoft/ftp.mib
HC-RMON-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc3273-HC-RMON-MIB.mib
HCNUM-TC	file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc2856-HCNUM-TC.mib
HOST-RESOURCES-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc2790-HOST-RESOURCES-MIB.mib
HOST-RESOURCES-1TYPE	file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc2790-HOST-RESOURCES-1TYPE.mib
HP-ICF-OID	file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Hewlett-Packard/ProCurve/hpicOld.mib
HP-SITESCOPE-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Hewlett-Packard/HP-SITESCOPE-MIB.mib
HP-SN-AGENT-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Hewlett-Packard/hpEtherSwitch/hp-sn-agent.mib
HP-SN-ROOT-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Hewlett-Packard/hpEtherSwitch/hp-sn-root.mib
HP-SN-SWITCH-GBIC-IP-MIB	file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Hewlett-Packard/hpEtherSwitch/hp-sn-switch.mib

Updated: 8/22/16 10:48:18 AM Total: 211 Selected: 1

**Analysis**

MIB Summary : HOST-RESOURCES-MIB

Name	HOST-RESOURCES-MIB
MIB File	file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc2790-HOST-RESOURCES-MIB.mib

**TIP:** To check whether the MIB is already loaded, you can also run the `nnmloadmib.ovpl -list` command. Look for the desired MIB in the results.

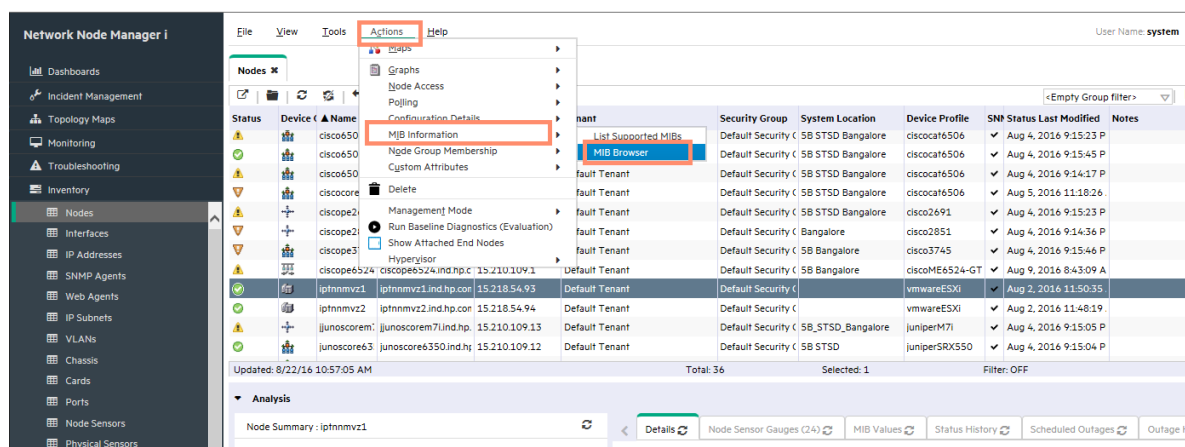
If the MIB had not been loaded, you can load it with the **Tools > Load/Unload MIB** or the `nnmloadmib.ovpl -load` command.

### Step 4: Use the MIB Browser to View Current MIB Variable Values

Use the MIB Browser to perform an SNMP query and become familiar with the MIB variable values returned from the node. In this example, the node is a Linux server.

1. Select a node that has a Device Category of Server (🌐) or Computer (💻).
2. Select **Actions > MIB Information > Browse MIB**.

In the **Node** attribute you should see the name of the node you selected.



3. In the **OID** attribute, enter **hrStorageTable**.

4. Click the **SNMP Walk** icon.

5. Expand the following folders:

- hrStorageDescr
- hrStorageAllocationUnits
- hrStorageUsed

The following example shows a root partition:

To check the storage used on the *root* partition, look for the string from the hard disk that begins with */*.

As shown in the example above, the Value column that begins with */* is the third item. The value for **hrStorageAllocationUnits** is 4096 on this drive. The **hrStorageUsed** value is 2904519.

Next, enable Custom Poller so that you can use it to specify the MIB Expression you want NNMi to poll.

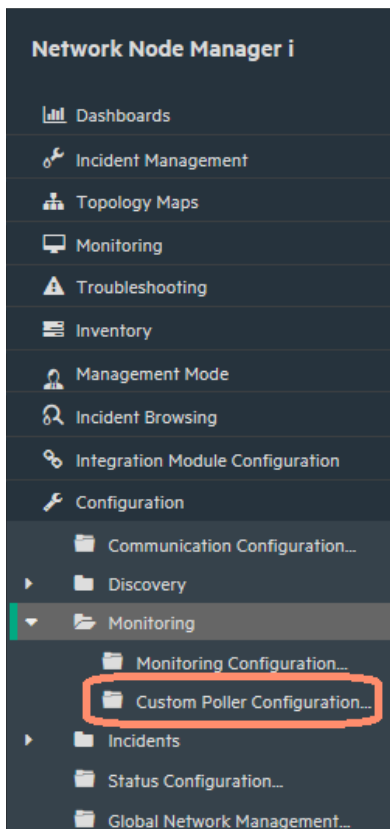
## Setting Up a Custom Poll

### Step 1: Enable Custom Poller

Custom Poller is not enabled by default.

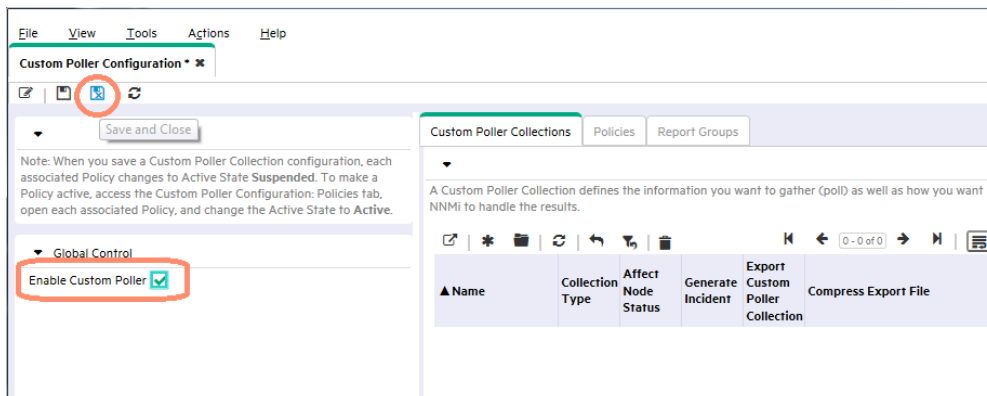
To enable Custom Poller:

1. Navigate to the **Configuration** workspace.
2. Expand the **Monitoring** folder.
3. Select **Custom Poller Configuration**.



4. Check **Enable Custom Poller**.

5. Click **Save and Close**.



## Step 2: Create a Custom Poller Collection

After you enable Custom Poller, you are ready to create a Custom Poller Collection. A Custom Poller Collection defines the information you want to gather (poll) as well as how NNMI reacts to the gathered data.

In addition to a Custom Poller Collection, you should define at least one Custom Poller Policy. Each policy specifies the Node Group on which you apply the Custom Poller Collection.

A diagram of the hierarchy of Custom Poller Collections is depicted below:

**Custom Poller Configuration**

**Policies**

Define **"Where (which Node Group)"**  
 → NNMI gathers this extra information.

Define the logic of **"When"** NNMI collects this extra information.  
 → When the information matches a configured MIB Filter?  
 → Each time a defined Polling Interval (time period) is exceeded?

**Custom Poller Collections**

**Basics**

Define **"How"** NNMI reacts to the gathered data.  
 → Generate Incidents that alert operators to certain situations?  
 → Include State changes in calculations for the source Node's Status?  
 → Map a MIB Filter Variable (if necessary)

**MIB Variables**

Define **"What information"** you want to gather.  
 → Click to select one OID or click to define a MIB Expression  
 → Set thresholds?  
 → Map polled values to States by defining comparison maps?

Important Nodes (Node Group)

Switch\_9

SwitchRouter\_3

In our example, we are required to provide a MIB Filter value to select the disks we want NNMI to monitor. If we do not specify a MIB Filter Variable and MIB Filter, NNMI assumes the MIB variable does not have multiple instances.

To create our Custom Poller Collection:

1. Open the Custom Poller Configuration form:
  - a. Navigate to the **Configuration** workspace.
  - b. Expand the **Monitoring** folder.
  - c. Select Custom Poller Configuration.
2. Navigate to the **Custom Poller Collections** tab.
3. Click the New icon.
4. In the **Name** attribute of the Custom Poller Collections form, name the Collection DiskStorageUsed.
5. Check **Affect Node Status and Generate Incident**.
6. Specify a MIB variable – the variable or expression on which collection needs to be done.

#### Note

With 10.00 version, a single custom collection can have multiple MIB variable or expressions within it. For more details, please look at the *Create Custom Poller Configurations* section in *NNMi Online Help for Administrators*.

7. In the **MIB Variables** tab, click on the New icon to define a new variable or expression.

File View Tools Actions Help

Custom Poller Configuration \* Custom Poller Collection \* \*

Basics

When modifying an existing Custom Poller Collection, all associated Policies will be suspended when the modifications are saved.

Name

Collection Type

Affect Node Status ☒

Export Custom Poller Collection ☐

Compress Export File ☐

Generate Incident ☒

Incident Source Object

Required for multiple instance (repeating) MIB Variables only. The MIB Filter Variable is the MIB variable whose value you want to use as a filter to determine which instances of the MIB Expression to Custom Poll. You must also specify a MIB Filter value when creating the associated Policy.

MIB Filter Variable

MIB Variables

Specify at least one MIB variable for the collection discover and poll.

0 - 0 of 0

Name Report Data Type

New

### Note

Starting version 10.00, NNMi custom poller support a new collection type called *Bulk* collection. For more on this, refer to the *Release Notes* and *Online Help* of NNMi. For this example, select the Collection Type as *Instance*.

File View Tools Actions Help

Custom Poller Configuration \* Custom Poller Collection \* \*

Basics

When modifying an existing Custom Poller Collection, all associated Policies will be suspended when the modifications are saved.

Name

Collection Type

Affect Node Status

Export Custom Poller Collection ☐


Compress Export File ☐

Generate Incident ☐

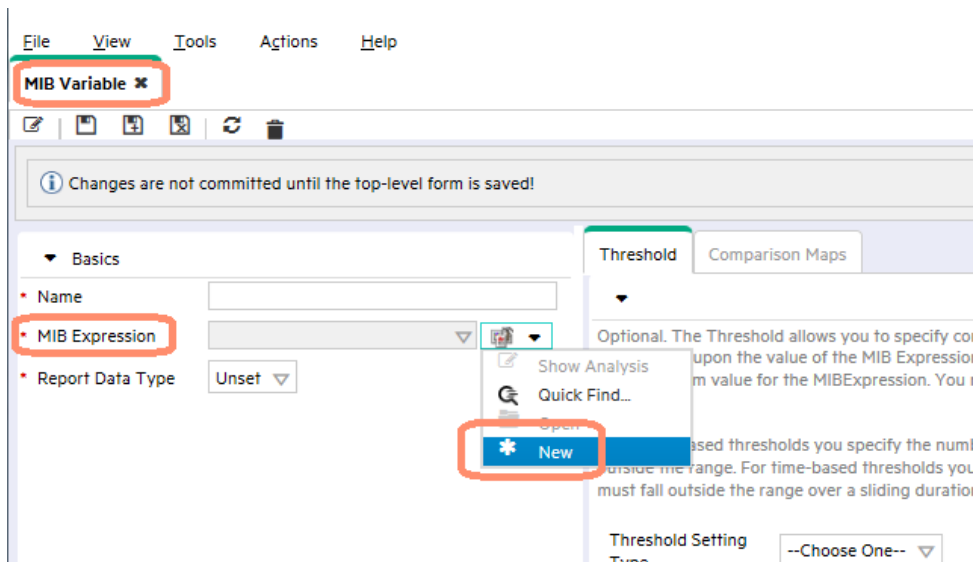
Incident Source Object

Required for multiple instance (repeating) MIB Variables only. The MIB Filter Variable is the MIB variable whose value you want to use as a filter to determine which instances of the MIB Expression to Custom Poll. You must also specify a MIB Filter value when creating the associated Policy.

MIB Filter Variable

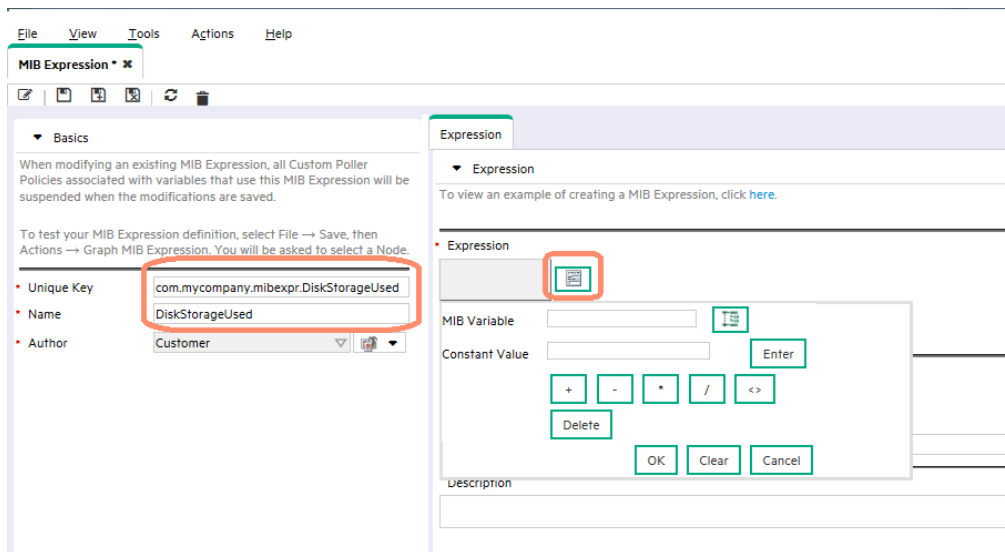
- In the MIB Expression attribute, click  **New** to open a New MIB Expression form. At this time, give a name to this MIB Variable (in a single collection with multiple MIB variables, it is required to use unique names for each variable) and also select the "Report Data Type" based on the type of the MIB variables for which collection needs to be configured.





9. Enter in a Unique Key, Name and Author.

This example uses the author **Customer**, which is the default.

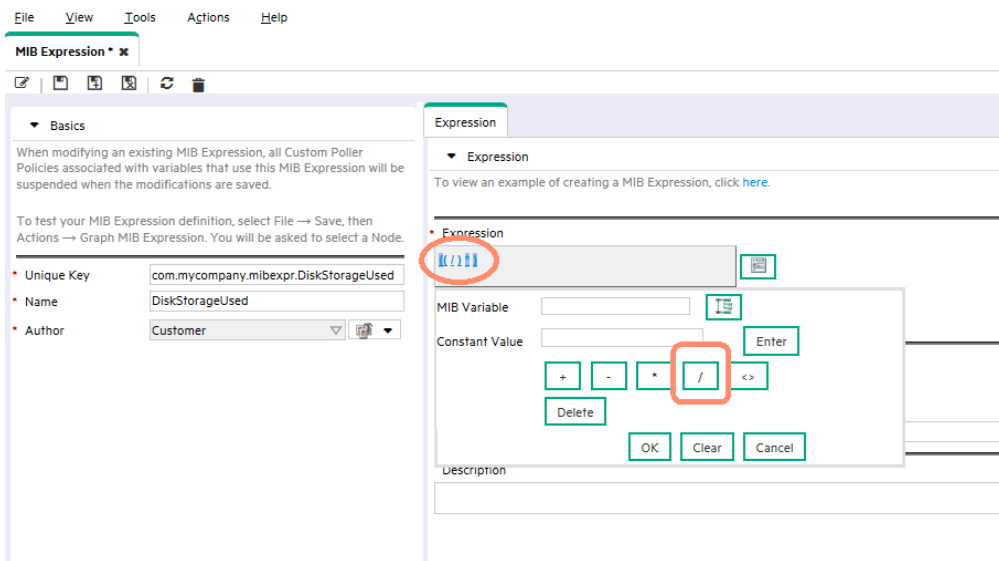


10. Create the MIB expression.

11. Write out the expression before working with the user interface. In this example, the MIB expression is:

$((hrStorageSize / 1000) * hrStorageAllocationUnits)$

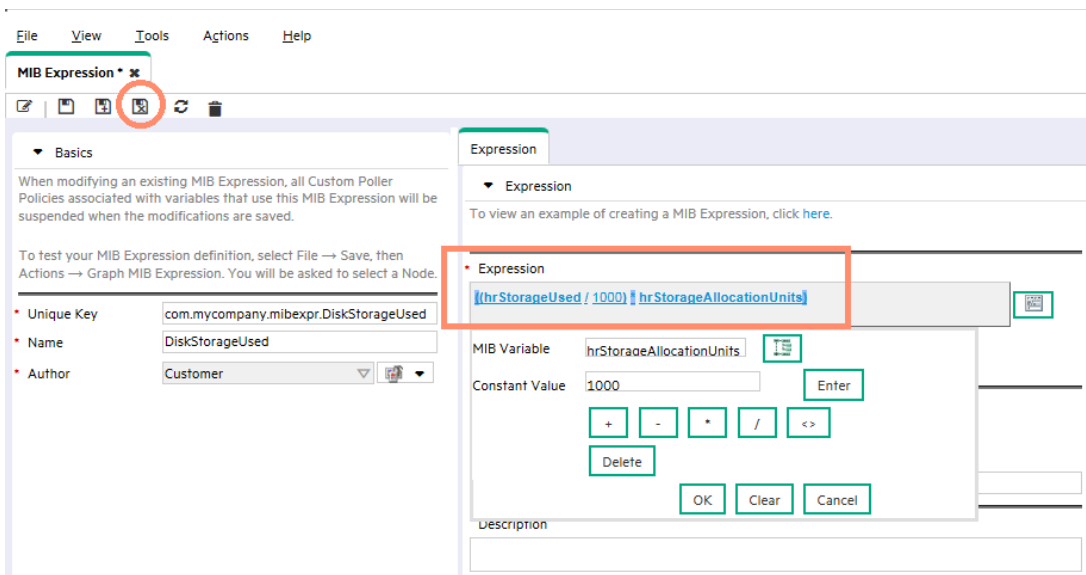
12. When specifying the expression, begin by inserting all of the operands. The operands in this expression include  $/$  and  $*$ .



13. After you select each operand, place the cursor in the location where you want to insert a MIB variable.

14. Navigate the MIB Variable tree to select the `hrStorageUsed` and `hrStorageAllocationUnits` variables.

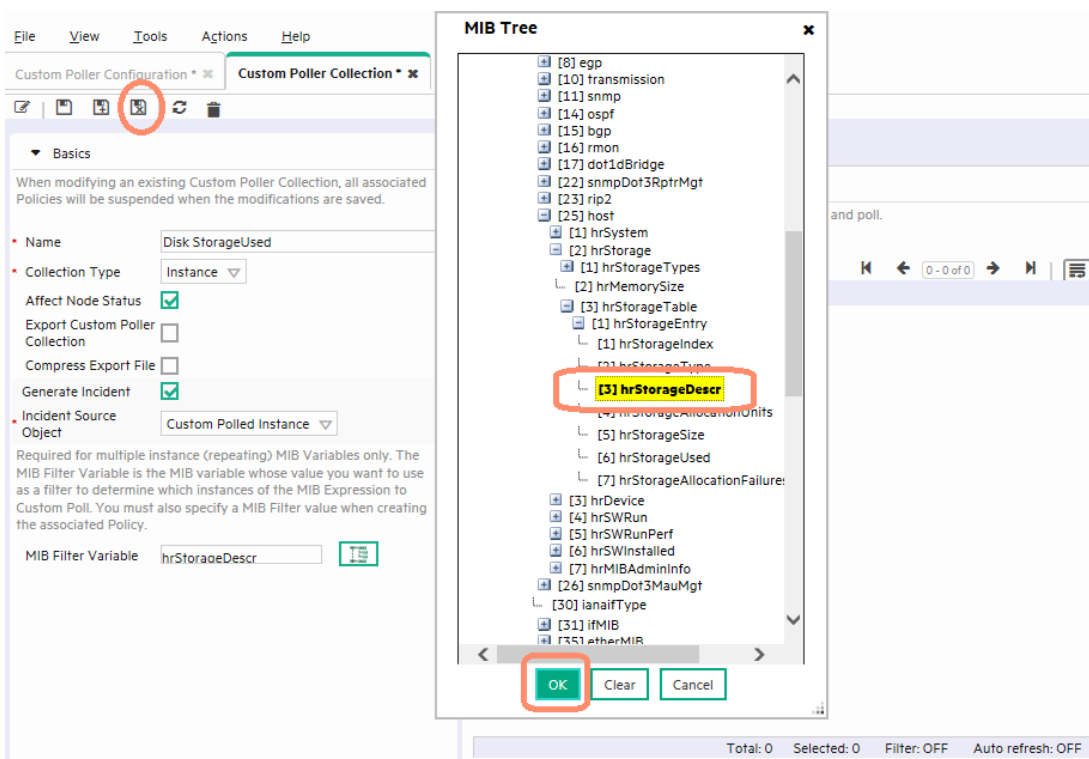
15. Add the constant 1000.



16. Click **Save and Close**.

Specify a MIB Filter Variable. This example uses `hrStorageDescr`.

17. From the MIB Filter Variable entry, navigate to the `hrStorageDescr` value.



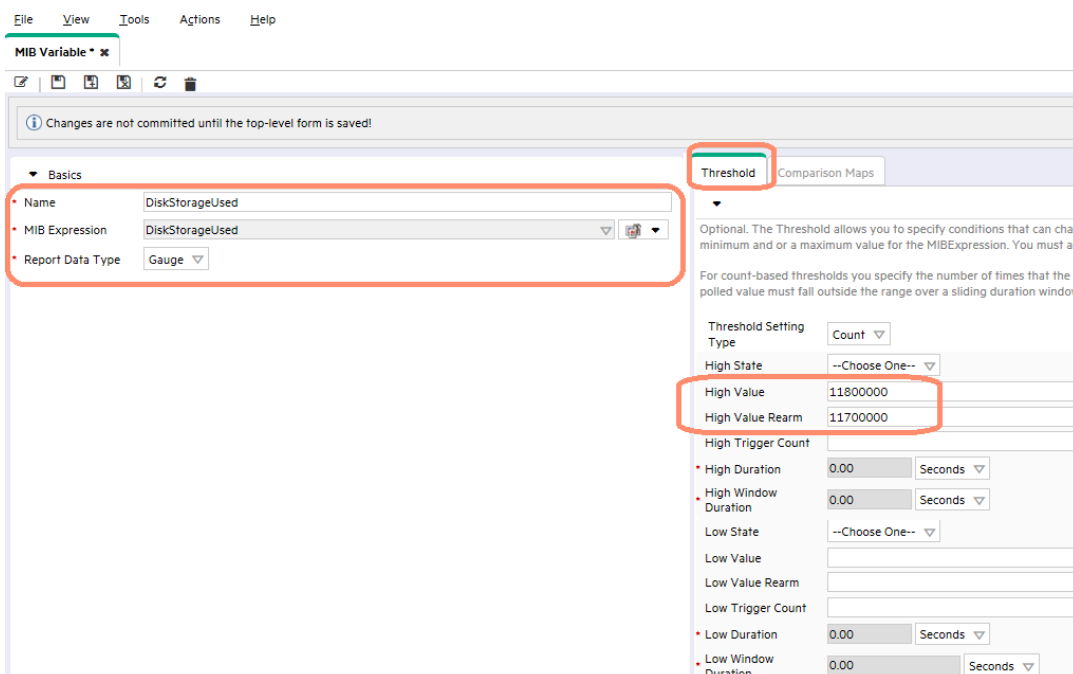
Finally, set a threshold to trigger an alarm. This example uses 11800000 as the threshold value with a rearm value of 11700000. The alarm triggers with just one sample above the threshold.

18. Navigate to the **Thresholds** tab.

19. In the **High Value** attribute, enter 11800000.

20. In the **High Value Rearm** attribute, enter 11700000.

21. In the **High Trigger Count** attribute, enter 1.



22. Click **Save and Close**;

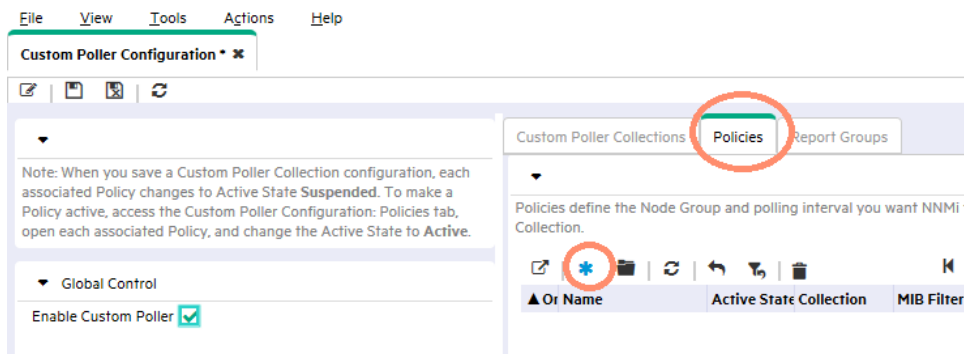
You now have a Custom Poller Collection.

23. Create a policy for the Custom Poller Collection that looks for / ('root' partition) at the start of the value.

### Step 3: Create a Policy for a Custom Poller Collection

A Policy defines which Node Groups are participating in this Custom Poller Collection and how often the variable is polled. It is also used to define the MIB filter to select specific instances. You can create more than one Policy associated with a Custom Poller Collection.

1. To begin, navigate to the **Policies** tab and select the  **New** icon.



2. In the **Name** attribute, enter `ServerUsedDiskSpace`.

NNMi displays this name in the incident browser, whenever an associated incident is generated for the Custom Poll.

3. Specify the Ordering.

Because you can create more than one Policy associated with a Custom Poller Collection, you need to specify an order to remove ambiguity when a node is matched to more than one policy.

For example, you might want a Custom Poller Collection to run against a Node Group for Routers and a Node Group for Switches. You also might want to poll the routers every 5 minutes and the Switches every 8 minutes.

If a node is both a switch and a router, then it is not allowed to be polled twice by the same collection. You might decide that if a node is both a switch and a router, it is important that it be polled more quickly (using the Router policy). Therefore, you use a higher priority order number for the Router Policy. When you specify an order, the node is matched against the highest priority policy (lowest Ordering number).

Because we have only one Policy for a Collection, we do not need to be concerned about this order.

4. In the **Ordering** attribute, accept the default value of **1**.

5. Use the **Quick Find** pull down menu to select the Collection that we previously defined (`DiskStorageUsed`).

6. Change the **Active State** to **Active**.

7. Use the **Quick Find** pull down menu to select the **HostResourceNodes Node Group**.

8. Specify the MIB Filter.

9. Recall that the values from our SNMP walk, the *root* partition always started with /. Therefore, in the MIB Filter attribute, enter '/' as the filter. Avoid matching all instances by entering the asterisk (\*) as the filter. This could lead to a large number of matches and adversely affect NNMi Custom Poller performance.

10. Specify the Polling Interval.

In NNMi, you cannot force a Custom Poll. (The Status Poll or Configuration Poll options from the Actions menu do not include the Custom Poller.) Therefore, while initially setting up your Custom Polls, you might want to set the Polling Interval fairly short, so you do not have to wait a long time for each poll cycle.

11. For the purposes of this example, set the Polling Interval attribute to 1 minute. As a best practice, after you have set up your Custom Polls as desired, select a longer Polling Interval. Using short Polling Intervals can adversely affect NNMi Custom Poller performance.

12. Click **Save and Close** to save your Policy.

**TIP:** If you make a change to a Custom Poller Collection configuration after you save it (for example, change the **High Value**), NNMi automatically changes the Active State of the associated Custom Poller Policies to Suspended. If this occurs, open the Policy configuration and change the Active State back to Active.

File View Tools Actions Help

Custom Poller Configuration \* Custom Poller Policy \*

Basics

Name: ServerUsedDiskSpace

Ordering: 1

Collection: DiskStorageUsed

Active State: Active

Node Group: HostResourceNodes

MIB Filter: /

Valid values include:

- alpha-numeric string (for exact match)
- range of numbers (example, 1-6)
- Wildcard (\*) representing any combination of zero or more characters, numbers, or both. (examples \*vlan, vlan\*, \*vlan\*)
- exclude declaration (!) to exclude items (examples !1-3, !\*vlan, !vlan)

Indicate multiple entries by separating each with a comma (,). See Help → Using the Custom Poller Policy Form.

Polling Interval: 60.00 Seconds

## Step 4: Create a Report Group for Custom Collection(s)

Report Groups are used to define which custom poller collections are reported to the NNM iSPI Performance for Metrics. Once the Report Group is created, the same is seen (dynamically) as a new report Extension Pack on the NPS and appears in the Reporting tree on the iSPI Performance for Metrics Reports Home Page.

1. To begin, navigate to the Report Groups tab and select the  New icon.

File View Tools Actions Help

Custom Poller Configuration \* Custom Poller Policy \*

Custom Poller Collections Policies Report Groups

Note: When you save a Custom Poller Collection configuration, each associated Policy changes to Active State Suspended. To make a Policy active, access the Custom Poller Configuration: Policies tab, open each associated Policy, and change the Active State to Active.

Global Control

Enable Custom Poller ☒

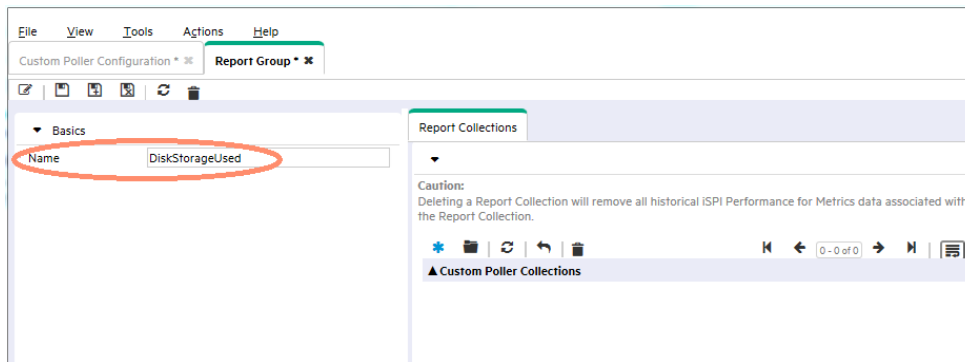
Report Groups are used to define which custom poller collections are reported to the NNM iSPI Performance for Metrics.

**Caution:**  
Deleting a Report Group will remove all historical iSPI Performance for Metrics data associated with the Report Group.

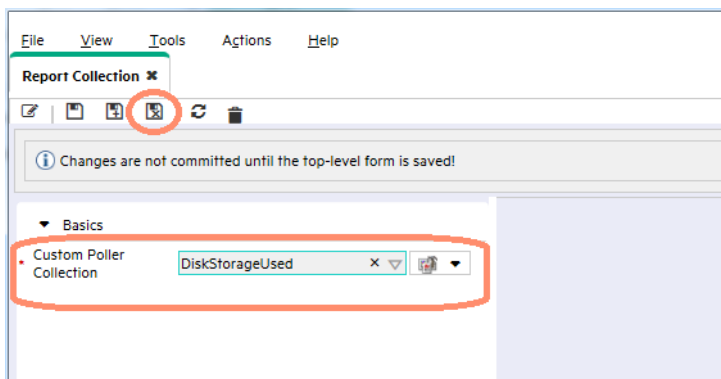
0 - 0 of 0

Name

2. Give the Report Group a name (this name appears as an extension pack name in NPS) and add a "New" collection to the Report Group.



3. Select the required Custom Collection(s) and click **Save and Close**.



#### NOTE:

A single report group can have multiple relevant Custom Collections added within it. That is, for relevant MIB variables/expressions data, a single Report Extension Pack can show all data.

Also, note that it is NOT mandatory to export a custom collection to send the collection data into NPS reports.

## View the Results of Your Custom Poll

### Step 1: View the Node Collections Associated with Custom Poller Policies

After you configure your Custom Poller Collections, you can view the Custom Poller objects. NNMi identifies these objects as Custom Node Collections.

To view Custom Node Collections:

1. Navigate to the **Monitoring** workspace.
2. Select **Custom Node Collections**.

NNMi displays a table view of all Custom Node Collections that includes:

- The Custom Node Collection status.
- The topology node associated with the Custom Node Collection.
- The Active State for the associated policy.
- The date and time the Status was last modified.
- The name of each policy associated with each Custom Node Collection.
- Discovery information regarding the MIB Poll Variable on each topology node, such as Discovery State, the time stamp when the Discovery State was last modified, and Discovery State Information.

**TIP:** The same node name can be listed in the Custom Node Collections view multiple times if it has multiple Custom Poller Collections applied to it. These are not "Nodes" but "Node Collections".

## Step 2: View the Details of a Custom Node Collection

To view the details for a specific Custom Node Collection, double-click the Node Collection of interest.

As shown in the example below, you can see any incidents that have been generated, the Status history, Conclusions, and Polled Instances.

The screenshot shows the 'Custom Node Collections' view. The 'Custom Node Collection' tab is selected. The 'Basics' section shows the Node name 'mimisco3', Active State 'Active', Status 'Normal', Custom Poller Policy 'DiskStorageUsed', Discovery State 'Completed', and Discovery State Last Modified 'August 23, 2016 11:50:51 AM MDT'. The 'Custom Polled Instances' tab is also visible, showing a table with columns: MIB Expression, Filter Value, Display Attribute, Node, Custom Poller Collection, Active State, and State. The table contains one row: 'IfinOutPackets', '1', '1', 'sc0', 'mimisco3', 'DiskStorageUsed', 'Active', 'Aug'.

## Step 3: View Details of a Polled Instance

Another useful view is the **Custom Polled Instances** view. The first time the specified MIB variable is discovered, the results appear in a Polled Instance object. The Polled Instance object is updated whenever a change in the MIB Poll Variable's State is detected and includes the most recent polled value that caused the State to change.

### Note

The Custom Polled Instance value does not necessarily reflect the most recent polled value. It is the value that caused the State change, which might not be subsequent value.

To view Custom Polled Instances:

1. Navigate to the **Monitoring** workspace.
2. Select **Custom Polled Instances**.

This view allows you to easily see all the Polled Instances that are polled by a specific Custom Poller Collection. For example, you can sort the view based on the MIB variable to see all the Polled Instances for a particular Custom Poller Collection.

The following table does not include the Custom Poller Collection Name. However, it lists the names of the MIB Variable being polled. Each collection has only one MIB Poll Variable. Therefore, if you use a unique name for your Custom Poller Collection variables, it is easy to associate the Custom Poller Collection with the MIB Poll Variable

As shown in the example below, another server has the / drive mapped to MIB Suffix (or instance) .1.

Custom Polled Instances									
Status	State	Last State Chang	MIB Variable	MIB Expression	MIB Filter Value	Display Attribute	Node	Custom Poller Collectic	Active State
		195.333333333333	DiskStorageUsed	IfinOutPackets	.1	sc0	mimisco3	mahesh-test	Suspended
		161.333333333333	DiskStorageUsed	IfinOutPackets	.1	sc0	mimisco2	mahesh-test	Suspended
		113.61	DiskStorageUsed	IfinOutPackets	.1	Fa0/0	sp-unnum8	mahesh-test	Suspended
		120.18	DiskStorageUsed	IfinOutPackets	.1	sc0	mimisco4	mahesh-test	Suspended
		1,047.8166666666	DiskStorageUsed	IfinOutPackets	.1	Fa0/0/0	mimisco854	mahesh-test	Suspended
		9,191.9366666666	DiskStorageUsed	IfinOutPackets	.1	Gi1/1	sp-cisco-basik	mahesh-test	Suspended
		994.02	DiskStorageUsed	IfinOutPackets	.1	Fa0	mimisco4k1	mahesh-test	Suspended
		1,184.6333333333	DiskStorageUsed	IfinOutPackets	.1	Fa0/0	sp-unnum3	DiskStorageUsed	Suspended
		1,197.1366666666	DiskStorageUsed	IfinOutPackets	.1	Vi0	mimisco550	mahesh-test	Suspended
		122.35	DiskStorageUsed	IfinOutPackets	.1	sc0	sp-cp-cisco55	mahesh-test	Suspended
		968.6766666666	DiskStorageUsed	IfinOutPackets	.1	et.1.1	NDISTRIB	mahesh-test	Suspended
		1,131.8466666666	DiskStorageUsed	IfinOutPackets	.1	Fa0	mimisco4k2	mahesh-test	Suspended
		115.113333333333	DiskStorageUsed	IfinOutPackets	.1	0	mimfst25	mahesh-test	Suspended

## Step 4: Evaluate the Results of the Custom Poll

To evaluate the results of our example Custom Poll, trigger the threshold to see the changed State and the generated incident.

1. Copy a few large files onto the disk of the Server to increase the disk usage.

As shown in the following example, copying a few large files onto the disk of the Server causes the Status of the Custom Node Collection to change to Major.

Custom Node Collections ✕							
Status	Node	Active State	▼ Status Last Modified	Custom Poller Policy	Discovery Stat	Discovery State Last M	Discovery State Information
⚠	mim1st24	Suspended	Aug 23, 2016 11:57:17	DiskStorageUsed	Completed	Aug 23, 2016 11:50:45	
⚠	SKINNER	Suspended	Aug 23, 2016 11:56:54	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	mimcisco4k1-fr	Suspended	Aug 23, 2016 11:56:34	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	mimcisco4-noconn	Suspended	Aug 23, 2016 11:56:34	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	mimcirt1	Suspended	Aug 23, 2016 11:56:34	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	mimcisco4	Suspended	Aug 23, 2016 11:53:37	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	sp-vcextfw27240038-floating	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	sp-vcextfw2038000n-floating	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	sp-vcextfw2820000a-floating	Active	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	sp-vcextfw28220023-floating	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	sp-cp-c5500-is1010	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:45	No MIB instances found on node with filter value: 1
⚠	sp-vcextfw27330009-floating	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	sp-cp-hpov2k1	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	No MIB instances found on node with filter value: 1
⚠	sp-vcextfw201300h9-floating	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	
⚠	sp-virt-fcmovm4	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	No MIB instances found on node with filter value: 1
⚠	sp-esxi4	Suspended	Aug 23, 2016 1:17:26	DiskStorageUsed	Failed	Aug 24, 2016 12:23:37	MIB Variable requested .1.3.6.1.2.1.2.2.1.17 does not exist on node
⚠	sp-cisco-basic-card-rhino	Suspended	Aug 23, 2016 1:17:25	DiskStorageUsed	Completed	Aug 23, 2016 11:50:54	No MIB instances found on node with filter value: 1
⚠	sp-virt-no-snmp	Suspended	Aug 23, 2016 1:17:25	DiskStorageUsed	Failed	Aug 23, 2016 11:50:47	Node does not support SNMP
⚠	sp-unnum4	Active	Aug 23, 2016 12:56:42	DiskStorageUsed	Completed	Aug 23, 2016 11:31:06	
⚠	mimcisco4k1-fr	Active	Aug 23, 2016 12:56:42	DiskStorageUsed	Completed	Aug 23, 2016 11:31:04	
⚠	sp-vcextfw27330009-floating	Active	Aug 23, 2016 12:56:42	DiskStorageUsed	Completed	Aug 23, 2016 11:30:55	

## Note

The Custom Node Collection Status is not necessarily equivalent to the Status of the Source Node.

2. Open one of Custom Collection nodes to see that the value of `hrStorageUsed` is above the **High Value** threshold. (This is the value that triggered the State change.)

3. Navigate to the Incidents tab to see that an incident was generated.

The Incident message presents the various names used in creating the Custom Poller Collection. You can change this message by editing the Incident Configuration.



The screenshot shows the HPE Network Node Manager i Software interface. The top navigation bar includes 'File', 'View', 'Tools', 'Actions', and 'Help'. The user is logged in as 'system' with the role of 'Administrator'. The main content area is divided into two sections: 'Node Summary' and 'Incidents'.

**Node Summary:**

- Basics:** Name: iptom9, Hostname: iptom9.ind.hp.com, Management Address: Major, Status: Managed, Device Profile: hpSunSolaris, Management Server: nmccloudvm178.
- Discovery:** Discovery State: Discovery Completed, Last Completed: August 23, 2016 11:30:16 AM MDT.

**Incidents:**

- Sever Lifecycle:** Last Occurrence Correlation Message: CustomPolledInstance out of range in CustomNodeCollection DiskStorageUsed.
- Updated:** 8/23/16 11:58:41 AM.
- Total:** 1, **Selected:** 0, **Filter:** OFF, **Auto refresh:** OFF.

4. To view the listing of possible Custom Attributes, open a Custom Poller incident and select the **Custom Attributes** tab.

The screenshot shows the HPE Network Node Manager i Software interface with the 'Custom Attributes' tab selected. The main content area is divided into two sections: 'Basics' and 'Custom Attributes'.

**Basics:**

- Message:** CustomPolledInstance out of range in CustomNodeCollection DiskStorageUsed.
- Severity:** Major, **Priority:** None, **Lifecycle State:** Registered.
- Source Node:** mimisco3, **Source Object:** iso0, **Assigned To:** [empty].
- Notes:** [empty].

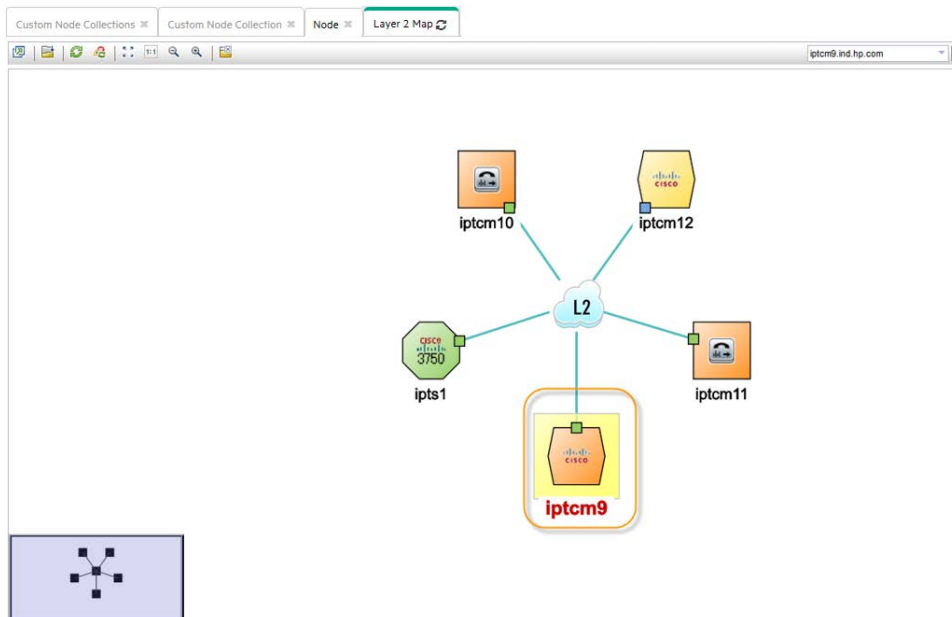
**Custom Attributes:**

- General:** Correlated Parents, Correlated Children, Custom Attributes, Diagnostics, Registration.
- Message:** NNMi lists the Custom Attributes for incidents in the order in which they are received from the SNMP trap. If you sort or filter the Custom Attribute table, click the Restore Default Settings icon to restore the Custom Attribute order for the selected incident.
- Table:**

Name	Type	Value
com.hp.ov.nms.apa.symptom	String	PolledInstanceMinor
cia.threshold.lowerBound	String	20
cia.threshold.upperBound	String	11800000
cia.threshold.currentValue	String	Major
cia.threshold.measuredValue	String	11800000
cia.custompoller.policy	String	DiskStorageUsed
cia.custompoller.collection	String	DiskStorageUsed
cia.custompoller.variable.e	String	<a href="#">(hrStorageUsed / 1000) * hrStorageAllocationUnits</a>
cia.custompoller.variable.d	String	Total number of packets received and transmitted on an interface, using 32 bit counters. Computed by: (R)
cia.custompoller.variable.n	String	DiskStorageUsed
cia.custompoller.state	String	Major
cia.custompoller.lastValue	String	11800000
cia.custompoller.mibinstan	String	.1
- Updated:** 8/24/16 03:55:27 AM, **Total:** 21, **Selected:** 0, **Filter:** OFF, **Auto refresh:** OFF.

5. For example, to display the most recent value that caused the Custom Node Collection Status to change, you might want to include the Custom Attribute **cia.custompoller.lastValue** in your message.

6. To verify that the Status of the Source Node has changed to Major, open the Source Node or select a Node View or Map.



After you verify that the Custom Poll is successful and NNMi properly indicates that the disk space is Major, return the disk to its previous State.

7. Delete the large file from the Server.

Verify the Custom Polled Collection's Status has returned to Normal, by opening the Custom Polled Collection form and navigating to the **Status** tab.

Custom Polled Instance State	
Status	Normal
State	Normal
Last State Change Value	
State Last Modified	Never

Status	Conductions	Incidents
Overall Status		
Status	Normal	
Status Last Modified	April 26, 2016 1:43:25 AM PDT	
Status History		
Time Stamp	4/26/16 1:43 AM	
Time Stamp	4/26/16 1:43 AM	

8. Verify that the incident has been closed by returning to the Incident form for the generated incident.

Incident \* Incident \* Node \* Incident \*

Message  
Interface Down

Severity: Critical  
Priority: None  
Lifecycle State: Closed

Source Node: mpisp04  
Source Object: Fa0/1  
Assigned To:

Notes

General Correlated Parents Correlated Children Custom Attributes Diagnostics Registration

Details

Name: InterfaceDown  
Category: Fault  
Family: Interface  
Origin: NNMI  
Correlation Nature: Root Cause

Duplicate Count: 0  
RCA Active: ☐  
Correlation Notes

Incident duration: 39 minutes, 3 seconds, 211 ms Time incident detected: Tuesday, August 23, 2016 10:45:05  
Tuesday, August 23, 2016 11:24:08 PM MDT. Incident cancelled by: InterfaceUp.

First Occurrence Time: August 23, 2016 10:45:05 PM MDT  
Last Occurrence Time: August 23, 2016 10:45:05 PM MDT  
Origin Occurrence Time: August 23, 2016 10:45:05 PM MDT

9. Return to the Custom Polled Instances view to verify the value of the MIB Poll Variable is below the **High State** threshold.

Network Node Manager i

FileViewToolsActionsHelp

User Name: systemNNM4: Role: Administrator

Dashboard

Incident Management

Topology Maps

Monitoring

Non-Normal Node Sensors

Non-Normal Physical Sensors

Non-Normal Chassis

Non-Normal Cards

Non-Normal Interfaces

Non-Normal Nodes

Non-Normal SNMP Agents

Not Responding Addresses

Interface Performance

Chassis Redundancy Groups

Card Redundancy Groups

Router Redundancy Groups

Node Groups

Custom Node Collections

Custom Polled Instances

Custom Polled Instances

11 of 65

Status	State	Last State Change	MIB Variable	MIB Expression	MIB Filter Value	Display Attribute	Node	Custom Poller Collection	Active State	State Last Modified
✓	✓	11,975,884.8	DiskStorageUsed	DiskStorageUsed	3 /	ipm7-3	ipm7	DiskStorageUsed	Active	Aug 23, 2016 11:59:14 PM
✓	✓	11,888,540.864	DiskStorageUsed	DiskStorageUsed	3 /	ipm4-3	ipm4	DiskStorageUsed	Active	Aug 23, 2016 11:58:23 PM
✓	✓	11,895,099.28	DiskStorageUsed	DiskStorageUsed	3 /	ipm11-3	ipm11	DiskStorageUsed	Active	Aug 23, 2016 12:00:48 PM
✓	✓	11,896,922.112	DiskStorageUsed	DiskStorageUsed	3 /	ipm9-3	ipm9	DiskStorageUsed	Active	Aug 23, 2016 12:00:32 PM
✓	✓	11,902,273.782	DiskStorageUsed	DiskStorageUsed	3 /	ipm5-3	ipm5	DiskStorageUsed	Active	Aug 23, 2016 12:00:31 PM
✓	✓	11,961,450.688	DiskStorageUsed	DiskStorageUsed	3 /	ipmch-3	ipmch	DiskStorageUsed	Active	Aug 23, 2016 12:00:19 PM
✓	✓	11,895,001.080	DiskStorageUsed	DiskStorageUsed	3 /	ipm10-3	ipm10	DiskStorageUsed	Active	Aug 23, 2016 12:00:14 PM
✓	✓	11,892,043.52	DiskStorageUsed	DiskStorageUsed	3 /	ipm6-3	ipm6	DiskStorageUsed	Active	Aug 23, 2016 12:00:13 PM

10. After completing your initial testing, set the poll rate back to the desired value; for example, 5 minutes.

## Step 5: View the custom collection(s) as Reports

To ensure that the exported collections are showing up in the iSPI Performance for Metrics Reports, do the following:

1. Select one of the Servers from node group **HostResourceNodes**
2. Click Action > HPE NNM iSPI Performance > Reporting – Report Menu

Network Node Manager i

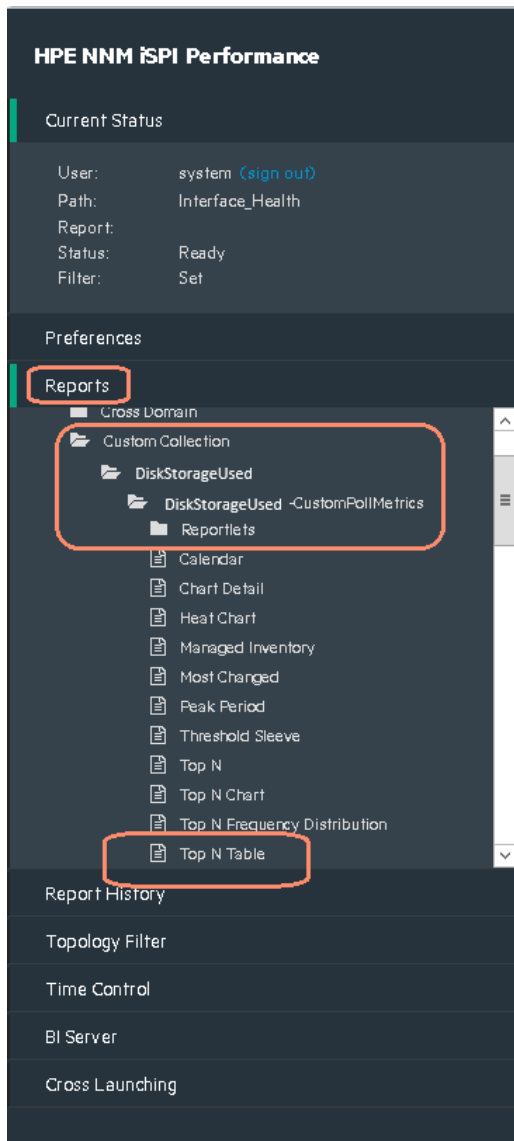
File View Tools Actions Help

Nodes

HostResourceNodes

Security Group	System Location	Device Profile	SNM States	Last Modified	Notes
Default Security Group	building 6 Annex	<No SNMP>	✓	Aug 22, 2016 12:43:40	
Default Security Group	building 6 Annex	<No SNMP>	✓	Aug 25, 2016 4:06:38	
SecurityGroup2	building 6 Annex	ciscoCat9500N	✓	Aug 27, 2016 11:50:21	
SecurityGroup2	building 6 Annex	cisco3500-3AP	✓	Aug 25, 2016 3:58:31	
SecurityGroup2	building 6 Annex	ciscoCat9500N	✓	Aug 22, 2016 12:43:40	
SecurityGroup2	building 6 North	hp3500-24G-PoE	✓	Aug 22, 2016 12:37:14	
Default Security Group	LSPO north lab	juniper30350	✓	Aug 22, 2016 12:40:00	
Default Security Group	Default Tenant	<No SNMP>	✓	Aug 25, 2016 4:09:47	
Default Security Group	north.LIT lab n-3	lenronixSLC	✓	Aug 22, 2016 12:42:51	
Default Security Group	building 6 Annex	ciscoCat9500N	✓	Aug 25, 2016 8:57:01	

3. You can see a new item **DiskStorageUsed** in the Reporting Tree.



4. Select a desired template (Top N Table in this example) and launch the report by selecting the right dimensions for the report.

**Current Status**

User: system (sign out)  
 Path: AsadGroup/AsadGroup-CustomPollMetrics  
 Report: Top N Table  
 Status: Ready  
 Filter: Set

**Preferences**

**Reports**

- Cross Domain
- Custom Collection
  - AsadGroup
    - AsadGroup-CustomPollMetrics
      - Reportlets
        - Calendar
        - Chart Detail
        - Heat Chart
        - Managed Inventory
        - Most Changed
        - Peak Period
        - Threshold Sleeve
        - Top N
        - Top N Chart
        - Top N Frequency Distribution
        - Top N Table

Report History  
 Topology Filter

**NNM iSPI Performance**

Time Topology Options Show Bookmark Help

Sep 1, 2014 10:50:00 PM - Sep 1, 2014 11:50:00 PM (Last 1 Hour) (Server Time), Node Name = iplcm9.ind.hp.com

**Grouped by:** Node Name : Display Attribute

Rank	Node Name	Display Attribute	DiskStorageUsed_DiskStorageUsed (avg)	DiskStorageUsed_DiskStorageUsed (max)
1	iplcm9.ind.hp.com	iplcm9-3	11.897/011.14	11.897/016.00

Generated at : 11:54:36 PM (Server Time)

## Export the Custom Poller Collection

NNMi enables you to store all the Custom Poller samples to a Command Separated Values (CSV) file.

To enable this feature, check to enable Export Custom Poller Collection. This causes NNMi to generate CSV files for each collection. One can compress the exported CSV files by enabling Compress Export File.

File View Tools Actions Help

Custom Poller Configuration Custom Poller Collection \*

**Basics**

When modifying an existing Custom Poller Collection, all associated Policies will be suspended when the modifications are saved.

- Name: DiskStorageUsed
- Collection Type: Instance
- Affect Node Status: ☒
- Export Custom Poller Collection: ☒
- Compress Export File: ☐
- Generate Incident: ☒
- Incident Source Object: Custom Polled Instance

Required for multiple instance (repeating) MIB Variables only. The MIB Filter Variable is the MIB variable whose value you want to use as a filter to determine which instances of the MIB Expression to Custom Poll. You must also specify a MIB Filter value when creating the associated Policy.

MIB Filter Variable: hrStorageDescr

**MIB Variables**

Specify at least one MIB variable for the collection discover and poll.

Name	Report Data Type
DiskStorageUsed	Gauge

Total: 0 Selected: 0 Filter: OFF Auto refresh: OFF

### Note

The exported CSV file contains all samples, not just the samples that trigger a state change.

If the Export Custom Poller Collection attribute is enabled, NNMi exports the Custom Poller Collection to a comma-separated values (CSV) file that is written to the following directory (Periodic clean-up of this directory is recommended once the CSV files are consumed to avoid higher disk space utilization):

- Windows:

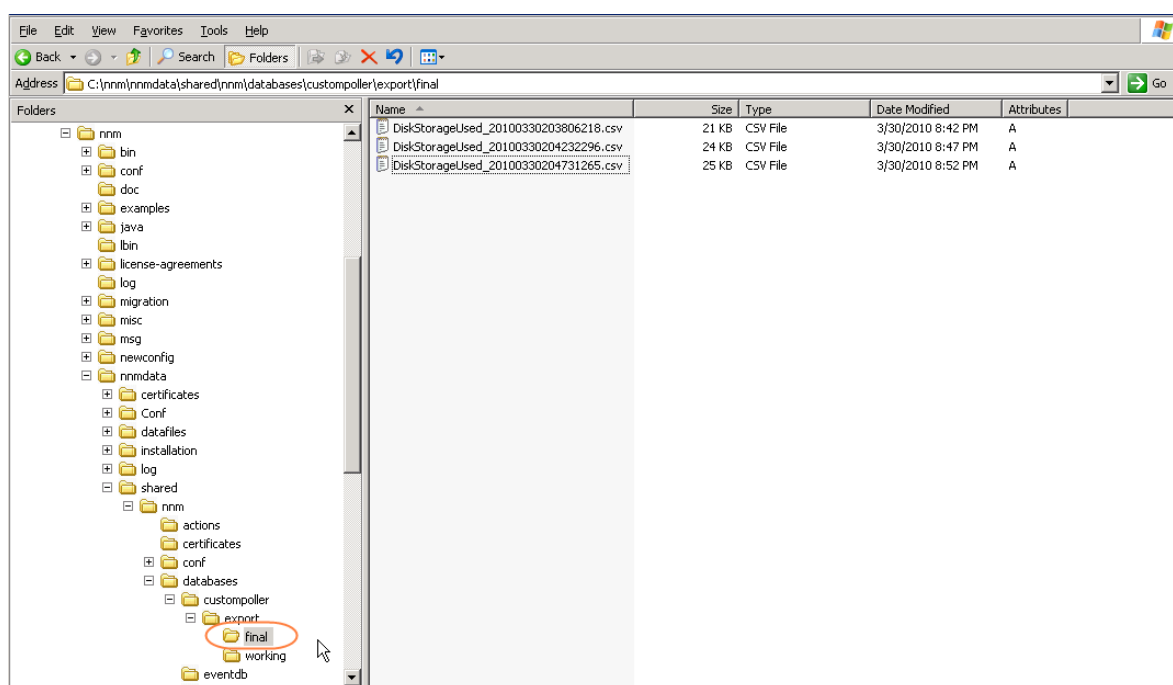
```
%NnmDataDir%\shared\nnm\databases\custompoller\export\final
```

- Linux:

```
$NnmDataDir/shared/nnm/databases/custompoller/export/final
```

## Note

These flags are NOT required for exporting a custom collection as a Report Group in the iSPI Performance for Metrics (NPS). One must use these flags only if there is any third-party application or any other reason for analyzing the custom collected data.



The CSV files can be imported into Microsoft Excel for easy viewing and graphing.



## Troubleshooting Tips

NNMi provides feedback on common errors. This section describes some common types of feedback.

For Custom Poller Collections, NNMi supports queries of the following types (as defined in the MIB). Watch for possible aliases on the types.

### Supported MIB Poll Variable Type      Supported MIB Filter Variable Type

INTEGER, Integer32	INTEGER, Integer32
Unsigned32	Unsigned32
Counter, Counter32, Counter64	Gauge, Gauge32
Gauge, Gauge32	OCTET STRING
TimeTicks	IP Address
OCTET STRING	

If you set up a Custom Poller Collection using a MIB Poll Variable or MIB Filter Variable of an unsupported type, NNMi displays an error in the Discovery State. NNMi also provides some additional information about the failure in the Discovery Information attribute.

Custom Node Collections ✖							
Status	Node	Active State	▼ Status Last Modified	Custom Poller Policy	Discovery Stat	Discovery State Last M	Discovery State Information
✔	sp-vceftw201300h9-floating	Active	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 24, 2016 3:44:01	No MIB instances found on node with filter value: 1
✔	sp-virt-fcmovm4	Active	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 24, 2016 3:44:00	No MIB instances found on node with filter value: 1
✔	sp-esxi4	Active	Aug 23, 2016 1:17:26	DiskStorageUsed	Failed	Aug 24, 2016 3:43:58	MIB Variable requested 1.3.6.1.2.1.2.2.1.17 does not exist on node
✔	sp-cisco-basic-card-rhino	Active	Aug 23, 2016 1:17:25	DiskStorageUsed	Completed	Aug 24, 2016 3:44:02	No MIB instances found on node with filter value: 1

If no Polled Instances pass the defined filter, you also see a notification in the Discovery Information attribute.

Custom Node Collections ✖							
Status	Node	Active State	▼ Status Last Modified	Custom Poller Policy	Discovery Stat	Discovery State Last M	Discovery State Information
✔	sp-vceftw282000ua-floating	Active	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 24, 2016 3:44:00	
✔	sp-vceftw28220023-floating	Active	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 24, 2016 3:44:00	
✔	sp-cp-c5500-ls1010	Active	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 24, 2016 3:43:59	No MIB instances found on node with filter value: 1
✔	sp-vceftw27330009-floating	Active	Aug 23, 2016 1:17:26	DiskStorageUsed	Completed	Aug 24, 2016 3:44:01	

Custom Poller log messages can be found in the `nnm.*.log` and `nnm-trace.*.log` files.

## **We appreciate your feedback!**

If an email client is configured on this system, by default an email window opens when you click [here](#).

If no email client is available, copy the information below to a new message in a web mail client, and then send this message to **network-management-doc-feedback@hpe.com**.

**Product name and version:** NNMi 10.20

**Document title:** Step-by-Step Guide to Custom Poller

**Feedback:**



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