Technical white paper

HP Network Node Manager i Software 10.00

Step-by-Step Guide to Incident Management

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Incident Management

This whitepaper describes the NNMi event pipeline and Incident configuration. It includes the following Incident configuration options:

- Deduplication
- Rate Correlation
- Incident Suppression
- Enrichment
- Actions

It also includes information about Dampening incidents and explains how to narrow incident customization based on Node Group and Interface Group membership.

This whitepaper uses the following terms:

Trap - an asynchronous notification from an SNMP agent on a managed node that is sent to the NNMi management server.

NNMi management event - an incident that is generated by NNMi usually as a result of a status poll. An example is the Node Down incident.

Also see the “Step-by-Step Guide to Managing SNMP Traps in NNMi”.

Note
In this example scenario, a network device sends the same example SNMP trap to mean various things. The difference between the traps is the varbinds (variable bindings). This is a common practice for some devices and applications.

Setting up your SNMP trap

In this example scenario, a network device sends the same example SNMP trap to mean various things. The difference between the traps is the varbinds (variable bindings). This is a common practice for some devices and applications.

Note
Your NNMi console appearance might vary from some of the figures in this document.

The trap and its varbinds are defined below**:**

OID	.1.3.6.1.4.1.33333.0.1
Varbind 1:	.1.3.6.1.4.1.33333.1.1.1 (Integer)
Varbind 2:	.1.3.6.1.4.1.33333.1.2.1 (Octet String)

Table 1. The following table describes the Varbind 1 and Varbind 2 values

Varbind1 Type: Integer	**Varbind1 Type Description**: Status
Varbind1 Value	**Description**
1	Normal Status
2	Warning
3	Critical
Varbind2 Type: String	**Varbind1 Type Description**: Module with problem
Varbind2 Value	**Description**
CPU	CPU is the source of the problem
Temperature	Temperature is the source of the problem

Because this trap does not exist, no MIB defines the trap. Therefore, this example begins by creating the trap definition. However, normally, to begin, load the trap definition using the following command:

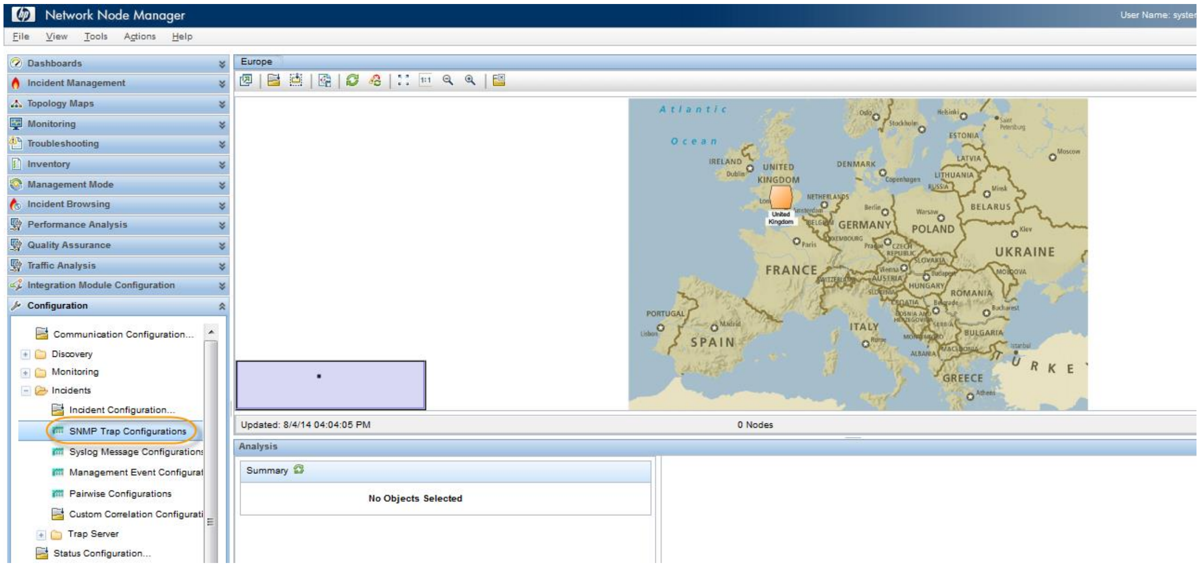
1. First, load the MIB using:
   ```
   nnmloadmib.ovpl -load <mib_file>
   ```

2. Load the trap using:
   ```
   nnmincidentcfg.ovpl -loadTraps <mib_module_name>
   ```

To create the trap definition:

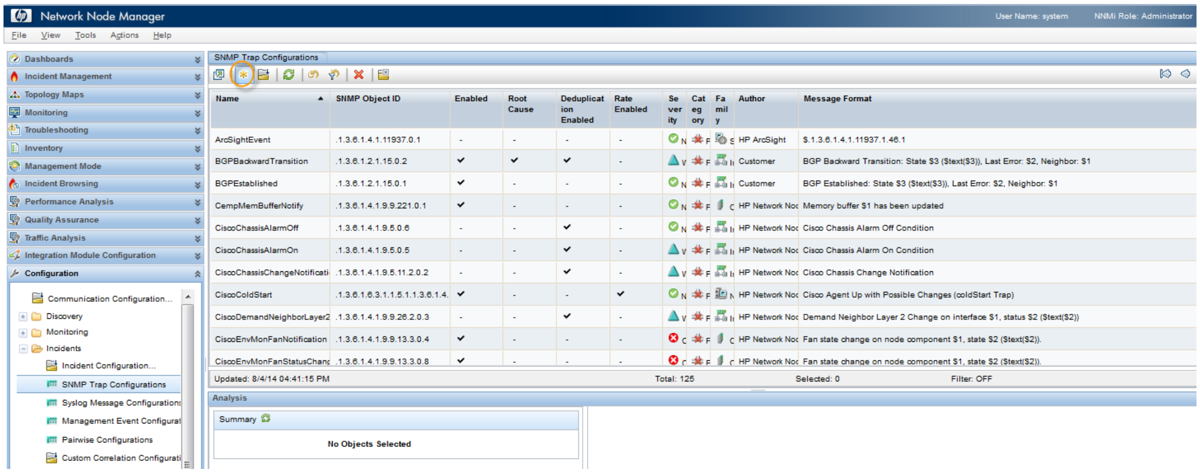
1. Navigate to the Configuration workspace, expand Incidents, and click SNMP Trap Configurations.

Figure 1.



2. Navigate to the SNMP Traps tab and select the * icon.

Figure 2.



Name	SNMP Object ID	Enabled	Root Cause	Deduplication Enabled	Rate Enabled	Severity	Category	Family	Author	Message Format
ArcSightEvent	.1.3.6.1.4.1.11937.0.1	-	-	-	-	✓ N	F	S	HP ArcSight	$.1.3.6.1.4.1.11937.1.46.1
BGPBackwardTransition	.1.3.6.1.2.1.15.0.2	✓	✓	✓	-	▲ V	F	I	Customer	BGP Backward Transition: State $3 ($text($3)), Last Error: $2, Neighbor: $1
BGPEstablished	.1.3.6.1.2.1.15.0.1	✓	-	-	-	✓ N	F	I	Customer	BGP Established: State $3 ($text($3)), Last Error: $2, Neighbor: $1
CempMemBufferNotify	.1.3.6.1.4.1.9.9.221.0.1	✓	-	-	-	✓ N	F	C	HP Network Noc	Memory buffer $1 has been updated
CiscoChassisAlarmOff	.1.3.6.1.4.1.9.5.0.6	-	-	✓	-	✓ N	F	I	HP Network Noc	Cisco Chassis Alarm Off Condition
CiscoChassisAlarmOn	.1.3.6.1.4.1.9.5.0.5	-	-	✓	-	▲ V	F	I	HP Network Noc	Cisco Chassis Alarm On Condition
CiscoChassisChangeNotificati	.1.3.6.1.4.1.9.5.11.2.0.2	-	-	✓	-	▲ V	F	I	HP Network Noc	Cisco Chassis Change Notification
CiscoColdStart	.1.3.6.1.6.3.1.1.5.1.1.3.6.1.4.	✓	-	-	✓	✓ N	F	N	HP Network Noc	Cisco Agent Up with Possible Changes (coldStart Trap)
CiscoDemandNeighborLayer2	.1.3.6.1.4.1.9.9.26.2.0.3	-	-	✓	-	▲ V	F	I	HP Network Noc	Demand Neighbor Layer 2 Change on interface $1, status $2 ($text($2))
CiscoEnvMonFanNotification	.1.3.6.1.4.1.9.9.13.3.0.4	✓	-	-	-	✗ C	F	C	HP Network Noc	Fan state change on node component $1, state $2 ($text($2)).
CiscoEnvMonFanStatusChanç	.1.3.6.1.4.1.9.9.13.3.0.8	✓	-	-	-	✗ C	F	C	HP Network Noc	Fan state change on node component $1, state $2 ($text($2)).

Updated: 8/4/14 04:41:15 PM Total: 125 Selected: 0 Filter: OFF

No Objects Selected

3. In the Name attribute, enter TestApp.

4. In the SNMP Object ID attribute, enter .1.3.6.1.4.1.33333.0.1

5. Click Enabled.

6. Click Root Cause so that these traps will display in the Key Incidents view.

7. In the Category attribute, select Application Status.

8. In the Family attribute, select Node.

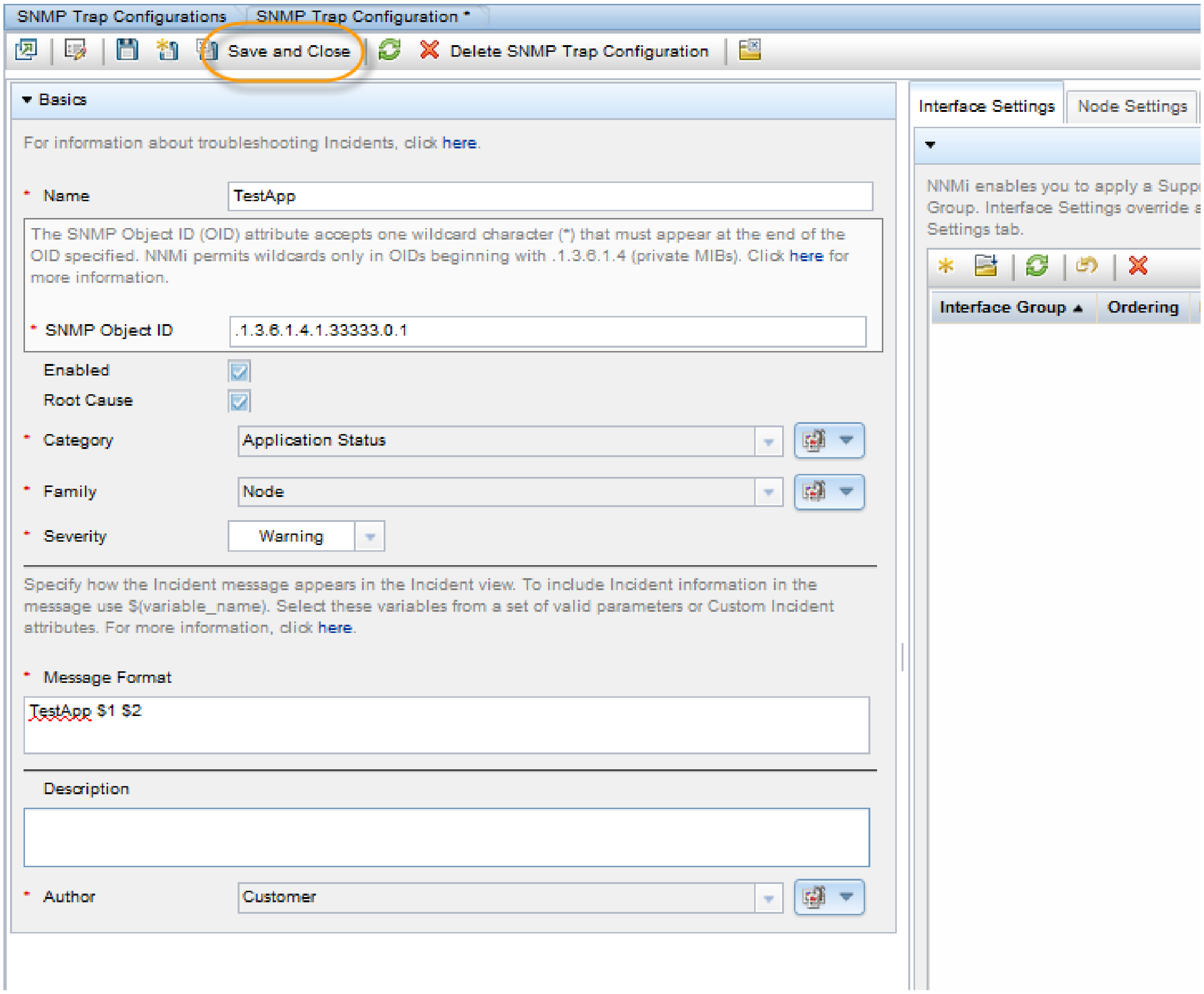
9. In the Severity attribute, select Warning.

10. In the Message Format attribute, enter “TestApp $1 $2”.

11. In the Author attribute, select Customer.

12. Click Save and Close to save the changes.

Figure 3.



For information about troubleshooting Incidents, click here.

* Name: TestApp

The SNMP Object ID (OID) attribute accepts one wildcard character (*) that must appear at the end of the OID specified. NNMi permits wildcards only in OIDs beginning with .1.3.6.1.4 (private MIBs). Click here for more information.

* SNMP Object ID: .1.3.6.1.4.1.33333.0.1

Enabled: ☑

Root Cause: ☑

* Category: Application Status

* Family: Node

* Severity: Warning

Specify how the Incident message appears in the Incident view. To include Incident information in the message use $(variable_name). Select these variables from a set of valid parameters or Custom Incident attributes. For more information, click here.

* Message Format: TestApp $1 $2

Description:

* Author: Customer

NNMi enables you to apply a Supp
Group. Interface Settings override a
Settings tab.

13. Next, use the `nnmsnmpnotify.ovpl` command to send the example traps:

```
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1
.1.3.6.1.4.1.33333.1.1.1 integer 2  .1.3.6.1.4.1.33333.1.2.1 OCTETSTRING CPU
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1
.1.3.6.1.4.1.33333.1.1.1 integer 1  .1.3.6.1.4.1.33333.1.2.1 OCTETSTRING
Temperature
```

Note

- This command must be run from the NNMi server
- Each `nnmsnmpnotify.ovpl` is a single line

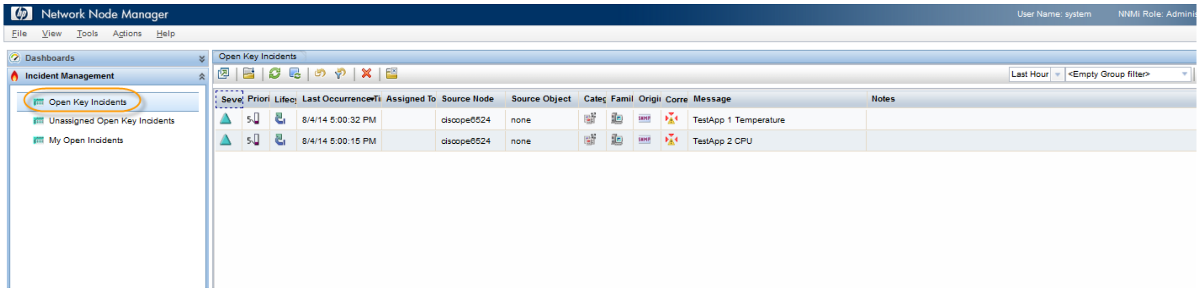
To confirm that NNMi has received the traps:

1. Navigate to the Incident Browsing workspace.

2. Click Open Key Incidents to confirm that the traps have been received

Note
Use the pull-down menu to change the time period if necessary.

Figure 4.



Seve	Priori	Lifec	Last Occurrence Ti	Assigned To	Source Node	Source Object	Categ	Famil	Origi	Corre	Message	Notes
▲	5		8/4/14 5:00:32 PM		ciscope6524	none					TestApp 1 Temperature	
▲	5		8/4/14 5:00:15 PM		ciscope6524	none					TestApp 2 CPU	

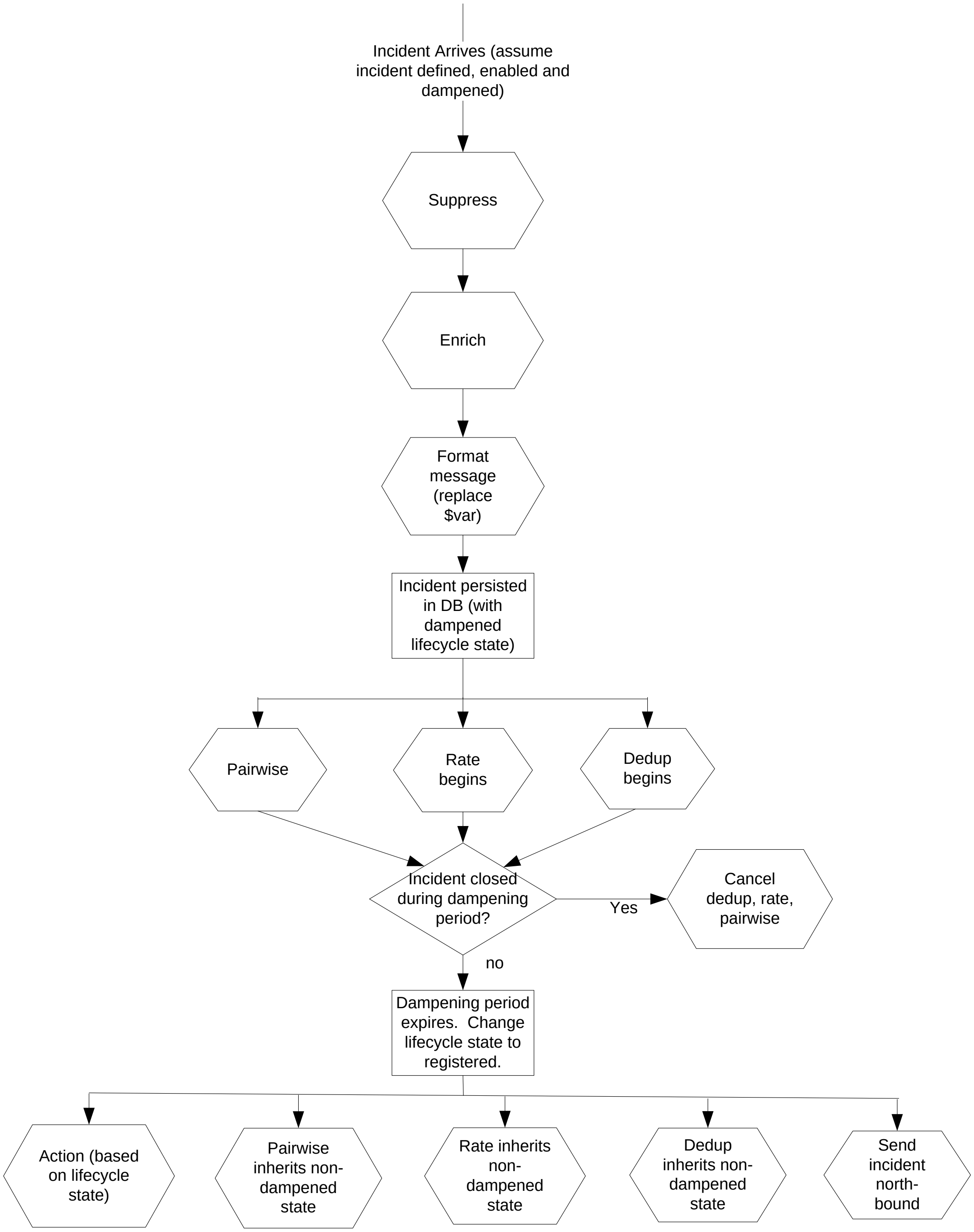
Now you are ready to begin working with these traps.

Dampening and the Incident Pipeline

NNMi provides the Incident Dampening feature to enable you to ignore network “noise” in which interfaces and nodes are down for short periods of time. With Incident Dampening, NNMi behaves as if the short outages never occurred. To identify these incidents, NNMi uses the Dampened Lifecycle State. The Dampened Lifecycle State precedes the Registered Lifecycle State.

The following flowchart provides a summary of where Dampening fits into the NNMi Incident Pipeline.

Figure 5.


Incident Arrives (assume incident defined, enabled and dampened)
Suppress
Enrich
Format message (replace $var)
Incident persisted in DB (with dampened lifecycle state)
Pairwise
Rate begins
Dedup begins
Incident closed during dampening period?
Yes
Cancel dedup, rate, pairwise
no
Dampening period expires. Change lifecycle state to registered.
Action (based on lifecycle state)
Pairwise inherits non-dampened state
Rate inherits non-dampened state
Dedup inherits non-dampened state
Send incident north-bound

As shown in the preceding flowchart, when an incident arrives, NNMi checks whether the incident can be suppressed and immediately discarded. If an incident is not suppressed, NNMi determines whether an Enrichment Configuration is enabled for the incident. (Enrichment Configuration is used to customize a subset of incident configuration attributes, such as Message Format or Priority.)

Next, NNMi replaces any parameter strings (for example $sourceNodeName) specified in the Message Format.

If Dampening is enabled for the incident, NNMi sets the Lifecycle State to Dampened. If Dampening is not enabled for the incident, NNMi sets the Lifecycle State to Registered.

After the Lifecycle State is set, Rate and Deduplication correlations, as well as Pairwise matching takes place.

If NNMi cancels the incident and sets the Lifecycle State to Closed during this Dampening period, NNMi discards the incident and discontinues any Rate or Deduplication correlation and Pairwise matching. If the Dampening period expires, NNMi sets the Lifecycle State to Registered and continues any Rate or Deduplication correlation and Pairwise matching.

Customizing Incident Configurations Using Interface or Node Groups

Incidents can be customized based on Interface Groups or Node Groups. This feature is reflected in the incident configuration form. When a trap arrives into the Incident Pipeline (after it has cleared any filtering), NNMi compares the SNMP trap to the Interface Settings to see if the source of the trap is a member of this Interface Settings group. If NNMi finds a match on the source interface (source object), NNMi applies the Suppression, Enrichment, Dampening, and Actions specific to that Interface Group.

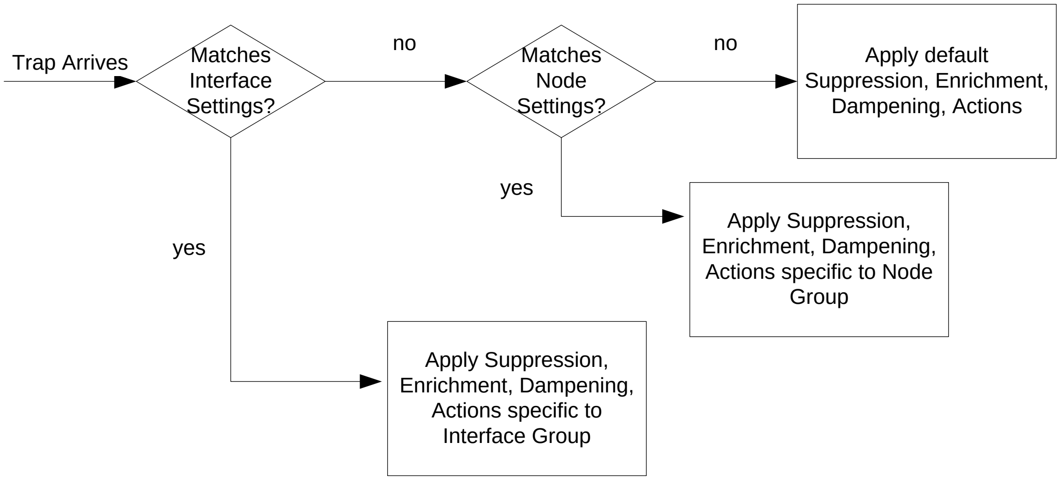
Note

If one of these tabs is disabled (for example, Enrichment), NNMi does not use the default Enrichment.

If the source interface does not match any Interface Settings, NNMi compares the source node to the Node Settings group. If NNMi finds a match on the source node, NNMi applies the Suppression, Enrichment, Dampening, and Actions specific to that Node Group.

If the source node does not match any Node Settings, then the default Suppression, Enrichment, Dampening and Actions are applied.

Figure 6.

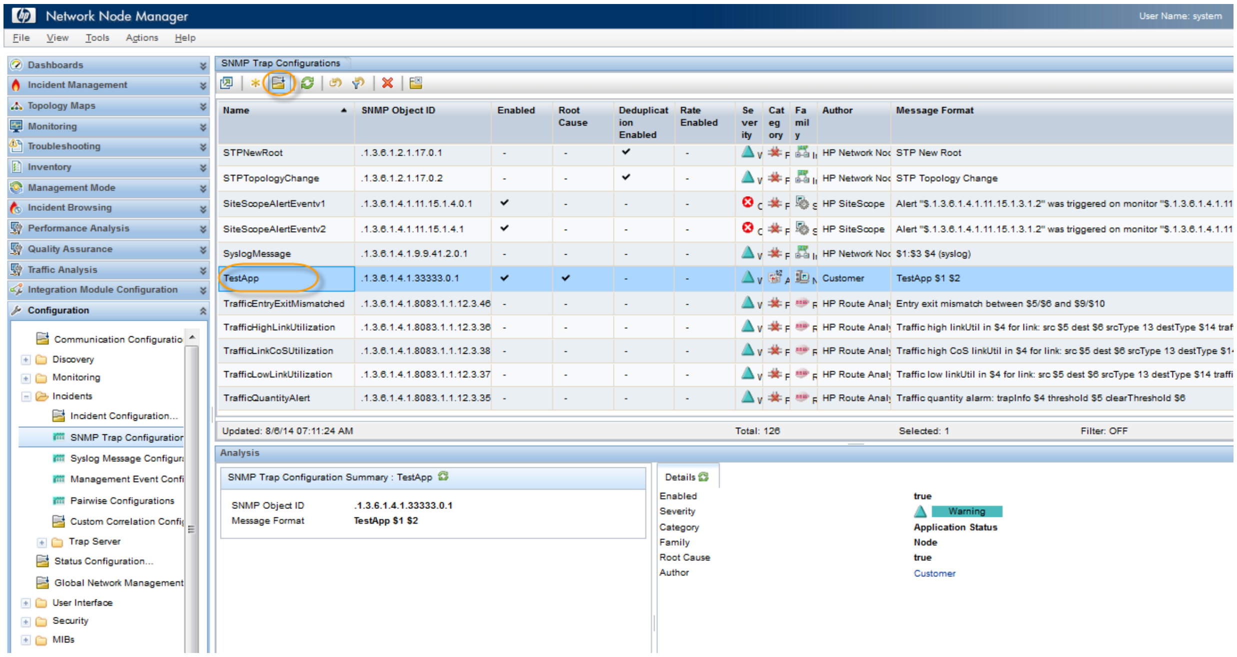

Trap Arrives
Matches Interface Settings?
no
Matches Node Settings?
no
Apply default Suppression, Enrichment, Dampening, Actions
yes
Apply Suppression, Enrichment, Dampening, Actions specific to Node Group
yes
Apply Suppression, Enrichment, Dampening, Actions specific to Interface Group

NNMi applies Deduplication and Rate Correlation independent of Interface Settings and Node Settings.

To view the Incident Configuration options for Interface and Node Settings:

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the Open button

Figure 7.



Name	SNMP Object ID	Enabled	Root Cause	Deduplication Enabled	Rate Enabled	Severity	Category	Family	Author	Message Format
STPNewRoot	.1.3.6.1.2.1.17.0.1	-	-	✓	-	V	F	I	HP Network Noc	STP New Root
STPTopologyChange	.1.3.6.1.2.1.17.0.2	-	-	✓	-	V	F	I	HP Network Noc	STP Topology Change
SiteScopeAlertEventv1	.1.3.6.1.4.1.11.15.1.4.0.1	✓	-	-	-	C	F	S	HP SiteScope	Alert "$.1.3.6.1.4.1.11.15.1.3.1.2" was triggered on monitor "$.1.3.6.1.4.1.11
SiteScopeAlertEventv2	.1.3.6.1.4.1.11.15.1.4.1	✓	-	-	-	C	F	S	HP SiteScope	Alert "$.1.3.6.1.4.1.11.15.1.3.1.2" was triggered on monitor "$.1.3.6.1.4.1.11
SyslogMessage	.1.3.6.1.4.1.9.9.41.2.0.1	-	-	-	-	V	F	I	HP Network Noc	$1:$3 $4 (syslog)
TestApp	.1.3.6.1.4.1.33333.0.1	✓	✓	-	-	V	A	N	Customer	TestApp $1 $2
TrafficEntryExitMismatched	.1.3.6.1.4.1.8083.1.1.12.3.46	-	-	-	-	V	F	R	HP Route Analy	Entry exit mismatch between $5/$6 and $9/$10
TrafficHighLinkUtilization	.1.3.6.1.4.1.8083.1.1.12.3.36	-	-	-	-	V	F	R	HP Route Analy	Traffic high linkUtil in $4 for link: src $5 dest $6 srcType 13 destType $14 traf
TrafficLinkCoSUtilization	.1.3.6.1.4.1.8083.1.1.12.3.38	-	-	-	-	V	F	R	HP Route Analy	Traffic high CoS linkUtil in $4 for link: src $5 dest $6 srcType 13 destType $1
TrafficLowLinkUtilization	.1.3.6.1.4.1.8083.1.1.12.3.37	-	-	-	-	V	F	R	HP Route Analy	Traffic low linkUtil in $4 for link: src $5 dest $6 srcType 13 destType $14 traffi
TrafficQuantityAlert	.1.3.6.1.4.1.8083.1.1.12.3.35	-	-	-	-	V	F	R	HP Route Analy	Traffic quantity alarm: trapInfo $4 threshold $5 clearThreshold $6

Updated: 8/6/14 07:11:24 AM Total: 126 Selected: 1 Filter: OFF

SNMP Trap Configuration Summary : TestApp

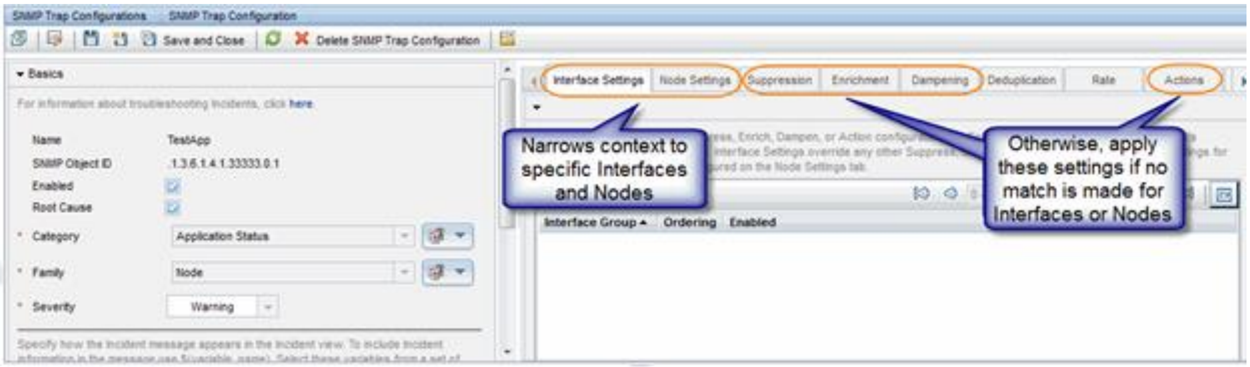
SNMP Object ID .1.3.6.1.4.1.33333.0.1
Message Format TestApp $1 $2

Details

Enabled	true
Severity	Warning
Category	Application Status
Family	Node
Root Cause	true
Author	Customer

The graphic below indicates how the various tabs apply to this concept

Figure 8.



Name	TestApp
SNMP Object ID	.1.3.6.1.4.1.33333.0.1
Enabled	☑
Root Cause	☑
* Category	Application Status
* Family	Node
* Severity	Warning

Narrows context to specific Interfaces and Nodes

Otherwise, apply these settings if no match is made for Interfaces or Nodes

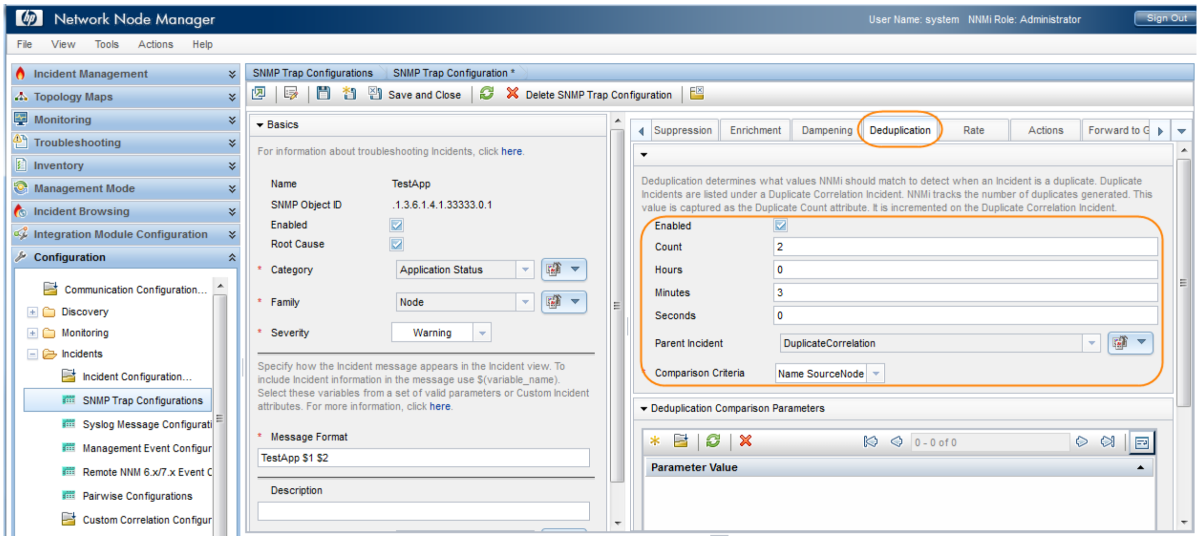
Deduplication

NNMi's Deduplication feature enables you to correlate duplicate incidents under a new incident. It also deletes duplicate incidents once a specified number of duplicate incidents are generated.

This example configures Deduplication for the TestApp SNMP trap configuration.

1. Navigate to the **Configuration** Workspace.
2. Open **Incidents** and select **SNMP Trap Configurations**.
3. Locate and select the TestApp trap, and then click the Open button.
4. Click to check **Enabled**.
5. Navigate to the **Deduplication** tab.
6. In the **Count** attribute, enter the number of TestApp traps that NNMi should retain in the database for a particular Deduplication time period. The maximum number is 10. For this example, enter **2**.
7. In the **Hours**, **Minutes**, and **Seconds** attributes, specify the time that must elapse before a new duplicate incident is generated for this incident configuration. For this example, in the Minutes attribute, enter **3**
8. Next, in the **Parent Incident** drop-down list, select the incident that you want NNMi to generate to indicate that Deduplication has occurred. For this example, select **DuplicateCorrelation**.
9. Last, specify the **Comparison Criteria**. The Comparison Criteria specifies what attributes NNMi should use to decide what constitutes a duplicate. This example uses Name and SourceNode. This means that when two TestApp SNMP traps arrive, NNMi considers them to be duplicate if the SNMP traps have the same name (TestApp) and the same SourceNode (came from the same device in the network).

Figure 9.



For information about troubleshooting Incidents, click here.

Name: TestApp
SNMP Object ID: .1.3.6.1.4.1.33333.0.1
Enabled: ☑
Root Cause: ☑
* Category: Application Status
* Family: Node
* Severity: Warning

Specify how the Incident message appears in the Incident view. To include Incident information in the message use $(variable_name). Select these variables from a set of valid parameters or Custom Incident attributes. For more information, click here.

* Message Format: TestApp $1 $2
Description:

Deduplication determines what values NNMi should match to detect when an Incident is a duplicate. Duplicate Incidents are listed under a Duplicate Correlation Incident. NNMi tracks the number of duplicates generated. This value is captured as the Duplicate Count attribute. It is incremented on the Duplicate Correlation Incident.

Enabled: ☑
Count: 2
Hours: 0
Minutes: 3
Seconds: 0
Parent Incident: DuplicateCorrelation
Comparison Criteria: Name SourceNode

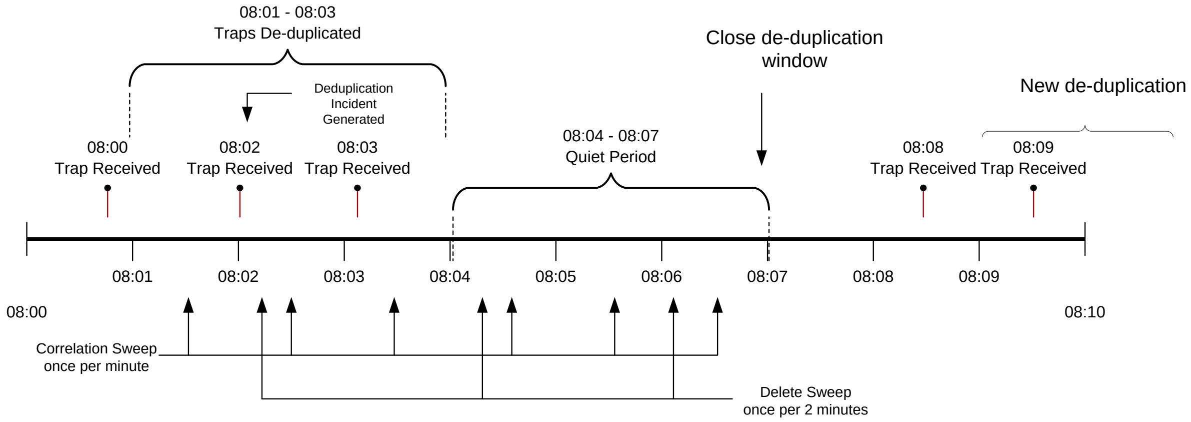
The following diagram depicts the following scenario:

The first TestApp SNMP trap arrives at 8:00. Another trap with the same name and source node arrives at 8:02. NNMi generates a new DuplicateCorrelation incident. At 8:03 another trap arrives. In addition, every minute NNMi sweeps the incidents to determine whether to correlate duplicate incidents. At approximately 8:02:30, NNMi correlates the first two SNMP traps under the DuplicationCorrelation incident and marks them as Correlated Children. At 8:03:30, NNMi correlates the third SNMP trap as a child to the DuplicationCorrelation incident. At approximately 8:04:15, NNMi checks whether more than two TestApp SNMP traps are correlated under a single DuplicationCorrelation. NNMi deletes one of the TestApp SNMP traps because the total number is three.

Note
Although NNMi deletes the third SNMP trap from the NNMi database, the total count of 3 is retained in the DuplicateCorrelation incident as the Duplicate Count.

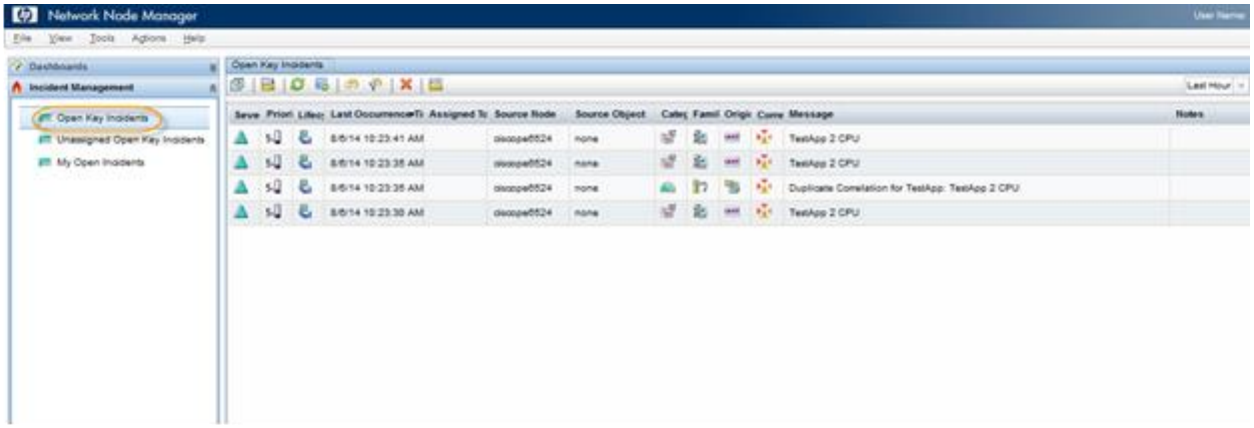
After SNMP traps stop arriving for three minutes (the time window for this Deduplication), NNMi closes the Deduplication time window. At 8:08 a new TestApp trap arrives. At 8:09 another TestApp SNMP trap arrives from the same node. This begins the cycle again. NNMi generates a new DeduplicationCorrelation incident and continues to evaluate each incident as previously described.

Figure 10.



The following image depicts how these incidents might appear in the Open Key Incidents view. Note that the times in the example below do not correspond exactly with the timeline above, but the order is similar. As shown in the example, three traps arrived and a new DuplicateCorrelation incident is generated.

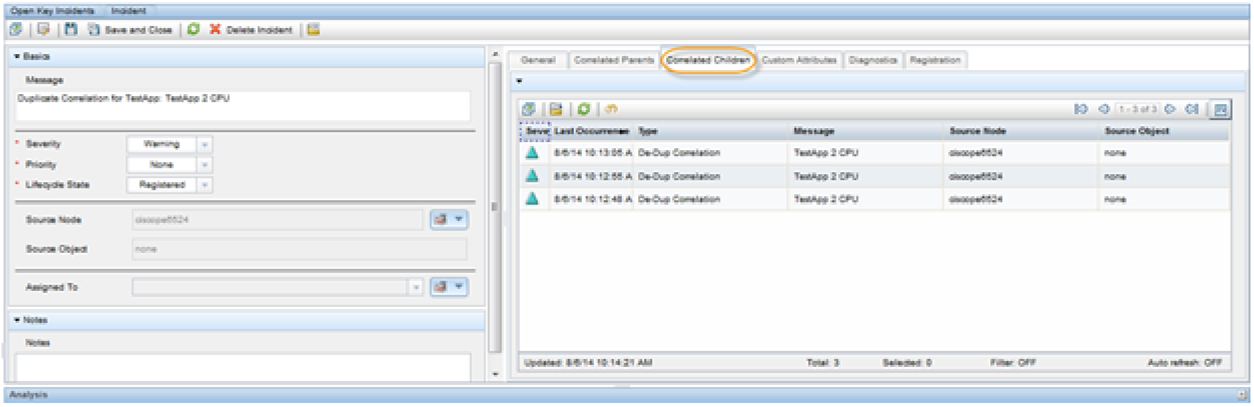
Figure 11.



Seve	Priori	Lifec	Last Occurrence Ti	Assigned To	Source Node	Source Object	Categ	Famil	Origi	Corre	Message	Notes
	5		8/6/14 10:23:41 AM		discope6524	none					TestApp 2 CPU	
	5		8/6/14 10:23:35 AM		discope6524	none					TestApp 2 CPU	
	5		8/6/14 10:23:35 AM		discope6524	none					Duplicate Correlation for TestApp: TestApp 2 CPU	
	5		8/6/14 10:23:30 AM		discope6524	none					TestApp 2 CPU	

When NNMi sweeps the incidents to determine whether to correlate duplicate incidents, it correlates the three traps under the DuplicateCorrelation incident as shown in the following example

Figure 12.



Message: Duplicate Correlation for TestApp: TestApp 2 CPU

Severity: Warning

Priority: None

Lifecycle State: Registered

Source Node: discope6524

Source Object: none

Assigned To:

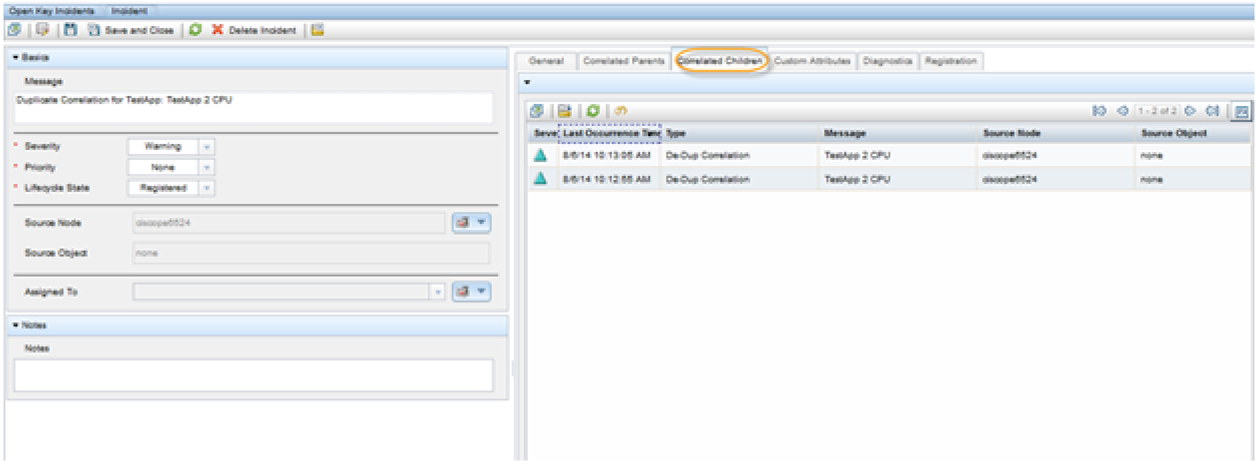
Notes:

Seve	Last Occurrence	Type	Message	Source Node	Source Object
▲	8/6/14 10:13:05 A	De-Dup Correlation	TestApp 2 CPU	discope6524	none
▲	8/6/14 10:12:55 A	De-Dup Correlation	TestApp 2 CPU	discope6524	none
▲	8/6/14 10:12:48 A	De-Dup Correlation	TestApp 2 CPU	discope6524	none

Updated: 8/6/14 10:14:21 AM Total: 3 Selected: 0 Filter: OFF Auto refresh: OFF

Next, NNMi checks whether more than two TestApp SNMP traps are correlated under a single DuplicationCorrelation and deletes one of the TestApp SNMP traps so that at most two traps are stored in the NNMi database

Figure 13.



Message: Duplicate Correlation for TestApp: TestApp 2 CPU

Severity: Warning

Priority: None

Lifecycle State: Registered

Source Node: discope6524

Source Object: none

Assigned To:

Notes:

Seve	Last Occurrence Time	Type	Message	Source Node	Source Object
▲	8/6/14 10:13:05 AM	De-Dup Correlation	TestApp 2 CPU	discope6524	none
▲	8/6/14 10:12:55 AM	De-Dup Correlation	TestApp 2 CPU	discope6524	none

Finally, after no new duplicate incidents are generated within a period of three minutes, NNMi closes the Deduplication and generates a new Deduplication incident when a new TestApp SNMP trap arrives.

Tip
The longer the time period, the more Deduplication NNMi can track.

Note
Please note that the “Correlation Nature” of a Duplicate Correlation incident is decided based on the correlation nature of the underlying child incidents. For example, if an ‘Origin’ is “SNMP Trap” or “Syslog” for a particular incident (trap or syslog) and if this incident is configured as “Root Cause” in the Incident Configuration then “Duplicate Correlation” incident’s Correlation Nature will be set to “Root Cause” else it will be set to “Dedup Stream Correlation”.

Once correlated, underlying correlated children events’ Correlation Nature is marked as “Symptoms” if it was “Root Cause” before correlation.

Rate

Rate configuration enables you to track incident patterns based on the number of incident reoccurrences within a specified time period. After the count within the specified time period is reached, NNMi emits a Rate Correlation incident and continues to update the Correlation Notes with the number of occurrences within that rate. NNMi correlates the incidents under the Rate Correlation incident while they are within the specified time period. Unlike Deduplication, Rate Correlation never deletes incidents from the database.

This example configures the Rate so that NNMi generates a Rate incident when three or more TestApp SNMP traps occur within a two-minute time period.

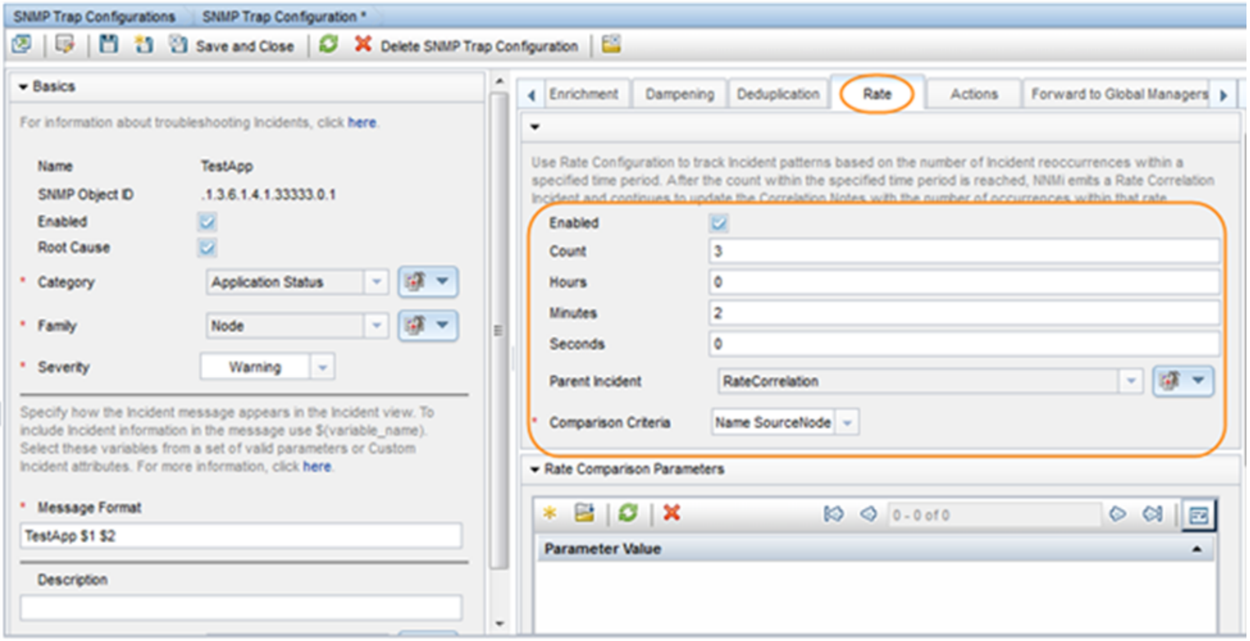
First, disable the Deduplication Incident Configuration

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the Open button.
4. Navigate to the Deduplication tab.
5. Click to clear Enabled

Next, specify the Rate configuration for the TestApp SNMP trap incident.

1. Navigate to the Rate tab.
2. Click to check Enabled.
3. In the Count attribute, enter 3.
4. In the Minutes attribute, enter 2.
5. In the Parent Incident drop-down list, select RateCorrelation.
6. In the Comparison Criteria drop-down list, select Name SourceNode.
7. Click Save and Close to save the configuration

Figure 14.



For information about troubleshooting Incidents, click here.

Name TestApp
SNMP Object ID .1.3.6.1.4.1.33333.0.1
Enabled ☑
Root Cause ☑
* Category Application Status
* Family Node
* Severity Warning

Specify how the Incident message appears in the Incident view. To include Incident information in the message use $(variable_name). Select these variables from a set of valid parameters or Custom Incident attributes. For more information, click here.

* Message Format
TestApp $1 $2

Description

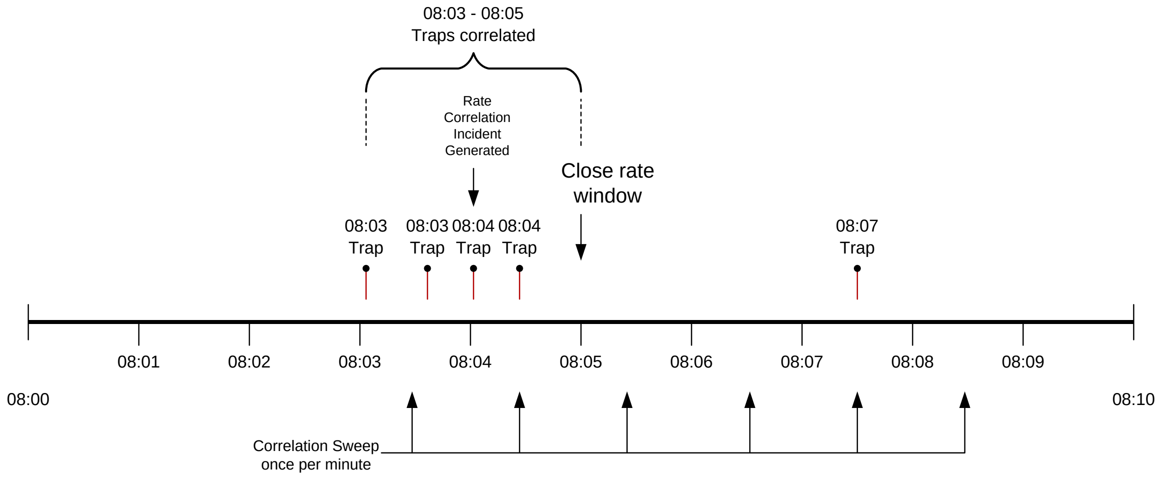
Use Rate Configuration to track Incident patterns based on the number of Incident reoccurrences within a specified time period. After the count within the specified time period is reached, NNMi emits a Rate Correlation Incident and continues to update the Correlation Notes with the number of occurrences within that rate.

Enabled ☑
Count 3
Hours 0
Minutes 2
Seconds 0
Parent Incident RateCorrelation
* Comparison Criteria Name SourceNode

The following diagram depicts the following scenario:

The same network device generates four TestApp SNMP traps, each about 20 seconds from the previous one. Because these traps fit within the two-minute time window, when three TestApp SNMP traps occur within a two-minute time period, NNMi generates a new RateCorrelation incident. During the two-minute period, NNMi correlates all TestApp SNMP traps from this same source. After two minutes, NNMi closes the Rate time period. When another TestApp SNMP trap arrives outside of this time period, NNMi does not correlate the incident as part of this Rate correlation

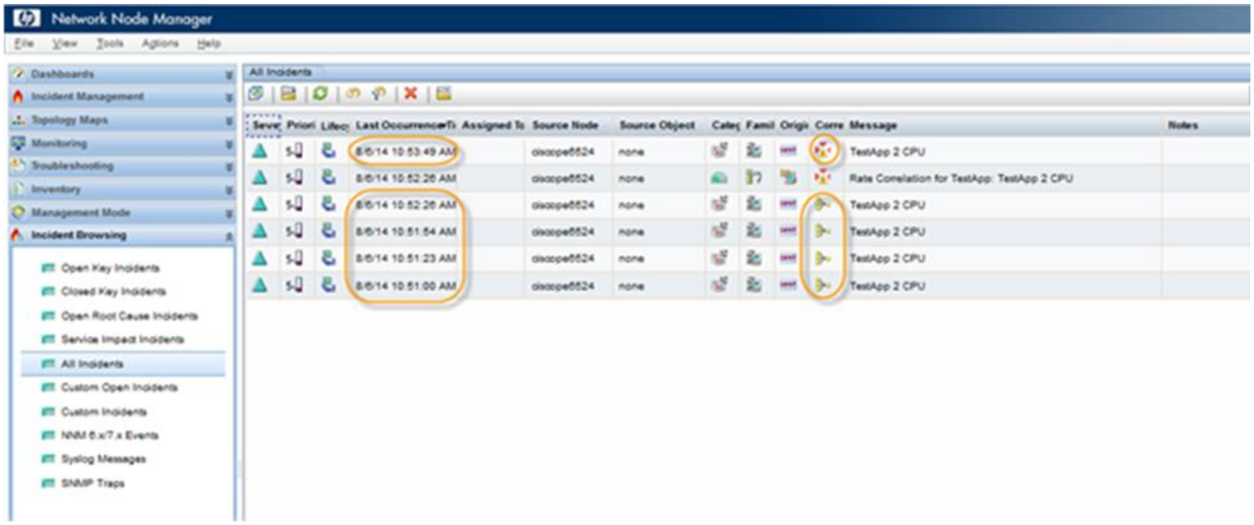
Figure 15.



Similar to Deduplication, NNMi only checks for Rate correlations once per minute. Eventually the incident views show all the TestApp SNMP traps within the time period specified and they are correlated under the RateCorrelation incident.

The following image depicts how these incidents might appear in the All Incidents view. As shown in the following example, NNMi correlates the first four traps under the Rate Correlation incident because they are within the two-minute window. When another TestApp SNMP trap arrives outside of the two-minute window, NNMi does not correlate the incident.

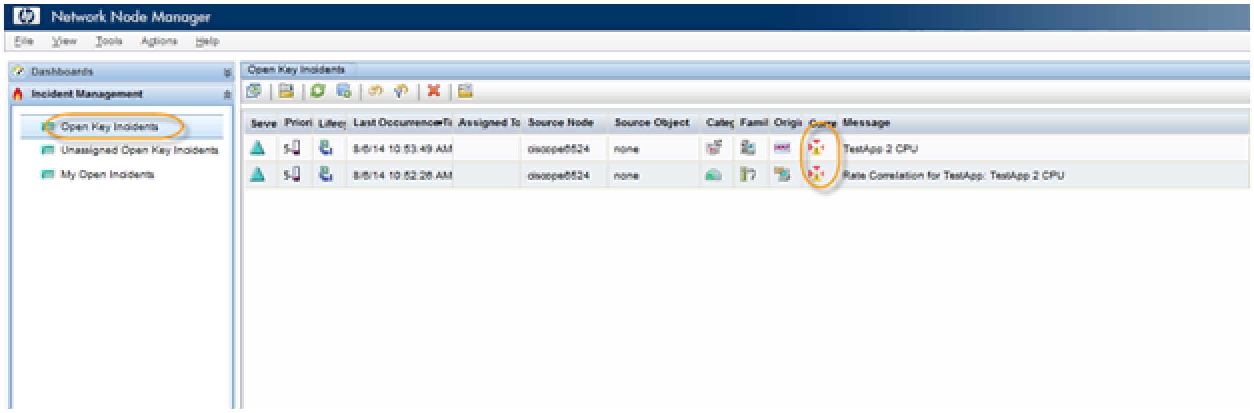
Figure 16.



Seve	Priori	Lifec	Last OccurrenceTi	Assigned To	Source Node	Source Object	Categ	Famil	Origi	Corre	Message	Notes
▲	5		8/6/14 10:53:49 AM		ciscope6524	none					TestApp 2 CPU	
▲	5		8/6/14 10:52:26 AM		ciscope6524	none					Rate Correlation for TestApp: TestApp 2 CPU	
▲	5		8/6/14 10:52:26 AM		ciscope6524	none					TestApp 2 CPU	
▲	5		8/6/14 10:51:54 AM		ciscope6524	none					TestApp 2 CPU	
▲	5		8/6/14 10:51:23 AM		ciscope6524	none					TestApp 2 CPU	
▲	5		8/6/14 10:51:00 AM		ciscope6524	none					TestApp 2 CPU	

As shown in the following example, because they are not Root Cause incidents, these correlated incidents do not appear in the Open Key Incidents view.

Figure 17.

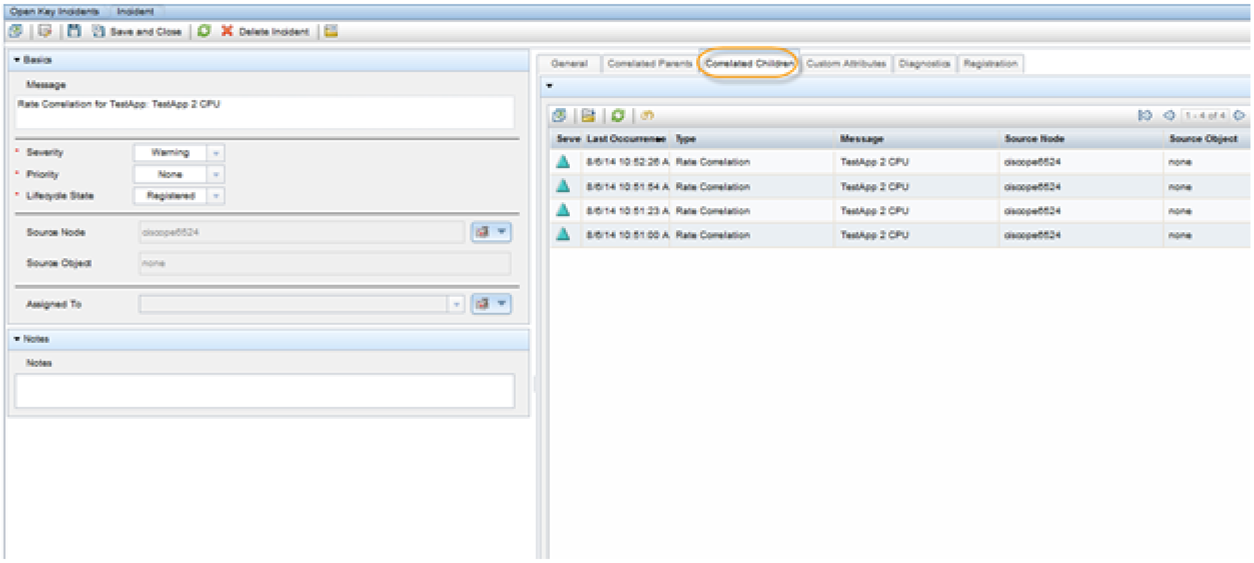


Open Key Incidents

Seve	Priori	Lifecy	Last OccurrenceTi	Assigned To	Source Node	Source Object	Categ	Famil	Origi	Corre	Message
▲			8/6/14 10:53:49 AM		ciscope6524	none					TestApp 2 CPU
▲			8/6/14 10:52:26 AM		ciscope6524	none					Rate Correlation for TestApp: TestApp 2 CPU

To view the Correlated Children, open the Rate Correlation incident and navigate to the Correlated Children tab

Figure 18.



Message

Rate Correlation for TestApp: TestApp 2 CPU

Severity: Warning

Priority: None

Lifecycle State: Registered

Source Node: ciscope6524

Source Object: none

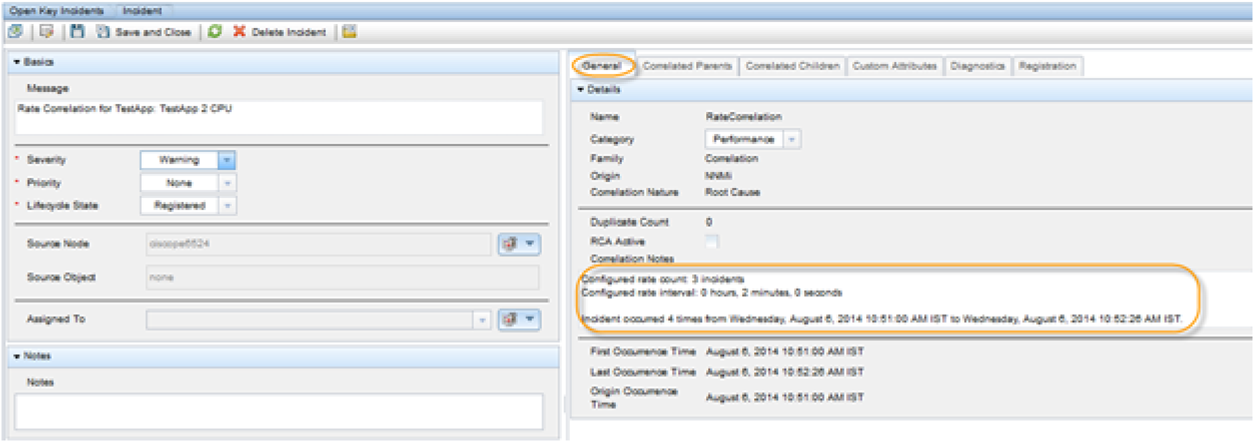
Assigned To:

Notes:

Seve	Last Occurrence	Type	Message	Source Node	Source Object
▲	8/6/14 10:52:26 A	Rate Correlation	TestApp 2 CPU	ciscope6524	none
▲	8/6/14 10:51:54 A	Rate Correlation	TestApp 2 CPU	ciscope6524	none
▲	8/6/14 10:51:23 A	Rate Correlation	TestApp 2 CPU	ciscope6524	none
▲	8/6/14 10:51:00 A	Rate Correlation	TestApp 2 CPU	ciscope6524	none

Navigate to the General tab to see information about the rate correlation in the Correlation Notes. The Correlation Notes are updated throughout the Rate time period that is specified.

Figure 19.



Message

Rate Correlation for TestApp: TestApp 2 CPU

Severity: Warning

Priority: None

Lifecycle State: Registered

Source Node: ciscope6524

Source Object: none

Assigned To:

Notes:

Name: RateCorrelation

Category: Performance

Family: Correlation

Origin: NNMi

Correlation Nature: Root Cause

Duplicate Count: 0

RCA Active: □

Correlation Notes:

Configured rate count: 3 incidents
Configured rate interval: 0 hours, 2 minutes, 0 seconds

Incident occurred 4 times from Wednesday, August 6, 2014 10:51:00 AM IST to Wednesday, August 6, 2014 10:52:26 AM IST.

First Occurrence Time: August 6, 2014 10:51:00 AM IST

Last Occurrence Time: August 6, 2014 10:52:26 AM IST

Origin Occurrence Time: August 6, 2014 10:51:00 AM IST

Note
Please note that the “Correlation Nature” of a Rate Correlation incident is decided based on the correlation nature of the underlying child incidents. For example, if an ‘Origin’ is “SNMP Trap” or “Syslog” for a particular incident (trap or syslog) and if this incident is configured as “Root Cause” in the Incident Configuration then “Rate Correlation” incident’s Correlation Nature will be set to “Root Cause” else it will be set to “Rate Stream Correlation”.

Once correlated, underlying correlated children events’ Correlation Nature is marked as “Symptoms” if it was “Root Cause” before correlation.

Enrichment

This example uses Group Settings with Enrichment. The Node Groups used for the Node Group Settings are named Core Routers and Important Servers Node.

The Enrichment feature enables you to modify an incident when it is processed by NNMi. The types of items that you can modify for a selected incident configuration include:

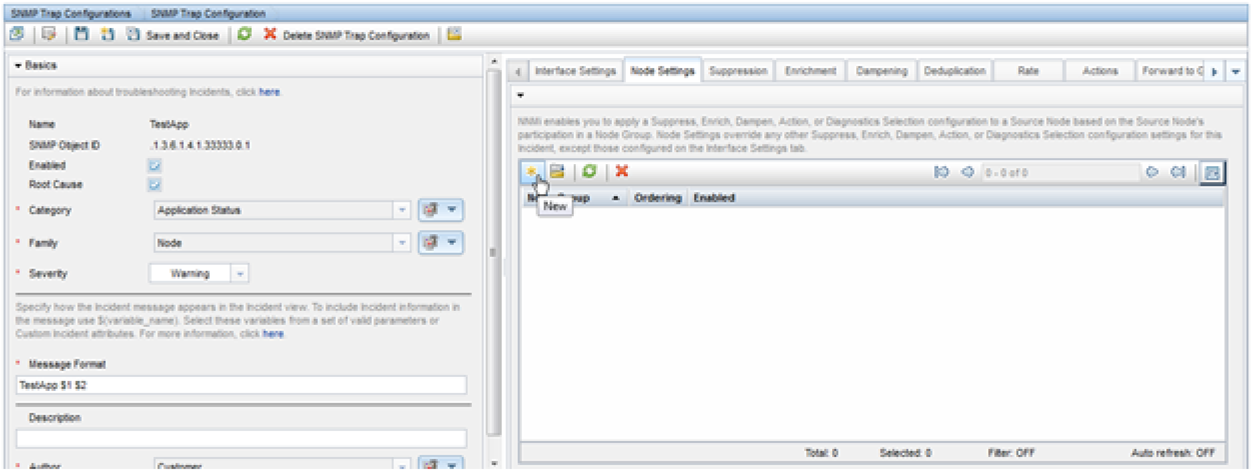
- Category
- Family
- Severity
- Priority
- Correlation Nature
- Message
- Assigned To
- Custom Attributes

In this example, when the TestApp trap arrives from a router in the Core Routers Node Group, the Incident is enriched so that the Priority is Top. The Message Format is also customized and the incident is assigned to the user (TJ) who is in charge of the Core Routers. When the TestApp trap arrives from a server in the Important Servers Node Group, the incident is

To edit the Enrichment configuration for the TestApp SNMP trap incident:

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the **Open** button.
4. Navigate to the Node Settings tab.
5. Click the * **New** icon.

Figure 20.



For information about troubleshooting incidents, click here.

Name TestApp
SNMP Object ID .1.3.6.1.4.1.33333.0.1
Enabled ☑
Root Cause ☑
* Category Application Status
* Family Node
* Severity Warning

Specify how the incident message appears in the incident view. To include incident information in the message use $(variable_name). Select these variables from a set of valid parameters or Custom incident attributes. For more information, click here.

* Message Format
TestApp $1 $2

Description

* Author Customer

NNMi enables you to apply a Suppress, Enrich, Dampen, Action, or Diagnostics Selection configuration to a Source Node based on the Source Node's participation in a Node Group. Node Settings override any other Suppress, Enrich, Dampen, Action, or Diagnostics Selection configuration settings for this incident, except those configured on the Interface Settings tab.

Node Group ▲	Ordering	Enabled

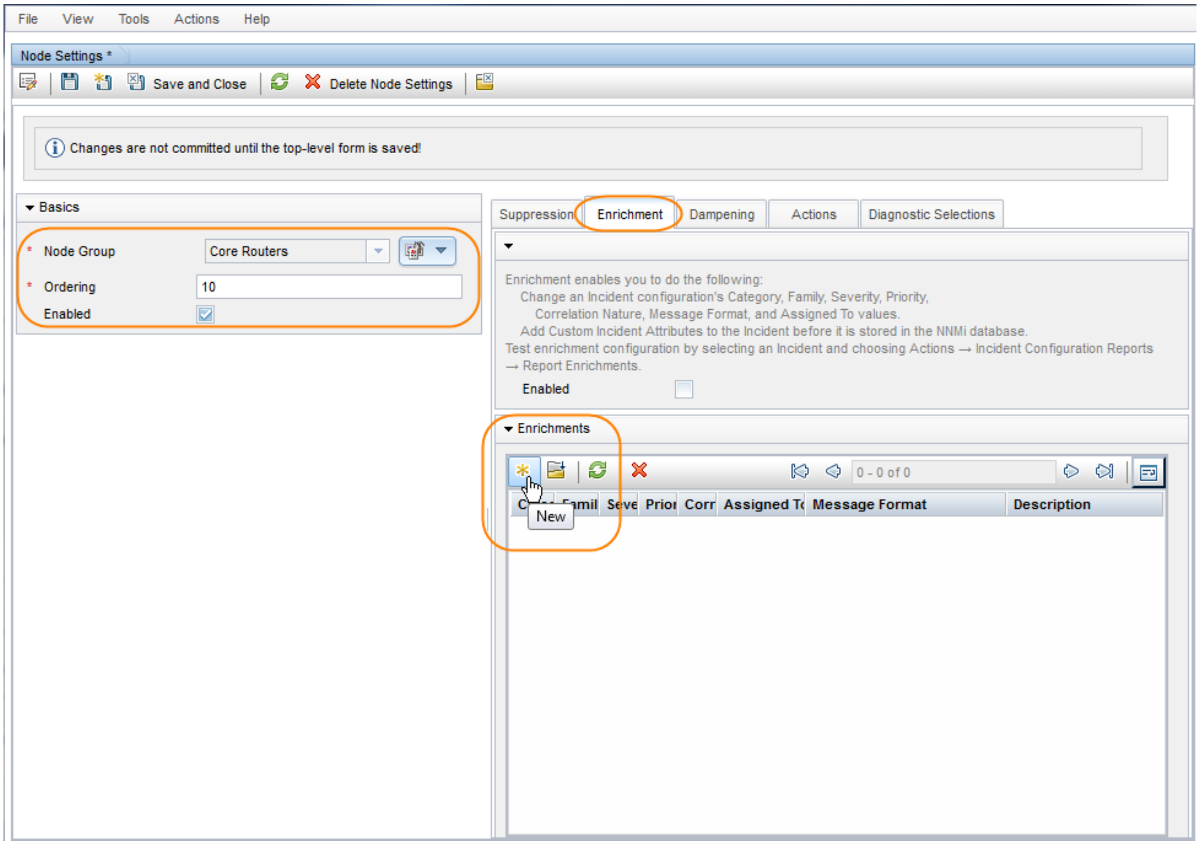
Total: 0 Selected: 0 Filter: OFF Auto refresh: OFF

6. In the **Node Group** drop-down list, select the **Core Routers** Node Group.
7. In the **Ordering** attribute, enter 10.

Note
The Ordering attribute determines which Node Settings are applied to a node that is a member of more than one Node Group.

8. Click to check **Enabled**.
9. Navigate to the **Enrichment** tab.
10. Click the * **New** icon.

Figure 21.



Changes are not committed until the top-level form is saved!

* Node Group: Core Routers

* Ordering: 10

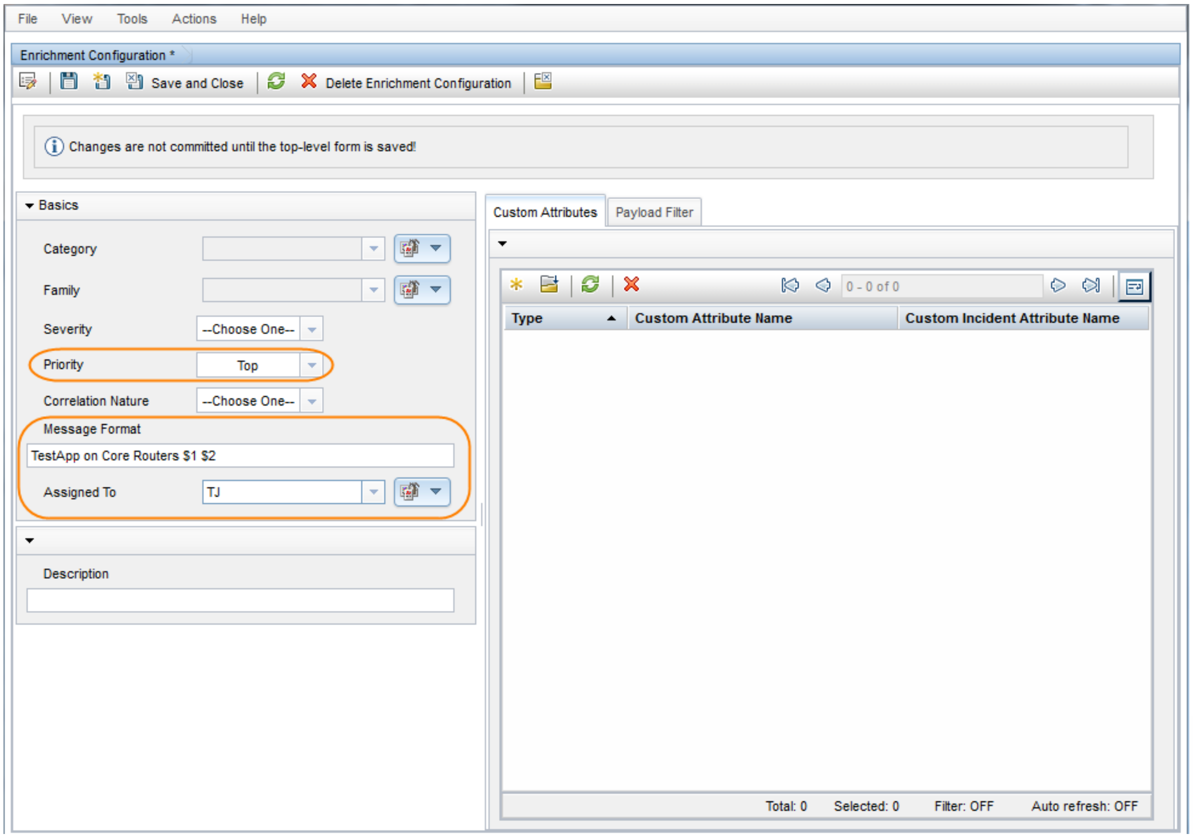
Enabled ☑

Enrichment enables you to do the following:
Change an Incident configuration's Category, Family, Severity, Priority,
Correlation Nature, Message Format, and Assigned To values.
Add Custom Incident Attributes to the Incident before it is stored in the NNMi database.
Test enrichment configuration by selecting an Incident and choosing Actions → Incident Configuration Reports → Report Enrichments.

Enabled □

11. In the Priority drop-down list, select Top.
12. In the Message Format attribute, enter TestApp on Core Routers $1 $2.
13. In the Assigned To attribute, select Quick Find to select a user from the list. In this example, TJ is a valid user.
14. Click Save and Close to return to the SNMP Trap Configuration Form.
15. Click Save and Close to save your changes

Figure 22.



Changes are not committed until the top-level form is saved!

Category	
Family	
Severity	--Choose One--
Priority	Top
Correlation Nature	--Choose One--
Message Format	TestApp on Core Routers $1 $2
Assigned To	TJ
Description	

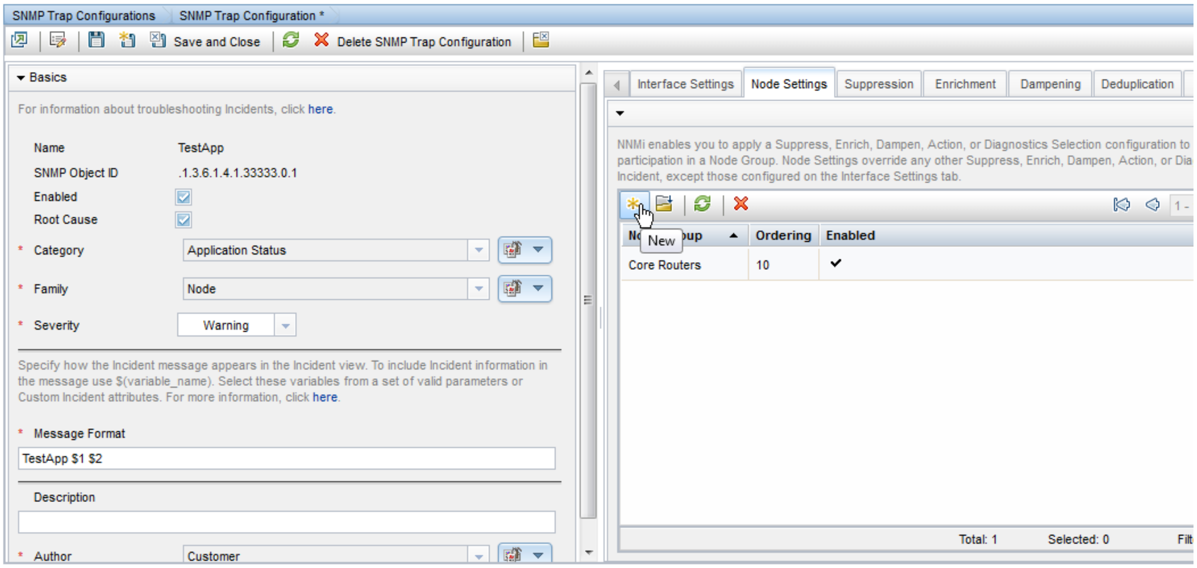
Type	Custom Attribute Name	Custom Incident Attribute Name

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

Next, configure Node Settings for the Important Servers Node Group.

1. Navigate to the **Configuration** Workspace.
2. Open **Incidents** and select **SNMP Trap Configurations**.
3. Locate and select the TestApp trap, and then click the **Open** button.
4. Navigate to the **Node Settings** tab.
5. Click the ✱ **New** icon

Figure 23.



For information about troubleshooting Incidents, click here.

Name	TestApp
SNMP Object ID	.1.3.6.1.4.1.33333.0.1
Enabled	☑
Root Cause	☑
* Category	Application Status
* Family	Node
* Severity	Warning

Specify how the Incident message appears in the Incident view. To include Incident information in the message use $(variable_name). Select these variables from a set of valid parameters or Custom Incident attributes. For more information, click here.

* Message Format	TestApp $1 $2
Description	
* Author	Customer

NNMi enables you to apply a Suppress, Enrich, Dampen, Action, or Diagnostics Selection configuration to participation in a Node Group. Node Settings override any other Suppress, Enrich, Dampen, Action, or Dia Incident, except those configured on the Interface Settings tab.

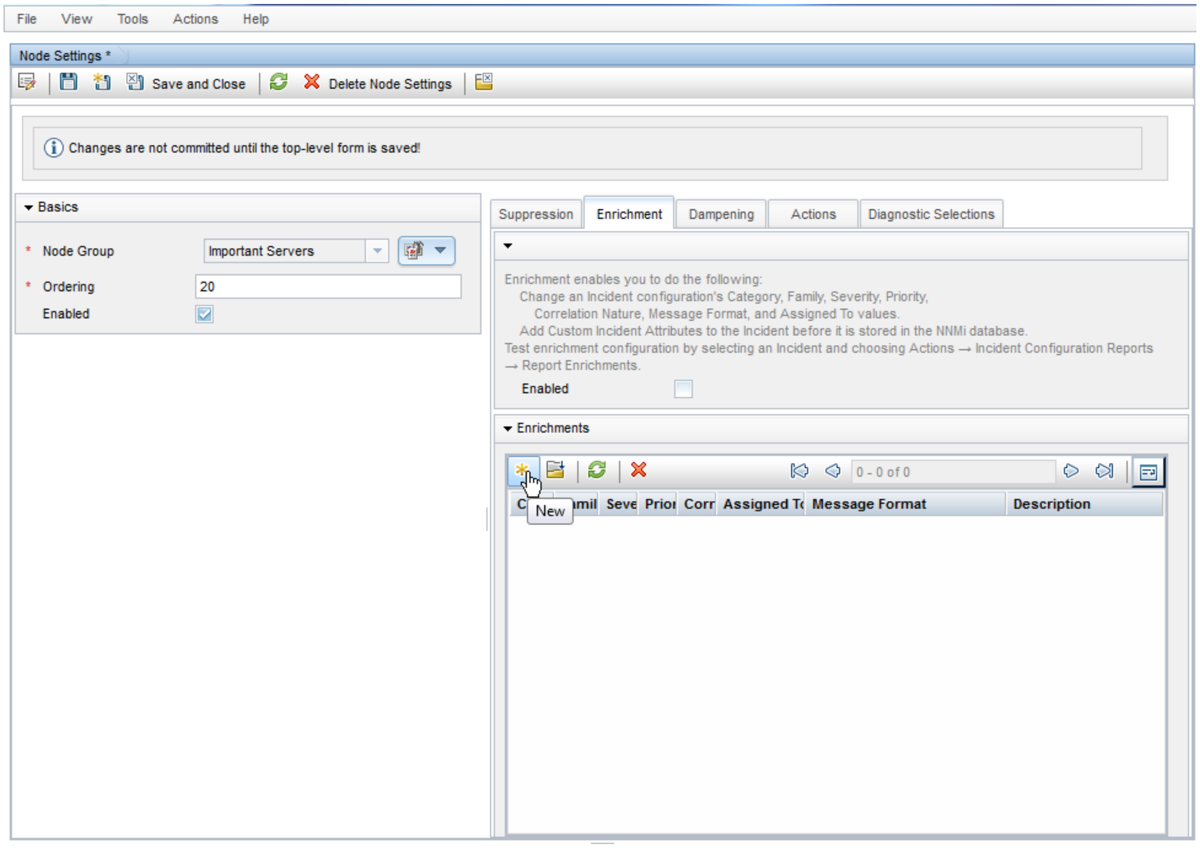
No…oup	Ordering	Enabled
Core Routers	10	✓

Total: 1 Selected: 0 Filt

6. In the Node Group drop-down list, select the Important Servers Node Group.

7. In the Ordering attribute, enter 20.
8. Click to check Enabled.
9. Navigate to the Enrichment tab.
10. Click the ✱ **New** icon

Figure 24.



Changes are not committed until the top-level form is saved!

* Node Group: Important Servers

* Ordering: 20

Enabled: ☑

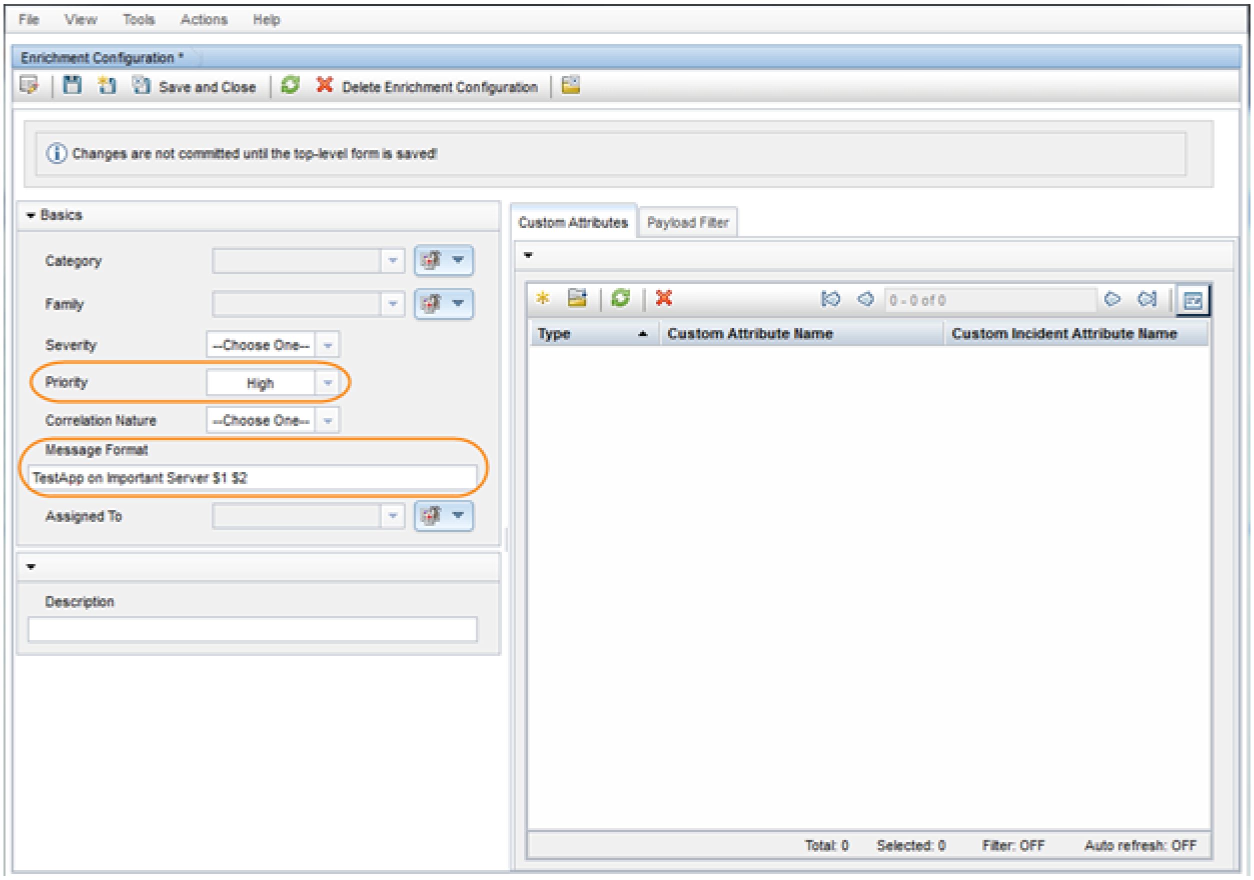
Enrichment enables you to do the following:
Change an Incident configuration's Category, Family, Severity, Priority, Correlation Nature, Message Format, and Assigned To values.
Add Custom Incident Attributes to the Incident before it is stored in the NNMi database.
Test enrichment configuration by selecting an Incident and choosing Actions → Incident Configuration Reports → Report Enrichments.

Enabled: □

Next, set the priority to High and change the Message Format.

11. In the Priority attribute drop-down list, select High.
12. In the Message Format attribute, enter TestApp on Important Server $1 $2.
13. Click Save and Close to return to the SNMP Trap Configuration form.
14. Click Save and Close to save your changes.

Figure 25.



Changes are not committed until the top-level form is saved!

Category

Family

Severity: --Choose One--

Priority: High

Correlation Nature: --Choose One--

Message Format: TestApp on Important Server $1 $2

Assigned To

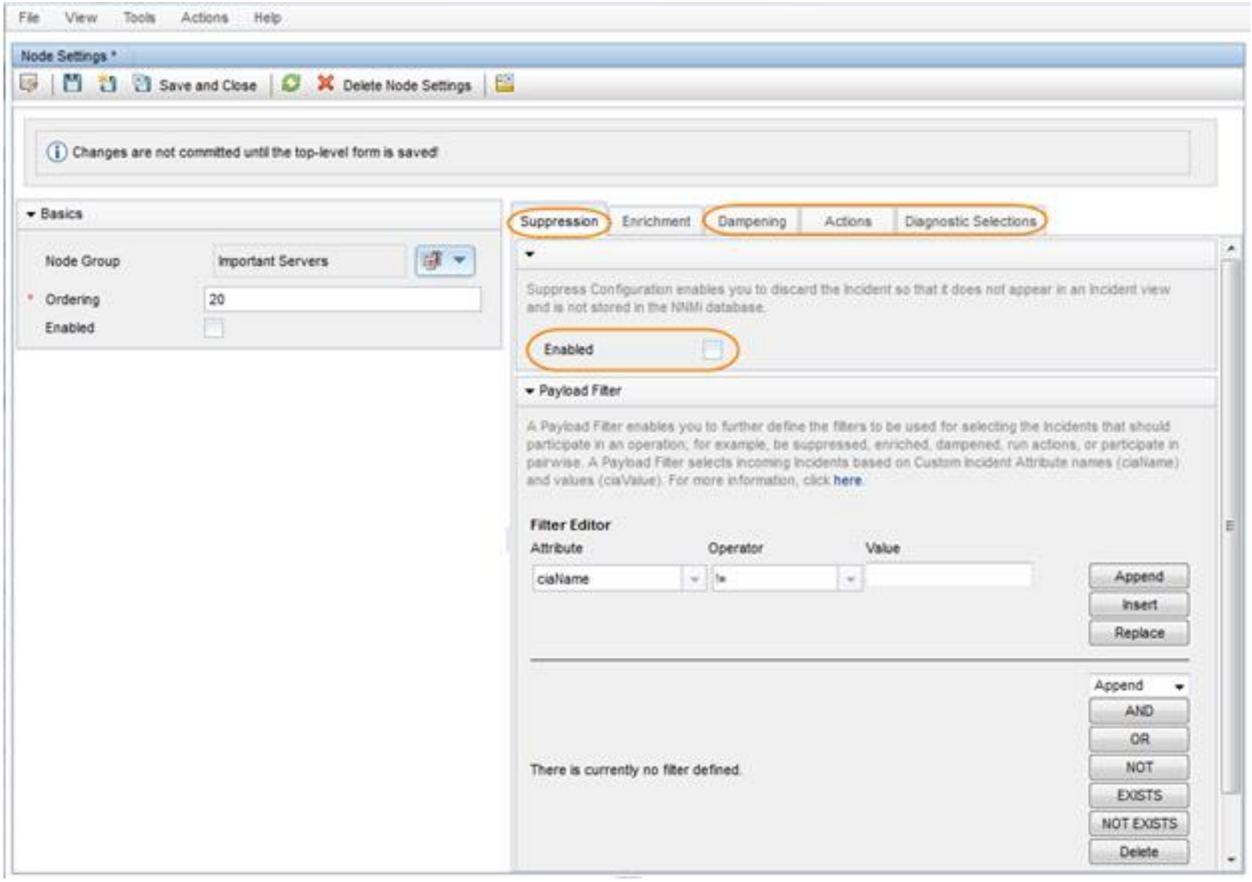
Description

Type	Custom Attribute Name	Custom Incident Attribute Name

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

Note
When you specify Interface Settings or Node Settings, all of the Incident Configuration tabs apply for that Interface or Node Group. For example, if the Suppression configuration is not enabled, NNMi does not use the global setting for Suppression. Instead, Suppression does not occur for that incident.

Figure 26.



Node Settings *

Changes are not committed until the top-level form is saved!

Basics

Node Group	Important Servers
* Ordering	20
Enabled	□

Suppression | Enrichment | Dampening | Actions | Diagnostic Selections

Suppress Configuration enables you to discard the incident so that it does not appear in an incident view and is not stored in the NNMi database.

Enabled □

Payload Filter

A Payload Filter enables you to further define the filters to be used for selecting the incidents that should participate in an operation; for example, be suppressed, enriched, dampened, run actions, or participate in pairwise. A Payload Filter selects incoming incidents based on Custom Incident Attribute names (ciaName) and values (ciaValue). For more information, click here.

Filter Editor

Attribute	Operator	Value
ciaName	!=	

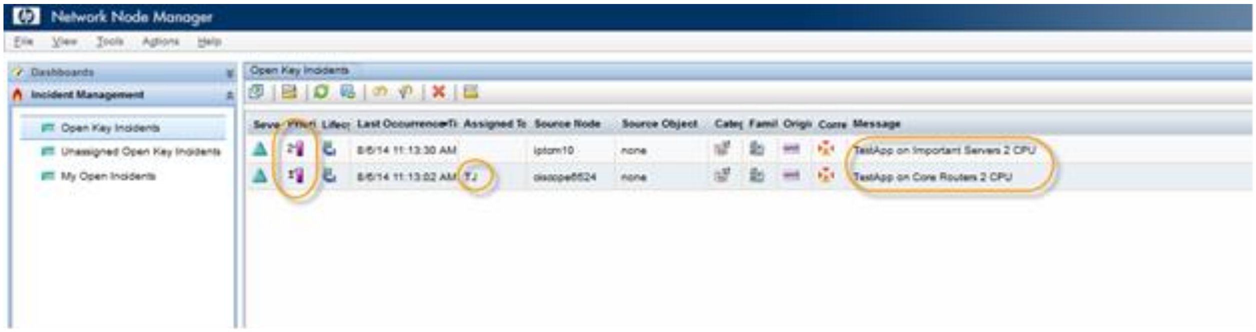
Append

There is currently no filter defined.

Next, send a trap from each node to see the results.

As shown in the following example, the traps are enriched based on Node Group membership.

Figure 27.



Open Key Incidents

Seve	Priori	Lifecy	Last OccurrenceTi	Assigned To	Source Node	Source Object	Categ	Famil	Origi	Corre	Message
	2		8/6/14 11:13:30 AM		iptom10	none					TestApp on Important Servers 2 CPU
	1		8/6/14 11:13:02 AM	TJ	ciscope6524	none					TestApp on Core Routers 2 CPU

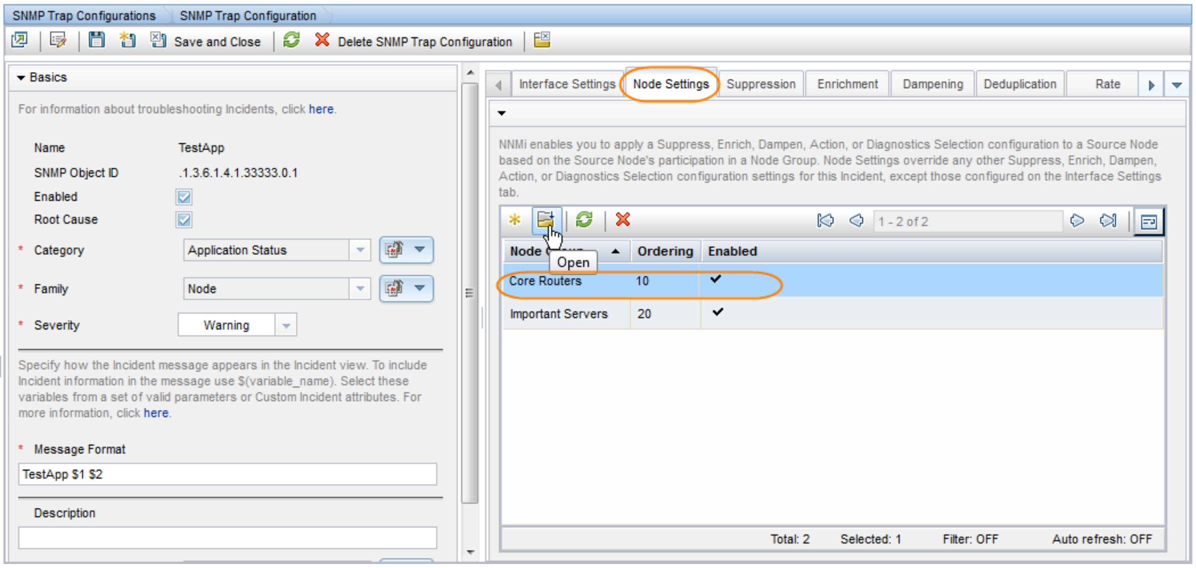
Suppression

Suppression enables you to discard traps based on specified filter values. For example, you can discard the TestApp SNMP trap incidents when the varbind value that stores Status is set to Normal or Warning for traps received from the Core Routers Node Group. This requires configuring Node Settings and Suppression.

Using the Payload Filter configuration feature, this example suppresses the trap if Varbind1=1 (Normal) or Varbind1=2 (Warning).

Tip
Use the absolute OID (Object Identifier) to specify the Varbind rather than position. For example, for Varbind1 you would specify .1.3.6.1.4.1.33333.1.1.1.

Figure 28.



For information about troubleshooting Incidents, click here.

Name	TestApp
SNMP Object ID	.1.3.6.1.4.1.33333.0.1
Enabled	☑
Root Cause	☑
* Category	Application Status
* Family	Node
* Severity	Warning

Specify how the Incident message appears in the Incident view. To include Incident information in the message use $(variable_name). Select these variables from a set of valid parameters or Custom Incident attributes. For more information, click here.

* Message Format: TestApp $1 $2

Description

NNMi enables you to apply a Suppress, Enrich, Dampen, Action, or Diagnostics Selection configuration to a Source Node based on the Source Node's participation in a Node Group. Node Settings override any other Suppress, Enrich, Dampen, Action, or Diagnostics Selection configuration settings for this Incident, except those configured on the Interface Settings tab.

Node Group	Ordering	Enabled
Core Routers	10	✓
Important Servers	20	✓

Total: 2 Selected: 1 Filter: OFF Auto refresh: OFF

To edit the Suppression configuration for the TestApp SNMP trap incident:

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the Open button.
4. Navigate to the Suppression tab.
5. Click to check Enabled.
6. In the Payload Filter, do the following:

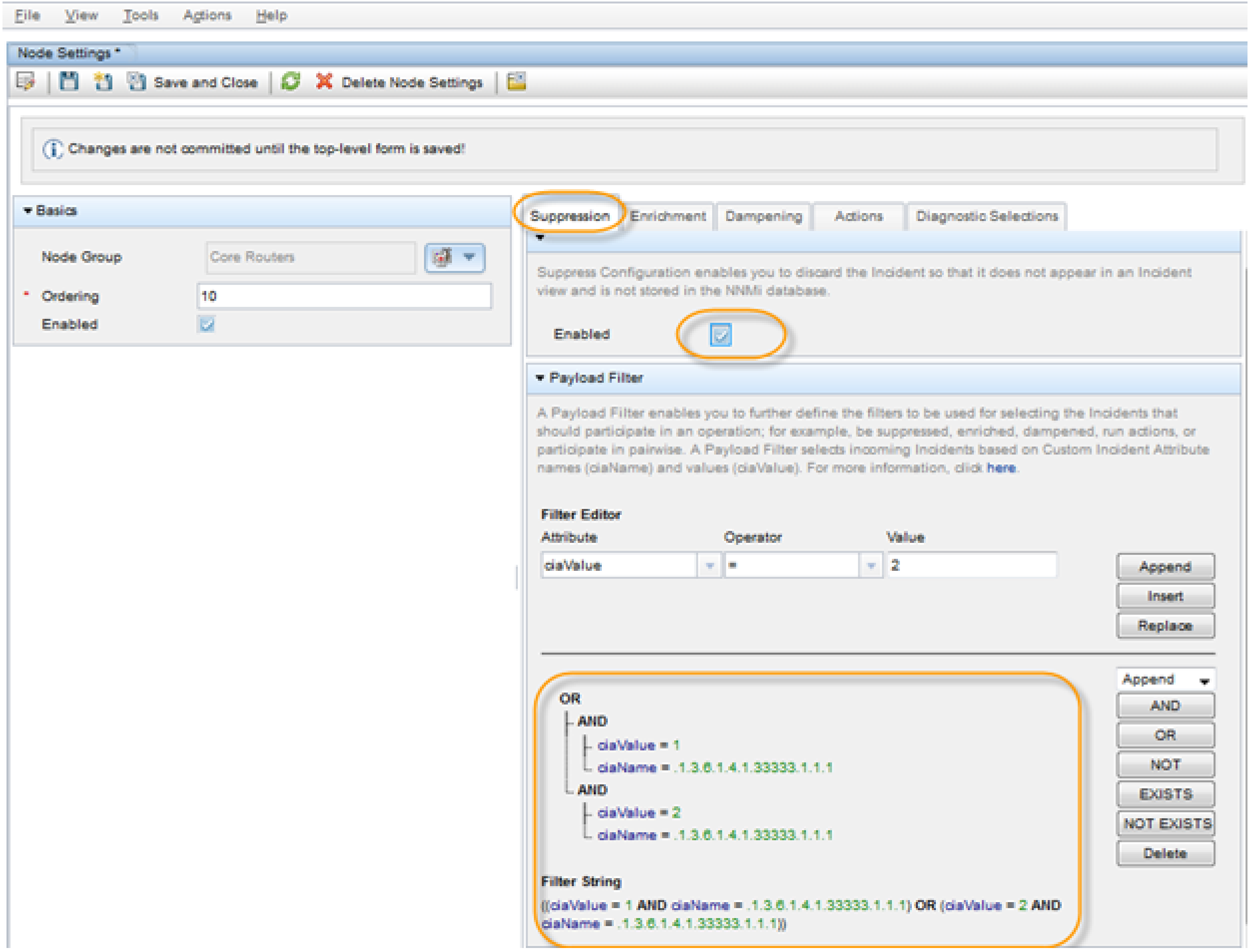
Note
You must use a top level OR operator in an expression that is two levels deep as shown in this example.

A. Make sure Append appears as the selection in the drop-down list.
B. Click OR.
C. Click AND.
D. In the Attribute drop-down list, select ciaName.
E. In the Operator attribute, select =.
F. In the Value attribute, enter .1.3.6.1.4.1.33333.1.1.1
G. Click Append.
H. In the Attribute drop-down list, select ciaValue.
I. In the Operator attribute, select =.
J. In the Value attribute, enter 1.
K. Click Append.
L. Click AND.
M. In the Attribute drop-down list, select ciaName.

N. In the Operator attribute, select =.
O. In the Value attribute, enter .1.3.6.1.4.1.33333.1.1.1
P. Click Append.
Q. In the Attribute drop-down list, select ciaValue.
R. In the Operator attribute, select =.
S. In the Value attribute, enter 2.
T. Click Append

7. Click **Save and Close** to return to the SNMP Trap Configuration form.
8. Click **Save and Close** to save your changes.

Figure 29.



Changes are not committed until the top-level form is saved!

Basics

Node Group: Core Routers
* Ordering: 10
Enabled: ☑

Suppress Configuration enables you to discard the Incident so that it does not appear in an Incident view and is not stored in the NNMi database.

Enabled: ☑

Payload Filter

A Payload Filter enables you to further define the filters to be used for selecting the Incidents that should participate in an operation; for example, be suppressed, enriched, dampened, run actions, or participate in pairwise. A Payload Filter selects incoming Incidents based on Custom Incident Attribute names (ciaName) and values (ciaValue). For more information, click here.

Filter Editor

Attribute	Operator	Value
ciaValue	=	2

```
OR
├ AND
│ ├ ciaValue = 1
│ └ ciaName = .1.3.6.1.4.1.33333.1.1.1
└ AND
  ├ ciaValue = 2
  └ ciaName = .1.3.6.1.4.1.33333.1.1.1
```

Filter String

((ciaValue = 1 AND ciaName = .1.3.6.1.4.1.33333.1.1.1) OR (ciaValue = 2 AND ciaName = .1.3.6.1.4.1.33333.1.1.1))

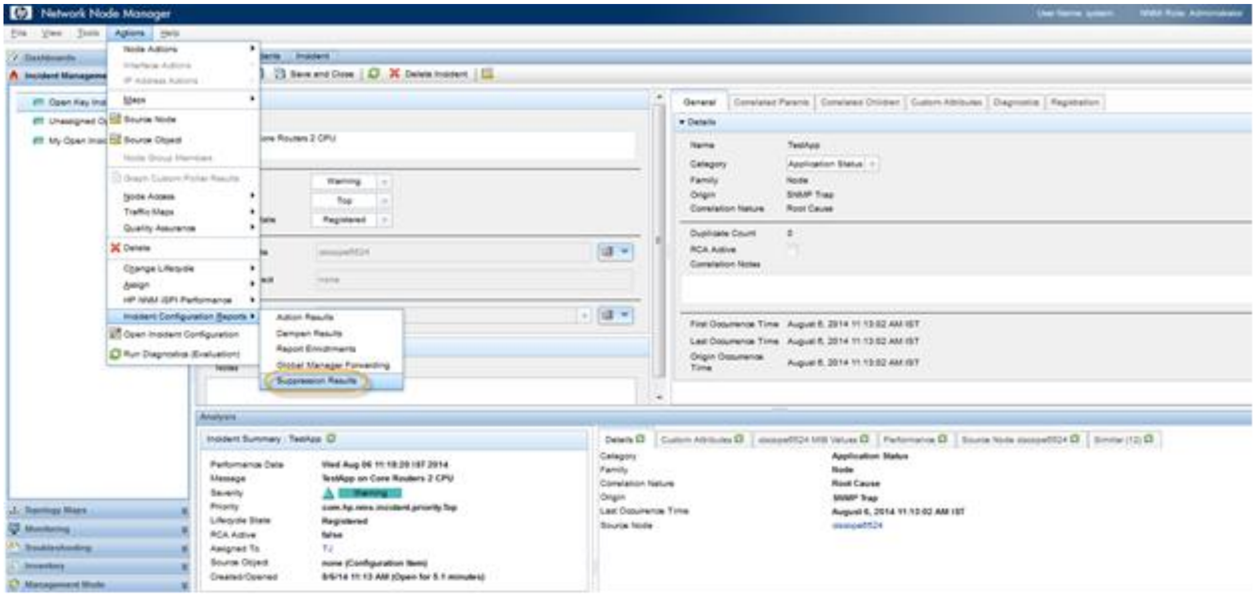
To determine whether an SNMP trap incident is being suppressed, examine one of the SNMP traps in the NNMi database that has already been sent and not suppressed:

1. From an incident view, select the incident of interest and then click the Open button.
2. Select Actions->Incident Configuration Reports->Suppression Results.

The Suppression Results report displays the results of processing the incident using the Suppression configuration specified for that incident as if the incident was generated.

Note
The Suppression Results report does not actually execute the rules, but instead reports on how the Suppression configuration would be executed. This report is useful to determine whether the Suppression configuration matches any incidents. You can use the same approach for Actions, Dampen, and Enrichment configurations as well.

Figure 30.



ore Routers 2 CPU

Warning
Top
Registered

Name	TestApp
Category	Application Status
Family	Node
Origin	SNMP Trap
Correlation Nature	Root Cause
Duplicate Count	0
RCA Active	
Correlation Notes	
First Occurrence Time	August 6, 2014 11:13:02 AM IST
Last Occurrence Time	August 6, 2014 11:13:02 AM IST
Origin Occurrence Time	August 6, 2014 11:13:02 AM IST

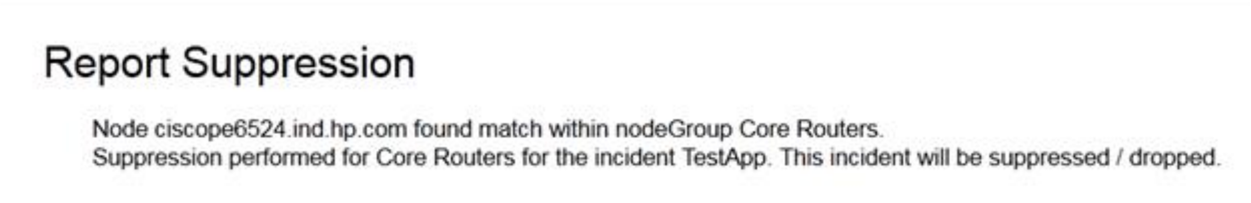
Incident Summary : TestApp

Performance Data	Wed Aug 06 11:18:20 IST 2014
Message	TestApp on Core Routers 2 CPU
Severity	Warning
Priority	com.hp.nms.incident.priority.Top
Lifecycle State	Registered
RCA Active	false
Assigned To	TJ
Source Object	none (Configuration Item)
Created/Opened	8/6/14 11:13 AM (Open for 5.1 minutes)

Category	Application Status
Family	Node
Correlation Nature	Root Cause
Origin	SNMP Trap
Last Occurrence Time	August 6, 2014 11:13:02 AM IST
Source Node	ciscope6524

The following example verifies that a match is made and this trap would be suppressed if received.

Figure 31.



Report Suppression

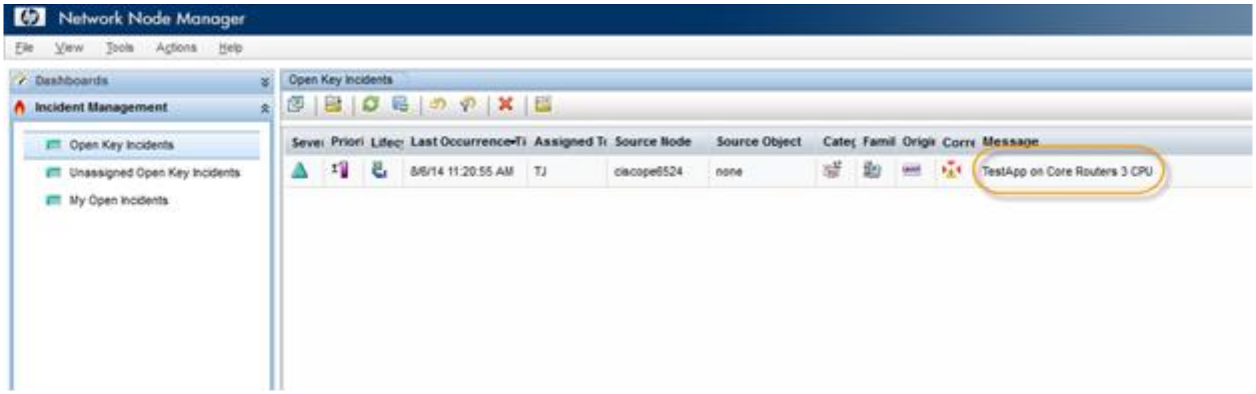
Node ciscope6524.ind.hp.com found match within nodeGroup Core Routers.
Suppression performed for Core Routers for the incident TestApp. This incident will be suppressed / dropped.

To fully test the Suppression configuration, send the trap three times, each with a different Varbind value (1, 2, and 3):

```
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1
.1.3.6.1.4.1.33333.1.1.1 integer 1  .1.3.6.1.4.1.33333.1.2.1 OCTETSTRING CPU
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1
.1.3.6.1.4.1.33333.1.1.1 integer 2  .1.3.6.1.4.1.33333.1.2.1 OCTETSTRING CPU
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1
.1.3.6.1.4.1.33333.1.1.1 integer 3  .1.3.6.1.4.1.33333.1.2.1 OCTETSTRING CPU
```

Notice that only the TestApp SNMP trap with Varind1=3 appears in the Open Key Incidents view. NNMi suppresses the other two TestApp SNMP trap incidents.

Figure 32.



Sever	Priori	Lifecy	Last Occurrence Ti	Assigned To	Source Node	Source Object	Categ	Famil	Origi	Corre	Message
			8/6/14 11:20:55 AM	TJ	ciscope6524	none					TestApp on Core Routers 3 CPU

More about Dampening

The Dampening feature is useful for incidents that NNMi closes automatically when the condition is cleared rather than the simple traps included in the previous examples. For example, NNMi closes the InterfaceDown incident when the status of the interface goes to Normal. If this were to occur during the Dampening period, NNMi does not display the incident in any Incident Management or Incident Browsing views.

By default, NNMi dampens the Management Events it provides for a period of 1 minute. Dampening can be configured to a maximum of one hour to allow two polling cycles to occur before NNMi sets the Lifecycle State to Registered.

To disable the Dampening for an incident configuration, click to clear Enabled on the incident configuration form.

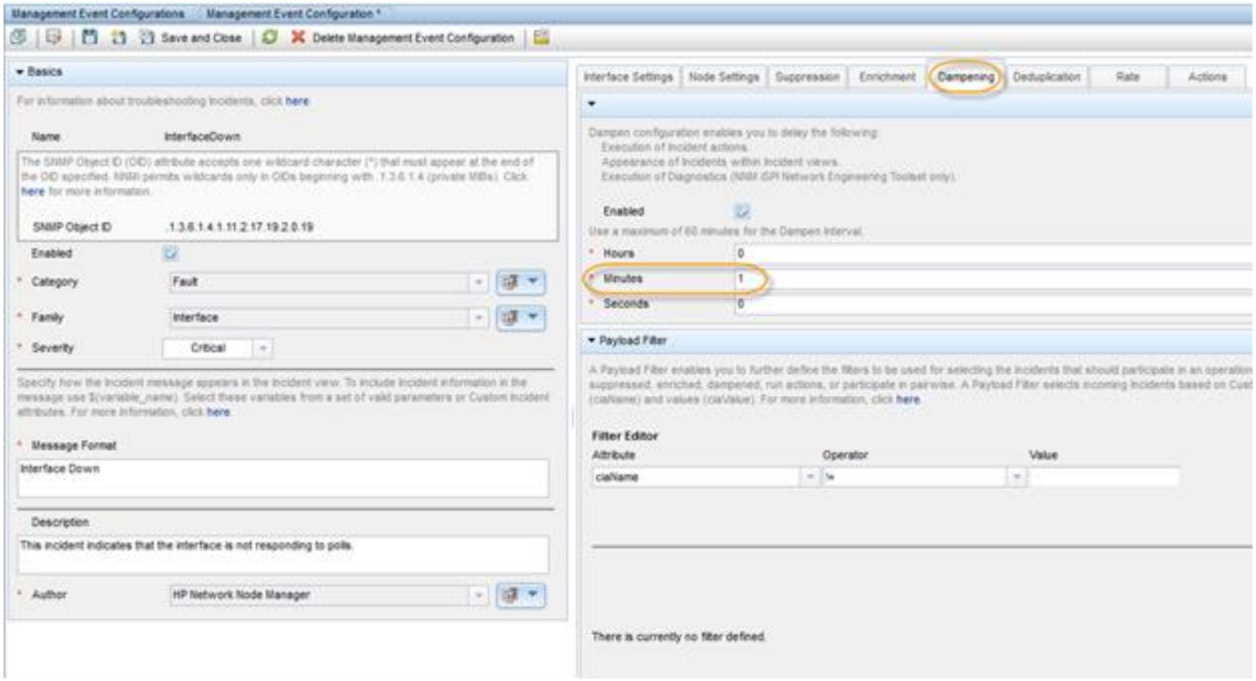
You can also use the nnmsetdampenedinterval.ovpl command line tool to set the Dampening period and enable Dampening for all incidents.

To disable Dampening for all incident configurations use nnmsetdampenedinterval.ovpl as shown in the following example:

```
nnmsetdampenedinterval.ovpl -hours 0 -minutes 0 -seconds 0
```

An example of the dampening for the InterfaceDown incident is shown below:

Figure 33.



For information about troubleshooting incidents, click here

Name: InterfaceDown

The SNMP Object ID (OID) attribute accepts one wildcard character (*) that must appear at the end of the OID specified. NNMi permits wildcards only in OIDs beginning with .1.3.6.1.4 (private MIBs). Click here for more information.

SNMP Object ID: .1.3.6.1.4.1.11.2.17.19.2.0.19

Enabled: ☑

* Category: Fault

* Family: Interface

* Severity: Critical

Specify how the incident message appears in the incident view. To include incident information in the message use $(variable_name). Select these variables from a set of valid parameters or Custom incident attributes. For more information, click here.

* Message Format: Interface Down

Description: This incident indicates that the interface is not responding to polls.

* Author: HP Network Node Manager

Dampen configuration enables you to delay the following:
Execution of incident actions.
Appearance of incidents within incident views.
Execution of Diagnostics (NNM iSPI Network Engineering Toolset only).

Enabled: ☑

Use a maximum of 60 minutes for the Dampen Interval.

* Hours: 0

* Minutes: 1

* Seconds: 0

A Payload Filter enables you to further define the filters to be used for selecting the incidents that should participate in an operation suppressed, enriched, dampened, run actions, or participate in pairwise. A Payload Filter selects incoming incidents based on Cust (ciaName) and values (ciaValue). For more information, click here.

Attribute	Operator	Value
ciaName	!=	

There is currently no filter defined.

Lifecycle State and Actions

NNMi has four common Lifecycle States: Registered, In Progress, Completed, and Closed. It is important to understand Lifecycle State changes because these state changes are the triggers for actions in NNMi.

It is also important to understand that NNMi changes the Lifecycle State to Closed based on the “Down” incident. For example, when an interface goes down, an Interface Down incident is generated and, if the incident is not Dampened, NNMi sets the Lifecycle State to Registered. When the interface comes back up again, NNMi changes the Lifecycle State to Closed, but does not generate an additional Interface Up incident.

This example uses two command line scripts that can be run as actions. One script (ServerScript.ksh) is to be run for TestApp traps that arrive from the Important Servers group. The other script (RouterScript.ksh) is to be run on traps that arrive from the Core Routers group. Each script is passed Source Node Name ($snn) as well as the Varbind1 and Varbind2 values.

The two scripts are as follows:
ServerScript.ksh:

```
        #!/bin/ksh
        echo $1 $2 $3 >> /tmp/serverscript.txt
```

RouterScript.ksh:

```
        #!/bin/ksh
        echo $1 $2 $3 >> /tmp/routerscript.txt
```

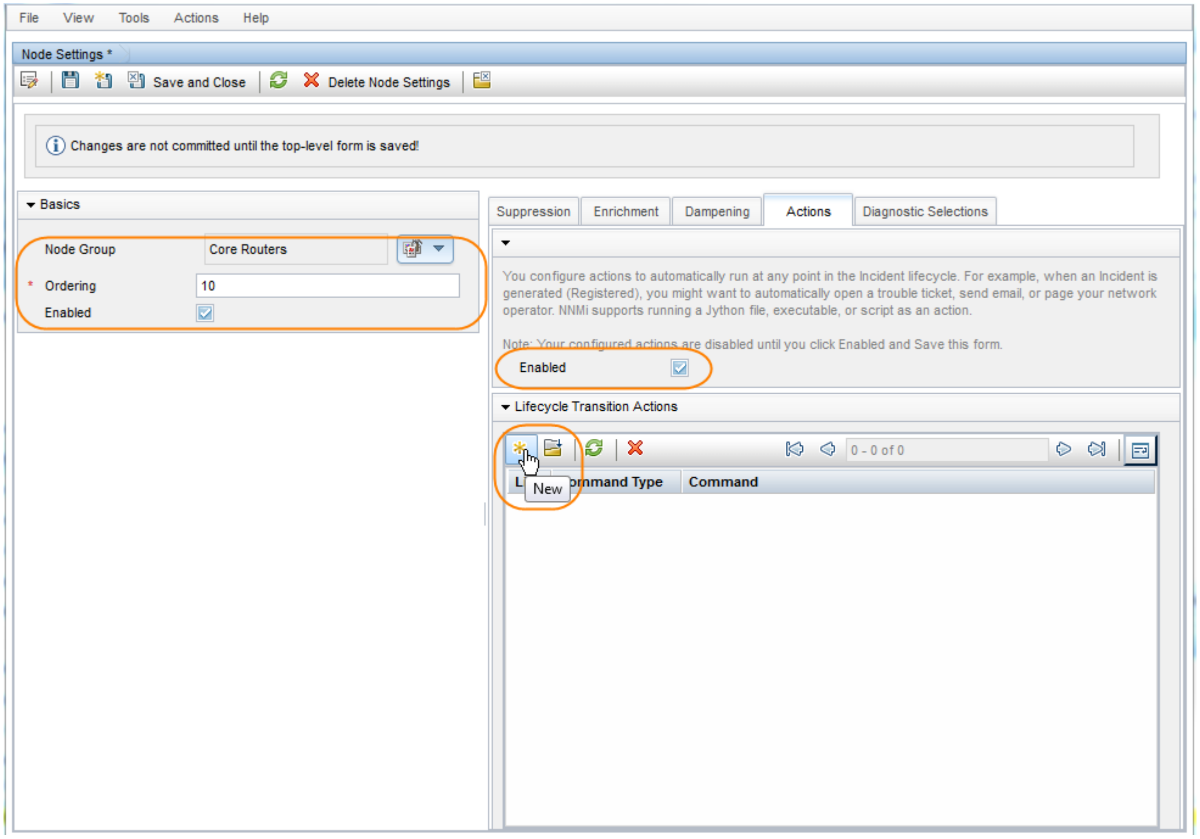
1. Place the scripts into the following directory and make sure they are executable:

   Windows:
   `%NnmDataDir%\shared\nnm\actions`

   UNIX:
   `/var/opt/OV/shared/nnm/actions`

2. Navigate to the **Configuration** Workspace
3. Open **Incidents** and select **SNMP Trap Configurations**.
4. Locate and select the TestApp trap, and then click the 📂 Open button.
5. Navigate to the **Node Settings** tab.
6. Select Core Routers and then click the 📂 Open button.
7. In the **Node Group** drop-down list, select the **Core Routers** Node Group.
8. In the **Ordering** attribute, enter **10**.
9. Click to check **Enabled**.
10. Navigate to the **Actions** tab.
11. Click to check **Enabled**.
12. Click the * New icon.

Figure 34.



Changes are not committed until the top-level form is saved!

Node Group: Core Routers

* Ordering: 10

Enabled ☑

You configure actions to automatically run at any point in the Incident lifecycle. For example, when an Incident is generated (Registered), you might want to automatically open a trouble ticket, send email, or page your network operator. NNMi supports running a Jython file, executable, or script as an action.

Note: Your configured actions are disabled until you click Enabled and Save this form.

Enabled ☑

Next, specify the action to be run and the arguments to pass it.

You can specify Varbinds, using the full OID (as shown below) or using a position number, such as $1 and $2. The advantage to using the full OID is that the action can be re-run on an "already received trap". NNMi does not store the Varbind position, but if you use the OID specification, it properly re-runs the action as demonstrated in this example.

To configure a Lifecycle Transition Action:

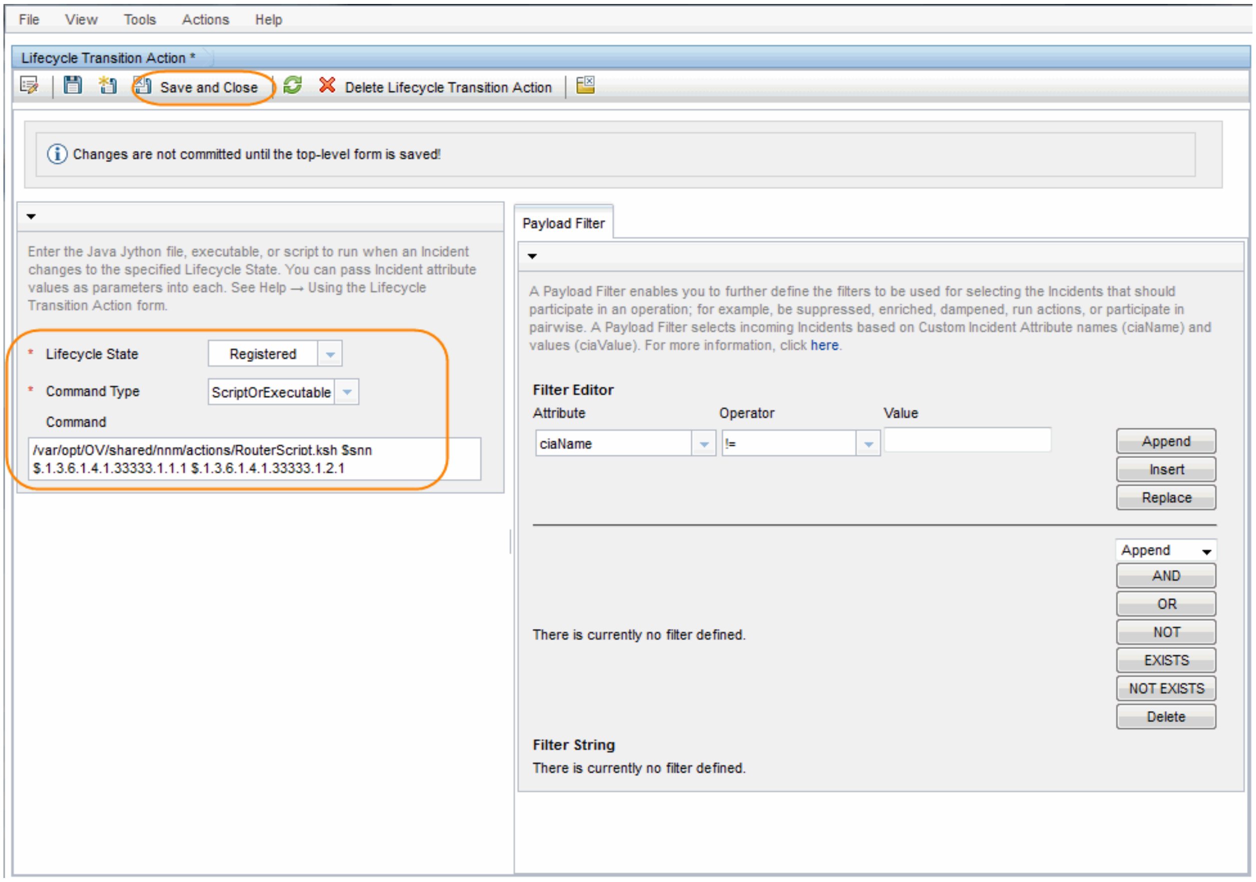
1. In the **Lifecycle State** drop-down list, select **Registered**.
2. In the **Command Type** drop-down list, select **ScriptOrExecutable**.
3. In the **Command** attribute, enter the following command:

```
/var/opt/OV/shared/nnm/actions/RouterScript.ksh $snn $.1.3.6.1.4.1.33333.1.1.1
$.1.3.6.1.4.1.33333.1.2.1
```

Tip
Include the full path to the action script.

4. Click **Save and Close** to save your changes.

Figure 35.



Changes are not committed until the top-level form is saved!

Enter the Java Jython file, executable, or script to run when an Incident changes to the specified Lifecycle State. You can pass Incident attribute values as parameters into each. See Help → Using the Lifecycle Transition Action form.

* Lifecycle State: Registered

* Command Type: ScriptOrExecutable

Command: /var/opt/OV/shared/nnm/actions/RouterScript.ksh $snn $.1.3.6.1.4.1.33333.1.1.1 $.1.3.6.1.4.1.33333.1.2.1

A Payload Filter enables you to further define the filters to be used for selecting the Incidents that should participate in an operation; for example, be suppressed, enriched, dampened, run actions, or participate in pairwise. A Payload Filter selects incoming Incidents based on Custom Incident Attribute names (ciaName) and values (ciaValue). For more information, click here.

Filter Editor

Attribute	Operator	Value
ciaName	!=	

There is currently no filter defined.

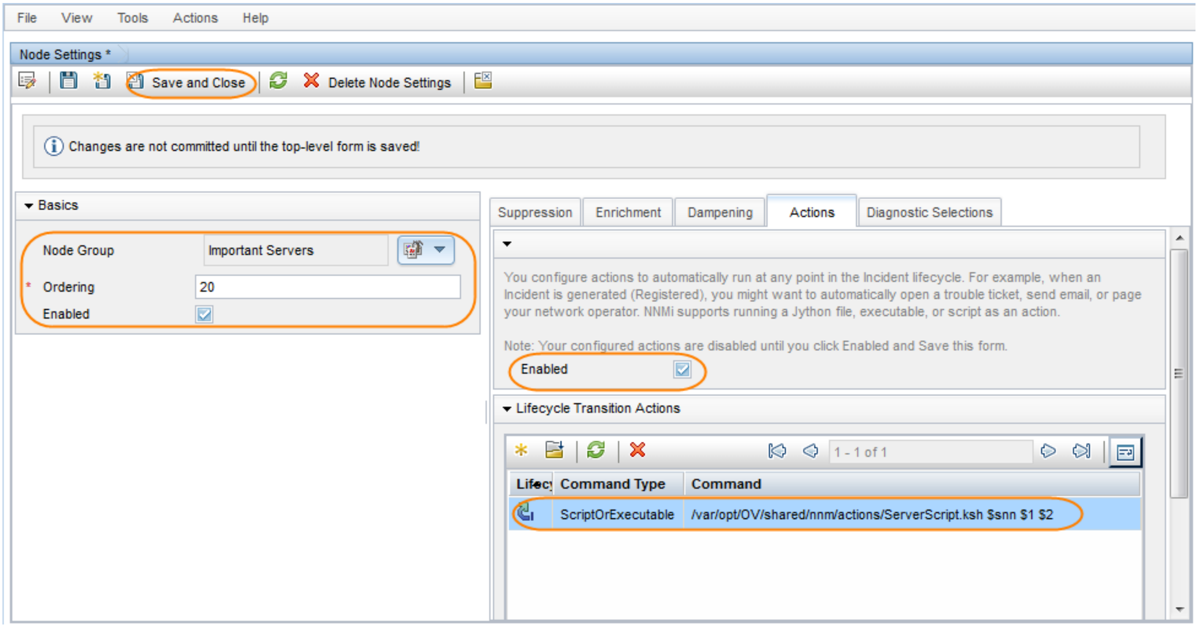
Filter String

There is currently no filter defined.

Next configure the action for the Important Servers Node Group.

1. Navigate to the **Configuration** Workspace.
2. Open **Incidents** and select **SNMP Trap Configurations**.
3. Locate and select the TestApp trap, and then click the Open button.
4. Navigate to the **Node Settings** tab.
5. In the **Node Group** list, select the **Important Servers** Node Group and click the Open button.
6. In the **Ordering** attribute, enter **20**.
7. Click to check **Enabled**.
8. Navigate to the **Actions** tab.
9. Click the New icon.
10. Click to check **Enabled**.
11. In the **Lifecycle State** drop-down list, select **Registered**.
12. In the **Command Type** drop-down list, select **ScriptOrExecutable**.
13. In the **Command** attribute, enter the following command:
    `/var/opt/OV/shared/nnm/actions/ServerScript.ksh $snn $1 $2`
14. Click **Save and Close**.

Figure 36.



Changes are not committed until the top-level form is saved!

Node Group	Important Servers
* Ordering	20
Enabled	☑

You configure actions to automatically run at any point in the Incident lifecycle. For example, when an Incident is generated (Registered), you might want to automatically open a trouble ticket, send email, or page your network operator. NNMi supports running a Jython file, executable, or script as an action.

Note: Your configured actions are disabled until you click Enabled and Save this form.

Enabled ☑

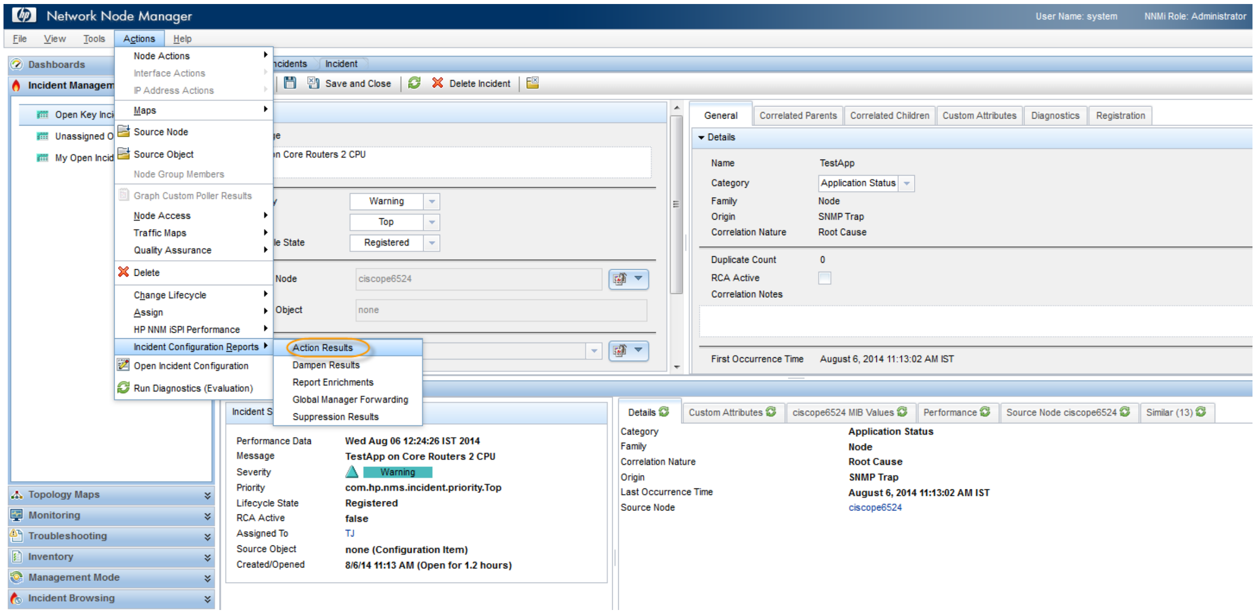
Lifecy	Command Type	Command
	ScriptOrExecutable	/var/opt/OV/shared/nnm/actions/ServerScript.ksh $snn $1 $2

15. Click **Save and Close** to save your changes.
16. Click **Save and Close** again to save your changes.

To confirm that action is configured properly:

1. From an incident view, select an incident of interest and then click the Open button.
2. Select **Actions->Incident Configuration Reports-> Action Results**.

Figure 37.



e	n Core Routers 2 CPU
y	Warning
	Top
le State	Registered
Node	ciscope6524
Object	none

Name	TestApp
Category	Application Status
Family	Node
Origin	SNMP Trap
Correlation Nature	Root Cause
Duplicate Count	0
RCA Active	□
Correlation Notes	
First Occurrence Time	August 6, 2014 11:13:02 AM IST

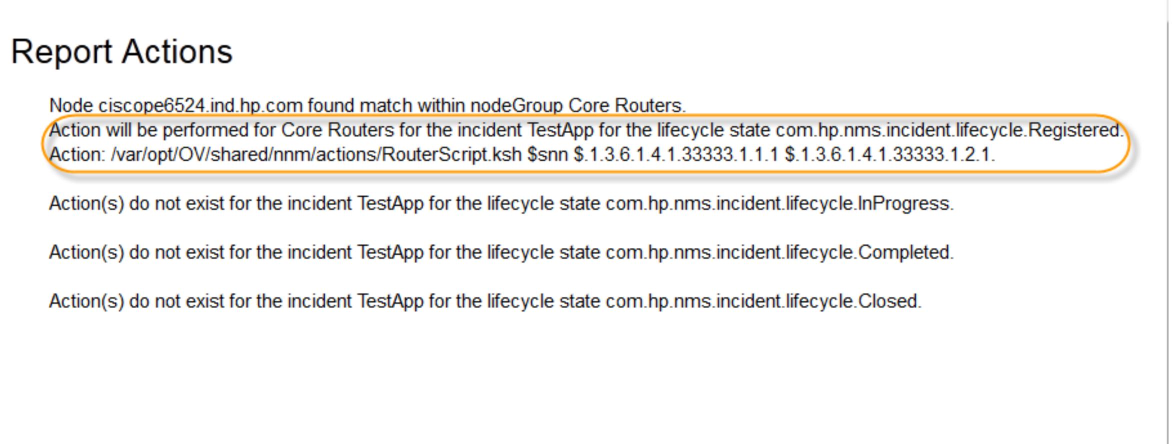
Performance Data	Wed Aug 06 12:24:26 IST 2014
Message	TestApp on Core Routers 2 CPU
Severity	Warning
Priority	com.hp.nms.incident.priority.Top
Lifecycle State	Registered
RCA Active	false
Assigned To	TJ
Source Object	none (Configuration Item)
Created/Opened	8/6/14 11:13 AM (Open for 1.2 hours)

Category	Application Status
Family	Node
Correlation Nature	Root Cause
Origin	SNMP Trap
Last Occurrence Time	August 6, 2014 11:13:02 AM IST
Source Node	ciscope6524

The Action Results report displays whether a Node Group match occurred for that particular trap and if the action would have been run.

Note
Run the Action Results report for a node in the Core Routers group and for a node in the Important Servers group.

Figure 38.



Report Actions

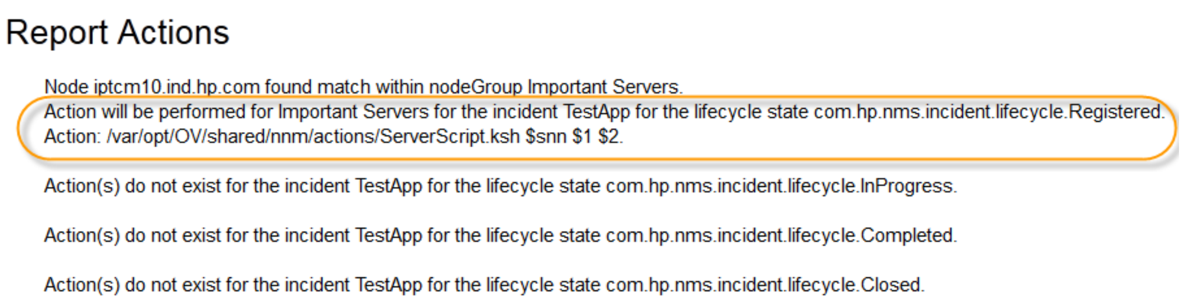
Node ciscope6524.ind.hp.com found match within nodeGroup Core Routers.
Action will be performed for Core Routers for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Registered.
Action: /var/opt/OV/shared/nnm/actions/RouterScript.ksh $snn $.1.3.6.1.4.1.33333.1.1.1 $.1.3.6.1.4.1.33333.1.2.1.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.InProgress.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Completed.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Closed.

Figure 39.



Report Actions

Node iptcm10.ind.hp.com found match within nodeGroup Important Servers.
Action will be performed for Important Servers for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Registered.
Action: /var/opt/OV/shared/nnm/actions/ServerScript.ksh $snn $1 $2.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.InProgress.

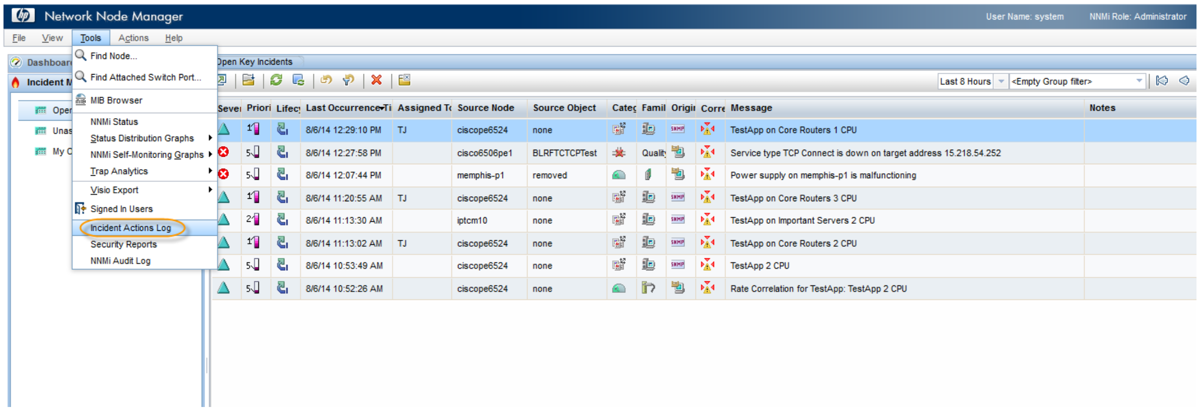
Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Completed.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Closed.

Next, send one of the traps.

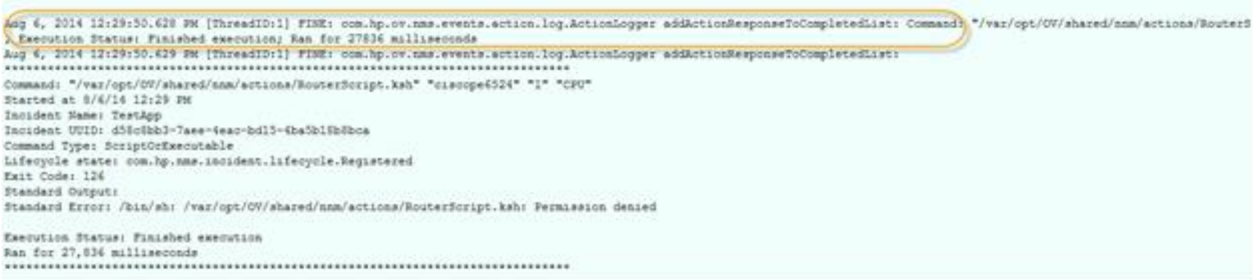
After the trap is sent, check the Incident Actions log for a message indicating the action was run.

Figure 40.



Sever	Priori	Lifecy	Last Occurrence Ti	Assigned To	Source Node	Source Object	Categ	Famil	Origin	Corre	Message	Notes
	1		8/6/14 12:29:10 PM	TJ	ciscope6524	none			SNMP		TestApp on Core Routers 1 CPU	
	5		8/6/14 12:27:58 PM		cisco6506pe1	BLRFTCTCPTest		Quality			Service type TCP Connect is down on target address 15.218.54.252	
	5		8/6/14 12:07:44 PM		memphis-p1	removed					Power supply on memphis-p1 is malfunctioning	
	1		8/6/14 11:20:55 AM	TJ	ciscope6524	none			SNMP		TestApp on Core Routers 3 CPU	
	2		8/6/14 11:13:30 AM		iptcm10	none			SNMP		TestApp on Important Servers 2 CPU	
	1		8/6/14 11:13:02 AM	TJ	ciscope6524	none			SNMP		TestApp on Core Routers 2 CPU	
	5		8/6/14 10:53:49 AM		ciscope6524	none			SNMP		TestApp 2 CPU	
	5		8/6/14 10:52:26 AM		ciscope6524	none					Rate Correlation for TestApp: TestApp 2 CPU	

Figure 41.



```
Aug 6, 2014 12:29:50.628 PM [ThreadID:1] FINE: com.hp.ov.nms.events.action.log.ActionLogger addActionResponseToCompletedList: Command: "/var/opt/OV/shared/nnm/actions/RouterS
> Execution Status: Finished execution; Ran for 27836 milliseconds
Aug 6, 2014 12:29:50.629 PM [ThreadID:1] FINE: com.hp.ov.nms.events.action.log.ActionLogger addActionResponseToCompletedList:
*******************************************************************************
Command: "/var/opt/OV/shared/nnm/actions/RouterScript.ksh" "ciscope6524" "1" "CPU"
Started at 8/6/14 12:29 PM
Incident Name: TestApp
Incident UUID: d58c8bb3-7aee-4eac-bd15-6ba5b15b8bca
Command Type: ScriptOrExecutable
Lifecycle state: com.hp.nms.incident.lifecycle.Registered
Exit Code: 126
Standard Output:
Standard Error: /bin/sh: /var/opt/OV/shared/nnm/actions/RouterScript.ksh: Permission denied

Execution Status: Finished execution
Ran for 27,836 milliseconds
*******************************************************************************
```

You can also check the results of the action as shown in the following example:

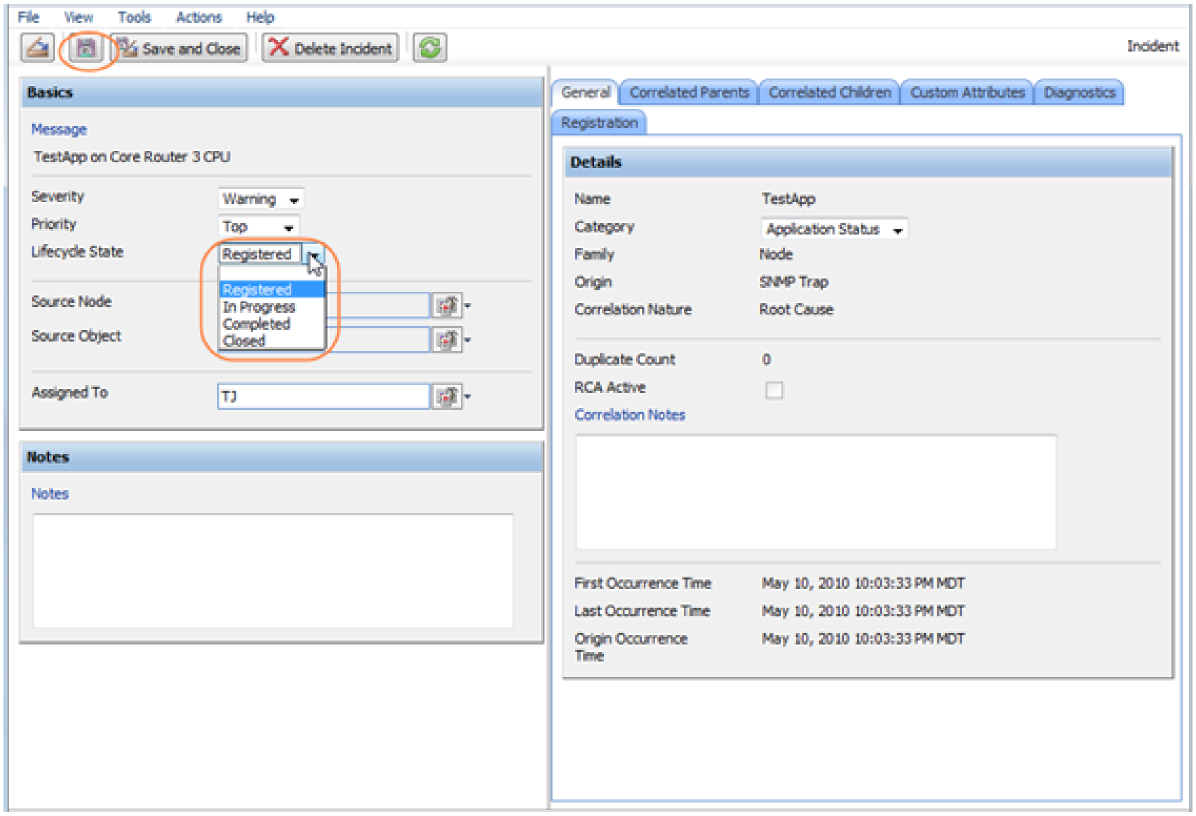
```
# cat /tmp/serverscript.txt
cheese 2 CPU
```

To practice running the action from an already received incident:

1. From an incident view, select an incident of interest and then click the Open   button.
2. Change the Lifecycle State attribute to a different state.
3. Click Save and Close.
4. Change the Lifecycle State attribute value back to the Registered State.
5. Click Save and Close.

Note
NNMi processes the varbinds values in the proper order when the trap first arrives, but it does not do so in subsequent runs when the Lifecycle State is changed and the varbinds are identified using position number. Therefore, use the full OIDs for the varbinds when forcing a Lifecycle State change.

Figure 42.



Message
TestApp on Core Router 3 CPU

Severity: Warning
Priority: Top
Lifecycle State: Registered
Source Node
Source Object
Assigned To: TJ

Notes

Name: TestApp
Category: Application Status
Family: Node
Origin: SNMP Trap
Correlation Nature: Root Cause

Duplicate Count: 0
RCA Active: □
Correlation Notes

First Occurrence Time: May 10, 2010 10:03:33 PM MDT
Last Occurrence Time: May 10, 2010 10:03:33 PM MDT
Origin Occurrence Time: May 10, 2010 10:03:33 PM MDT

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Acknowledgements

This product includes software developed by the Apache Software Foundation.

(http://www.apache.org)

This product includes software developed by the Indiana University Extreme! Lab.

(http://www.extreme.indiana.edu)

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- Download software patches and associated patch documentation
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

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