

HPE Network Node Manager i Software 10.30

Step-by-Step Guide to Pairwise and Batch Incident Configuration

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Introduction

This whitepaper uses examples to document pairwise functionality and batch incident configuration tools available in NNMi.

Pairwise

This section includes two examples that document pairwise functionality. The first example involves trap pairing using the same trap yet having different varbinds to differentiate the meaning of the trap. The second example describes a trap pairing with two other traps. (Prior to NNMi 9.20, a trap could only be involved in a single pairing.) This example includes the use of the "time duration" feature and the "delete when canceled" feature.

Pairwise Example 1 (Same Trap with Different Varbinds)

Initial Preparation

Set up the NNMi management server to receive the traps of interest. This example uses traps from Ascend Communications. This was selected because it is a MIB not shipped with NNMi, which allows this example to illustrate many preparation steps. The sequence of traps and varbinds shown may not represent an actual sequence. All traps are sent using NNMi command line scripts rather than an actual network device.

Load the MIBs and the Traps

- 1. Load the dependent MIBs using the nnmloadmib.ovpl command. The dependent MIBs include the following:
 - IF-MIB.mib
 - RFC1213-MIB.mib
 - ASCEND-MIB.mib
 - ASCEND-CHASSIS-MIB.mib
 - ASCEND-RADIUS-MIB.mib
 - ASCEND-MCAST-MIB.mib
 - ASCEND-LANMODEM-MIB.mib
 - ASCEND-SESSION-MIB.mib
 - ASCEND-POWER-SUPPLY-MIB.mib
 - ASCEND-MULTI-SHELF-MIB.mib
 - ASCEND-ATMP-MIB.mib
 - ASCEND-RESOURCES-MIB.mib
 - ASCEND-WATCHDOG-MIB.mib
 - ASCEND-CALL-LOGGING-MIB.mib
 - ASCEND-VOIP-MIB.mib
 - ASCEND-CALL-LOGGING-MIB.mib
 - ASCEND-ADVANCED-AGENT-MIB.mib
 - RFC-1215.mib
 - ASCEND-MGSTAT-MIB.mib
 - ASCEND-SPARING-MIB.mib
- 2. After loading the dependent MIBs, load the desired MIB (ASCEND-TRAP.mib) as shown.

nnmloadmib.ovpl -load ASCEND-TRAP.mib Successfully completed operation LoadMib.

45 Traps were loaded.

3. The output indicates that 45 traps were loaded; however, they are not completely ready for use. You must first obtain the name of the MIB module using the NNMi console. Navigate to the Configuration workspace and select Loaded MIBs. Then locate the module name associated with the MIB file just loaded. You can see in the following figure that the module name is ASCEND-TRAP.

| Netwo | rk Node Manager i | <u>F</u> ile <u>V</u> iew | <u>F</u> ools | A <u>c</u> tions <u>H</u> elp | | | | |
|------------|-------------------------------|---|---------------|--|--|--|--|--|
| 🔟 Das | shboards | Loaded MIBs × | | | | | | |
| Inci عم | ident Management | 2 🗃 3 | 4 | τ, | | | | |
| 📥 Τορ | pology Maps | ▲ Name | | MIB File | | | | |
| 🖵 мо | nitoring | ATM-FORUM-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/ATM-FORUM-MIB.my | | | | |
| - • Tro | whichesting | ATM-FORUM-TC-MIE | 3 | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/ATM-FORUM-TC-MIB.my | | | | |
| | Jubieshooning | ATM-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc2515-ATM-MIB.mib | | | | |
| 📑 inv | entory | ATM-TC-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc2514-ATM-TC-MIB.mib | | | | |
| 🤉 Mai | nagement Mode | ASCEND-TRAP | | file:///opt/OV/misc/nnm/snmp-mibs/Standard/ASCEND-TRAPmib | | | | |
| R Inci | ident Browsing | ArcsightModule | | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Hewlett-Packard/hp-arcsight.mib | | | | |
| Se Inte | egration Module Configuration | BGP4-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc4273-BGP4-MIB.mib | | | | |
| • min | egration module configuration | BRIDGE-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Standard/rfc4188-BRIDGE-MIB.mib | | | | |
| 🔑 Cor | nfiguration | CISCO-AAL5-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-AAL5-MIB.my | | | | |
| - | Communication Configuration | CISCO-ATM-IF-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-ATM-IF-MIB.my | | | | |
| • | Discovery | CISCO-ATM-SWITCH | -ADD | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-ATM-SWITCH-ADDR-MIB.my | | | | |
| • | Monitoring | CISCO-C2900-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-C2900-MIB.my | | | | |
| • | Incidents | CISCO-CDP-MIB | | file;//opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-CDP-MIB.my | | | | |
| - | Status Configuration | CISCO-DOT11-ASSO | CIATI | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-DOT11-ASSOCIATION-MIB.my | | | | |
| | status configuration | CISCO-DOT11-IF-MIE | 3 | file://opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-DOT11-IF-MIB.my | | | | |
| - | Global Network Management | CISCO-ENTITY-FRU- | CONT | file;//opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-ENTITY-FRU-CONTROL-MIB.my | | | | |
| • | User Interface | CISCO-ENTITY-VEND | ORT | file://opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-ENTITY-VENDORTYPE-OID-MIB.my | | | | |
| • | Security | CISCO-ENVMON-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-ENVMON-MIB.my | | | | |
| • | MIBs | CISCO-FLASH-MIB | | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-FLASH-MIB.my | | | | |
| | I Loaded MIBs | CISCO-FRAME-RELA | Y-MIE | file:///opt/OV/misc/nnm/snmp-mibs/Vendor/Cisco/CISCO-FRAME-RELAY-MIB.my | | | | |
| | III MIB Variables | Updated: 8/30/16 11:49:53 AM Total: 211 Selected: 1 F | | | | | | |
| | III MIB Notifications | Analysis | | | | | | |

Figure 1: Loaded MIBs

4. Load the traps using the nnmincidentcfg.ovpl command along with the module name as shown in the following:

nnmincidentcfg.ovpl -loadTraps ASCEND-TRAP SNMP trap(s) from mib module loaded: ASCEND-TRAP. Number of traps: 45. The following traps were added to incident configuration: wanLineStateChange - .1.3.6.1.4.1.529.0.40 portConnected - . 1. 3. 6. 1. 4. 1. 529. 0. 7 callLogDroppedPkt - . 1. 3. 6. 1. 4. 1. 529. 0. 41 multicastHeartBeatMonitor - . 1. 3. 6. 1. 4. 1. 529. 0. 19 maxTelnetAttempts - .1.3.6.1.4.1.529.0.15 powerSupplyStateChange - . 1. 3. 6. 1. 4. 1. 529. 0. 23 atmpAgentErrorRecvTrap - .1.3.6.1.4.1.529.0.29 portWaiting - .1.3.6.1.4.1.529.0.6 radiusServerChange - .1.3.6.1.4.1.529.0.18 powerSupplyOperationalStateChange - .1.3.6.1.4.1.529.0.24 consoleStateChange - .1.3.6.1.4.1.529.0.12 dirdoListFailure - .1.3.6.1.4.1.529.0.21 portAcrPending - .1.3.6.1.4.1.529.0.10 lanModemMovedToSuspectList - . 1. 3. 6. 1. 4. 1. 529. 0. 20 atmpMaxTunnelExceeded - . 1. 3. 6. 1. 4. 1. 529. 0. 27 sysSlotStateChange - . 1. 3. 6. 1. 4. 1. 529. 0. 22 suspectAccessResource - .1.3.6.1.4.1.529.0.34 portWaitSerial - .1.3.6.1.4.1.529.0.2 portCollectDigits - .1.3.6.1.4.1.529.0.5 sdtnPrimaryListEmptyTrap - .1.3.6.1.4.1.529.0.31 megacoLinkStatusTrap - .1.3.6.1.4.1.529.0.42 portCarrier - .1.3.6.1.4.1.529.0.8 portUseExceeded - .1.3.6.1.4.1.529.0.13 sparingIfStatusChange - . 1. 3. 6. 1. 4. 1. 529. 0. 44

portRinging - .1.3.6.1.4.1.529.0.4 portLoopback - .1.3.6.1.4.1.529.0.9 controllerSwitchoverTrap - .1.3.6.1.4.1.529.0.37 voipGkChange - .1.3.6.1.4.1.529.0.39 portDteNotReady - . 1. 3. 6. 1. 4. 1. 529. 0. 11 watchdogWarningTrap - .1.3.6.1.4.1.529.0.35 callLogServChange - . 1. 3. 6. 1. 4. 1. 529. 0. 38 eventTableOverwrite - .1.3.6.1.4.1.529.0.16 portDualDelay - .1.3.6.1.4.1.529.0.1 systemUseExceeded - .1.3.6.1.4.1.529.0.14 sysConfigChangeTrap - . 1. 3. 6. 1. 4. 1. 529. 0. 30 portInactive - .1.3.6.1.4.1.529.0.0 cntrReduAvailTrap - .1.3.6.1.4.1.529.0.45 atmpAgentErrorSentTrap - . 1. 3. 6. 1. 4. 1. 529. 0. 28 sysLastRestartReasonTrap - . 1. 3. 6. 1. 4. 1. 529. 0. 26 sparingSlotStatusChange - . 1. 3. 6. 1. 4. 1. 529. 0. 43 slotCardResetTrap - . 1. 3. 6. 1. 4. 1. 529. 0. 36 systemClockDrifted - .1.3.6.1.4.1.529.0.33 sdtnSecondaryListEmptyTrap - .1.3.6.1.4.1.529.0.32 multiShelfStateChange - .1.3.6.1.4.1.529.0.25 portHaveSerial - .1.3.6.1.4.1.529.0.3

The traps are now completely loaded into NNMi.

Configure Trap Format

In this section, you can see that the different varbind values differentiate the pairwise behavior.

1. Configure the format of the sysSlotStateChange trap (the example trap) to better see the varbind values. In the Configuration workspace, expand the **Incidents** folder, select **SNMP Trap Configurations**, and double-click **sysSlotStateChange**.

| Network Node Manager i | Eile View Iools Actions Help User Nam | | | | | | | | | | |
|------------------------------------|---------------------------------------|------------------------------|---------|-------|-----------|---------|-------|------------|-------------|--|--|
| 📶 Dashboards | SNMP Trap Configurations * | | | | | | | | | | |
| مع Incident Management | 🖸 🛊 🗃 😂 | ъъ 📋 | | | | | | | | | |
| 📥 Topology Maps | A Mama | CNIMD Object ID | Fashlad | Root | Deduplica | Rate | 5-10 | | A | Marray Format | |
| Monitoring | | SNMP Object ID | Enabled | Cause | | Enabled | Serta | | Aumor | message Formar | |
| A Troubleshooting | RexVpnSiteUnexpectedAn | .1.3.6.1.4.1.8083.1.1.12.3.4 | - | - | - | ÷ | 8 | k 0 | HP Route Ar | Increase in prefixes announced by VPN \$4 in site \$5 | |
| | RexVpnSiteUnexpectedRcv | .1.3.6.1.4.1.8083.1.1.12.3.3 | - | - | - | - | 8 ⇒ | ¢ 👳 | HP Route Ar | Unexpected received by VPN \$4 in site \$5 | |
| | SNMPAuthenticationFailur | .1.3.6.1.6.3.1.1.5.5 | - | - | ~ | - | ▲ ≉ | ¢ 🗈 | HPE Network | Authentication failure | |
| Management Mode | SNMPColdStart | 1.3.6.1.6.3.1.1.5.1 | ~ | - | ~ | ~ | 0 # | k 🕼 | HPE Network | Agent Up with Possible Changes (coldStart Trap) | |
| A Incident Browsing | SNMPLinkDown | .1.3.6.1.6.3.1.1.5.3 | ~ | - | ~ | - | 8 🔹 | k 🖧 | HPE Network | Agent Interface Down (linkDown Trap) on interface \$1 | |
| ✤ Integration Module Configuration | SNMPLinkUp | .1.3.6.1.6.3.1.1.5.4 | ~ | - | ~ | - | 0 # | | HPE Network | Agent Interface Up (linkUp Trap) on interface \$1 | |
| ✗ Configuration | SNMPWarmStart | .1.3.6.1.6.3.1.1.5.2 | ~ | - | ~ | ~ | 9 🔹 | k 12 | HPE Network | Agent Up with No Changes (warmStart Trap) | |
| | STPNewRoot | .1.3.6.1.2.1.17.0.1 | - | - | ~ | - | ▲ ≠ | k 🗸 | HPE Network | STP New Root | |
| | STPTopologyChange | .1.3.6.1.2.1.17.0.2 | - | - | ~ | - | ▲ ≉ | k 🖾 | HPE Network | STP Topology Change | |
| Discovery | SiteScopeAlertEventv1 | .1.3.6.1.4.1.11.15.1.4.0.1 | ~ | - | - | - | 0 4 | | HPE SiteSco | Alert "\$.1.3.6.1.4.1.11.15.1.3.1.2" was triggered on monitor "\$.1.3.6.1.4.1.11.15.1.2. | |
| Monitoring | SiteScopeAlertEventv2 | 136141115141 | ~ | - | - | - | 8 4 | • 5 | HPE SiteSco | Alert "\$.1.3.6.1.4.1.11.15.1.3.1.2" was triggered on monitor "\$.1.3.6.1.4.1.11.15.1.2. | |
| 🔻 🗁 Incidents | sysSlotStateChange | .1.3.6.1.4.1.9.9.41.2.0.1 | - | - | - | - | ▲ ≠ | k 53 | HPE Network | \$1:\$3 \$4 (syslog) | |
| Incident Configuration | TestApp | .1.3.6.1.4.1.33333.0.1 | ~ | ~ | - | ~ | ▲ 📾 | f 10 | Customer | TestApp \$1 \$2 | |
| I SNMP Trap Configurations | TrafficEntryExitMismatche | .1.3.6.1.4.1.8083.1.1.12.3.4 | - | - | - | - | ▲ # | | HP Route Ar | Entry exit mismatch between \$5/\$6 and \$9/\$10 | |
| Syslog Message Configuration | TrafficHighLinkUtilization | .1.3.6.1.4.1.8083.1.1.12.3.3 | - | - | - | - | ▲ ≠ | ¢ | HP Route Ar | Traffic high linkUtil in \$4 for link: src \$5 dest \$6 srcType \$13 destType \$14 traffic | |
| Management Event Configura | TrafficLinkCoSUtilization | .1.3.6.1.4.1.8083.1.1.12.3.3 | - | - | - | - | ▲ ≠ | ¢ @ | HP Route Ar | Traffic high CoS linkUtil in \$4 for link: src \$5 dest \$6 srcType \$13 destType \$14 C | |
| | TrafficLowLinkUtilization | 1.3.6.1.4.1.8083.1.1.12.3.3 | - | - | - | - | ▲ ≠ | ¢ 👳 | HP Route Ar | Traffic low linkUtil in \$4 for link: src \$5 dest \$6 srcType \$13 destType \$14 traffic\ | |
| | TrafficQuantityAlert | .1.3.6.1.4.1.8083.1.1.12.3.3 | - | - | - | - | ▲ ≠ | ¢ 👳 | HP Route Ar | Traffic quantity alarm: trapInfo \$4 threshold \$5 clearThreshold \$6 | |
| Custom Correlation Configura | Updated: 8/30/16 02:53:2 | 8 PM | | | | | т | otal: | 139 | Selected: 0 Filter: OFF | |

Figure 2: SNMP Trap Configurations

2. Change the format to include the slot number and the current state as shown in the following figure. Notice in the Message Format area the following text: "Slot: \$1 Status: \$ text (\$2)". The first part, "\$1", represents the first varbind. The second part, "\$ text (\$2)", tells NNMi to print the textual representation of the second varbind rather than the number. This makes the traps more readable in the NNMi console. Click Save and Close.

| <u>F</u> ile <u>V</u> iew <u>T</u> o | ols A <u>c</u> tions <u>H</u> elp | | | | | | | | User Name: syste | m NNM | li Role: Ac |
|--|---|---|----------------|---|---|-----------------|-------------------|------------------|--------------------|------------|---------------|
| SNMP Trap Configura | tions 🕷 SNMP Trap Configuration * 🗶 | | | | | | | | | | |
| | 🛛 C 📋 | | | | | | | | | | |
| For information about | troubleshooting Incidents, click here. | ^ | < | Interface Settings | Node Settings | Suppression | Enrichment | Dampening | Deduplication | Rate | Action |
| Name | sysSlotStateChange | | - | 1i enables you to appl | v a Suppress Enri | ich Dampen or | Action configura | tion to a Source | Object based on | the Source | e Object |
| The SNMP Object ID (end of the OID specifie MIBs). Click here for m | OID) attribute accepts one wildcard character (*) that must app ed. NNMi permits wildcards only in OIDs beginning with .1.3.6.1 iore information. | ear at the .4 (private | Inter confi | face Group. Interface igured on the Node S | Settings override ettings tab. | any other Suppl | ress, Enrich, Dan | npen, or Action | configuration sett | ings for t | his Incide |
| SNMP Object ID | .1.3.6.1.4.1.9.9.41.2.0.1 | | | Interface Crow Order | ing Enabled | | | | | N | ~ [0-0 |
| Enabled | | | - | internace Group Order | nių Enableu | | | | | | |
| Root Cause | | | | | | | | | | | |
| Category | Status | ▼ 🚮 ▼ | | | | | | | | | |
| * Family | Node | ▽ 👔 🝷 | | | | | | | | | |
| Severity | Normal 🗸 | | | | | | | | | | |
| Specify how the Incide the message use S(vai Custom Incident attrib | int message appears in the Incident view. To include Incident in riable_name). Select these variables from a set of valid paramet utes. For more information, click here. | formation in ers or | | | | | | | | | |
| Message Format | | | | | | | | | | | |
| sysSlotStateChange | Slot: \$1 Status: \$ text (\$2) | ~ | | | | | Total: 0 | Selected: 0 | Filter: Of | F | |
| | | | | | | | | | | | |
| Analysis - SNMP T | rap Configuration Summary : SyslogMessage - SNMP Object | ID: .1.3.6.1.4.1.9.9 | .41.2.0. | .1 Message Format: | \$1:\$3 \$4 (syslog) | | | | | | |
| SNMP Trap Configu | ration Summary : SyslogMessage 🛛 📿 | Details 🥑 | | | | | | | | | |
| SNMP Object ID Message Format | .1.3.6.1.4.1.9.9.41.2.0.1 sysSlotStateChange Slot: \$1 Status: \$ text (\$2) | Enabled Severity Category Family Root Cause Author | | | true Norm Status Node false Customer | nal | | | | | |

Figure 3: SNMP Trap Configuration: Message Format

- 3. To see the values of slot status, you can look up slotStatus in the MIB variables. Go to **Configuration -> MIBs -> MIB Variables** and search for slotStatus. In the Analysis pane shown in figure below, you can see that the enumerated values include the following:
 - operStateDown = 1, operStateUp = 2, operStateDiag = 3, operStateCoreDump = 4, operStateLoading = 5, operStatePost = 6, operStateNone = 7, operStateOccupied = 8

| Network Node Manager i | <u>Eile ⊻iew Tools Actions H</u> elp | | User Name: system NI | NMi Role: Administrator |
|------------------------------------|---|-------------------------------------|--|-------------------------|
| uu Dashboards | MIB Variables * | | | |
| ncident Management عم | 🖾 🗃 S 🆘 🖡 | | K 🗲 273 | 90 - 27407 of 27909 🔶 🕅 |
| 📥 Topology Maps | ▲ OID (Numeric) Name Syntax MIB | OID (Text) | | |
| Monitoring | .1.3.6.1.4.1.529.2.2.1.8 slotStatus Integer ASCEND-CH | HASSIS-MIB iso.org.dod.internet.pri | ivate.enterprises.ascend.slots.slotTable.slotEntry.slotStatus | |
| ▲ Troubleshooting | | | | |
| 📑 Inventory | | | | |
| Management Mode | | | | |
| A Incident Browsing | | | | |
| ✤ Integration Module Configuration | | | | |
| 🗲 Configuration | | | | |
| Communication Configuration | | | | |
| Discovery | | | | |
| Monitoring | | | | |
| Incidents | | | | |
| Status Configuration | | | | |
| Global Network Management | | | | |
| User Interface | | | | |
| Escurity | Updated: 8/30/16 03:04:59 PM | Total: 27909 | Selected: 0 Eilter: OEE | Auto refres |
| ▼ 🔄 MIBs | | | | |
| E Loaded MIBs | ▼ Analysis | | | |
| III MIB Variables | MIB Variable Summary : slotStatus 🚳 | Details 😅 | | |
| MIB Notifications | OID (Numeric) .1.3.6.1.4.1.529.2.2.1.8 | OID (Text) | .iso.org.dod.internet.private.enterprises.ascend.slots.slotTable.slotEntry.slotStatus | |
| | MIB ASCEND-CHASSIS-MIB | Enumerated Values (8) | operStatePost = 6, operStateNone = 7, operStateOccupied = 8[Fewer] | |
| MIB OID Types | | | The current status of the THT stor card for non-THT systems oper statemone is always reported. | |
| III ifTypes | 4 | | | |
| | | | | |

Figure 4: MIB Variables

Now NNMi is configured to be able to receive the traps and easily read them in the NNMi console.

Manually Sending the Traps

For this example, there is not a device sending the traps, so you must manually create and send them.

Tip: It is always best to use traps sent directly from a device in the network but manually sending them is a good way to develop and test your solution.

For this example, use the nnmsnmpnot if y. ovpl command to format the trap that is sent. See the following format of the command used to send the operStateUp for slot 1 (note that this command must all be on one line rather than the three lines shown in the following sample).

Tip: See the nnmsnmpnotify. ovpl reference page or the UNIX manpage for more information.

Make sure your source node (in this case, ciscope6524) is already discovered in NNMi to receive the trap.

nnmsnmpnotify.ovpl -v 1 -a ciscope6524 localhost .1.3.6.1.4.1.529.0.22 .1.3.6.1.4.1.529.2.2.1.1 integer 1 .1.3.6.1.4.1.529.2.2.1.8 integer 2

You can send status messages to ensure traps are coming in successfully by changing the second varbind value to one represents a different state. For example, you can change the value to 8, which represents operStateOccupied.

nnmsnmpnotify.ovpl -v 1 -a ciscope6524 localhost .1.3.6.1.4.1.529.0.22 .1.3.6.1.4.1.529.2.2.1.1 integer 1 .1.3.6.1.4.1.529.2.2.1.8 integer 8

As indicated in the figure below, traps containing all of the supported values 1-8 have been sent. To see these traps, go to **Incident Browsing -> SNMP Traps**. When looking for these traps in the SNMP Traps table, make sure that you have selected an appropriate time filter to include the traps you want to see.

| Network Node Manager i | <u>File View T</u> ools Actions | <u>H</u> elp | | | User Name: system | NNMi Role: Administrator |
|---------------------------|-------------------------------------|----------------------------------|--|--------|---|--------------------------|
| 📠 Dashboards | SNMP Traps * | | | | | |
| Incident Management محمو | ଟା 🗃 ଟା 🦘 🔥 🖀 | | | La | st 5 Minutes 🗢 <empty filter="" group=""> 🛛 🗸</empty> | ₩ 🗲 [1-4 of 4] 🗲 🕅 |
| Topology Maps | Sev Life ▼Last Occurrenc Source Nod | Source Object Cat Fan Con Tenant | Message | Notes | | |
| | 📀 🛃 8/30/16 3:06:38 ciscope6524 | none 👔 🌆 🆫 Default Tenant | sysSlotStateChange Slot: BGP | | | |
| | 8/30/16 3:06:33 ciscope6524 | none 👔 🌆 🌬 Default Tenant | sysSlotStateChange Slot:1 Status:operStartLoad | ing | | |
| | 8/30/16 3:02:35 ciscope6524 | none 🎲 🕮 🎭 Default Tenant | sysSlotStateChange Slot: BGP | | | |
| E Inventory | 😳 🖏 8/30/16 3:02:33 ciscope6524 | none 🌓 📰 🦫 Default Tenant | sysSlotStateChange Slot:1 Status:operStartUp | | | |
| Management Mode | | | | | | |
| A Incident Browsing | | | | | | |
| Open Key Incidents | | | | | | |
| Closed Key Incidents | | | | | | |
| Open Root Cause Incidents | | | | | | |
| Service Impact Incidents | | | | | | |
| III All Incidents | | | | | | |
| Custom Open Incidents | | | | | | |
| Custom Incidents | | | | | | |
| NNM 6x/7x Events | | | | | | |
| Syslog Messages | | | | | | |
| I SNMP Traps | | | | | | |
| | Updated: 8/30/16 03:07:22 PM | | Total: 4 Select | ted: 0 | Filter: ON | Auto refrest |
| | ▼ Analysis | | | | | |
| | Summary | c | | | | |
| | No Objects S | elected | | | | |

Figure 5: SNMP Traps

If you open (double-click) one of these traps, you can see the varbinds associated with the trap. See the following figure.

| <u>F</u> ile <u>V</u> iew <u>T</u> o | ools A <u>c</u> tions <u>H</u> elp | | | | | | | L | lser Name: systen | NNMi Role: Administrator | |
|---|---|--|--------------------------|--|--|-----------|----------------------|----------------|--------------------------|--------------------------|--|
| SNMP Traps 🕷 🔳 | cident X | | | | | | | | | | |
| | 1 🕫 💼 | | | | | | | | | | |
| Basics | | | General | Correlated Paren | ts Correlated | Children | Custom Attribute | s Diagnostics | Registration | | |
| Message | | | • | | | | | | | | |
| sysSlofStateChange Slot:1 Status:operStartUp | | | NNMi list table, clic | 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 Att fable, click the Restore Default Settings icon to restore the Custom Attribute order for the selected incident. | | | | | | | |
| * Severity | Normal 🗸 | | | 🖬 C S | | | | | | K ← 1-9 of 9 →) | |
| * Priority | None | | Name | | Туре | Value | | | | | |
| * Lifecycle State | Registered 🗸 | | .1.3.6.1. | 4.1.9.9.41.1.2.3.1.2 | asn | 1 | Slot No | | | | |
| | | | .1.3.6.1. | 4.1.9.9.41.1.2.3.1.3 | asn_integer | 2 | Slot Status | | | | |
| Source Node | ciscope6524 | 👘 🔫 | .1.3.6.1. | 4.1.9.9.41.1.2.3.1.4 | asn_octetstring | NOTIFIC | CATION | | | | |
| Source Object | none | | .1.3.6.1. | 4.1.9.9.41.1.2.3.1.5 | asn_octetstring | sent to | neighbor 10.10.100.6 | 4/0 (hold time | expired) 0 bytes | | |
| | | | .1.3.6.1. | 4.1.9.9.41.1.2.3.1.6 | asn_timeticks | 279664 | • | | | | |
| Assigned To | | ▽ 🚮 🔻 | cia.snm; | poid | String | .1.3.6.1. | 4.1.9.9.41.2.0.1 | | | | |
| | | | cia.addr | ess | String | 15.210. | 109.1 | | | | |
| Notes | | | cia.origi | naladdress | String | 15.210. | 109.1 | | | | |
| Notes | | | cia.agen | itAddress | String | 15.210. | .109.1 | | | | |
| | | | | | | | | | | | |
| | | | Update | d: 8/30/16 03:10:2 | 7 PM | | Total: 9 | Selected: 0 | Filter: OFF | F Auto refr | |
| | | | 1.000 | | | | | | | | |
| Analysis | | | | | | | | | | | |
| Incident Summary : | SyslogMessage | C Details C | Custom Attril | butes 🧭 🛛 ciscop | e6524 MIB Value | • C | Source Node ciscope | 6524 🤁 🛛 Sim | ilar (3) 🔁 | | |
| Message Severity Lifecycle State RCA Active Source Object Created/Opened | sysSlotStateChange Slot:1 Status:operStartUp Segistered False none (Configuration Item) 8/30/10 03:02 PM (Open for 7.7 minutes) | Category Family Correlation I Origin Last Occurre Source Node | Nature ence Time | | Status Node Symptom SNMP Trap August 30, 20 ciscope6524 | 016 3:02: | :33 PM IST | | | | |

Figure 6: Custom Attributes

Same Trap, Different Varbinds Pairwise Configuration

Suppose that when a status of operStateUp arrives, you want to cancel any of the other state traps for this node. The correlation searches back in time for up to 24 hours for any incidents to cancel. For example, an operStateUp value cancels any traps that have

any of the other statuses for the same source node and slot number for the past 24 hours (this is an example scenario only). You can also require that the Source Node and the Slot Number be the same on both traps.

1. Go to Incidents -> Pairwise Configurations and click the * icon.

| Net | work Node Manager i | <u>F</u> ile <u>V</u> iew <u>T</u> ools | Actions | <u>H</u> elp | | | | |
|----------|----------------------------------|---|----------|--------------------|-------------------|--------------------------|-------------|--------|
| Lat | Dashboards | Pairwise Configurations | × | | | | | |
| <u> </u> | Dashboards | | • • | - | | | | |
| 0,00 | Incident Management | A Name | Enabled | Eirst Incident | Second Incident | | | |
| - | Topology Maps | New | Ellableu | First incluein | Second incident | | | |
| , 📮 | Monitoring | CiscoLinkDownUpPair | ~ | CiscoLinkDown | CiscoLinkUp | | | |
| A | Troubleshooting | CiscoModuleDownUpPair | ~ | CiscoModuleDown | CiscoModuleUp | | | |
| | | DEV/4/FAN_FAILED_RECO | DVE 🗸 | DEV/4/FAN_FAILED | DEV/4/FAN_RECOV | ERED | | |
| - | inventory | DEV/4/POWER_FAILED_R | ECC 🗸 | DEV/4/POWER_FAIL | DEV/4/POWER_REC | OVERED | | |
| ያ | Management Mode | Lineproto-5-UpDownPair | ~ | LINEPROTO-5-UPDC | LINEPROTO-5-UPD | NMO | | |
| ୍ୟ | Incident Browsing | Link-3-UpDownPair | ~ | LINK-3-UPDOWN | LINK-3-UPDOWN | | | |
| % | Integration Module Configuration | OPTMOD/4/MODULE_OU | T_IN ✔ | OPTMOD/4/MODULI | OPTMOD/4/MODUL | E_IN | | |
| č | | OPTMOD/5/MOD_ALM_O | N_0 ¥ | OPTMOD/5/MOD_AL | OPTMOD/5/MOD_A | _M_OFF | | |
| ~ | Configuration | ProCurve-RMON_LACP_D | YNA 🗸 | ProCurve-RMON_LA | ProCurve-RMON_LA | CP_DYNAMIC_TRUNK_ON_LINE | | |
| | Communication Configuration | ProCurve-RMON_SSH_DIS | ABL 🗸 | ProCurve-RMON_SSF | ProCurve-RMON_SS | H_ENABLED | | |
| • | Discovery | RcAggLinkDownUpPair | ~ | RcAggLinkDown | RcAggLinkUp | | | |
| • | Monitoring | RcChasFanDownUpPair | ~ | RcChasFanDown | RcChasFanUp | | | |
| - | 🗁 Incidents | RcChasPowerSupplyDown | UpP 🗸 | RcChasPowerSupplyI | RcChasPowerSupply | Up | | |
| | Incident Configuration | RcSmltIstLinkDownUpPair | ~ | RcSmltIstLinkDown | RcSmltlstLinkUp | | | |
| | - III SNMP Trap Configurations | RcnAggLinkDownUpPair | ~ | RcnAggLinkDown | RcnAggLinkUp | | | |
| | | RcnChasFanDownUpPair | ~ | RcnChasFanDown | RcnChasFanUp | | | |
| | | RcnChasPowerSupplyDow | nUp 🗸 | RcnChasPowerSupply | RcnChasPowerSuppl | yUp | | |
| - | Management Event Configura | Updated: 8/30/16 03:11:5 | 5 PM | | | Total: 20 | Selected: 0 | Filter |
| | Pairwise Configurations | | | | | | | |
| | Custom Correlation Configura | Analysis | | | | | | |
| • | Trap Server | Summany | | | C | | | |

Figure 7: Pairwise Configurations

- 2. Set the First Incident and Second Incident to be sysSlotStateChange. In this case, these are the same trap. Only the varbind value differentiates them.
- 3. Set the duration time to 24 hours.
- 4. Because this is not just a simple pair of traps, it might be best to start with defining the Second Incident Payload Filter. The second incident is the trap that closes the other traps on the back end.
- Build an AND condition using ciaName and ciaValue. (Custom Incident Attributes (CIAs) are varbinds in NNMi). Create the condition where the varbind Object ID (OID) equals .1.3.6.1.4.1.529.2.2.1.8 and the varbind value equals 2. Remember that the value of 2 represents operStateUp.

| Page | 10 |
|-------|-----|
| . ~ge | ••• |

| <u>F</u> ile <u>V</u> iew <u>⊤</u> | ools Actions <u>H</u> elp | | | | User Name: system | NNMi Role: Administrator | | | |
|--|---|-------------------------------------|--|--|--|--------------------------------------|--|--|--|
| Pairwise Configuratio | ons # Pairwise Configuration * 1 | ĸ | | | | | | | |
| | 1 🛛 🕄 🔒 | | | | > | | | | |
| Basics | | | First Incident Payload Filter | Second Incident Payload Filter | Matching Criteria | | | | |
| Name | SlotChangeUpDown | | - | | | | | | |
| Enabled | ✓ | | A Payload Filter enables you | u to further define the filters to be us | ed for selecting the Incidents that should participation | ate in an operation; for example, br | | | |
| First Incident Configuration | sysSlotStateChange | ▽ 🚮 🔸 | 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. | | | | | | |
| Second Incident Configuration | sysSlotStateChange | ▽ 📑 🔸 | Filter Editor | Operator | Value | | | | |
| Description | | | ciaName | | √1.3.6.1.4.1.529.2.2.1.8 | | | | |
| Varbind 1 must ma (1,2,3,4,5,6,7,8) | tch and <u>Varbind</u> 2 equaling 2 (Up) sh | nould cancel all outstanding states | | | | Insert | | | |
| Author | Customer | ▽ 🚮 🔹 | | | | Replace | | | |
| Duration | 24.00 Hours 🗸 | | | | | Append V | | | |
| Delete When Canceled | | | | | | AND | | | |
| cuncercu | | | | | | OR | | | |
| | | • | AND - ciaName = 1.3.6.1.4.1. - ciaValue = 2 | 529.2.2.1.8 | | NOT | | | |
| | | | | | | EXISTS | | | |
| | | | | | | NOT EXISTS | | | |
| | | | | | | Delete | | | |
| | | | Filter String (ciaName = 1.3.6.1.4.1.529) | 2.2.1.8 AND ciaValue = 2) | | | | | |

Figure 8: Pairwise Configuration: Filter Editor

6. Next, define the First Incident Payload Filter. This represents any traps that are to be closed as part of this pairing. Be careful entering values with the "in" operator (do not use commas; instead, put each value on a separate line). The AND condition shown in figure below, represents any of the traps with a varbind value of operStateDown, operStateDiag, operStateCoreDump, operStateLoading, operStatePost, operStateNone, or operStateOccupied (1, 3, 4, 5, 6, 7 or 8).

| <u>F</u> ile <u>V</u> iew <u>T</u> o | ols Actions | <u>H</u> elp | | | | | U | ser Name: system | NNMi Role: Administ | rator Log(|
|--|--------------------|--------------------------|---------------------------------|-------|--|--|---|--|---|----------------------------|
| Pairwise Configuration | ns × Pairwise | Configuration 🗙 | | | | | | | | |
| | | i | | | | | | | | |
| Basics | | | | | First Incident Payload Filter | Second Incident Payload Filter | Matching Criteria | | | |
| Name | SlotChangeUpD | own | | | + | | | | | |
| Enabled First Incident Configuration | sysSlotStateCha | inge | | ▽ 📑 ▼ | A Payload Filter enables you t suppressed, enriched, damper Attribute names (ciaName) an | o further define the filters to be us ied, run actions, or participate in pa d values (ciaValue). For more infor | ed for selecting the Incidents airwise. A Payload Filter selec rmation, click here. | that should partici ts incoming Inciden | pate in an operation; t ts based on Custom I | for example, be ncident |
| Second Incident Configuration | sysSlotStateCha | inge | | ▽ 🎬 ▼ | Filter Editor Attribute | Operator | Value | | | |
| Description | | | | | ciaValue | ⊽ in | √ 1 | | ^ | Append |
| Varbind 1 must mate (1,2,3,4,5,6,7,8) | ch and Varbind 2 e | qualing 2 (Up) sl | nould cancel all outstanding st | ites | | | 3 | | ~ | Insert |
| * Author | Customer | | | ▽ 🚰 🔹 | | | | | | Replace |
| * Duration | 24.00 | Hours \bigtriangledown | | | | | | | | Append \bigtriangledown |
| Delete When Canceled | | | | | | | | | | AND |
| | | | | | AND | | | | | OR |
| | | | | | ciaName = 1.3.6.1.4.1.52 ciaValue in (1, 3, 4, 5, 6, | 9.2.2.1.8 7.8) | | | | NOT |
| | | | | | | | | | | EXISTS |
| | | | | | | | | | | NOT EXISTS |
| | | | | | | | | | | Delete |
| | | | | | Filter String (claName = 1.3.6.1.4.1.529.2.2 | . <u>1.8</u> AND <u>ciaValue in (1, 3, 4, 5, 6,</u> | 7, 8)) | | | |

Figure 9: Pairwise Configuration: First Incident Payload Filter

7. Finally, enter the Matching Criteria. NNMi automatically performs a source node match for all pairwise operations, so we do not need to specify the source node as part of the matching criteria. We enter the OID for the slot number since that must be the same for the match to be valid. Click Save and Close to finish this pairwise configuration.

| <u>F</u> ile <u>V</u> iew <u>T</u> | ools A <u>c</u> tions <u>H</u> elp | | User Name: system NNMi Role: Administrator | | | | | | |
|---|---|--|--|--|--|--|--|--|--|
| Pairwise Configuratio | ns × Pairwise Configuration × | | | | | | | | |
| C C D C |) 🛽 🖉 🝵 | | | | | | | | |
| Basics | 0 | First Incident Payload Filter Second Incident Payl | oad Filte Matching Criteria | | | | | | |
| Name | SlotChangeUpDown | • | | | | | | | |
| Enabled | | Specify the Matching Criteria only if you want to use Matching Criteria in addition to the following criteria that NNMi uses automatically: | | | | | | | |
| First Incident Configuration | sysSlotStateChange 🗸 🗃 🗸 | SNMP Trap Incidents: cia.address of the source address for the trap | | | | | | | |
| Second Incident Configuration | sysSlotStateChange 🗸 👹 🔹 | Management Events Incidents: Name of the So Remote NNM 6.x/7.x Event Incidents: cia.remo and cia.address of the source address for the tra | urce Object and Source Node temgr (IP Address or Hostname) of the NNM management station sending the incident IP | | | | | | |
| Description | | Syslog Message Incidents: none | | | | | | | |
| Varbind 1 must mat (1,2,3,4,5,6,7,8) | ch and Varbind 2 equaling 2 (Up) should cancel all outstanding states | See the "Matching Criteria Configuration Form (Ident | fy Incident Pairs)* help topic for more information. | | | | | | |
| * Author | Customer 🗸 🖓 🔸 | * 🗃 8 5 6 | K ← [0-0 of 0] → K [| | | | | | |
| Duration | 24.00 Hours 🗸 | First Incident Criteria | Second Incident Criteria | | | | | | |
| Delete When Canceled | | 1.3.6.1.4.1.529.2.2.1.1 | 1.3.6.1.4.1.529.2.2.1.1 | | | | | | |

Figure 10: Pairwise Configuration: Matching Criteria

Testing

1. Test the pairwise configuration by manually sending the traps. All of the traps are sent except the one with a value of 2 (operStateUp).

```
# nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
. 1. 3. 6. 1. 4. 1. 529. 0. 22 . 1. 3. 6. 1. 4. 1. 529. 2. 2. 1. 1 integer 1
.1.3.6.1.4.1.529.2.2.1.8 integer 1
# nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
. 1. 3. 6. 1. 4. 1. 529. 0. 22 . 1. 3. 6. 1. 4. 1. 529. 2. 2. 1. 1 integer 1
.1.3.6.1.4.1.529.2.2.1.8 integer 3
# nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
. 1. 3. 6. 1. 4. 1. 529. 0. 22 . 1. 3. 6. 1. 4. 1. 529. 2. 2. 1. 1 integer 1
.1.3.6.1.4.1.529.2.2.1.8 integer 4
# nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
. 1. 3. 6. 1. 4. 1. 529. 0. 22 . 1. 3. 6. 1. 4. 1. 529. 2. 2. 1. 1 integer 1
.1.3.6.1.4.1.529.2.2.1.8 integer 5
# nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
. 1. 3. 6. 1. 4. 1. 529. 0. 22 . 1. 3. 6. 1. 4. 1. 529. 2. 2. 1. 1 integer 1
.1.3.6.1.4.1.529.2.2.1.8 integer 6
# nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
. 1. 3. 6. 1. 4. 1. 529. 0. 22 . 1. 3. 6. 1. 4. 1. 529. 2. 2. 1. 1 integer 1
.1.3.6.1.4.1.529.2.2.1.8 integer 7
# nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
. 1. 3. 6. 1. 4. 1. 529. 0. 22 . 1. 3. 6. 1. 4. 1. 529. 2. 2. 1. 1 integer 1
.1.3.6.1.4.1.529.2.2.1.8 integer 8
```

2. Look in the trap table to see the traps.

| Ei | le | <u>V</u> iew | <u>T</u> ools | Actions | <u>H</u> elp | | | | | | | | | User Na | Ime |
|---------|-----------|--------------|---------------|-------------|---------------|-----|-----|------------|----------------|-------------------|---------------------------------|--------------|------|--|-----|
| s | NMP ' | Traps 🗙 | | | | | | | | | | | | | |
| | 11 | 🖿 😂 | • | Ъ 📋 | | | | | | | | Last 5 Minut | es 🔻 | <empty fil<="" group="" th=""><th>ter</th></empty> | ter |
| Se | / Life | ▼Last Occ | urrenc | Source Node | Source Object | Cat | Fan | Cor | Tenant | Message | | Note | s | | |
| \odot | 5 | 8/30/16 3:: | 34:43 | ciscope6524 | none | 17 | | <u>م</u> ھ | Default Tenant | sysSlotStateChang | Slot:1 Status:operStateLoading | | | | |
| 0 | 3 | 8/30/16 3:3 | 34:33 | ciscope6524 | none | 17 | | <u></u> | Default Tenant | sysSlotStateChang | Slot:1 Status:operStateOccupied | | | | |
| 0 | 5 | 8/30/16 3: | 34:43 | ciscope6524 | none | 17 | | <u>م</u> | Default Tenant | sysSlotStateChang | Slot:1 Status:operStateCoreDump | | | | |
| \odot | 2 | 8/30/16 3: | 34:33 | ciscope6524 | none | 17 | 1 | <u>م</u> و | Default Tenant | sysSlotStateChang | e Slot:1 Status:operStateNone | | | | |
| \odot | 5 | 8/30/16 3: | 34:43 | ciscope6524 | none | 17 | | <u>م</u> | Default Tenant | sysSlotStateChang | e Slot:1 Status:operStateDown | | | | |
| \odot | 5 | 8/30/16 3: | 34:33 | ciscope6524 | none | 17 | | 20 | Default Tenant | sysSlotStateChang | e Slot:1 Status:operStatePost | | | | |
| | \square | | | | | | | | | | | | | | |

Figure 11: SNMP Traps

<u>File View Tools Actions H</u>elp

3. Send the "up" trap and it should close all the other traps that happened within the last 24 hours. Note that you may not see this happen immediately in the NNMi console. The pairwise thread runs every 30 seconds (or when a certain count is reached, if that happens sooner than 30 seconds). So you may not see the correlations for 30 seconds after sending the trap. Note that if you are using northbound integration with NNMi, this pairwise feature will not keep the correlated traps from "going north". You can prevent them from going north by using the dampening feature (see the *NNMi Deployment Reference* for more information on dampening).

| ß | | C T K 🖀 | | | | | | La | ist Day | Empty |
|------|------|---------------------|-------------|---------------|-------|-------|------------|--|---------|-------|
| Seve | Life | Last Occurrence-Ti | Source Node | Source Object | Cates | Famil | Corre | Message | N | otes |
| 0 | ନ୍ | 8/12/14 12:34:11 PM | ciscope6524 | none | 17 | ١ | €~ | sysSiotStateChange Slot: 1 Status operStateUp | | |
| 0 | ନ୍ନ | 8/12/14 12:32:59 PM | ciscope6524 | none | i? | | } ⊷ | sysSlotStateChange Slot: 1 Status: operStateOccupied | | |
| 0 | ନ୍ନ | 8/12/14 12:32:58 PM | ciscope6524 | none | 17 | 10 | €. | sysSlotStateChange Slot: 1 Status: operStateNone | | |
| 0 | ନ୍ | 8/12/14 12:32:56 PM | ciscope6524 | none | i> | 1 | ٠6 | sysSlotStateChange Slot: 1 Status: operStatePost | | |
| 0 | ନ୍ଥ | 8/12/14 12:32:54 PM | ciscope6524 | none | 17 | | ۍ. | sysSlotStateChange Slot: 1 Status: operStateLoading | | |
| 0 | ନ | 8/12/14 12:32:52 PM | ciscope6524 | none | 17 | | ٠. | sysSlotStateChange Slot: 1 Status: operStateCoreDump | | |
| 0 | ନ୍ | 8/12/14 12:32:49 PM | ciscope6524 | none | 17 | 10 | | sysSlotStateChange Slot: 1 Status: operStateDiag | | |
| 0 | ନ୍କ | 8/12/14 12:32:47 PM | ciscope6524 | none | 17 | 10 | 30 | sysSlotStateChange Slot: 1 Status: operStateDown | | |

Figure 12: SNMP Traps

4. If you double-click the "up" trap and look at the **Correlated Children** tab, you can see all of the traps that were closed due to the pairwise correlation.

| Eile ⊻iew <u>T</u> | ools A <u>c</u> tions <u>H</u> elp | b | | | | | | | Us | er Name: system | NNMi Role: Ad |
|-------------------------------------|------------------------------------|----------|-----|--------|----------------|--------------|-----------------|-------------------------------|-----------------|-----------------|---------------|
| SNMP Traps 🛪 🚺 | cident * × | | | | | | | | | | |
| 0 0 1 | l 🕫 🍵 | | | | | | | | | | |
| Basics | | | ^ | Genera | Correlat | ed Parents | Correlated Chil | dren Custom Attribut | es Diagnostics | Registration | |
| Message | | | | - | | | | | | | |
| sysSlotStateChange | Slot:1 Status:operStartU | P | | ß | • 3 | • | | | н | € 0-0 of 0 → | M I 📰 |
| • Severity | Normal X | | _ | Sever | Last Occurre | nee' Type | | Message | Source Node | Source | Object |
| Severity | Normar 🗸 | | | 0 | 8/12/14 12:32: | 9 Pl Pairwis | se Correlation | sysSlotStateChange Slot: 1 St | ati ciscope6524 | none | |
| Priority | None | | | 0 | 8/12/14 12:32: | 8 Pl Pairwis | se Correlation | sysSlotStateChange Slot: 1 St | atı ciscope6524 | none | |
| Lifecycle State | Closed | | | ۲ | 8/12/14 12:32: | 6 Ph Pairwis | se Correlation | sysSlotStateChange Slot: 1 St | ati ciscope6524 | none | |
| | | | - 1 | 0 | 8/12/14 12:32: | 4 Ph Pairwis | se Correlation | sysSlotStateChange Slot: 1 St | atı ciscope6524 | none | |
| Source Node | ciscope6524 | | - | 0 | 8/12/14 12:32: | 2 Pl Pairwis | se Correlation | sysSlotStateChange Slot: 1 St | ati ciscope6524 | none | |
| Source Object | none | | | 0 | 8/12/14 12:32: | 9 Ph Pairwis | se Correlation | sysSlotStateChange Slot: 1 Sl | atı ciscope6524 | none | |
| | | | - 1 | ۲ | 8/12/14 12:32: | 7 Ph Pairwis | se Correlation | sysSlotStateChange Slot: 1 St | ati ciscope6524 | none | |
| Assigned To | | | • | Linda | | 07 (0 (0) | | Tabl 0 | Colored O | Eller 055 | |

Figure 13: SNMP Traps: Incident: Correlated Children

Tip: You can configure NNMi to delete traps when they are canceled (closed). See the following figure.

| 3 3 🖺 | 1 🛛 C 🝵 | |
|--|--|-------------------|
| Basics | | |
| Name | SlotChangeUpDown | |
| Enabled | | |
| First Incident Configuration | sysSlotStateChange | ▽ 🛱 🕶 |
| Second Incident Configuration | sysSlotStateChange | ▽ ず 🔹 |
| Description | | |
| Varbind 1 must ma (1,2,3,4,5,6,7,8) | atch and Varbind 2 equaling 2 (Up) should cancel all o | utstanding states |
| Author | Customer | ▽ 🗊 🔻 |
| * Duration | 24.00 Hours 🗸 | |
| Delete When Canceled | | |

Figure 14: Pairwise Configuration: Delete When Canceled

The deleting of events from the pairwise operation is done by another thread that runs every 2 minutes, so you might first see the traps in the browser.

| SNM | IP Trap | os X | | | | | | | | | | |
|------|---------|--------|---------|----------------------|-------------|---------------|-------|-------|-------|--|------|--|
| C | | C | • | 5 | | | | | | | | |
| Seve | Lifec | Last | Occurre | ence - Ti | Source Node | Source Object | Cates | Famil | Corre | Message | Note | |
| 0 | 3 | 8/12/1 | 4 12:38 | 53 PM | ciscope6524 | none | 17 | 10 | ۶. | sysSlotStateChange Slot: 1 Status operStateUp | | |
| 0 | 3 | 8/12/1 | 4 12:38 | 35 PM | ciscope6524 | none | 17 | 10 | 3- | sysSlotStateChange Slot: 1 Status: operStateOccupied | | |
| 0 | 3 | 8/12/1 | 4 12:38 | 34 PM | ciscope6524 | none | 17 | | ₽- | sysSlotStateChange Slot: 1 Status: operStateNone | | |
| 0 | 3 | 8/12/1 | 4 12:38 | 32 PM | ciscope6524 | none | 17 | 10 | ۶. | sysSlotStateChange Slot: 1 Status: operStatePost | | |
| 0 | 3 | 8/12/1 | 4 12:38 | 28 PM | ciscope6524 | none | 17 | 睑 | 3- | sysSlotStateChange Slot: 1 Status: operStateLoading | | |
| 0 | 3 | 8/12/1 | 4 12:38 | 26 PM | ciscope6524 | none | 17 | | 30 | sysSiotStateChange Slot: 1 Status: operStateCoreDump | | |
| 9 | 3 | 8/12/1 | 4 12:38 | 25 PM | ciscope6524 | none | 17 | 10 | 3- | sysSlotStateChange Slot: 1 Status: operStateDiag | | |
| 0 | 3 | 8/12/1 | 4 12:38 | 22 PM | ciscope6524 | none | 17 | 10 | 3. | sysSlotStateChange Slot: 1 Status: operStateDown | | |

Figure 15: SNMP Traps: Traps Present

Then you might see them close.

| <u>F</u> ile | Vi | ew <u>T</u> ools A | <u>ctions H</u> el | P | | | | | | | | |
|--------------|--------------|---------------------|--------------------|---------------|-------|-------|-------|--|-------|--|--|--|
| SNM | SNMP Traps × | | | | | | | | | | | |
| ľ | - | 0 h h | 1 | | | | | | | | | |
| ieve | Lifec | Last Occurrence-Ti | Source Node | Source Object | Cates | Famil | Corre | Message | Notes | | | |
| 2 | ନ | 8/12/14 12:38:53 PM | ciscope6524 | none | 17 | | ٠. | sysSlotStateChange Slot: 1 Status: operStateUp | | | | |
| 2 | Q | 8/12/14 12:38:35 PM | ciscope6524 | none | 17 | 10 | 300 | sysSlotStateChange Slot: 1 Status: operStateOccupied | | | | |
| 2 | Q | 8/12/14 12:38:34 PM | ciscope6524 | none | 17 | 1 | 30 | sysSlotStateChange Slot: 1 Status: operStateNone | | | | |
| 2 | Q | 8/12/14 12:38:32 PM | ciscope6524 | none | 17 | | 30 | sysSlotStateChange Slot: 1 Status: operStatePost | | | | |
| 2 | Q | 8/12/14 12:38:28 PM | ciscope6524 | none | 17 | 1 | 300 | sysSlotStateChange Slot: 1 Status: operStateLoading | | | | |
| 2 | R | 8/12/14 12:38:26 PM | ciscope6524 | none | 17 | 10 | 300 | sysSlotStateChange Slot: 1 Status: operStateCoreDump | | | | |
| 2 | Q | 8/12/14 12:38:25 PM | ciscope6524 | none | 17 | 10 | ٠. | sysSlotStateChange Slot: 1 Status: operStateDiag | | | | |
| 2 | Q | 8/12/14 12:38:22 PM | ciscope6524 | none | 17 | 10 | 30 | sysSlotStateChange Slot: 1 Status: operStateDown | | | | |

Figure 16: SNMP Traps: Traps Closed

Then you will see them get deleted.



Figure 17: SNMP Traps: Traps Deleted

Pairwise Example 2 (Three Traps)

You can construct sophisticated pairwise filters involving multiple traps. For example, you might have three different traps (X, Y, and Z). You could have Z close both X and Y. To do this with different traps, you would need to create separate pairwise configurations for each relationship: Z closing X, and Z closing Y. Suppose that when you receive a portCarrier trap, you want to cancel both the portConnected and portWaiting traps.

| <u>File View T</u> ools A | A <u>c</u> tions <u>H</u> elp | | | | | | | | | User Name: system NNMI Role: Administrator Log Q |
|------------------------------|-------------------------------|---------|---------------|---------------------------|-----------------|------------------|------------------|----------------|----------|--|
| SNMP Trap Configurations ¥ | | | | | | | | | | |
| 🖻 * 🗃 S ħ | ℃, 💼 | | | | | | | | | K € 32-41 of 140 → N |
| Name 🔺 | SNMP Object ID▽ | Enabled | Root Cause | Deduplicati on Enabled | Rate Enabled | Sev erit y | Cat eg ory | Fa mil y | Author | Message Format |
| maxTelnetAttempts | .1.3.6.1.4.1.529.0.15 | ~ | - | - | - | 🗢 N | Þ: | | Customer | maxTeinetAttempts |
| megacoLinkStatusTrap | .1.3.6.1.4.1.529.0.42 | ~ | - | - | - | 📀 N | Þ: | 1 | Customer | megacoLinkStatusTrap |
| multiShelfStateChange | .1.3.6.1.4.1.529.0.25 | ~ | - | - | - | 🛇 N | 'n. | i | Customer | multiShelfStateChange |
| multicastHeartBeatMonitor | .1.3.6.1.4.1.529.0.19 | ~ | - | - | + | 🛇 N | Þ | i | Customer | multicastHeartBeatMonitor |
| portAcrPending | .1.3.6.1.4.1.529.0.10 | ~ | - | + | + | 🛇 N | Þ: | s 🌆 | Customer | portAcrPending |
| portCarrier | .1.3.6.1.4.1.529.0.8 | ~ | - | - | - | 🗢 N | Þ. | 1 | Customer | portCarrier |
| portCollectDigits | .1.3.6.1.4.1.529.0.5 | ~ | - | | - | 🕗 N | Þ, | 1 | Customer | portCollectDigits |
| portConnected | .1.3.6.1.4.1.529.0.7 | ~ | - | - | - | 🛇 N | Þ, | 1 | Customer | portConnected |
| portDteNotReady | .1.3.6.1.4.1.529.0.11 | ~ | - | + | - | 🔊 N | Þ: | s 🌆 | Customer | portDteNotReady |
| portDualDelay | .1.3.6.1.4.1.529.0.1 | ~ | - | + | + | 🛇 N | Þ | 1 | Customer | portDualDelay |
| portHaveSerial | .1.3.6.1.4.1.529.0.3 | ~ | - | - | - | 🗢 N | Þ, | 1 | Customer | portHaveSerial |
| portinactive | .1.3.6.1.4.1.529.0.0 | ~ | - | - | + | 🔊 N | Þ: | | Customer | portinactive |
| portLoopback | .1.3.6.1.4.1.529.0.9 | ~ | - | | + | 🗢 N | 17: | 1 | Customer | portLoopback |
| portRinging | .1.3.6.1.4.1.529.0.4 | ~ | - | - | - | 🗢 N | Þ | | Customer | portRinging |
| portUseExceeded | .1.3.6.1.4.1.529.0.13 | ~ | - | | - | 🗢 N | Þ, | 1 | Customer | portUseExceeded |
| portWaitSerial | .1.3.6.1.4.1.529.0.2 | ~ | - | - | - | 🛇 N | Þ, | 1 | Customer | portWaitSerial |
| portWaiting | .1.3.6.1.4.1.529.0.6 | ~ | - | - | - | 🛇 N | Þ: | s 🌆 | Customer | portWaiting |
| powerSupplyOperationalStateC | 1.3.6.1.4.1.529.0.24 | ~ | - | - | - | 🛇 N | Þ, | s 🌆 | Customer | powerSupplyOperationalStateChange |
| powerSupplyStateChange | .1.3.6.1.4.1.529.0.23 | ~ | - | - | - | 🗢 N | Þ: | 10 | Customer | powerSupplyStateChange |

Figure 18: SNMP Trap Configurations

1. Edit the trap configuration to include the source node and the port in the format for easier reading. Do this for all 3 trap mentioned above – an example snapshot is shown in following figure.

| | A A 2 4 | |
|---|--|--|
| Basics | | < Interface Settings |
| For information abo | ut troubleshooting Incidents, click here. | • |
| Name The SNMP Object IE of the OID specified | NetScoutServerClear) (OID) attribute accepts one wildcard character (*) that must appear at the end .NNMi permits wildcards only in OIDs beginning with .1.3.6.1.4 (private MIBs). information | NNMi enables you to ap Interface Group. Interfa configured on the Node |
| Click here for more i | nonnanon. | ▲ Interface Group Or |
| SNMP Object ID | .1.3.6.1.4.1.141.50.2.0.3 | |
| Enabled | | |
| Doot Course | | |
| Root Cause | | |
| Category | Status 🗸 🖏 🗸 | |
| Category Family | L] Status ♥ @ • Node ♥ @ • | |
| Category Family Severity | L Status ♥ ♥ ♥ Node ♥ ♥ ♥ ♥ | |
| Category Category Family Severity Specify how the Inci message use S(varia Incident attributes. Message Format portConnected So Description The host port asso | L Status Node Normal マ Ident message appears in the Incident view. To include Incident information in the suble_name). Select these variables from a set of valid parameters or Custom For more information, click here. ucceNode=Sann.Port=\$.1.3.6.1.2.1.2.2.1.1 clated with the indicated ifindex has connected to the far end, but end-to-end | |
| Category Category Family Severity Severity Severity Message use S(varial Incident attributes. Message Format Description The host port asso data flow has not y | L Status Node ▼ Normal Ident message appears in the Incident view. To include Incident information in the able_name). Select these variables from a set of valid parameters or Custom For more information, click here. ucceNode=Sann_Port=\$.1.3.6.1.2.1.2.2.1.1 clated with the indicated ifindex has connected to the far end, but end-to-end ret been enabled. | |

Figure 19: SNMP Trap Configuration: Message Format

Here is what the three trap look like when they are sent:

nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
.1.3.6.1.4.1.529.0.6 .1.3.6.1.2.1.2.2.1.1 integer 1
nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
.1.3.6.1.4.1.529.0.7 .1.3.6.1.2.1.2.2.1.1 integer 1
nnmsnmpnotify.ovpl -v 1 -a ciscope6524.ind.hp.com localhost
.1.3.6.1.4.1.529.0.8 .1.3.6.1.2.1.2.2.1.1 integer 1

| <u>F</u> ile | View | Tools Actions | <u>H</u> elp | | | | | | | |
|--------------|--------|--------------------|--------------|---------------|-------|-------|-------|---|----------|-------------------|
| SNMP 1 | raps 🗙 | | | | | | | | | |
| C. I | | 1 5 🖀 | | | | | | | Last Day | <en< th=""></en<> |
| Sever | Lifec | Last Occurrence-Ti | Source Node | Source Object | Cates | Famil | Corre | Message | | |
| 0 | 3 | 8/13/14 8:20:41 AM | ciscope6524 | none | 17 | 1 | ۍ. | portCarrier SourceNode=ciscope6524 Port=1 | 1 | |
| 0 | 3 | 8/13/14 8:20:36 AM | ciscope6524 | none | 17 | | ٠. | portConnected SourceNode=ciscope6524 Po | ort=1 | |
| 0 | 3 | 8/13/14 8:20:31 AM | ciscope6524 | none | 17 | | ٠. | portWaiting SourceNode=ciscope6524 Port= | 1 | |

Figure 20: SNMP Traps

- 2. Build two pairwise correlations.
 - a. Select the Second Incident Configuration as portConnected and the First Incident Configuration as portCarrier. You do not need to define any payload filters but you must define matching criteria. Remember that there is a built-in criterion for Source Node. In addition, you must match against the port as defined by the varbind .1.3.6.1.2.1.2.2.1.1. You could also use \$1 but it is usually better to use explicit OIDs rather than position numbers. Note that the duration has been set to zero. This means that NNMi searches back through the entire incident database to find the match, but after it finds a match, it stops correlating. This results in a single pairing. This may not be desired but is shown as an example here.

| Eile <u>V</u> iew <u>T</u> ools Agtions <u>H</u> elp | User Name: system NNMI Role: Administrator |
|---|--|
| Pairwise Configurations # Pairwise Configuration * ¥ | |
| ☞ ☞ ■ ■ ■ ☞ 🝵 | |
| ▼ Basics | First Incident Payload Filter Second Incident Payload Filter Matching Criteria |
| * Name ascendPortCarrierConnectedPair | • |
| Enabled | Specify the Matching Criteria only if you want to use Matching Criteria in addition to the following criteria that NNMi uses automatically: |
| First Incident Configuration Second Incident Configuration Configuration V | SNMP Trap Incidents: cla address of the source address for the trap Management Events Incidents: Name of the Source Object and Source Node Remote NNM 6x/7x Event Incidents: cla remotemp(1P) Address or Hostname) of the NNM management station sending the incident and clauddress of the source address for the trap |
| Description | Syslog Message Incidents: none |
| | See the "Matching Criteria Configuration Form (Identify Incident Pairs)" help topic for more information. |
| Author Customer V | • |
| Duration 0.00 Seconds | * ■ ♡ ↑ ■ H ← 0-000 → H |
| Delete When | ▲ First Incident Criteria Second Incident Criteria |
| Canceled 🖵 | .1361212211 |

Figure 21: Pairwise Configuration: ascendPortCarrierConnectedPair

| <u>File View Tools Actions H</u> elp | | User Name: system NNMI Role: Administrator |
|---|---|--|
| Pairwise Configurations # Pairwise Configuration * * | | |
| 6' 6' 11 11 12 3 🔒 | | |
| Basics | First Incident Payload Filter Second Incident Pa | yload Filter Matching Criteria |
| Name ascendPortCarrieWaltingPair Enabled First Incident Configuration Second Incident DerrCarrier Description | Specify the Matching Criteria only if you want to us SNMP Trap Incidents: cia.address of the source Management Events incidents: Name of the man Remote NNM 5.477.A: Event Incidents: cia.ren and cia.address of the source address for the Syslog Message Incidents: none See the "Matching Criteria Configuration Form (Ide | ee Matching Criteria in addition to the following criteria that NNMi uses automatically: ce address for the trap Source Object and Source Node notemgr (IP Address or Hostname) of the NNM management station sending the incident frap ntify incident Pairsy ^a help topic for more information. |
| Author Customer Que Customer Cust | *≣:2:5:≘ | H 🔶 (0.000) 🗲 1 |
| Detecte When | First Incident Criteria | Second Incident Criteria |
| Canceled | 1.3.6.1.2.1.2.2.1.1. | .1.3.6.1.2.1.2.2.1.1. |
| | | |

Figure 22: Pairwise Configuration: ascendPortCarrierWaitingPair

b. Receive the first two traps. Nothing is correlated.

| Eile | <u>V</u> iew | Tools | Actions | <u>H</u> elp | | | | | | | User Name: | system | NM |
|---------|--------------|-----------|-------------|---------------|-----|-----|-----------|----|---|------|--|--------|----|
| SNMP | SNMP Traps × | | | | | | | | | | | | |
| C | ଜାଳାତ ବ ଭାଳ | | | | | | | | | Last | Day 🗢 <empty filter="" group=""></empty> | | (|
| Sev Lif | ec VLast (| Occurrenc | Source Node | Source Object | Cat | Fan | Cor | Те | Message | | Notes | | |
| 5 0 | 8/31/16 | 11:52:59 | ciscope6524 | none | Þ | 1 | <u> -</u> | De | portConnected SourceNode=ciscope6524 Port=1 | | | | |
| ୍ ବ୍ 🔁 | 8/31/16 | 11:52:3 | ciscope6524 | none | Þ | 1 | <u> -</u> | De | portWaiting SourceNode=ciscope6524 Port=1 | | | | |

Figure 23: SNMP Traps: Traps Received

c. When you receive the portCarrier trap, it closes the other two traps.

| <u>F</u> ile | | <u>V</u> iew | <u>T</u> ools | Actions | <u>H</u> elp | | | | | | | | User Name: s | system | n NN |
|--------------|--------------|--------------|---------------|-------------|---------------|------------|-----|-----------|----|---|--------|-------|------------------------------------|----------|------|
| SN | мр т | raps 🗙 | | | | | | | | | | | | | |
| Ľ | | ເຼວ່ | • • | Б 📋 | | | | | | | Last I | Day 🛡 | <empty filter="" group=""></empty> | ∇ | M |
| Sev | Lifec | ▼Last (| Occurrent | Source Node | Source Object | Cat | Fan | Cor | Те | Message | | Notes | | | |
| 0 | വ | 8/31/16 | 11:52:59 | ciscope6524 | none | i7 | | <u> _</u> | De | portConnected SourceNode=ciscope6524 Port=1 | | | | | |
| 0 | R | 8/31/16 | 11:52:33 | ciscope6524 | none | 17 | 1 | <u>_</u> | De | portWaiting SourceNode=ciscope6524 Port=1 | | | | | |
| 0 | | 8/31/16 | 11:52:59 | ciscope6524 | none | i 7 | 1 | <u> -</u> | De | portCarrier SourceNode=ciscope6524 Port=1 | | | | | |

Figure 24: SNMP Traps: portCarrierTrap Received

S

d. Because the duration is set to zero, only the first pairings are closed. If there were other traps in the database that had potential matches, as shown below, those traps are not closed

| Eile | View Tools Actions Help | | | | | | | | | | User Name: system | | | | |
|------|-------------------------|---------|--------------|-------------|---------------|-----|-----|-----------|----|---|-------------------|---|--------------------|----------|---|
| SN | MP T | raps 🛪 | | | | | | | | | | | | | |
| C. | | | * 1 | 6 📋 | | | | | | | Last | Day ⊽ <e< th=""><th>mpty Group filter></th><th>∇</th><th>K</th></e<> | mpty Group filter> | ∇ | K |
| Sev | Lifec | ▼Last 0 | ccurrenc | Source Node | Source Object | Cat | Fan | Cor | Те | Message | | Notes | | | |
| 0 | Ð, | 8/31/16 | 11:52:59 | ciscope6524 | none | 17 | | <u>مۇ</u> | De | portConnected SourceNode=ciscope6524 Port=1 | | | | | |
| 0 | Q | 8/31/16 | 11:52:33 | ciscope6524 | ncne | 17 | | <u></u> | De | portWaiting SourceNode=ciscope6524 Port=1 | | | | | |
| 0 | Ð | 8/31/16 | 11:52:59 | ciscope6524 | ncne | 17 | | <u>مۇ</u> | De | portCarrier SourceNode=ciscope6524 Port=1 | | | | | |
| 0 | 5 | 8/31/16 | 11:52:33 | ciscope6524 | ncne | 17 | | <u>.</u> | De | portWaiting SourceNode=ciscope6524 Port=1 | | | | | |
| 0 | ē, | 8/31/16 | 11:52:59 | ciscope6524 | none | 17 | 1 | <u>ۇ</u> | De | portConnected SourceNode=ciscope6524 Port=1 | | | | | |

Figure 25: SNMP Traps: Other Traps with Potential Matches

Batch Incident Configuration

NNMi 10.00 allows you to make modifications to collections of incident configurations using a file. This facilitates the process of making many similar changes without having to use the NNMi console for each incident configuration. For example, suppose you want to add the same action to a set of incidents. With batch incident configuration, you can export the current configuration, modify the file, and then import the modified configuration in just a few simple steps.

There are two new tools introduced in NNMi 9.20 which are available in NNMi 10.x as well: nnmincidentcfgdump.ovpl and nnmincidentcfgload.ovpl. You use nnmincidentcfgdump.ovpl to export the current configuration and you use nnmincidentcfgload.ovpl to import the new configuration. These tools use a tag formatted file (not XML or free-form text).

This document does not give the complete syntax for these tools. There are a number of very good examples in the following directory:

- UNIX: /opt/OV/examples/nnm/incidentcfg
- Windows: <drive>\Program Files (x86)\HP\HP BTO Software\examples\nnm\incidentcfg

One of the easiest ways to use the nnmincidentcfgload.ovpl tool is to generate an example and compare the differences. Then you can carry these differences over to other incidents. Consider the following example.

Suppose you want to load the F5-BIGIP-COMMON-MIB file to get some new traps defined in NNMi for F5 BIG-IP.

1. Load the MIB with the nnmloadmib.ovpl command:

nnmloadmib.ovpl -load F5-BIGIP-COMMON-MIB.mib Successfully completed operation LoadMib. 16 MIB Variables were loaded. 134 Traps were loaded.

2. Load the traps into the trap configuration using the nnmincidentcfg.ovpl command.

nnmincidentcfg.ovpl -loadTraps F5-BIGIP-COMMON-MIB SNMP trap(s) from mib module loaded: F5-BIGIP-COMMON-MIB. Number of traps: 134. The following traps were added to incident configuration: bigipNodeUp - .1.3.6.1.4.1.3375.2.4.0.13 bigipAgentStart - .1.3.6.1.4.1.3375.2.4.0.1 bigipStandby - .1.3.6.1.4.1.3375.2.4.0.14 ... (many traps not shown here) bigipDiskPartitionGrowth - .1.3.6.1.4.1.3375.2.4.0.26 bigipAsmRequestBlocked - .1.3.6.1.4.1.3375.2.4.0.38 bigipGtmAppAvail - .1.3.6.1.4.1.3375.2.4.0.71

Suppose you want to apply an action to all of these traps. Because there are 134 traps, it would take much effort to open each trap configuration individually and add the action. So you will take advantage of the batch configuration.

3. Before going any further, it is a good idea to export the incident configuration before making changes. This allows you to revert to this same place using the nnmconfigimport.ovpl command, if necessary. (Alternatively, you could perform a backup of NNMi.)

nnmconfigexport.ovpl -c incident -f /var/tmp Successfully exported /var/tmp/incident.xml.

4. Dump one trap to provide an example. Use the trap bigipAgentStart and specify the dump command to only dump this trap configuration based on the OID .1.3.6.1.4.1.3375.2.4.0.1.

```
# nnmincidentcfgdump.ovpl -dump bigipAgentStart_before.tag -oid
. 1. 3. 6. 1. 4. 1. 3375. 2. 4. 0. 1
Starting a user transaction with a timeout of: 3,600 seconds.
Here is the file it created:
# cat bigipAgentStart_before.tag
*ConfigurationType=SnmpTrapConfig
*Name bigipAgentStart
*0id . 1. 3. 6. 1. 4. 1. 3375. 2. 4. 0. 1
-Author
        -Key com. customer. author
-Category
        -Key com. hp. nms. incident. category. Status
-Enable true
-ActionConfiguration
        -Enable false
-DampenConfiguration
        -Enable false
        -HourInterval 0
        -MinuteInterval 0
        -SecondInterval 0
-DedupConfiguration
        -ComparisonCriteria NAME
        -DedupCount 2
        -Enable false
        -HourInterval 0
        -MinuteInterval 0
        -SecondInterval 0
-Description An indication that the agent has started running.
-Family
        -Key com. hp. nms. incident. family. Node
-GeoCentralForwardConfiguration
```

```
-Enable false

-MessageFormat bigipAgentStart

-Severity NORMAL

-EnrichConfiguration

-Enable false

-SuppressConfiguration

-Enable false

-RateConfiguration

-ComparisonCriteria NAME

-Enable false

-HourInterval 0

-MinuteInterval 0

-RateCount 0

-SecondInterval 0

-UserRootCause false
```

5. Go into the NNMi console and add the action to this trap configuration. Save the trap configuration after making the change.

| <u>F</u> ile <u>V</u> iew <u>T</u> o | ols Actions | <u>H</u> elp | | | | | | | | User Nam | e: system | NNMi Ro | ole: Administr | ator |
|--|--|--|-------------------------------------|--------|--|--|---|---|--|---------------------------------|---------------------------------|----------------------|----------------------------------|--------------------------|
| SNMP Trap Configura | tions × SNMP T | rap Configuration * ¥ | | | | | | | | | | | | |
| | 🛛 🕄 📋 | | | | | | | | | _ | | | | |
| Basics | <u> </u> | | | ~ | < Node Settings | Suppression | Enrichment | Dampening | Deduplication | Rate Ac | tions For | ward to | Global Manag | gers 3 |
| For information about | troubleshooting Inc | idents, click here. | | | • | | | | | <u> </u> | | | | |
| Name The SNMP Object ID (end of the OID specific MIBs). Click here for m | bigipAgentStart OID) attribute accep ed. NNMi permits wi ore information. | ots one wildcard character (*) that must Idcards only in OIDs beginning with .1.3 | t appear at the 3.6.1.4 (private | | You configure actions want to automatically an action. | to automatically open a trouble ti actions are disat | run at any poin cket, send emai bled until you cl | t in the Incident I, or page your n ick Enabled and | lifecycle. For exa network operator. I Save this form. | ample, when ar . NNMi suppor | n Incident is g ts running a | generate Jython 1 | d (Registered ile, executable | l), you m e, or scriț |
| SNMP Object ID | .1.3.6.1.2.1.15.0.1 | | | | | | | | | | | | | |
| Enabled Root Cause | | | | | Lifecycle Transit | ion Actions | | | | | | | | |
| Category | Status | | ▽ 🗊 ▼ | | * 🖬 🕄 | | | | | | | • • | 1-1 of 1 | × N |
| * Family | Node | | ▽ 🚮 🔻 | | Lifect Command | vpe Command cuta /var/opt/O | V/shared/nnm/ | actions/bigIPAc | tion.ksh \$name \$ | Ssnn | | | | |
| Severity | Normal 🛡 | | | | L | | | | | | | | | |
| Specify how the Incide the message use S(va Custom Incident attrib | nt message appear: riable_name). Select utes. For more infor | s in the Incident view. To include Incide these variables from a set of valid para mation, click here. | ent information in ameters or | | | | | | | | | | | |
| Message Format | | | | | | | | | | | | | | |
| bigipAgentStart | | | | | | | | | | | | | | |
| Description | | | | | | | | | | | | | | |
| An indication that th | e agent has started | running. | | | | | | | | | | | | |
| Author | Customer | | ▽ 🚰 🔻 | \sim | | | | Total: 1 | Selected | :1 F | Filter: OFF | | Aut | to refrest |

Figure 26: SNMP Trap Configuration: Actions

6. Dump the configuration again with the action added.

nnmincidentcfgdump.ovpl -dump bigipAgentStart_after.tag -oid .1.3.6.1.4.1.3375.2.4.0.1 Starting a user transaction with a timeout of: 3,600 seconds.

Here is the file it created with the newly added lines highlighted. Notice the relatively simple format that was added.

cat bigipAgentStart_after.tag

*ConfigurationType=SnmpTrapConfig

```
*Name bigipAgentStart
*0id . 1. 3. 6. 1. 4. 1. 3375. 2. 4. 0. 1
-Author
        -Key com. customer. author
-Category
        -Key com. hp. nms. incident. category. Status
-Enable true
-ActionConfiguration
        -Enable true
        -Actions
                -Action
                         -Command /var/opt/OV/shared/nnm/actions/bigIPAction.ksh $name $snn
                         -CommandType SCRIPT_OR_EXECUTABLE
                         -LifecycleState Registered
        -DampenConfiguration
                -Enable false
                -HourInterval 0
                -MinuteInterval 0
                -SecondInterval 0
        -DedupConfiguration
                -ComparisonCriteria NAME
                -DedupCount 2
                -Enable false
                -HourInterval 0
                -MinuteInterval 0
                -SecondInterval 0
-Description An indication that the agent has started running.
-Family
        -Key com. hp. nms. incident. family. Node
-GeoCentralForwardConfiguration
        -Enable false
-MessageFormat bigipAgentStart
-Severity NORMAL
-EnrichConfiguration
        -Enable false
-SuppressConfiguration
        -Enable false
-RateConfiguration
        -ComparisonCriteria NAME
        -Enable false
        -HourInterval 0
        -MinuteInterval 0
        -RateCount 0
        -SecondInterval 0
-UserRootCause false
```

 Now that you have learned the format of the lines you must add, dump all 134 traps. You can dump the whole family of traps using an OID wildcard .1.3.6.1.4.1.3375.*.

nnmincidentcfgdump.ovpl -dump bigip_before.tag -oid .1.3.6.1.4.1.3375.* Starting a user transaction with a timeout of: 3,600 seconds.

8. Edit this file and add the highlighted lines to all the traps. Save the file as bigip_after.tag, and then load this file into NNMi using nnmincidentcfgload. ovpl as shown.

nnmincidentcfgload.ovpl -load bigip_after.tag Translated: 134 configurations, now attempting import. Starting a user transaction with a timeout of: 3,600 seconds.

9. Go to any of the BIG-IP traps in the NNMi console and notice that the action has been added.

| <u>File </u> <u>V</u> iew <u>T</u> | ools A <u>c</u> tions <u>H</u> elp | | | | | | | | User | Name: syste | m NNMi Role: Administrator | Log Out |
|--|---|---|----------------|---|---|--|---|--|---------------------|-------------------------------|--|----------------------|
| SNMP Trap Configur | stions × SNMP Trap Configuration * × | | | | | | | | | | | |
| | | | | | | | · · · · · | | r | | | |
| Basics | | ^ | < | Node Settings | Suppression | Enrichment | Dampening | Deduplication | Rate | Actions | Forward to Global Managers | $>$ \checkmark |
| For information about | t troubleshooting Incidents, click here. | | | • | | | | | | \square | | |
| Name The SNMP Object ID end of the OID specif MIBs). Click here for | bigipBladeOffline (OID) attribute accepts one wildcard character (*) that must appear at the ied. NNMi permits wildcards only in OIDs beginning with .1.3.6.1.4 (private nore information. | | Yo wa an | u configure actions nt to automatically action. <u>te: Your configurer</u> nabled | to automatically open a trouble t factions are disa | run at any poir icket, send ema bled until you c | nt in the Incident il, or page your r click Enabled and | lifecycle. For exa network operator. Save this form. | mple, wh NNMi su | en an Incider pports runni | nt is generated (Registered), yo ng a Jython file, executable, or s | u might script as |
| SNMP Object ID | .1.3.6.1.4.1.3375.2.4.0.90 | | | | | | | | | | | |
| Enabled | | | | Lifecycle Transi | ition Actions | | | | | | | |
| Root Cause | | | | | 6 (≏ | | | | | | | |
| Category | Status 🗸 🖬 🗸 | | | Lifer Command | Type Command | | | | | | N N 1-1011 | |
| Family | Node 🗢 🖬 🕶 | | | ScriptOrEx | ecuta /var/opt/0 | V/shared/nnm | /actions/bigIPA | tion.ksh \$name \$ | snn | | | |
| Severity | Normal 🗸 | | 5 | | | | | | _ | 1 | | |
| Specify how the Incid the message use \$(v Custom Incident attri | ent message appears in the incident view. To include incident information is ariable_name). Select these variables from a set of valid parameters or butes. For more information, click here. | 1 | | | | | | | | | | |
| Message Format | | | | | | | | | | | | |
| bigipBladeOffline | | | | | | | | | | | | |
| Description | | | | | | | | | | | | |
| A blade has failed - | offline. | | | | | | | | | | | |
| Variables: | | | | | | | | | | | | |
| 1:igipNotifyObjMsg | | | | | | | | | | | | |
| Syntax:TEXTUAL_C | ONVENTION | | | | | | Total: 1 | Selected | 1 | Filter: O | FF Auto refi | resh: OFF |
| Description: The ad | difional information about the related hofification. | * | | | | | | | | | | |

Figure 27: SNMP Trap Configuration: Action Added

You have now added an action to all 134 traps at one time.

If you wanted to revert back to the earlier configuration, there are two ways you could do this. First, you could import the configuration snapshot that you took earlier as shown here:

nnmconfigimport.ovpl -f incident.xml We have sorted the list like: incident, Successfully imported incident.xml.

Or you could load the configuration of the earlier file, which represents the traps before you made your modifications:

nnmincidentcfgload.ovpl -load bigip_before.tag Translated: 134 configurations, now attempting import. Starting a user transaction with a timeout of: 3,600 seconds.

We appreciate your feedback!

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Product name and version: NNMi 10.30

Document title: Step-by-Step Guide to Pairwise and Batch Incident Configuration

Feedback:



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