

## Chapter 1

# Configuring SNMP Traps

This chapter describes how to configure SNMP trap destinations on virtual routers within the NMC-RX application.

This chapter contains the following sections:

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### Overview

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A trap destination defines which host to send SNMP traps to when certain conditions apply. You can create a trap destination model or template that contains default parameters for trap destinations. You can then associate this model with one or more virtual routers.

The trap destination default parameters can be used across many virtual routers over multiple devices. The default parameters you select should be appropriate to the needs of the virtual router(s) with which you are associating the trap destination. A virtual router on a device is capable of configuring up to eight trap destination hosts.

By modeling trap destination hosts, you can see how many of your E-series devices are configured to send SNMP traps to a specific host. Also, when you use trap destination models, you can share common parameters for a host with multiple virtual routers on many E-series devices.

### References

For more detailed information, see:

- *Chapter 3, Configuring Virtual Routers*
- *JUNOS System Basics Configuration Guide, Chapter 3, Configuring SNMP*

## Configuration Tasks

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Complete the trap destination tasks in this sequence:

1. Create a trap destination.
2. Add or remove a device associated with a virtual router.
3. Configure an existing trap destination.
4. View trap destination statistics.

### Creating a Trap Destination

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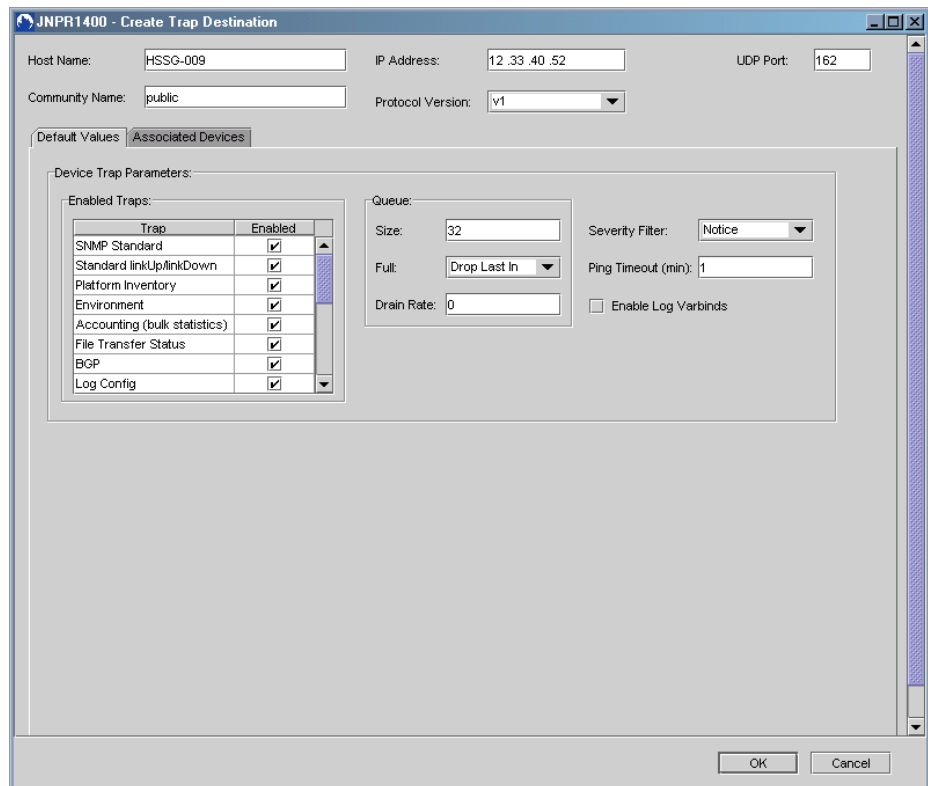
You can create trap destinations from either the Network Workshop or the Device Workshop. From the Create Trap Destination dialog box, you can set default values and associate device parameters. There are two tabs in the Create Trap Destination dialog box: Default Values and Associated Devices.

- **Default Values tab**—From this tab, you set the default values to be used on the initial association of a trap destination with an E-series device. You can modify these values on a per-device level when you associate the destination host with an E-series device.
- **Associated Devices tab**—From this tab, you associate a trap destination with any E-series device's virtual router that does not yet have the maximum number of trap destinations associated with it. The Associated Device parameters are populated with the currently selected device from the device table. These values are not configurable.
  - **Add/Remove Devices dialog box**—From this dialog box, you make selections of available devices and virtual routers that you want to associate with the trap destination. The Host Name, IP Address, UDP Port, Community Name, and Protocol Version parameters are populated with the currently selected trap destination values. These values are not configurable. The device trap parameters are populated with the values for the virtual router you select.

To create a trap destination:

1. From the Device-wide Explorer, click Trap Destinations.
2. Right-click, and click Create Trap Destinations.

The Create Trap Destination dialog box appears.



3. Set the trap destination parameters (Table 4).

**Table 4: Trap Destination Parameters**

Field	Description
Host Name	Name of trap destination host; 32 alphanumeric characters (maximum); cannot be left blank; spaces are allowed
IP Address	Valid IP address of the authorized SNMP trap recipient
UDP Port	UDP port to which traps will be sent; range 1–65535; default 162
Community Name	SNMP community name to be used in traps sent to this destination; 31 alphanumeric characters (maximum); default: “public”
Protocol Version	Format of the SNMP trap PDU to be sent to this trap destination Options: <ul style="list-style-type: none"> <li>■ v1—Default; SNMPv1 (defined in RFC 1157)</li> <li>■ v2c—SNMPv2c (community-based SNMPv2, defined in RFC 1901 and RFC 1905)</li> <li>■ v3—SNMPv3 (compliant with RFCs 2570–2575)</li> </ul>

**Table 4: Trap Destination Parameters (continued)**

Field	Description
<b>Default Values</b>	
Enabled Traps	<p>Bit mask designating the specific trap types enabled for transmission to this trap destination. Up to 19 traps can be enabled. Default: all bits are selected.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>■ SNMP Standard</li> <li>■ Standard linkUplinkDown</li> <li>■ Platform Inventory</li> <li>■ Environment</li> <li>■ Accounting (bulk statistics)</li> <li>■ File Transfer Status</li> <li>■ BGP</li> <li>■ Log Config</li> <li>■ CLI Security</li> <li>■ Ping</li> <li>■ OSPF</li> <li>■ TraceRoute</li> <li>■ Standard DVMRP</li> <li>■ Proprietary DVMRP</li> <li>■ Local AddrPool</li> <li>■ ATM Ping</li> <li>■ VRRP</li> <li>■ SONET</li> <li>■ NTP</li> </ul>
Size	Maximum number of traps to be kept in the queue; range 32–2147483647; default 32
Full	Method for handling Queue-Full condition; options: Drop Last In (default), Drop First In
Drain Rate	Maximum number of traps per second to be sent to this host. Value of 0 indicates that there is no control over the drain rate; range 0–2147483647; default 0
Severity Filter	<p>Minimum severity value that an SNMP trap must have to be forwarded to this host. A trap is discarded if its security level is less than the value of this filter.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>■ Emergency—System unusable</li> <li>■ Alert—Immediate action needed</li> <li>■ Critical—Critical conditions exist</li> <li>■ Error—Error conditions exist</li> <li>■ Warning—Warning conditions exist</li> <li>■ Notice—Normal but significant conditions exist</li> <li>■ Informational—Informational messages (default)</li> <li>■ Debug—Debug messages</li> </ul>

**Table 4: Trap Destination Parameters (continued)**

Field	Description
Ping Timeout	Number of minutes that this host is pinged repeatedly; range 0–90; default 1
Enable Log Varbinds	(Optional) Configures the associated SNMP agent to include notification log name and the corresponding log index as part of the trap messages sent to this host. Options: Enable or Disable (default)

- Click the Associated Devices tab.

- Click the Add/Remove Device button.

The Add/Remove Devices dialog box appears. See *Related Dialog Box* on page 8 for information about adding or removing devices.

- After adding a device in the Add/Remove Devices dialog box, select a device in the Associated Devices list.

The Devices Properties parameters are populated with the System Name, Device IP Address, Virtual Router, and System Type of the currently selected device in the Associated Devices list.

- (Optional) Modify the Device Properties attributes (Table 4).
- Click OK.

## Related Dialog Box

The Add/Remove Devices dialog box appears when you select the Add/Remove Device button on the Associated Devices tab of the Create Trap Destination dialog box. Use it to add or remove a virtual router.

The screenshot shows the 'Add/Remove Devices' dialog box. It is divided into several sections:

- Trap Destination Properties:** Host Name: HSSG-009, IP Address: 12.33.40.52, UDP Port: 162, Community Name: public, Protocol Version: v1.
- Available Virtual Routers:** A table with columns Node Name, IP Address, and Type. One entry is visible: JNPR1400, 10.6.129.203, ERX-700.
- Selected Virtual Routers:** A table with columns System Name, IP Address, and Virtual Router. One entry is visible: JNPR1400, 10.6.129.203, CDB-888.
- Device Properties:** System Name: JNPR1400, System IP Address: 10.6.129.203, Virtual Router: CDB-888, System Type: ERX-700.
- Device Trap Parameters:**
  - Enabled Traps:** A table with columns Trap and Enabled. Traps include SNMP Standard, Standard linkUp/linkDown, Platform Inventory, Environment, Accounting (bulk statistics), File Transfer Status, BGP, and Log Config, all with 'Enabled' checked.
  - Queue:** Size: 32, Full: Drop Last In, Drain Rate: 0.
  - Severity Filter:** Notice.
  - Ping Timeout (min):** 1.
  - Enable Log Verbinds.

**Add/Remove Devices** To add a virtual router:

1. From the Available Virtual Routers list, select a system name.

All virtual routers associated with that device appear in the Virtual Router Name list.

2. From the Virtual Router Name list, select the virtual router you want to associate with that device.

The Device Properties fields are populated with the values associated with the virtual router you selected.

3. (Optional) Modify values in the Device Properties fields.

4. Click Add.

The virtual router you selected appears in the Selected Virtual Routers list. The Device Properties fields are populated with the values that are associated with the selected virtual router.

5. Repeat Steps 1–4 for each virtual router that you want to associate with the trap destination.
6. Click Close.

The values pertaining to the virtual router you selected are entered in the Associated Devices fields.

To remove a virtual router:

1. From the Selected Virtual Routers list, select a virtual router.
2. Click Remove.

The virtual router is removed from the Selected Virtual Routers list.

3. Repeat Steps 1 and 2 for each virtual router that you want to remove.
4. Click Close.

To remove all virtual routers:

1. Click Remove All.

All virtual routers are deleted from the Selected Virtual Routers list.

2. Click Close.

## Viewing Trap Statistics

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The NMC-RX application allows you to view and monitor information about trap destinations that are associated with a virtual router.

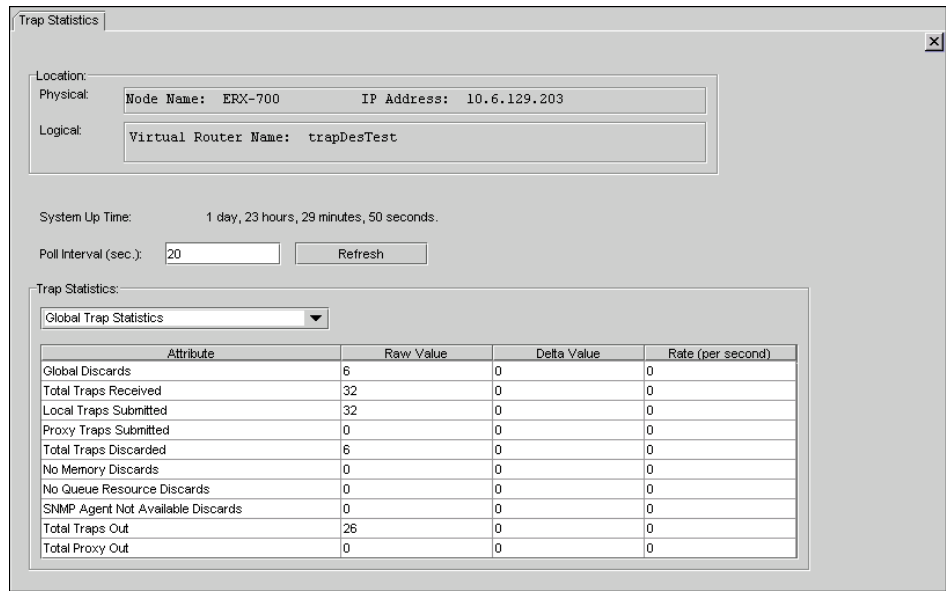
To view statistics:

1. From the Device-wide Explorer, select Virtual Routers.
2. Right-click, and click List All.

A list of all virtual routers appears in the list area.

3. From the list, select the virtual router for which you want to view statistics, right-click, and click Trap Statistics.

The Trap Statistics tab appears. See Table 5 for descriptions.



**Table 5: Global Trap Statistics Attributes**

Attribute	Description
Global Discards	Number of trap requests that were discarded
Total Traps Received	Total number of trap requests that this device has received
Local Traps Submitted	Number of local traps submitted to this device
Proxy Traps Submitted	Number of proxy traps submitted to this device
Total Traps Discarded	Number of proxy traps submitted to this agent, but discarded
No Memory Discards	Number of trap requests that were discarded due to lack of system memory
No Queue Resource Discards	Number of trap requests that were discarded due to no queue resources
SNMP Agent Not Available Discards	Number of trap requests that were discarded due to SNMP agent being disabled
Total Traps Out	Total number of trap requests sent to every host that is configured to receive traps from this device
Total Proxy Out	Total number of trap requests sent to the proxy virtual router

To view trap statistics for a specific virtual router:

- From the Trap Statistics drop-down list, select a trap destination.

The trap statistics associated with the trap destination host appear. See Table 6 for attribute descriptions.

The screenshot shows a configuration window with the following fields and data:

- Location:**
  - Physical: Node Name: JNPR1400, IP Address: 10.6.129.203
  - Logical: Virtual Router Name: VR-999333
- System Up Time: 1 day, 0 hours, 44 minutes, 18 seconds.
- Poll Interval (sec.): 20 (with a Refresh button)
- Trap Statistics: MJT888 (selected from a dropdown)

Attribute	Raw Value	Delta Value	Rate (per second)
Sends	0	0	0
Discards	0	0	0
Bad Encoding Discards	0	0	0
Queue Full Discards	0	0	0
No Response Discards	0	0	0

**Table 6: Trap Destination Statistics Attributes**

Attribute	Description
Sends	Number of traps submitted for transmission to this trap destination
Discards	Total number of trap requests to this host that were discarded
Bad Encoding Discards	Total number of trap requests to this trap destination that were discarded due to bad encoding
Queue Full Discards	Total number of trap requests to this trap destination that were discarded due to a full queue
No Response Discards	Total number of trap requests to this trap destination that were discarded due to an unavailable trap

