

## Understanding How to Use sFlow Technology for Network Monitoring on an EX-series Switch

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sFlow technology is a monitoring technology for high-speed switched or routed networks. sFlow monitoring technology randomly samples network packets and sends the samples to a monitoring station. You can configure sFlow technology on an EX-series switch to continuously monitor traffic at wire speed on all interfaces simultaneously.

sFlow technology has the following two sampling mechanisms:

- Packet-based sampling: Samples one packet out of a specified number of packets from an interface enabled for sFlow technology.
- Time-based sampling: Samples interface statistics at a specified interval from an interface enabled for sFlow technology.

The sampling information is used to create a network traffic visibility picture. JUNOS software fully supports the sFlow version 5 standard described at [sFlow.org](http://www.sflow.org) (see [www.sflow.org](http://www.sflow.org)).



**NOTE:** sFlow technology on EX-series switches samples only raw packet headers. A raw Ethernet packet is the complete Layer 2 network frame.

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An sFlow monitoring system consists of an sFlow agent embedded in the switch and a centralized collector. The sFlow agent's two main activities are random sampling and statistics gathering. It combines interface counters and flow samples and sends them across the network to the sFlow collector.

EX-series switches adopt the distributed sFlow architecture. The sFlow agent has two separate sampling entities that are associated with each packet forwarding engine. These sampling entities are known as subagents. Each subagent has a unique ID that is used by the collector to identify the data source. A subagent has its own independent state and forwards its own sample messages to the sFlow agent. The sFlow agent is responsible for packaging the samples into datagrams and sending them to the sFlow collector. Since sampling is distributed across subagents, the protocol overheads associated with sFlow are significantly reduced at the collector. If the mastership assignment changes in a Virtual Chassis setup, sFlow technology continues to function.



**NOTE:** JUNOS software on EX-series switches supports sFlow version 5.

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The sFlow collector uses the sFlow agent's IP address to determine the source of the sFlow data. The IP address assigned to the agent is based on the following order of priority of interfaces configured on the switch:

1. Virtual Management Ethernet (VME) interface

## 2. Management Ethernet interface

If any of the above interfaces have not been configured, the IP address of any Layer 3 interface or the routed VLAN (RVI) interface is used as the IP address for the agent. At least one interface must be configured for an IP address to be assigned to the agent.

sFlow data can be used to provide network traffic visibility information. Infrequent sampling flows are not reported in the sFlow information, but over time the majority of flows are reported. Based on a defined sampling rate, 1 out of  $N$  packets is captured and sent to the collector. This type of sampling does not provide a 100 percent accurate result in the analysis, but it does provide a result with quantifiable accuracy. A polling interval defines how often the sFlow data for a specific interface are sent to the collector, but an sFlow agent is free to schedule polling.

- Related Topics**
- Example: Configuring sFlow Technology to Monitor Network Traffic on EX Series Switches
  - Configuring sFlow Technology for Network Monitoring (CLI Procedure)
  - Monitoring Interface Status and Traffic

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