IP Traffic Export

Last Updated: January 18, 2012

The IP Traffic Export feature allows users to configure their router to export IP packets that are received on multiple, simultaneous WAN or LAN interfaces. The unaltered IP packets are exported on a single LAN or VLAN interface, thereby, easing deployment of protocol analyzers and monitoring devices in the following ways:

- Filter copied packets through an access control list (ACL)
- Filter copied packets through sampling, which allows you to export one in every few packets in which you are interested. Use this option when it is not necessary to export all incoming traffic. Also, sampling is useful when a monitored ingress interface can send traffic faster than the egress interface can transmit it.
- Configure bidirectional traffic on an interface. (By default, only incoming traffic is exported.)

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

Restrictions for IP Traffic Export

Platform Restriction

IP traffic export is intended only for software switching platforms; distributed architectures are not supported.

IP Packet Forwarding Performance Impact

When IP traffic export is enabled, a delay is incurred on the outbound interface when packets are captured and transmitted across the interface. Performance delays increase with the increased number of interfaces that are monitored and the increased number of destination hosts.

Exported Traffic Limitation

- The MAC address of the device that is receiving the exported traffic must be on the same VLAN or directly connected to one of the router interfaces. (Use the **show arp** command to determine the MAC address of device that is directly connected to an interface.)
- The outgoing interface for exported traffic must be Ethernet (10/100/1000). (Incoming (monitored) traffic can traverse any interface.)

Information About IP Traffic Export

Simplified IDS Deployment

Without the ability to export IP traffic, the Intrusion Detection System (IDS) probe must be inline with the network device to monitor traffic flow. IP traffic export eliminates the probe placement limitation, allowing users to place an IDS probe in any location within their network or direct all exported traffic to a VLAN that is dedicated for network monitoring. Allowing users to choose the optimal location of their IDS probe reduces processing burdens.

Also, because packet processing that was once performed on the network device can now be performed away from the network device, the need to enable IDS with the Cisco IOS software can be eliminated.

IP Traffic Export Profiles

All packet export configurations are specified through IP traffic export profiles, which consist of IP-traffic-export-related command-line interfaces (CLIs) that control various attributes for both incoming and outgoing exported IP traffic. You can configure a router with multiple IP traffic export profiles. (Each profile must have a different name.) You can apply different profiles on different interfaces.

The two different IP traffic export profiles are as follows:

- The global configuration profile, which is configured through the **ip traffic-export profile** command.

- The IP traffic export submode configuration profile, which is configured through any of the following router IP Traffic Export (RITE) commands--**bidirectional**, **incoming**, **interface**, **mac-address**, and **outgoing**.

How to Use IP Traffic Export

Configuring IP Traffic Export

Use this task to configure IP traffic export profiles, which enable IP traffic to be exported on an ingress interface and allow you to specify profile attributes, such as the outgoing interface for exporting traffic.

Note Packet exporting is performed before packet switching or filtering.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip traffic-export profile** *profile-name*
4. **interface** *interface-name*
5. **bidirectional**
6. **mac-address** *H.H.H*
7. **incoming** {**access-list**{*standard* | *extended* | *named*} | **sample one-in-every** *packet-number*}
8. **outgoing** {**access-list**{*standard* | *extended* | *named*} | **sample one-in-every** *packet-number*}
9. **exit**
10. **interface** *type number*
11. **ip traffic-export apply** *profile-name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

Step 3	**ip traffic-export profile** *profile-name*
	
	Example:
	`Router(config)#`
	`ip traffic-export profile my_rite`
		Creates or edits an IP traffic export profile, enables the profile on an ingress interface, and enters RITE configuration mode.

Step 4	**interface** *interface-name* **Example:** `Router(config-rite)# interface FastEthernet 0/1`	Specifies the outgoing (monitored) interface for exported traffic. **Note** If you do not issue this command, the profile does not recognize the interface on which to send the captured IP traffic.
Step 5	**bidirectional** **Example:** `Router(config-rite)# bidirectional`	(Optional) Exports incoming and outgoing IP traffic on the monitored interface. **Note** If this command is not enabled, only incoming traffic is exported.
Step 6	**mac-address** *H.H.H* **Example:** `Router(config-rite)# mac-address 00a.8aab.90a0`	Specifies the 48-bit address of the destination host that is receiving the exported traffic. **Note** If you do not issue this command, the profile does not recognize a destination host on which to send the exported packets.
Step 7	**incoming** {**access-list**{*standard* | *extended* | *named*} | **sample one-in-every** *packet-number*} **Example:** `Router(config-rite)# incoming access-list my_acl`	(Optional) Configures filtering for incoming traffic. After you have created a profile through the **ip traffic-export profile,**this functionality is enabled by default.

	Command or Action	Purpose
Step 8	**outgoing** {**access-list**{*standard* | *extended* | *named*} | **sample one-in-every** *packet-number*} **Example:** `Router(config-rite)# outgoing sample one-in-every 50`	(Optional) Configures filtering for outgoing export traffic. **Note** If you issue this command, you must also issue the **bidirectional** command, which enables outgoing traffic to be exported. However, only routed traffic (such as passthrough traffic) is exported; that is, traffic that originates from the network device is not exported.
Step 9	**exit**	Exits RITE configuration mode.
Step 10	**interface** *type number* **Example:** `Router(config)# interface FastEthernet0/0`	Configures an interface type and enters interface configuration mode.
Step 11	**ip traffic-export apply** *profile-name* **Example:** `Router(config-if)# ip traffic-export apply my_rite`	Enables IP traffic export on an ingress interface.

- Troubleshooting Tips, page 5
- What to Do Next, page 6

Troubleshooting Tips

Creating an IP Traffic Export Profile

The **interface** and **mac-address** commands are required to successfully create a profile. If these commands are not issued, then the following profile incomplete message is displayed in the **show running config** command output:

```
ip traffic-export profile newone
! No outgoing interface configured
! No destination mac-address configured
```

Applying an IP Traffic Export Profile to an interface

The following system logging messages should appear immediately after you activate and deactivate a profile from an interface (through the **ip traffic-export apply profile** command):

- Activated profile:

```
%RITE-5-ACTIVATE: Activated IP traffic export on interface FastEthernet 0/0.
```

- Deactivated profile:

```
%RITE-5-DEACTIVATE: Deactivated IP traffic export on interface FastEthernet 0/0.
```

If an incomplete profile is applied to an interface, the following message displays:

```
Router(config-if)# ip traffic-export apply newone
RITE: profile newone has missing outgoing interface
```

What to Do Next

After you have configured a profile and enabled the profile on an ingress interface, you can monitor IP traffic exporting events and verify your profile configurations. To complete these steps, refer to the following task "Displaying IP Traffic Export Configuration Data, page 6."

Displaying IP Traffic Export Configuration Data

This task allows you to verify IP traffic export parameters such as the monitored ingress interface, which is where the IP traffic is exported, and outgoing and incoming IP packet information, such as configured ACLs. You can also use this task to monitor packets that are captured and then transmitted across an interface to a destination host. Use this optional task to help you troubleshoot any problems with your exported IP traffic configurations.

SUMMARY STEPS

1. **enable**
2. **debug ip traffic-export events**
3. **show ip traffic-export** [**interface** *interface-name*| **profile** *profile-name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**debug ip traffic-export events** **Example:** `Router# debug ip traffic-export events`	Enables debugging messages for exported IP traffic packets events.
Step 3	**show ip traffic-export** [**interface** *interface-name*| **profile** *profile-name* **Example:** `Router# show ip traffic-export`	Displays information related to exported IP traffic events. • **interface** *interface-name* --Only data associated with the monitored ingress interface is shown. • **profile** *profile-name* --Only flow statistics, such as exported packets and the number of bytes, are shown.

Example

The following sample output from the **show ip traffic-export**command is for the profile “one.” This example is for a single, configured interface. If multiple interfaces are configured, the information shown below is displayed for each interface.

```
Router# show ip traffic-export
```

Router IP Traffic Export Parameters

Monitored Interface FastEthernet0/0

Export Interface FastEthernet0/1

Destination MAC address 0030.7131.abfc

bi-directional traffic export is off

Input IP Traffic Export Information Packets/Bytes Exported 0/0

Packets Dropped 0

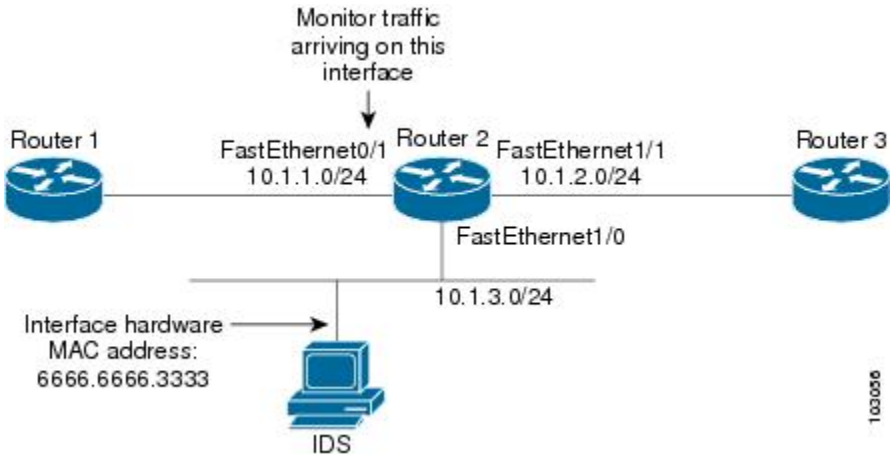
Sampling Rate one-in-every 1 packets

```
No Access List configured
Profile one is Active
```

Configuration Examples for IP Traffic Export

Example Exporting IP Traffic Configuration

The figure below and the following the **show running-config** command output describes how to configure Router 2 to export the incoming traffic from Router 1 to IDS.




```
Router2# show running-config
Building configuration...
Current configuration :2349 bytes
! Last configuration change at 20:35:39 UTC Wed Oct 8 2003
```

```
! NVRAM config last updated at 20:35:39 UTC Wed Oct 8 2003
!
version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
service internal
service udp-small-servers
!
hostname rite-3745
!
boot system flash:c3745-js-mz.123-1.8.PI2d
no logging console
enable password lab
!
no aaa new-model
ip subnet-zero
!
no ip domain lookup
!
ip cef
!
ip traffic-export profile my_rite
  interface FastEthernet1/0
  mac-address 6666.6666.3333
!
interface FastEthernet0/0
 ip address 10.0.0.94 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 10.1.1.2 255.255.255.0
 duplex auto
 speed auto
 ip traffic-export apply my_rite
!
interface FastEthernet1/0
 ip address 10.1.3.2 255.255.255.0
 no ip redirects
 no cdp enable
!
interface FastEthernet1/1
 ip address 10.1.2.2 255.255.255.0
 duplex auto
 speed auto
!
router ospf 100
 log-adjacency-changes
 network 10.1.0.0 0.0.255.255 area 0
!
ip http server
ip classless
!
snmp-server engineID local 0000000902000004C1C59140
snmp-server community public RO
snmp-server enable traps tty
!
control-plane
!
dial-peer cor custom
!
gateway
!
line con 0
 exec-timeout 0 0
 stopbits 1
line aux 0
line vty 0 4
 password lab
 login
!
ntp clock-period 17175608
```

```
ntp server 10.0.0.2
!
end
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
Configuring IDS	" Configuring Cisco IOS Firewall Intrusion Detection System " feature module.

Standards

Standard	Title
None	--

MIBs

MIBs	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
None	--

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for IP Traffic Export

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1 Feature Information for IP Traffic Export

Feature Name	Releases	Feature Information
IP Traffic Export	12.3(4)T 12.2(25)S	The IP Traffic Export feature allows users to configure their router to export IP packets that are received on multiple, simultaneous WAN or LAN interfaces. The unaltered IP packets are exported on a single LAN or VLAN interface, thereby, easing deployment of protocol analyzers and monitoring devices. This feature was introduced in Cisco IOS Release 12.3(4)T. This feature was integrated into Cisco IOS Release 12.2(25)S. The following commands were introduced or modified: **bidirectional**, **debug ip traffic-export events**, **incoming**, **interface (RITE)**, **ip traffic-export apply**, **ip traffic-export profile**, **mac-address (RITE)**, **outgoing**, **show ip traffic-export**