IP Traffic Export

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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 for IP Traffic Export” section on page 10.

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

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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, page 2
- IP Traffic Export Profiles, page 2

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, page 3
- Displaying IP Traffic Export Configuration Data, page 5

### 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

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong> enable</td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Router&gt; enable</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong> configure terminal</td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Router# configure terminal</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong> <code>ip traffic-export profile profile-name</code></td>
<td>Creates or edits an IP traffic export profile, enables the profile on an ingress interface, and enters RITE configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Router(config)# ip traffic-export profile my_rite</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong> <code>interface interface-name</code></td>
<td>Specifies the outgoing (monitored) interface for exported traffic.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td></td>
</tr>
<tr>
<td>If you do not issue this command, the profile does not recognize the interface on which to send the captured IP traffic.</td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-rite)# interface FastEthernet 0/1</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 5</strong> <code>bidirectional</code></td>
<td>(Optional) Exports incoming and outgoing IP traffic on the monitored interface.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td></td>
</tr>
<tr>
<td>If this command is not enabled, only incoming traffic is exported.</td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-rite)# bidirectional</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 6</strong> <code>mac-address H.H.H</code></td>
<td>Specifies the 48-bit address of the destination host that is receiving the exported traffic.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td></td>
</tr>
<tr>
<td>If you do not issue this command, the profile does not recognize a destination host on which to send the exported packets.</td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-rite)# mac-address 00a.8aab.90a0</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 7</strong> `incoming {access-list {standard</td>
<td>extended</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-rite)# incoming access-list my_acl</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 8</strong> `outgoing {access-list {standard</td>
<td>extended</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td></td>
</tr>
<tr>
<td>If you issue this command, you must also issue the <code>bidirectional</code> 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.</td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Router(config-rite)# outgoing sample one-in-every 50</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 9</strong> exit</td>
<td>Exits RITE configuration mode.</td>
</tr>
</tbody>
</table>
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:

```
%RITE-5-ACTIVATE: Activated IP traffic export on interface FastEthernet0/0.
```

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” section on page 5.”

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

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 enable</td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td>Example: Router&gt; enable</td>
<td>• Enter your password if prompted.</td>
</tr>
<tr>
<td>Step 2 debug ip traffic-export events</td>
<td>Enables debugging messages for exported IP traffic packets events.</td>
</tr>
<tr>
<td>Example: Router# debug ip traffic-export events</td>
<td></td>
</tr>
<tr>
<td>Step 3 show ip traffic-export [interface interface-name</td>
<td>profile profile-name]</td>
</tr>
<tr>
<td>Example: Router# show ip traffic-export</td>
<td>• interface interface-name—Only data associated with the monitored ingress interface is shown.</td>
</tr>
<tr>
<td></td>
<td>• profile profile-name—Only flow statistics, such as exported packets and the number of bytes, are shown.</td>
</tr>
</tbody>
</table>

Examples

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, page 7
Example: Exporting IP Traffic Configuration

Figure 1 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.PT2d
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

<table>
<thead>
<tr>
<th>Related Topic</th>
<th>Document Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco IOS commands</td>
<td>Cisco IOS Master Commands List, All Releases</td>
</tr>
<tr>
<td>Configuring IDS</td>
<td>“Configuring Cisco IOS Firewall Intrusion Detection System” feature module.</td>
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Standards

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MIBs

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<th>MIBs</th>
<th>MIBs Link</th>
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<tr>
<td>None</td>
<td>To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a></td>
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RFCs

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<th>Title</th>
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Technical Assistance

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<th>Description</th>
<th>Link</th>
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<tr>
<td>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.</td>
<td><a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a></td>
</tr>
</tbody>
</table>
Feature Information for IP Traffic Export

Table 1 lists the release history for this feature.

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Note Table 1 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.

### Table 1 Feature Information for IP Traffic Export

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Releases</th>
<th>Feature Information</th>
</tr>
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<tbody>
<tr>
<td>IP Traffic Export</td>
<td>12.3(4)T</td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>12.2(25)S</td>
<td></td>
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