



## VPP Metric Enhancement

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### Feature Summary and Revision History

#### Summary Data

Applicable Product(s) or Functional Area	P-GW
Applicable Platform(s)	<ul style="list-style-type: none"> <li>• ASR 5500</li> <li>• VPC-DI</li> </ul>
Feature Default	Disabled - Configuration Required
Related Changes in This Release	Not Applicable
Related Documentation	<ul style="list-style-type: none"> <li>• <i>P-GW Administration Guide</i></li> <li>• <i>Statistics and Counters Reference - Bulkstatistic Descriptions</i></li> </ul>

#### Revision History

Revision Details	Release
The following enhancements were introduced: <ul style="list-style-type: none"> <li>• Analyzer level statistics (TCP, UDP, P2P, HTTP, HTTPS)</li> <li>• VPP statistics collection using the CLI configuration</li> </ul>	21.25
First introduced.	21.24

## Feature Description

The Vector Packet Processing (VPP) metrics help to analyze and debug the VPP offloaded traffic. This feature applies only to platforms that support VPP.

## Configuring Metrics Collection

Use the following sample configuration to enable or disable metrics collection from VPP for subscriber and rulebase.

```
configure
  active-charging service service_name
    [ no ] statistics-collection { all | vpp }
  end
```

### NOTES:

- **all**: Configures both Ruledef and VPP statistics collection.
- **vpp**: Configures VPP statistics collection.
- **no**: Resets the seed-time value to the default value of 0.
- By default, this CLI is disabled.

## Monitoring and Troubleshooting

This section provides information on how to monitor and troubleshoot this feature using show commands and bulk statistics.

### Show Commands and Outputs

This section provides information regarding show commands and their outputs for this feature.

#### show active-charging rulebase statistics name

The output of this command displays the following fields:

*Table 1: show active-charging rulebase statistics name Command Output Descriptions*

Field	Description
<b>VPP Offload Statistics:</b>	
Total Flows	Total number of flows.
Current Active Flows	Total number of active current flows.

Field	Description
<b>IPv4:</b>	
Uplink Pkts	Total number of IPv4 packets uplinked.
Uplink Bytes	Total number of IPv4 bytes uplinked.
Downlink Pkts	Total number of IPv4 packets downlinked.
Downlink Bytes	Total number of IPv4 bytes downlinked.
Dropped Uplink Pkts	Total number of IPv4 uplink packets discarded.
Dropped Uplink Bytes	Total number of IPv4 uplink bytes discarded.
Dropped Downlink Pkts	Total number of IPv4 downlink packets discarded.
Dropped Downlink Bytes	Total number of IPv4 downlink bytes discarded.
<b>IPv6:</b>	
Uplink Pkts	Total number of IPv6 packets uplinked.
Uplink Bytes	Total number of IPv6 bytes uplinked.
Downlink Pkts	Total number of IPv6 packets downlinked.
Downlink Bytes	Total number of IPv6 bytes downlinked.
Dropped Uplink Pkts	Total number of IPv6 uplink packets discarded.
Dropped Uplink Bytes	Total number of IPv6 uplink bytes discarded.
Dropped Downlink Pkts	Total number of IPv6 downlink packets discarded.
Dropped Downlink Bytes	Total number of IPv6 downlink bytes discarded.

## show active-charging subscribers all

The output of this command displays the following fields.

*Table 2: show active-charging subscribers all Command Output Descriptions*

Field	Description
VPP-PKTS-UP	Total number of packets detected in uplink direction through VPP.
VPP-PKTS-DOWN	Total number of packets detected in downlink direction through VPP.

## show-active-charging subscribers full all

The output of this command is enhanced to display the following fields.

**Table 3: show active-charging subscribers full all Command Output Descriptions**

Field	Description
<b>VPP Offload Statistics: Enabled/Disabled</b>	
Total Flows	Total number of flows.
Current Active Flows	Total number of active current flows.
<b>IPv4:</b>	
Uplink Pkts	Total number of IPv4 packets uplinked.
Uplink Bytes	Total number of IPv4 bytes uplinked.
Downlink Pkts	Total number of IPv4 packets downlinked.
Downlink Bytes	Total number of IPv4 bytes downlinked.
Dropped Uplink Pkts	Total number of IPv4 uplink packets discarded.
Dropped Uplink Bytes	Total number of IPv4 uplink bytes discarded.
Dropped Downlink Pkts	Total number of IPv4 downlink packets discarded.
Dropped Downlink Bytes	Total number of IPv4 downlink bytes discarded.
<b>IPv6:</b>	
Uplink Pkts	Total number of IPv6 packets uplinked.
Uplink Bytes	Total number of IPv6 bytes uplinked.
Downlink Pkts	Total number of IPv6 packets downlinked.
Downlink Bytes	Total number of IPv6 bytes downlinked.
Dropped Uplink Pkts	Total number of IPv6 uplink packets discarded.
Dropped Uplink Bytes	Total number of IPv6 uplink bytes discarded.
Dropped Downlink Pkts	Total number of IPv6 downlink packets discarded.
Dropped Downlink Bytes	Total number of IPv6 downlink bytes discarded.

## show active-charging analyzer statistics name

The output of this command displays the following fields. The fields are common for http, secure-http, p2p, tcp, udp.

**Table 4: show active-charging analyzer statistics name Command Output Descriptions**

Field	Description
Total VPP FP Packets	Total number of Fast Path packets through VPP.
<b>VPP Fastpath Statistics:</b>	
Total Flows	Total number of flows.
Current Active Flows	Total number of active current flows.
<b>IPv4:</b>	
Uplink Pkts	Total number of IPv4 packets uplinked.
Uplink Bytes	Total number of IPv4 bytes uplinked.
Downlink Pkts	Total number of IPv4 packets downlinked.
Downlink Bytes	Total number of IPv4 bytes downlinked.
<b>IPv6:</b>	
Uplink Pkts	Total number of IPv6 packets uplinked.
Uplink Bytes	Total number of IPv6 bytes uplinked.
Downlink Pkts	Total number of IPv6 packets downlinked.
Downlink Bytes	Total number of IPv6 bytes downlinked.

## Bulk Statistics

The ECS schema includes the following bulk statistics.

### ECS Schema

**Table 5: Bulk Statistics Variables in the ECS Schema**

Variables	Description
vpp-tot-flows	Indicates total number of flows through VPP.
vpp-cur-flows	Indicates total number of active current flows through VPP.
<b>IPv4</b>	
vpp-IPv4-uplk-pkts	Indicates total number of IPv4 packets detected in uplink direction through VPP.
vpp-IPv4-dwnlk-pkts	Indicates total number of IPv4 packets detected in downlink direction through VPP.

<b>Variables</b>	<b>Description</b>
vpp-IPv4-uplk-bytes	Indicates total number of IPv4 bytes detected in uplink direction through VPP.
vpp-IPv4-dwnlk-bytes	Indicates total number of IPv4 bytes detected in downlink direction through VPP.
vpp-IPv4-uplk-drop-pkts	Indicates the total number of dropped IPv4 packets detected in uplink direction through VPP.
vpp-IPv4-dwnlk-drop-pkts	Indicates the total number of dropped IPv4 packets detected in downlink direction through VPP.
vpp-IPv4-uplk-drop-bytes	Indicates the total number of dropped IPv4 bytes detected in uplink direction through VPP.
vpp-IPv4-dwnlk-drop-bytes	Indicates the total number of dropped IPv4 bytes detected in downlink direction through VPP.
<b>IPv6</b>	
vpp-IPv6-uplk-pkts	Indicates total number of IPv6 packets detected in uplink direction through VPP.
vpp-IPv6-dwnlk-pkts	Indicates total number of IPv6 packets detected in downlink direction through VPP.
vpp-IPv6-uplk-bytes	Indicates total number of IPv6 bytes detected in uplink direction through VPP.
vpp-IPv6-dwnlk-bytes	Indicates total number of IPv6 bytes detected in downlink direction through VPP.
vpp-IPv6-uplk-drop-pkts	Indicates the total number of dropped IPv6 packets detected in uplink direction through VPP.
vpp-IPv6-dwnlk-drop-pkts	Indicates the total number of dropped IPv6 packets detected in downlink direction through VPP.
vpp-IPv6-uplk-drop-bytes	Indicates the total number of dropped IPv6 bytes detected in uplink direction through VPP.
vpp-IPv6-dwnlk-drop-bytes	Indicates the total number of dropped IPv6 bytes detected in downlink direction through VPP.
<b>TCP</b>	
tcp-vpp-flows-cur	Indicates the current number of flows through VPP for TCP analyzer.
tcp-vpp-flows	Indicates the total number of flows through VPP for TCP analyzer.
tcp-vpp-pkts	The total number of IP packets through VPP for TCP analyzer.

<b>Variables</b>	<b>Description</b>
tcp-ipv4-vpp-dwnlk-pkts	Indicates the total number of IP packets detected in downlink direction in IPv4 traffic through VPP for TCP analyzer.
tcp-ipv4-vpp-uplk-pkts	Indicates the total number of IP packets detected in uplink direction in IPv4 traffic through VPP for TCP analyzer.
tcp-ipv4-vpp-dwnlk-bytes	Indicates the total number of IP bytes detected in downlink direction in IPv4 traffic through VPP for TCP analyzer.
tcp-ipv4-vpp-uplk-bytes	Indicates the total number of IP bytes detected in uplink direction in IPv4 traffic through VPP for TCP analyzer.
tcp-ipv6-vpp-dwnlk-pkts	Indicates the total number of IP packets detected in downlink direction in IPv6 traffic through VPP for TCP analyzer.
tcp-ipv6-vpp-uplk-pkts	Indicates the total number of IP packets detected in uplink direction in IPv6 traffic through VPP for TCP analyzer.
tcp-ipv6-vpp-dwnlk-bytes	Indicates the total number of IP bytes detected in downlink direction in IPv6 traffic through VPP for TCP analyzer.
tcp-ipv6-vpp-uplk-bytes	Indicates the total number of IP bytes detected in uplink direction in IPv6 traffic through VPP for TCP analyzer.
<b>UDP</b>	
udp-vpp-flows-cur	Indicates the current number of flows through VPP for UDP analyzer.
udp-vpp-flows	Indicates the total number of flows through VPP for UDP analyzer.
udp-vpp-pkts	Indicates the total number of IP packets through VPP for UDP analyzer.
udp-ipv4-vpp-dwnlk-pkts	Indicates the total number of IPv4 packets detected in downlink direction through VPP for UDP analyzer.
udp-ipv4-vpp-uplk-pkts	Indicates the total number of IPv4 packets detected in uplink direction through VPP for UDP analyzer.
udp-ipv4-vpp-dwnlk-bytes	Indicates the total number of IPv4 bytes detected in downlink direction through VPP for UDP analyzer.
udp-ipv4-vpp-uplk-bytes	Indicates the total number of IPv4 bytes detected in uplink direction through VPP for UDP analyzer.
udp-ipv6-vpp-dwnlk-pkts	Indicates the total number of IPv6 packets detected in downlink direction through VPP for UDP analyzer.
udp-ipv6-vpp-uplk-pkts	Indicates the total number of IPv6 packets detected in uplink direction through VPP for UDP analyzer.
udp-ipv6-vpp-dwnlk-bytes	Indicates the total number of IPv6 bytes detected in downlink direction through VPP for UDP analyzer.
udp-ipv6-vpp-uplk-bytes	Indicates the total number of IPv6 bytes detected in uplink direction through VPP for UDP analyzer.

Variables	Description
<b>HTTP</b>	
http-vpp-flows-cur	Indicates the current number of flows through VPP for HTTP analyzer.
http-vpp-flows	Indicates the total number of flows through VPP for HTTP analyzer.
http-vpp-pkts	Indicates the total number of IP packets through VPP for HTTP analyzer.
http-ipv4-vpp-dwnlk-pkts	Indicates the total number of IPv4 packets detected in downlink direction through VPP for HTTP analyzer.
http-ipv4-vpp-uplk-pkts	Indicates the total number of IPv4 packets detected in uplink direction through VPP for HTTP analyzer.
http-ipv4-vpp-dwnlk-bytes	Indicates the total number of IPv4 bytes detected in downlink direction through VPP for HTTP analyzer.
http-ipv4-vpp-uplk-bytes	Indicates the total number of IPv4 bytes detected in uplink direction through VPP for HTTP analyzer.
http-ipv6-vpp-dwnlk-pkts	Indicates the total number of IPv6 packets detected in downlink direction through VPP for HTTP analyzer.
http-ipv6-vpp-uplk-pkts	Indicates the total number of IPv6 packets detected in uplink direction through VPP for HTTP analyzer.
http-ipv6-vpp-dwnlk-bytes	Indicates the total number of IPv6 bytes detected in downlink direction through VPP for HTTP analyzer.
http-ipv6-vpp-uplk-bytes	Indicates the total number of IPv6 bytes detected in uplink direction through VPP for HTTP analyzer.
<b>Secure-HTTP</b>	
https-vpp-flows-cur	Indicates the current number of flows through VPP for HTTPS analyzer.
https-vpp-flows	Indicates the total number of flows through VPP for HTTPS analyzer.
https-vpp-pkts	Indicates the total number of IP packets through VPP for HTTPS analyzer.
https-ipv4-vpp-dwnlk-pkts	Indicates the total number of IPv4 packets detected in downlink direction through VPP for HTTPS analyzer.
https-ipv4-vpp-uplk-pkts	Indicates the total number of IPv4 packets detected in uplink direction through VPP for HTTPS analyzer.
https-ipv4-vpp-dwnlk-bytes	Indicates the total number of IPv4 bytes detected in downlink direction through VPP for HTTPS analyzer.
https-ipv4-vpp-uplk-bytes	Indicates the total number of IPv4 bytes detected in uplink direction through VPP for HTTPS analyzer.



<b>Variables</b>	<b>Description</b>
https-ipv6-vpp-dwnlk-pkts	Indicates the total number of IPv6 packets detected in downlink direction through VPP for HTTPS analyzer.
https-ipv6-vpp-uplk-pkts	Indicates the total number of IPv6 packets detected in uplink direction through VPP for HTTPS analyzer.
https-ipv6-vpp-dwnlk-bytes	Indicates the total number of IPv6 bytes detected in downlink direction through VPP for HTTPS analyzer.
https-ipv6-vpp-uplk-bytes	Indicates the total number of IPv6 bytes detected in uplink direction through VPP for HTTPS analyzer.
<b>P2P</b>	
p2p-vpp-flows-cur	Indicates the current number of flows through VPP for P2P analyzer.
p2p-vpp-flows	Indicates the total number of flows through VPP for P2P analyzer.
p2p-vpp-pkts	Indicates the total number of IP packets through VPP for P2P analyzer.
p2p-ipv4-vpp-dwnlk-pkts	Indicates the total number of IPv4 packets detected in downlink direction through VPP for P2P analyzer.
p2p-ipv4-vpp-uplk-pkts	Indicates the total number of IPv4 packets detected in uplink direction through VPP for P2P analyzer.
p2p-ipv4-vpp-dwnlk-bytes	Indicates the total number of IPv4 bytes detected in downlink direction through VPP for P2P analyzer.
p2p-ipv4-vpp-uplk-bytes	Indicates the total number of IPv4 bytes detected in uplink direction through VPP for P2P analyzer.
p2p-ipv6-vpp-dwnlk-pkts	Indicates the total number of IPv6 packets detected in downlink direction through VPP for P2P analyzer.
p2p-ipv6-vpp-uplk-pkts	Indicates the total number of IPv6 packets detected in uplink direction through VPP for P2P analyzer.
p2p-ipv6-vpp-dwnlk-bytes	Indicates the total number of IPv6 bytes detected in downlink direction through VPP for P2P analyzer.
p2p-ipv6-vpp-uplk-bytes	Indicates the total number of IPv6 bytes detected in uplink direction through VPP for P2P analyzer.

