



Dataplane Packet Logging

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Information About Dataplane Packet Logging

While onboarding wireless clients, you might encounter problems arising from client IP address allocation, Address Resolution Protocol (ARP) resolution, and so on, which require debugging. For rapid debugging of such issues on the controller, the Dynamic Host Configuration Protocol (DHCP), Neighbor Discovery, and ARP packets that go to and from the wireless clients are unconditionally logged.

Packet-logging serviceability captures connectivity information related to wireless clients. Serviceability is divided into the following categories:

- **Global Trace Log:** Global trace logging is a mechanism to capture client connectivity information, and is enabled by default.
- **Filtered Trace Log:** To start packet logging on a filtered trace buffer, you must enable filters using **debug** commands. Filters capture only the specific packet type or the packets based on the MAC address of the clients.

The following are the features of packet logging:

- In addition to DHCP, Neighbor Discovery, and ARP packets, you can also add or remove other packet capture filters.
- Display filters are set to pick a subset of logged packets.
- Packet-logging data provides information such as the client MAC address, client IP address, VLAN, interface, packet type and time delta, that is required for debugging.

Enabling or Disabling Debug Level (CLI)

To enable or disable debug information for global and filtered logic, follow these steps.

Procedure

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	[no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer debug-level {all error info trace warning} Example: Device# debug platform hardware chassis active qfp feature wireless datapath trace-buffer debug-level all	Enables the debug level information for global and filtered logic. Use the no form of this command to disable the feature.

Enabling Packet Logging in Global and Filtered Buffer in Ingress Path (CLI)

To enable packet logging in global and filtered buffer in the ingress path, follow these steps.

Procedure

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	[no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer ingress global-trace Example: Device# [no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer ingress global-trace	Enables the Quantum Flow Processor on global trace buffer in the ingress path. Use the no form of this command to disable the feature.
Step 3	[no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer	Enables the condition for CAPWAP to log packet information to the filtered trace buffer.

	Command or Action	Purpose
	ingress filtered-trace capwap {ipv4 <i>A.B.C.D</i> ipv6 <i>X:X:X::X</i> keepalive } Example: <pre>Device# [no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer ingress filtered-trace capwap ipv4 209.165.200.224/27</pre>	Use the no form of this command to disable the feature.
Step 4	[no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer ingress filtered-trace wclient {ipv6-nd ipv6-ra mac-address <i>H.H.H</i> } Example: <pre>Device# [no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer ingress filtered-trace wclient ipv6-nd</pre>	<p>Enables the condition to log packet information of the wireless client to the filtered trace buffer.</p> <p>Use the no form of this command to disable the feature.</p>

Enabling Packet Logging in Global and Filtered Buffer in Punt-Inject Path (CLI)

To enable packet logging in global and filtered trace buffer in the punt-inject path, follow these steps.

Procedure

	Command or Action	Purpose
Step 1	enable Example: <pre>Device> enable</pre>	<p>Enables privileged EXEC mode.</p> <p>Enter your password, if prompted.</p>
Step 2	[no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer punt-inject global-trace Example: <pre>Device# [no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer punt-inject global-trace</pre>	<p>Enables the Quantum Flow Processor in global trace buffer in the punt-inject path.</p> <p>Use the no form of this command to disable the feature.</p>
Step 3	[no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer punt-inject filtered-trace capwap {ipv4 <i>A.B.C.D</i> ipv6 <i>X:X:X::X</i> keepalive } Example:	<p>Enables the condition for CAPWAP to log packet information to the filtered trace buffer in the punt-inject path.</p> <p>Use the no form of this command to disable the feature.</p>

	Command or Action	Purpose
	Device# [no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer punt-inject filtered-trace capwap ipv4 209.165.200.224/27	
Step 4	<p>[no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer punt-inject filtered-trace wlclient {ipv6-nd ipv6-ra mac-address H.H.H}</p> <p>Example:</p> <pre>Device# [no] debug platform hardware chassis active qfp feature wireless datapath trace-buffer punt-inject filtered-trace wlclient lpv6-nd</pre>	<p>Enables the condition to log packet information of the wireless client to the filtered trace buffer, in the punt-inject path.</p> <p>Use the no form of this command to disable the feature.</p>

Verifying Dataplane Packet Logging

To show trace buffer-configured conditions, use the following command:

```
Device# show platform hardware chassis active qfp feature wireless trace-buffer ingress
conditions
LogTrace Event: Enabled
Trace wlclient-MACs:
    8c85.90ee.ca92
allow_all_AP_kalives: enabled
AP_kalive cnt=1, AP_kalive6 cnt=0
IP0: 49.1.0.73
```

To view all the log entries in the filtered trace buffer, use the following command:

```
Device# show platform hardware chassis active qfp feature wireless trace-buffer ingress
filtered-trace all
Trace wlclient-MACs: 8c85.90ee.ca92
Trace-Buffer for Ingress: Enabled
Total allocated global-log buffer: 16384
Total allocated filtered-log v=buffers: 4096

<0 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213207
c=0
<1 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213236
c=0
<2 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213264
c=0
<3 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213293
c=0
<4 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213321
c=0
<5 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213350
c=0
```

To view the number of entries based on a count, use the following command:

```
Device# show platform hardware chassis active qfp feature wireless trace-buffer ingress
filtered-trace 3
Trace wlclient-MACs: 8c85.90ee.ca92
Trace-Buffer for Ingress: Enabled
Total allocated global-log buffer: 16384
```

```
Total allocated filtered-log v=buffers: 4096

<18 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213720
c=0
<19 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213748
c=0
<20 KEEP_ALIVE: CAPWAP peer=49.1.0.73 udp=5256 local=49.1.1.2 udp=5247 vlan=49, dt=213777
c=0

>> 3 entries displayed
    21 entries found in filtered-log buffer
    21 entries ever collected for filtered-log buffer
```

Clearing Logs and Conditions in Global and Filtered Trace Buffers

To clear conditions and logs in the global and filtered trace buffers, use the following commands:

```
Device# clear platform hardware chassis active qfp feature wireless trace-buffer ingress
all
Trace, clear all trace configuration & buffer.
```

```
Device# clear platform hardware chassis active qfp feature wireless trace-buffer ingress
conditions
Trace, clear trace configuration
```

```
Device# clear platform hardware chassis active qfp feature wireless trace-buffer ingress
filtered-trace
Trace, clear trace Q
```

```
Device# clear platform hardware chassis active qfp feature wireless trace-buffer ingress
global-trace
Trace, clear trace global Q
```

