



# LPTS Commands on Cisco IOS-XR Software

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This document describes the Cisco IOS-XR commands used to monitor Local Packet Transport Services (LPTS).

# clear lpts ifib statistics

To clear the Internal Forwarding Information Base (IFIB) statistics, use the **clear lpts ifib statistics** command in EXEC mode.

**clear lpts ifib statistics** [*location node-id*]

| Syntax                         | Description   |
|--------------------------------|---|
| <b>location</b> <i>node-id</i> | (Optional) Clears the IFIB statistics for the designated node. The <i>node-id</i> argument is entered in the rack/slot/module notation (for example, 0/7/CPU0). |

| Command Modes | EXEC |
|---------------|------|
|---------------|------|

| Command History | Release     | Modification                 |
|-----------------|-------------|------------------------------|
|                 | Release 2.0 | This command was introduced. |

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will clear the IFIB statistics for the node on which the command is run.

**Examples**

The following example shows how to clear the IFIB statistics for the RP:

```
RP/0/RP0/CPU0:router# clear lpts ifib statistics
```

| Related Commands | Command                                   | Description                        |
|------------------|---|------------------------------------|
|                  | <a href="#">show lpts ifib statistics</a> | Displays the LPTS IFIB statistics. |

# clear lpts pifib statistics

To clear the Pre-Internal Forwarding Information Base (Pre-IFIB) statistics, use the **clear lpts pifib statistics** command in EXEC mode.

```
clear lpts pifib statistics [location node-id]
```

| Syntax                  | Description   |
|-------------------------|---|
| <b>location node-id</b> | (Optional) Clears the Pre-IFIB statistics for the designated node. The <i>node-id</i> argument is entered in the rack/slot/module notation (for example, 0/7/CPU0). |

| Command Modes | EXEC |
|---------------|------|
|---------------|------|

| Command History | Release     | Modification                 |
|-----------------|-------------|------------------------------|
|                 | Release 2.0 | This command was introduced. |

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will clear the Pre-IFIB statistics for the node on which the command is run.

**Examples**

The following example clears the Pre-IFIB statistics for the RP:

```
RP/0/RP0/CPU0:router# clear lpts pifib statistics
```

| Related Commands | Command                                    | Description                         |
|------------------|--|-------------------------------------|
|                  | <a href="#">show lpts pifib statistics</a> | Displays the LPTS PIFIB statistics. |

# show lpts bindings

To display the binding information in the Port Arbitrator, use the **show lpts bindings** command in EXEC mode.

```
show lpts bindings [location node-id] [client-id {cnl | ipsec | ipv4-io | ipv6-io | mpa | tcp | test |
udp | raw}] [brief]
```

| Syntax Description             |   |
|--------------------------------|---|
| <b>location</b> <i>node-id</i> | (Optional) Displays information for the specified node. The <i>node-id</i> argument is entered in the rack/slot/module notation (for example, 0/7/CPU0).  |
| <b>client-id</b>               | (Optional) Type of client. It can be one of the following values: <ul style="list-style-type: none"> <li>• <b>cnl</b>—ISO connectionless protocol (used by IS-IS)</li> <li>• <b>ipsec</b>—Secure IP</li> <li>• <b>ipv4-io</b>—Traffic processed by the IPv4 stack</li> <li>• <b>ipv6-io</b>—Traffic processed by the IPv6 stack</li> <li>• <b>mpa</b>—Multicast Port Arbitrator (multicast group joins)</li> <li>• <b>tcp</b>—Transmission Control Protocol</li> <li>• <b>test</b>—Test applications</li> <li>• <b>udp</b>—User Datagram Protocol</li> <li>• <b>raw</b>—Raw IP</li> </ul> |
| <b>brief</b>                   | (Optional) Displays summary output.   |

| Command Modes |  |
|---------------|--|
| EXEC          |  |

| Command History | Release     | Modification                 |
|-----------------|-------------|------------------------------|
|                 | Release 2.0 | This command was introduced. |

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

This command displays the Local Packet Transport Services (LPTS) bindings (requests to receive traffic of a particular type). Bindings are aggregated into flows by the LPTS Port Arbitrator; flows are then programmed into the Internal Forwarding Information Base (IFIB) and Pre-IFIB to direct packets to applications.

If you specify the optional **client-id** keyword and type of client, only bindings from that client are shown. If you specify the optional **location** keyword and *node-id* argument, only bindings from clients on that node are displayed.

**Examples**

The following is sample output from the **show lpts bindings** command, displaying bindings for all client ID types:

```
RP/0/RP0/CPU0:router# show lpts bindings
-----
Location      :0/1/CPU0
Client ID     :IPV4_IO
Cookie        :0x00000001
Clnt Flags    :
Layer 3       :IPV4
Layer 4       :ICMP
Local Addr    :any
Remote Addr   :any
Local Port    :any
Remote Port   :any
Filters       :Type / Intf or Pkt Type / Source Addr / Location
  INCLUDE_TYPE / type 8
  INCLUDE_TYPE / type 13
  INCLUDE_TYPE / type 17
-----
Location      :0/2/CPU0
Client ID     :IPV4_IO
Cookie        :0x00000001
Clnt Flags    :
Layer 3       :IPV4
Layer 4       :ICMP
Local Addr    :any
Remote Addr   :any
Local Port    :any
Remote Port   :any
Filters       :Type / Intf or Pkt Type / Source Addr / Location
  INCLUDE_TYPE / type 8
  INCLUDE_TYPE / type 13
  INCLUDE_TYPE / type 17
-----
Location      :0/RP1/CPU0
Client ID     :TCP
Cookie        :0x4826f1f8
Clnt Flags    :REUSEPORT
Layer 3       :IPV4
Layer 4       :TCP
Local Addr    :any
Remote Addr   :any
Local Port    :7
Remote Port   :any
-----
Location      :0/RP1/CPU0
Client ID     :TCP
Cookie        :0x4826fa0c
Clnt Flags    :REUSEPORT
Layer 3       :IPV4
Layer 4       :TCP
Local Addr    :any
Remote Addr   :any
Local Port    :9
Remote Port   :any
-----
Location      :0/RP1/CPU0
Client ID     :TCP
Cookie        :0x482700d0
Clnt Flags    :REUSEPORT
Layer 3       :IPV4
Layer 4       :TCP
```

## show lpts bindings

```

Local Addr :any
Remote Addr:any
Local Port :19
Remote Port:any
-----
Location   :0/RP1/CPU0
Client ID  :IPV4_IO
Cookie     :0x00000001
Clnt Flags :
Layer 3    :IPV4
Layer 4    :ICMP
Local Addr :any
Remote Addr:any
Local Port :any
Remote Port:any
Filters    :Type / Intf or Pkt Type / Source Addr / Location
INCLUDE_TYPE / type 8
INCLUDE_TYPE / type 13
INCLUDE_TYPE / type 17

```

The following is sample output from the **show lpts bindings brief** command:

```
RP/0/RP0/CPU0:router# show lpts bindings brief
```

@ - Indirect binding; Sc - Scope

| Location   | Clnt | Cookie   | Sc | L3   | L4   | Local,Remote Address.Port | Interface |
|------------|------|----------|----|------|------|---------------------------|-----------|
| 0/1/CPU0   | IPV4 | 00000001 | LO | IPV4 | ICMP | any.ECHO any              | any       |
| 0/1/CPU0   | IPV4 | 00000001 | LO | IPV4 | ICMP | any.TSTAMP any            | any       |
| 0/1/CPU0   | IPV4 | 00000001 | LO | IPV4 | ICMP | any.MASKREQ any           | any       |
| 0/2/CPU0   | IPV4 | 00000001 | LO | IPV4 | ICMP | any.ECHO any              | any       |
| 0/2/CPU0   | IPV4 | 00000001 | LO | IPV4 | ICMP | any.TSTAMP any            | any       |
| 0/2/CPU0   | IPV4 | 00000001 | LO | IPV4 | ICMP | any.MASKREQ any           | any       |
| 0/RP1/CPU0 | TCP  | 4826f1f8 | LR | IPV4 | TCP  | any.7 any                 | any       |
| 0/RP1/CPU0 | TCP  | 4826fa0c | LR | IPV4 | TCP  | any.9 any                 | any       |
| 0/RP1/CPU0 | TCP  | 482700d0 | LR | IPV4 | TCP  | any.19 any                | any       |
| 0/RP1/CPU0 | IPV4 | 00000001 | LO | IPV4 | ICMP | any.ECHO any              | any       |
| 0/RP1/CPU0 | IPV4 | 00000001 | LO | IPV4 | ICMP | any.TSTAMP any            | any       |
| 0/RP1/CPU0 | IPV4 | 00000001 | LO | IPV4 | ICMP | any.MASKREQ any           | any       |

### Related Commands

| Command                           | Description  |
|-----------------------------------|--|
| <a href="#">show lpts clients</a> | Displays the client information for the Port Arbitrator. |
| <a href="#">show lpts flows</a>   | Displays information about LPTS flows.                   |

# show lpts clients

To display the client information for the Port Arbitrator, use the **show lpts clients** command in EXEC mode.

**show lpts clients [times]**

| Syntax Description | times | (Optional) Displays information about binding request rates and service times. |
|--------------------|-------|--|
|--------------------|-------|--|

| Command Modes | EXEC |
|---------------|------|
|---------------|------|

| Command History | Release     | Modification                 |
|-----------------|-------------|------------------------------|
|                 | Release 2.0 | This command was introduced. |

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

This command displays the clients connected to the Local Packet Transport Services (LPTS) Port Arbitrator (PA).

**Examples** The following is sample output from the **show lpts clients** command:

```
RP/0/RP0/CPU0:router# show lpts clients

o_flgS - open flags ; clid - client id
clid      loc      flags  o_flgS
RAW(3)    0/RP1/CPU0    0x1   0x2
TCP(1)    0/RP1/CPU0    0x1   0x2
IPV4_IO(5) 0/1/CPU0      0x3   0x2
IPV4_IO(5) 0/2/CPU0      0x3   0x2
IPV4_IO(5) 0/RP1/CPU0    0x3   0x2
MPA(7)    0/RP1/CPU0    0x3   0x0
```

The following is sample output from the **show lpts clients times** command. The output shows samples for the last 30 seconds, 1 minute, 5 minutes, 10 minutes, and a total (if nonzero). The number of transactions, number of updates, and the minimum/average/maximum time in milliseconds to process each transaction is shown.

```
RP/0/RP0/CPU0:router# show lpts clients times

o_flgS - open flags ; clid - client id
clid      loc      flags  o_flgS
RAW(3)    0/RP1/CPU0    0x1   0x2
30s:2 tx 2 upd 2/2/3ms/tx
1m:2 tx 2 upd 2/2/3ms/tx
5m:2 tx 2 upd 2/2/3ms/tx
10m:2 tx 2 upd 2/2/3ms/tx
```

## show lpts clients

```

total:2 tx 2 upd 2/-/3ms/tx
TCP(1)          0/RP1/CPU0      0x1      0x2
total:3 tx 3 upd 1/-/1ms/tx
IPV4_IO(5)     0/1/CPU0          0x3      0x2
total:1 tx 1 upd 0/-/0ms/tx
IPV4_IO(5)     0/2/CPU0          0x3      0x2
total:1 tx 1 upd 1/-/1ms/tx
IPV4_IO(5)     0/RP1/CPU0       0x3      0x2
total:1 tx 1 upd 3/-/3ms/tx
MPA(7)         0/RP1/CPU0       0x3      0x0

```

### Related Commands

| Command                            | Description  |
|------------------------------------|--|
| <a href="#">show lpts bindings</a> | Displays the binding information in the Port Arbitrator. |
| <a href="#">show lpts flows</a>    | Displays information about LPTS flows.                   |

# show lpts flows

To display information about Local Packet Transport Services (LPTS) flows, use the **show lpts flows** command in EXEC mode.

**show lpts flows [brief]**

|                           |                |                                     |
|---------------------------|----------------|-------------------------------------|
| <b>Syntax Description</b> | <b>brief</b>   | (Optional) Displays summary output. |
| <b>Command Modes</b>      | EXEC           |                                     |
| <b>Command History</b>    | <b>Release</b> | <b>Modification</b>                 |
|                           | Release 2.0    | This command was introduced.        |

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

This command is used to display LPTS flows, which are aggregations of identical binding requests from multiple clients and are used to program the LPTS Internal Forwarding Information Base (IFIB) and Pre-IFIB.

## Examples

The following is sample output from the **show lpts flows** command:

```
RP/0/RP0/CPU0:router# show lpts flows
```

```
-----
L3-PROTO      :IPV4 (2)
L4-PROTO      :ICMP (1)
LOCAL-IP      :any
REMOTE-IP     :any
PKT-TYPE      :8
REMOTE-PORT   :any
INTERFACE     :any (0x0)
FLOW-TYPE     :ICMP-local
MIN-TTL       :0
SLICE         :RAWIP4_FM
FLAGS         :0x20 (in Pre-IFIB)
LOCATION       :(drop)
ELEMENT REFERENCES
LOCATION / COUNT / SCOPE
* / 3 / LOCAL
-----
L3-PROTO      :IPV4 (2)
L4-PROTO      :ICMP (1)
LOCAL-IP      :any
REMOTE-IP     :any
PKT-TYPE      :13
REMOTE-PORT   :any
INTERFACE     :any (0x0)
```

## show lpts flows

```

Flow-type      :ICMP-local
Min-TTL        :0
Slice          :RAWIP4_FM
Flags          :0x20 (in Pre-IFIB)
Location       :(drop)
Element References
location / count / scope
* / 3 / LOCAL
-----
L3-proto       :IPV4(2)
L4-proto       :ICMP(1)
Local-IP       :any
Remote-IP      :any
Pkt-Type       :17
Remote-Port    :any
Interface      :any (0x0)
Flow-type      :ICMP-local
Min-TTL        :0
Slice          :RAWIP4_FM
Flags          :0x20 (in Pre-IFIB)
Location       :(drop)
Element References
location / count / scope
* / 3 / LOCAL
-----
L3-proto       :IPV4(2)
L4-proto       :TCP(6)
Local-IP       :any
Remote-IP      :any
Local-Port     :7
Remote-Port    :any
Interface      :any (0x0)
Flow-type      :TCP-listen
Min-TTL        :0
Slice          :TCP4_FM
Flags          :0x60 (in Pre-IFIB, deliver to one)
Location       :0/RP1/CPU0
Element References
location / count / scope
0/RP1/CPU0 / 1 / LR
-----
L3-proto       :IPV4(2)
L4-proto       :TCP(6)
Local-IP       :any
Remote-IP      :any
Local-Port     :9
Remote-Port    :any
Interface      :any (0x0)
Flow-type      :TCP-listen
Min-TTL        :0
Slice          :TCP4_FM
Flags          :0x60 (in Pre-IFIB, deliver to one)
Location       :0/RP1/CPU0
Element References
location / count / scope
0/RP1/CPU0 / 1 / LR
-----
L3-proto       :IPV4(2)
L4-proto       :TCP(6)
Local-IP       :any
Remote-IP      :any
Local-Port     :19
Remote-Port    :any
Interface      :any (0x0)

```

```

Flow-type      :TCP-listen
Min-TTL        :0
Slice          :TCP4_FM
Flags          :0x60 (in Pre-IFIB, deliver to one)
Location       :0/RP1/CPU0
Element References
location / count / scope
0/RP1/CPU0/1/LR

```

The following is sample output from the **show lpts flows brief** command:

```
RP/0/RP0/CPU0:router# show lpts flows brief
```

+ - Additional delivery destination; L - Local interest; P - In Pre-IFIB

| L3   | L4   | Local, Remote Address.Port | Interface | Location   | LP |
|------|------|----------------------------|-----------|------------|----|
| IPV4 | ICMP | any.ECHO any               | any       | (drop)     | LP |
| IPV4 | ICMP | any.TSTAMP any             | any       | (drop)     | LP |
| IPV4 | ICMP | any.MASKREQ any            | any       | (drop)     | LP |
| IPV4 | TCP  | any.7 any                  | any       | 0/RP1/CPU0 | P  |
| IPV4 | TCP  | any.9 any                  | any       | 0/RP1/CPU0 | P  |
| IPV4 | TCP  | any.19 any                 | any       | 0/RP1/CPU0 | P  |

#### Related Commands

| Command                            | Description  |
|------------------------------------|--|
| <a href="#">show lpts bindings</a> | Displays the binding information in the Port Arbitrator. |
| <a href="#">show lpts clients</a>  | Displays the client information for the Port Arbitrator. |

# show lpts ifib

To display the entries in the Internal Forwarding Information Base (IFIB), use the **show lpts ifib** command in EXEC mode.

```
show lpts ifib [entry] [type {bgp4 | bgp6 | isis | mcast4 | mcast6 | ospf-mc4 | ospf-mc6 | ospf4 |
ospf6 | raw4 | raw6 | tcp4 | tcp6 | udp4 | udp6} | all] [brief [statistics]]
```

| Syntax Description |   |
|--------------------|---|
| <b>entry</b>       | (Optional) Displays IFIB entries.   |
| <b>type</b>        | (Optional) Protocol type. <ul style="list-style-type: none"> <li>• <b>bgp4</b>—IPv4 Border Gateway Protocol (BGP) slice</li> <li>• <b>bgp6</b>—IPv6 BGP slice</li> <li>• <b>isis</b>—Intermediate System-to-Intermediate System (IS-IS) slice</li> <li>• <b>mcast4</b>—IPv4 multicast slice</li> <li>• <b>mcast6</b>—IPv6 multicast slice</li> <li>• <b>ospf-mc4</b>—IPv4 Open Shortest Path First (OSPF) multicast slice</li> <li>• <b>ospf-mc6</b>—IPv6 OSPF multicast slice</li> <li>• <b>ospf4</b>—IPv4 OSPF slice</li> <li>• <b>ospf6</b>—IPv6 OSPF slice</li> <li>• <b>raw4</b>—IPv4 raw IP</li> <li>• <b>raw6</b>—IPv6 raw IP</li> <li>• <b>tcp4</b>—IPv4 Transmission Control Protocol (TCP) slice</li> <li>• <b>tcp6</b>—IPv6 TCP slice</li> <li>• <b>udp4</b>—IPv4 UDP slice</li> <li>• <b>udp6</b>—IPv6 UDP slice</li> </ul> |
| <b>all</b>         | All IFIB types.   |
| <b>brief</b>       | (Optional) IFIB entries in brief format.  |
| <b>statistics</b>  | (Optional) IFIB table with statistics information.  |

| Command Modes |  |
|---------------|--|
| EXEC          |  |

| Command History | Release     | Modification                 |
|-----------------|-------------|------------------------------|
|                 | Release 2.0 | This command was introduced. |

| Usage Guidelines  |  |
|---|--|
| To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the <i>Configuring AAA Services on Cisco IOS-XR Software</i> module of the <i>Cisco IOS-XR System Security Configuration Guide</i> . |  |

Use this command to display detailed information about the entries in an IFIB slice. This command is useful for debugging problems with delivering packets to applications.

When the **statistics** keyword is used, detailed statistics are displayed for packet count, number of entries in each slice, and a total entries count.

## Examples

The following is sample output from the **show lpts ifib** command:

```
RP/0/RP1/CPU0:router# show lpts ifib

O - Opcode; A - Accept Counter; D - Drop Counter; F - Flow Type;
L - Listener Tag; I - Local Flag; Y - SYN; T - Min TTL;
DV - Deliver; DP - Drop; RE - Reassemble;
na - Not Applicable
-----
Port/Type      :Port:7
Source Port    :any
Dest IP        :any
Source IP      :any
Layer 4        :TCP (6)
Interface      :any (0x0)
O/A/D/F/L/I/Y/T :DELIVER/0/0/TCP-listen/IPv4_LISTENER/0/0/0
Deliver List   :0/RP1/CPU0
-----
Port/Type      :Port:9
Source Port    :any
Dest IP        :any
Source IP      :any
Layer 4        :TCP (6)
Interface      :any (0x0)
O/A/D/F/L/I/Y/T :DELIVER/0/0/TCP-listen/IPv4_LISTENER/0/0/0
Deliver List   :0/RP1/CPU0
-----
Port/Type      :Port:19
Source Port    :any
Dest IP        :any
Source IP      :any
Layer 4        :TCP (6)
Interface      :any (0x0)
O/A/D/F/L/I/Y/T :DELIVER/0/0/TCP-listen/IPv4_LISTENER/0/0/0
Deliver List   :0/RP1/CPU0
```

The following is sample output from the **show lpts ifib brief** command:

```
RP/0/RP0/CPU0:router# show lpts ifib brief

Slice   Local, Remote Address.Port          L4   Interface   Dlvr
-----
TCP4    any.7 any                            TCP   any         0/RP1/CPU0
TCP4    any.9 any                            TCP   any         0/RP1/CPU0
```

The following is sample output from the **show lpts ifib brief statistics** command:

```
RP/0/RP0/CPU0:router# show lpts ifib brief statistics

Slice   Local, Remote Address.Port          L4   Interface   Accept/Drop
-----
TCP4    any.7 any                            TCP   any         0/0
TCP4    any.9 any                            TCP   any         0/0
TCP4    any.19 any                           TCP   any         0/0

Slice   Num. Entries Accepts/Drops
```

## ■ show lpts ifib

```
-----  
TCP4      3          0/0  
Total     3          0/0
```

---

**Related Commands**

| <b>Command</b>               | <b>Description</b>               |
|------------------------------|----------------------------------|
| <b>show lpts ifib slices</b> | Displays IFIB slice information. |

# show lpts ifib slices

To display Internal Forwarding Information Base (IFIB) slice information, use the **show lpts ifib slices** command in EXEC mode.

```
show lpts ifib slices [type { bgp4 | bgp6 | isis | mcast4 | mcast6 | ospf-mc4 | ospf-mc6 | ospf4 |
ospf6 | raw4 | raw6 | tcp4 | tcp6 | udp4 | udp6}] [all] [statistics] [times]
```

| Syntax Description |  |
|--------------------|--|
| <b>type</b>        | (Optional) Protocol type.<br>(Optional) Protocol type. <ul style="list-style-type: none"> <li><b>bgp4</b>—IPv4 Border Gateway Protocol (BGP) slice</li> <li><b>bgp6</b>—IPv6 BGP slice</li> <li><b>isis</b>—Intermediate System-to-Intermediate System (IS-IS) slice</li> <li><b>mcast4</b>—IPv4 multicast slice</li> <li><b>mcast6</b>—IPv6 multicast slice</li> <li><b>ospf-mc4</b>—IPv4 Open Shortest Path First (OSPF) multicast slice</li> <li><b>ospf-mc6</b>—IPv6 OSPF multicast slice</li> <li><b>ospf4</b>—IPv4 OSPF slice</li> <li><b>ospf6</b>—IPv6 OSPF slice</li> <li><b>raw4</b>—IPv4 raw IP</li> <li><b>raw6</b>—IPv6 raw IP</li> <li><b>tcp4</b>—IPv4 Transmission Control Protocol (TCP) slice</li> <li><b>tcp6</b>—IPv6 TCP slice</li> <li><b>udp4</b>—IPv4 UDP slice</li> <li><b>udp6</b>—IPv6 UDP slice</li> </ul> |
| <b>all</b>         | (Optional) All entries.  |
| <b>statistics</b>  | (Optional) Statistics for slice look-ups.  |
| <b>times</b>       | (Optional) IFIB update transaction times.  |

| Command Modes |  |
|---------------|--|
| EXEC          |  |

| Command History | Release     | Modification                 |
|-----------------|-------------|------------------------------|
|                 | Release 2.0 | This command was introduced. |

### Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

Use this command when troubleshooting IFIB entries and slice assignments. This command is especially useful when troubleshooting problems with delivering packets to applications.

## Examples

The following is sample output from the **show lpts ifib slices** command:

```
RP/0/RP0/CPU0:router# show lpts ifib slices
```

| Slice    | L3   | L4   | Port | Location   |
|----------|------|------|------|------------|
| RAWIP4   | IPV4 | any  | any  | 0/RP1/CPU0 |
| RAWIP6   | IPV6 | any  | any  | 0/RP1/CPU0 |
| OSPF4    | IPV4 | OSPF | any  | 0/RP1/CPU0 |
| OSPF6    | IPV6 | OSPF | any  | 0/RP1/CPU0 |
| OSPF_MC4 | IPV4 | any  | any  | 0/RP1/CPU0 |
| OSPF_MC6 | IPV6 | any  | any  | 0/RP1/CPU0 |
| BGP4     | IPV4 | TCP  | 179  | 0/RP1/CPU0 |
| BGP6     | IPV6 | TCP  | 179  | 0/RP1/CPU0 |
| UDP4     | IPV4 | UDP  | any  | 0/RP1/CPU0 |
| UDP6     | IPV6 | UDP  | any  | 0/RP1/CPU0 |
| TCP4     | IPV4 | TCP  | any  | 0/RP1/CPU0 |
| TCP6     | IPV6 | TCP  | any  | 0/RP1/CPU0 |
| ISIS     | CLNS | -    | any  | 0/RP1/CPU0 |
| MCAST4   | IPV4 | any  | any  | 0/RP1/CPU0 |
| MCAST6   | IPV6 | any  | any  | 0/RP1/CPU0 |

The following is sample output from the **show lpts ifib slices times** command:

```
RP/0/RP0/CPU0:router# show lpts ifib slices times
```

| Slice    | L3   | L4   | Port | Location   |
|----------|------|------|------|------------|
| RAWIP4   | IPV4 | any  | any  | 0/RP1/CPU0 |
| RAWIP6   | IPV6 | any  | any  | 0/RP1/CPU0 |
| OSPF4    | IPV4 | OSPF | any  | 0/RP1/CPU0 |
| OSPF6    | IPV6 | OSPF | any  | 0/RP1/CPU0 |
| OSPF_MC4 | IPV4 | any  | any  | 0/RP1/CPU0 |
| OSPF_MC6 | IPV6 | any  | any  | 0/RP1/CPU0 |
| BGP4     | IPV4 | TCP  | 179  | 0/RP1/CPU0 |
| BGP6     | IPV6 | TCP  | 179  | 0/RP1/CPU0 |
| UDP4     | IPV4 | UDP  | any  | 0/RP1/CPU0 |
| UDP6     | IPV6 | UDP  | any  | 0/RP1/CPU0 |
| TCP4     | IPV4 | TCP  | any  | 0/RP1/CPU0 |
| TCP6     | IPV6 | TCP  | any  | 0/RP1/CPU0 |
| ISIS     | CLNS | -    | any  | 0/RP1/CPU0 |
| MCAST4   | IPV4 | any  | any  | 0/RP1/CPU0 |
| MCAST6   | IPV6 | any  | any  | 0/RP1/CPU0 |

```
Flow Manager 0/RP1/CPU0:
total:5 tx 13 upd 1/-/1ms/tx
```

The following is sample output from the **show lpts ifib slices statistics** command.

```
RP/0/RP0/CPU0:router# show lpts ifib slices statistics
```

| Slice    | L3   | L4   | Port | Location   | Lookups | RmtDlvr | Rejects | RLDrops | NoEntry |
|----------|------|------|------|------------|---------|---------|---------|---------|---------|
| RAWIP4   | IPV4 | any  | any  | 0/RP1/CPU0 | 0       | 0       | 0       | 0       | 0       |
| RAWIP6   | IPV6 | any  | any  | 0/RP1/CPU0 | 0       | 0       | 0       | 0       | 0       |
| OSPF4    | IPV4 | OSPF | any  | 0/RP1/CPU0 | 0       | 0       | 0       | 0       | 0       |
| OSPF6    | IPV6 | OSPF | any  | 0/RP1/CPU0 | 0       | 0       | 0       | 0       | 0       |
| OSPF_MC4 | IPV4 | any  | any  | 0/RP1/CPU0 | 0       | 0       | 0       | 0       | 0       |
| OSPF_MC6 | IPV6 | any  | any  | 0/RP1/CPU0 | 0       | 0       | 0       | 0       | 0       |
| BGP4     | IPV4 | TCP  | 179  | 0/RP1/CPU0 | 0       | 0       | 0       | 0       | 0       |

```

BGP6      IPV6 TCP      179  0/RP1/CPU0 0      0      0      0      0
UDP4      IPV4 UDP      any  0/RP1/CPU0 245    0      245    0      0
UDP6      IPV6 UDP      any  0/RP1/CPU0 0      0      0      0      0
TCP4      IPV4 TCP      any  0/RP1/CPU0 0      0      0      0      0
TCP6      IPV6 TCP      any  0/RP1/CPU0 0      0      0      0      0
ISIS      CLNS -        any  0/RP1/CPU0 0      0      0      0      0
MCAST4    IPV4 any       any  0/RP1/CPU0 0      0      0      0      0
MCAST6    IPV6 any       any  0/RP1/CPU0 0      0      0      0      0
Flow Manager 0/RP1/CPU0:
  Packets in:245
  Packets delivered locally without lookups:0
  Slice lookups:245
  Post-lookup error drops:
    Failed ipv4_netio_input:1
  Rejects:245
  Packets delivered locally:0
  Packets delivered remotely:0

```

**Related Commands**

| Command                        | Description                   |
|--------------------------------|-------------------------------|
| <a href="#">show lpts ifib</a> | Displays entries in the IFIB. |

# show lpts ifib statistics

To display Internal Forwarding Information Base (IFIB) statistics, use the **show lpts ifib statistics** command in EXEC mode.

**show lpts ifib statistics** [*location node-id*]

|                           |                                |   |
|---------------------------|--------------------------------|---|
| <b>Syntax Description</b> | <b>location</b> <i>node-id</i> | (Optional) Displays IFIB statistics for the designated node. The <i>node-id</i> argument is entered in the rack/slot/module notation (for example, 0/7/CPU0). |
|---------------------------|--------------------------------|---|

|                      |      |
|----------------------|------|
| <b>Command Modes</b> | EXEC |
|----------------------|------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 2.0    | This command was introduced. |

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

**Examples** The following is sample output from the **show lpts ifib statistics** command:

```
RP/0/RP0/CPU0:router# show lpts ifib statistics

Flow Manager 0/RP1/CPU0:
  Packets in:254
  Packets delivered locally without lookups:0
  Slice lookups:254
    Post-lookup error drops:
      Failed ipv4_netio_input:1
    Rejects:254
  Packets delivered locally:0
  Packets delivered remotely:0
```

| <b>Related Commands</b> | <b>Command</b>                 | <b>Description</b>                     |
|-------------------------|--------------------------------|--|
|                         | <a href="#">show lpts ifib</a> | Displays the entries in an IFIB slice. |

# show lpts ifib times

To display Internal Forwarding Information Base (IFIB) update transaction times, use the **show lpts ifib times** command in EXEC mode.

```
show lpts ifib times [location node-id]
```

## Syntax Description

|                         |   |
|-------------------------|---|
| <b>location node-id</b> | (Optional) Displays IFIB update transaction times for the designated node. The <i>node-id</i> argument is entered in the rack/slot/module notation (for example, 0/7/CPU0). |
|-------------------------|---|

## Command Modes

EXEC

## Command History

| Release     | Modification                 |
|-------------|------------------------------|
| Release 2.0 | This command was introduced. |

## Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

## Examples

The following is sample output from the **show lpts ifib times** command:

```
RP/0/RP0/CPU0:router# show lpts ifib times

Slice   L3   L4   Port  Location
-----
RAWIP4  IPV4 any   any   0/RP1/CPU0
RAWIP6  IPV6 any   any   0/RP1/CPU0
OSPF4   IPV4 OSPF  any   0/RP1/CPU0
OSPF6   IPV6 OSPF  any   0/RP1/CPU0
OSPF_MC4 IPV4 any   any   0/RP1/CPU0
OSPF_MC6 IPV6 any   any   0/RP1/CPU0
BGP4    IPV4 TCP   179   0/RP1/CPU0
BGP6    IPV6 TCP   179   0/RP1/CPU0
UDP4    IPV4 UDP   any   0/RP1/CPU0
UDP6    IPV6 UDP   any   0/RP1/CPU0
TCP4    IPV4 TCP   any   0/RP1/CPU0
TCP6    IPV6 TCP   any   0/RP1/CPU0
ISIS    CLNS -       any   0/RP1/CPU0
MCAST4  IPV4 any   any   0/RP1/CPU0
MCAST6  IPV6 any   any   0/RP1/CPU0
Flow Manager 0/RP1/CPU0:
total:5 tx 13 upd 1/-/lms/tx
```

■ `show lpts ifib times`

---

**Related Commands**

| Command                        | Description   |
|--------------------------------|---|
| <a href="#">show lpts ifib</a> | Displays detailed information about entries in an IFIB slice. |

---

# show lpts mpa groups

To display aggregate information about multicast bindings for groups, use the **show lpts mpa groups** command in EXEC mode.

**show lpts mpa groups** *type instance*

| Syntax Description |  |
|--------------------|--|
| <i>type</i>        | Interface type. For more information, use the question mark (?) online help function.  |
| <i>instance</i>    | <p>Either a physical interface instance or a virtual interface instance:</p> <ul style="list-style-type: none"> <li>Physical interface instance. Naming notation is rack/slot/module/port and a slash mark between values is required as part of the notation. <ul style="list-style-type: none"> <li>rack: Chassis number of the rack.</li> <li>slot: Physical slot number of the line card.</li> <li>module: Module number. A Physical Layer Interface Module (PLIM) is always 0.</li> <li>port: Physical port number of the interface.</li> </ul> </li> </ul> <p><b>Note</b> In references to a Management Ethernet interface located on a Route Processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0.<br/>Example: interface MgmtEth0/RP1/CPU0/0.</p> <ul style="list-style-type: none"> <li>Virtual interface instance. Number range will vary depending on interface type.</li> </ul> <p>For more information about the syntax for the router, use the question mark (?) online help function.</p> |

|                      |      |
|----------------------|------|
| <b>Command Types</b> | EXEC |
|----------------------|------|

| Command History | Release     | Modification                 |
|-----------------|-------------|------------------------------|
|                 | Release 2.0 | This command was introduced. |

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

This command is used to aggregate information about the multicast groups joined on a specified interface. This command also displays the filter mode and source list associated with the groups joined on a specified interface.

**Examples** The following is sample output from the **show lpts mpa groups** command:

```
RP/0/RP0/CPU0:router# show lpts mpa groups POS 0/0/0/0
```

**show lpts mpa groups**

```
224.0.0.2 : includes 0, excludes 1, mode EXCLUDE
<no source filter>
224.0.0.13 : includes 0, excludes 1, mode EXCLUDE
<no source filter>
224.0.0.22 : includes 0, excludes 1, mode EXCLUDE
<no source filter>
```

# show lpts pifib

To display Pre-Internal Forwarding Information Base (Pre-IFIB) entries, use the **show lpts pifib** command in EXEC mode.

```
show lpts pifib [entry] [type {isis | ipv4 {frag | ixmp | mcast | tcp | udp | ipsec | raw} | ipv6 {frag | icmp | ixmp | mcast | tcp | udp | ipsec | raw} | all}] [brief [statistics] [location node-id]
```

| Syntax                  | Description  |
|-------------------------|--|
| <b>entry</b>            | (Optional) Pre-IFIB entry.   |
| <b>type</b>             | (Optional) Protocol type.  |
| <b>isis</b>             | Intermediate System-to-Intermediate System (IS-IS) sub Pre-IFIB type.  |
| <b>ipv4</b>             | IPv4 sub Pre-IFIB type. Possible values include <b>frag</b> , <b>ixmp</b> , <b>mcast</b> , <b>tcp</b> , <b>udp</b> , <b>ipsec</b> , and <b>raw</b> .               |
| <b>ipv6</b>             | IPv6 sub Pre-IFIB type. Possible values include <b>frag</b> , <b>icmp</b> , <b>ixmp</b> , <b>mcast</b> , <b>tcp</b> , <b>udp</b> , <b>ipsec</b> , and <b>raw</b> . |
| <b>frag</b>             | IPv4 or IPv6 fragment.   |
| <b>icmp</b>             | IPv4 or IPv6 IXMP and Internet Group Management Protocol (IGMP).   |
| <b>ixmp</b>             | IPv4 or IPv6 IXMP (ICMP and Internet Group Management Protocol [IGMP]).  |
| <b>mcast</b>            | IPv4 or IPv6 Multicast.  |
| <b>tcp</b>              | IPv4 or IPv6 Transmission Control Protocol (TCP).  |
| <b>udp</b>              | IPv4 or IPv6 User Datagram Protocol (UDP).   |
| <b>ipsec</b>            | Secure IP.   |
| <b>raw</b>              | IPv4 or IPv6 raw IP.   |
| <b>all</b>              | All sub Pre-IFIBs.   |
| <b>brief</b>            | (Optional) Pre-IFIB entries in brief format.   |
| <b>statistics</b>       | (Optional) Pre-IFIB table with statistics information.   |
| <b>location node-id</b> | (Optional) The <i>node-id</i> argument is entered in the rack/slot/module notation (for example, 0/7/CPU0).  |

**Command Modes** EXEC

| Command History | Release     | Modification                 |
|-----------------|-------------|------------------------------|
|                 | Release 2.0 | This command was introduced. |

**Usage Guidelines** To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

Use this command to display entries of all or part of a Pre-IFIB.

Use the **show lpts pifib brief** command to display a short description of each entry in the LPTS Pre-IFIB, optionally displaying packet counts for each entry. Note that these statistics are only for packets processed by a line card, route processor, or distributed route processor. Pre-IFIB statistics for packets processed by line card hardware are counted separately.

## Examples

The following is sample output for the **show lpts pifib** command:

```
RP/0/RP0/CPU0:router# show lpts pifib

O - Opcode; F - Flow Type; L - Listener Tag; I - Local Flag; T - Min TTL;
na - Not Applicable
-----
L3 Protocol      :CLNS
L4 Protocol      :-
Destination IP   :any
Source IP        :any
Port/Type        :any
Source Port      :any
Is Fragment      :0
Is SYN           :0
Interface        :any (0x0)
O/F/L/I/T       :DELIVER/ISIS-default/ISIS_FM/0/0
Deliver List     :0/RP1/CPU0
Accepts/Drops    :0/0
Is Stale         :0
-----
L3 Protocol      :IPV4
L4 Protocol      :any
Destination IP   :any
Source IP        :any
Port/Type        :any
Source Port      :any
Is Fragment      :1
Is SYN           :0
Interface        :any (0x0)
O/F/L/I/T       :REASSEMBLE/Fragment/IPv4_REASS/0/0
Deliver List     :na
Accepts/Drops    :0/0
Is Stale         :0
-----
L3 Protocol      :IPV4
L4 Protocol      :ICMP
Destination IP   :any
Source IP        :any
Port/Type        :ICMP:ECHO
Source Port      :any
Is Fragment      :0
Is SYN           :0
Interface        :any (0x0)
O/F/L/I/T       :DROP/ICMP-local/IPv4_STACK/1/0
Deliver List     :na
Accepts/Drops    :0/0
Is Stale         :0
-----
L3 Protocol      :IPV4
L4 Protocol      :ICMP
Destination IP   :any
Source IP        :any
Port/Type        :ICMP:TSTAMP
Source Port      :any
Is Fragment      :0
```

```

Is SYN           :0
Interface        :any (0x0)
O/F/L/I/T       :DROP/ICMP-local/IPv4_STACK/1/0
Deliver List     :na
Accepts/Drops   :0/0
Is Stale        :0
-----
L3 Protocol      :IPV4
L4 Protocol      :ICMP
Destination IP   :any
Source IP        :any
Port/Type        :ICMP:MASKREQ
Source Port      :any
Is Fragment      :0
Is SYN           :0
Interface        :any (0x0)
O/F/L/I/T       :DROP/ICMP-local/IPv4_STACK/1/0
Deliver List     :na
Accepts/Drops   :0/0
Is Stale        :0
-----

```

The following is sample output for the **show lpts pifib type** command using the **ipv4** and **tcp** keywords.

```

RP/0/RP0/CPU0:router# show lpts pifib type ipv4 tcp
O/P/R/L/I
O - Opcode ; P - Packet Priority; R - Rate Limit;
L - Listener Tag; I - Local Flag;
na - Not Applicable
-----

```

```

L3 Protocol      : IPV4
L4 Protocol      : TCP
Destination IP   : any
Source IP        : any
Port/Type        : Port:7
Source Port      : any
Is Fragment      : 0
Is SYN           : 1
Interface        : any (0x0)
O/P/R/L/I       : DELIVER/LO/MED/IPv4_STACK/0
Deliver List     : 0/0/0
Stats           : 0
Is Stale        : 0
-----

```

```

L3 Protocol      : IPV4
L4 Protocol      : TCP
Destination IP   : any
Source IP        : any
Port/Type        : Port:9
Source Port      : any
Is Fragment      : 0
Is SYN           : 1
Interface        : any (0x0)
O/P/R/L/I       : DELIVER/LO/MED/IPv4_STACK/0
Deliver List     : 0/0/0
Stats           : 0
Is Stale        : 0
-----

```

The following is sample output from the **show lpts pifib brief** command:

```
RP/0/RP0/CPU0:router# show lpts pifib brief
```

```
* - Critical Flow; I - Local Interest;
X - Drop; R - Reassemble;
```

| Type       | Local, Remote Address.Port | L4    | Interface | Deliver    |
|------------|----------------------------|-------|-----------|------------|
| ISIS       | - -                        | -     | any       | 0/RP1/CPU0 |
| IPv4_frag  | any any                    | any   | any       | R          |
| IPv4_IXMP  | any.ECHO any               | ICMP  | any       | XI         |
| IPv4_IXMP  | any.TSTAMP any             | ICMP  | any       | XI         |
| IPv4_IXMP  | any.MASKREQ any            | ICMP  | any       | XI         |
| IPv4_IXMP  | any any                    | ICMP  | any       | 0/RP1/CPU0 |
| IPv4_IXMP  | any any                    | IGMP  | any       | 0/RP1/CPU0 |
| IPv4_mcast | 224.0.0.5 any              | any   | any       | 0/RP1/CPU0 |
| IPv4_mcast | 224.0.0.6 any              | any   | any       | 0/RP1/CPU0 |
| IPv4_mcast | 224.0.0.0/4 any            | any   | any       | 0/RP1/CPU0 |
| IPv4_TCP   | any.7 any                  | TCP   | any       | 0/RP1/CPU0 |
| IPv4_TCP   | any.9 any                  | TCP   | any       | 0/RP1/CPU0 |
| IPv4_TCP   | any.19 any                 | TCP   | any       | 0/RP1/CPU0 |
| IPv4_TCP   | any.179 any                | TCP   | any       | 0/RP1/CPU0 |
| IPv4_TCP   | any any.179                | TCP   | any       | 0/RP1/CPU0 |
| IPv4_TCP   | any any                    | TCP   | any       | 0/RP1/CPU0 |
| IPv4_UDP   | any any                    | UDP   | any       | 0/RP1/CPU0 |
| IPv4_IPsec | any any                    | ESP   | any       | 0/RP1/CPU0 |
| IPv4_IPsec | any any                    | AH    | any       | 0/RP1/CPU0 |
| IPv4_rawIP | any any                    | OSPF  | any       | 0/RP1/CPU0 |
| IPv4_rawIP | any any                    | any   | any       | 0/RP1/CPU0 |
| IPv6_frag  | any any                    | any   | any       | R          |
| IPv6_ICMP  | any any                    | ICMP6 | any       | 0/RP1/CPU0 |
| IPv6_mcast | ff02::5 any                | any   | any       | 0/RP1/CPU0 |
| IPv6_mcast | ff02::6 any                | any   | any       | 0/RP1/CPU0 |
| IPv6_mcast | ff00::/8 any               | any   | any       | 0/RP1/CPU0 |
| IPv6_TCP   | any.179 any                | TCP   | any       | 0/RP1/CPU0 |
| IPv6_TCP   | any any.179                | TCP   | any       | 0/RP1/CPU0 |
| IPv6_TCP   | any any                    | TCP   | any       | 0/RP1/CPU0 |
| IPv6_UDP   | any any                    | UDP   | any       | 0/RP1/CPU0 |
| IPv6_IPsec | any any                    | ESP   | any       | 0/RP1/CPU0 |
| IPv6_IPsec | any any                    | AH    | any       | 0/RP1/CPU0 |
| IPv6_rawIP | any any                    | OSPF  | any       | 0/RP1/CPU0 |
| IPv6_rawIP | any any                    | any   | any       | 0/RP1/CPU0 |

The following is sample output from the **show lpts pifib brief statistics** command:

```
RP/0/RP0/CPU0:router# show lpts pifib brief statistics
```

```
* - Critical Flow; I - Local Interest;
X - Drop; R - Reassemble;
```

| Type       | Local, Remote Address.Port | L4   | Interface | Accepts/Drops |
|------------|----------------------------|------|-----------|---------------|
| ISIS       | - -                        | -    | any       | 0/0           |
| IPv4_frag  | any any                    | any  | any       | 0/0           |
| IPv4_IXMP  | any.ECHO any               | ICMP | any       | 0/0           |
| IPv4_IXMP  | any.TSTAMP any             | ICMP | any       | 0/0           |
| IPv4_IXMP  | any.MASKREQ any            | ICMP | any       | 0/0           |
| IPv4_IXMP  | any any                    | ICMP | any       | 0/0           |
| IPv4_IXMP  | any any                    | IGMP | any       | 0/0           |
| IPv4_mcast | 224.0.0.5 any              | any  | any       | 0/0           |
| IPv4_mcast | 224.0.0.6 any              | any  | any       | 0/0           |
| IPv4_mcast | 224.0.0.0/4 any            | any  | any       | 0/0           |
| IPv4_TCP   | any.7 any                  | TCP  | any       | 0/0           |

```

IPv4_TCP any.9 any TCP any 0/0
IPv4_TCP any.19 any TCP any 0/0
IPv4_TCP any.179 any TCP any 0/0
IPv4_TCP any any.179 TCP any 0/0
IPv4_TCP any any TCP any 0/0
IPv4_UDP any any UDP any 74/0
IPv4_IPsec any any ESP any 0/0
IPv4_IPsec any any AH any 0/0
IPv4_rawIP any any OSPF any 0/0
IPv4_rawIP any any any any 0/0
IPv6_frag any any any any 0/0
IPv6_ICMP any any ICMP6 any 0/0
IPv6_mcast ff02::5 any any any 0/0
IPv6_mcast ff02::6 any any any 0/0
IPv6_mcast ff00::/8 any any any 0/0
IPv6_TCP any.179 any TCP any 0/0
IPv6_TCP any any.179 TCP any 0/0
IPv6_TCP any any TCP any 0/0
IPv6_UDP any any UDP any 0/0
IPv6_IPsec any any ESP any 0/0
IPv6_IPsec any any AH any 0/0
IPv6_rawIP any any OSPF any 0/0
IPv6_rawIP any any any any 0/0

```

-----  
statistics:

| Type       | Num. Entries | Accepts/Drops |
|------------|--------------|---------------|
| -----      | -----        | -----         |
| ISIS       | 1            | 0/0           |
| IPv4_frag  | 1            | 0/0           |
| IPv4_IXMP  | 5            | 0/0           |
| IPv4_mcast | 3            | 0/0           |
| IPv4_TCP   | 6            | 0/0           |
| IPv4_UDP   | 1            | 74/0          |
| IPv4_IPsec | 2            | 0/0           |
| IPv4_rawIP | 2            | 0/0           |
| IPv6_frag  | 1            | 0/0           |
| IPv6_ICMP  | 1            | 0/0           |
| IPv6_mcast | 3            | 0/0           |
| IPv6_TCP   | 3            | 0/0           |
| IPv6_UDP   | 1            | 0/0           |
| IPv6_IPsec | 2            | 0/0           |
| IPv6_rawIP | 2            | 0/0           |
| Total      | 34           |               |

```

Packets into Pre-IFIB:74
Lookups:74
Packets delivered locally:74
Packets delivered remotely:0

```

---

**Related Commands**

| Command                                | Description  |
|--|--|
| <a href="#">show lpts pifib lookup</a> | Displays the Pre-FIB entry matching a particular packet. |

---

# show lpts pifib lookup

To display the Pre-Internal Forwarding Information Base (Pre-IFIB) entry matching a particular packet, use the **show lpts pifib lookup** command in EXEC mode.

```
show lpts pifib lookup l3protocol { ipv4 | ipv6 | isis } [is-fragment { yes | no }] [l4protocol
  { l4protocol-number | ah | egp | eigrp | encap | eon | esp | ggp | gre | icmp | icmpv6 | idp | igmp
  | igrp | ipinip | nosip | ospf | pcp | pim | pup | raw | rsvp | tcp | tp | udp }] [interface type]
[source ip-address] [destination ip-address] [sport port-number] [dport port-number] [is-syn
  { yes | no }][type type-number] [spi spi-number] [location node-id]
```

## Syntax Description

|                               |  |
|-------------------------------|--|
| <b>l3protocol</b>             | Layer 3 protocol.  |
| <b>ipv4</b>                   | IPv4 Layer 3 protocol type.  |
| <b>ipv6</b>                   | IPv6 Layer 3 protocol type.  |
| <b>isis</b>                   | Intermediate System-to-Intermediate System (ISIS) Layer 3 protocol type.   |
| <b>l4protocol</b>             | (Optional) Layer 4 protocol identifier or type. Values include: <ul style="list-style-type: none"> <li><i>l4protocol-identifier</i>: location where Pre-IFIB is on</li> <li>Any of the following protocol types: <b>ah</b>, <b>egp</b>, <b>eigrp</b>, <b>encap</b>, <b>eon</b>, <b>esp</b>, <b>ggp</b>, <b>gre</b>, <b>icmp</b>, <b>icmpv6</b>, <b>idp</b>, <b>igmp</b>, <b>igrp</b>, <b>ipinip</b>, <b>nosip</b>, <b>ospf</b>, <b>pcp</b>, <b>pim</b>, <b>pup</b>, <b>raw</b>, <b>rsvp</b>, <b>tcp</b>, <b>tp</b>, and <b>udp</b> <a href="#">Table 7</a> identifies the protocol types.</li> </ul> |
| <b>is-fragment yes</b>        | (Optional) Turns on the IP fragment.   |
| <b>is-fragment no</b>         | (Optional) Turns off the IP fragment.  |
| <b>interface</b>              | (Optional) Ingress interface.  |
| <i>type</i>                   | Interface type. For more information, use the question mark (?) online help function.  |
| <b>source ip-address</b>      | (Optional) Source IP address.  |
| <b>destination ip-address</b> | (Optional) Destination IP address.   |
| <b>sport port-number</b>      | (Optional) Source Layer 4 port number. Range is from 0 to 65535.   |
| <b>dport port-number</b>      | (Optional) Destination Layer 4 port number. Range is from 0 to 65535.  |
| <b>is-syn yes</b>             | (Optional) Turns on the TCP SYN flag setting.  |
| <b>is-syn no</b>              | (Optional) Turns off the TCP SYN flag setting.   |
| <b>type number</b>            | (Optional) Internet Control Message Protocol (ICMP) type or IGMP type. Range is from 0 to 255.   |
| <b>spi spi-number</b>         | (Optional) IPsec security parameters index.  |
| <b>location node-id</b>       | (Optional) The <i>node-id</i> argument is entered in the rack/slot/module notation (for example, 0/7/CPU0).  |

## Command Types

EXEC

## Command History

| Release     | Modification                 |
|-------------|------------------------------|
| Release 2.0 | This command was introduced. |

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

Use this command to look up an entry in the software Pre-IFIB table (not the hardware table), given the key field values from a packet. Note the following constraints:

- **l4protocol** is an available keyword if **ipv4** or **ipv6** is chosen.
- **is-fragment** is an available keyword if **ipv4** or **ipv6** is chosen.
- **source** and **destination** are available keywords if **ipv4** or **ipv6** is chosen.
- **sport** and **dport** are available keywords if **tcp** or **udp** is chosen.
- **type** is an available keyword if **icmp** or **igmp** or **icmpv6** is chosen.
- **is-syn** is an available keyword if **tcp** is chosen.
- **spi** is an available keyword if **esp** or **ah** is chosen.

**Table 7 Layer 4 Protocol Types**

| Protocol      | Description  |
|---------------|--|
| <b>ah</b>     | AH Layer 4 protocol type   |
| <b>egp</b>    | Exterior Gateway Protocol Layer 4 protocol type                  |
| <b>eigrp</b>  | Enhanced Interior Gateway Routing Protocol Layer 4 protocol type |
| <b>encap</b>  | ENCAP Layer 4 protocol type                                      |
| <b>eon</b>    | EON Layer 4 protocol type  |
| <b>esp</b>    | Extended Services Processor Layer 4 protocol type                |
| <b>ggp</b>    | Gateway-to-Gateway Protocol Layer 4 protocol type                |
| <b>gre</b>    | Generic Routing Encapsulation Layer 4 protocol type              |
| <b>icmp</b>   | Internet Control Message Protocol Layer 4 protocol type          |
| <b>icmpv6</b> | Internet Control Message Protocol Layer 4 protocol type (IPv6)   |
| <b>idp</b>    | Initial Domain Part Layer 4 protocol type.                       |
| <b>igmp</b>   | Internet Group Management Protocol Layer 4 protocol type         |
| <b>igrp</b>   | Interior Gateway Routing Protocol Layer 4 protocol type          |
| <b>ipinip</b> | IPINIP Layer 4 protocol type.                                    |
| <b>nosip</b>  | NOSIP Layer 4 protocol type                                      |
| <b>ospf</b>   | Open Shortest Path First Layer 4 protocol type                   |
| <b>pcp</b>    | PCP Layer 4 protocol type  |
| <b>pim</b>    | Protocol Independent Multicast Layer 4 protocol type             |
| <b>pup</b>    | PARC Universal Protocol Layer 4 protocol type                    |
| <b>raw</b>    | RAW-IP Layer 4 protocol type                                     |
| <b>rsvp</b>   | Resource Reservation Protocol Layer 4 protocol type              |
| <b>tcp</b>    | Transmission Control Protocol Layer 4 protocol type              |
| <b>tp</b>     | Transport Protocol Layer 4 protocol type                         |
| <b>udp</b>    | User Datagram Protocol Layer 4 protocol type.                    |

**Examples**

The following is sample output from the **show lpts pifib lookup** command:

```
RP/0/RP1/CPU0:router# show lpts pifib lookup l3protocol ipv4 is-fragment no l4protocol
ospf interface POS0/1/0/0 source 1.2.3.4 dest 224.0.0.5
```

O - Opcode; F - Flow Type; L - Listener Tag; I - Local Flag; T - Min TTL;  
na - Not Applicable

```
-----
L3 Protocol      :IPV4
L4 Protocol      :any
Destination IP   :224.0.0.5
Source IP        :any
Port/Type        :any
Source Port      :any
Is Fragment      :0
Is SYN           :0
Interface        :any (0x0)
O/F/L/I/T       :DELIVER/OSPF-default/OSPF_MC4_FM/0/0
Deliver List     :0/RP1/CPU0
Accepts/Drops    :0/0
Is Stale         :0
```

O/P/R/L/I  
O - Opcode ; P - Packet Priority; R - Rate Limit;  
L - Listener Tag; I - Local Flag;  
na - Not Applicable

```
-----
L3 Protocol      : IPV4
L4 Protocol      : TCP
Destination IP   : any
Source IP        : any
Port/Type        : Port:7
Source Port      : any
Is Fragment      : 0
Is SYN           : 1
Interface        : any (0x0)
O/P/R/L/I       : DELIVER/LO/MED/IPv4_STACK/0
Deliver List     : 0/0/0
Stats            : 0
Is Stale         : 0
```

```
-----
L3 Protocol      : IPV4
L4 Protocol      : TCP
Destination IP   : any
Source IP        : any
Port/Type        : Port:9
Source Port      : any
Is Fragment      : 0
Is SYN           : 1
Interface        : any (0x0)
O/P/R/L/I       : DELIVER/LO/MED/IPv4_STACK/0
Deliver List     : 0/0/0
Stats            : 0
Is Stale         : 0
```

**Related Commands**

| Command                         | Description                |
|---------------------------------|----------------------------|
| <a href="#">show lpts pifib</a> | Displays Pre-IFIB entries. |

# show lpts pifib statistics

To display Pre-Internal Forwarding Information Base (Pre-IFIB) statistics, use the **show lpts ifib statistics** command in EXEC mode.

```
show lpts pifib statistics [location node-id]
```

|                           |                         |   |
|---------------------------|-------------------------|---|
| <b>Syntax Description</b> | <b>location node-id</b> | (Optional) Displays Pre-IFIB statistics for the designated node. The <i>node-id</i> argument is entered in the rack/slot/module notation (for example, 0/7/CPU0). |
|---------------------------|-------------------------|---|

|                      |      |
|----------------------|------|
| <b>Command Modes</b> | EXEC |
|----------------------|------|

|                        |                |                              |
|------------------------|----------------|------------------------------|
| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|                        | Release 2.0    | This command was introduced. |

|                         |   |
|-------------------------|---|
| <b>Usage Guidelines</b> | To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the <i>Configuring AAA Services on Cisco IOS-XR Software</i> module of the <i>Cisco IOS-XR System Security Configuration Guide</i> . |
|-------------------------|---|

|                 |  |
|-----------------|--|
| <b>Examples</b> | The following is sample output from the <b>show lpts pifib statistics</b> command. |
|-----------------|--|

```
RP/0/RP0/CPU0:router# show lpts pifib statistics

Packets into Pre-IFIB:80
Lookups:80
Packets delivered locally:80
Packets delivered remotely:0
```

|                         |                                 |  |
|-------------------------|---------------------------------|--|
| <b>Related Commands</b> | <b>Command</b>                  | <b>Description</b>                           |
|                         | <a href="#">show lpts pifib</a> | Displays information about Pre-IFIB entries. |

■ show lpts pifib statistics