Chapter 38

IP-IP Interfaces Operational Mode Command

This chapter describes the show interfaces command you use to monitor and troubleshoot IP-IP interfaces.

show interfaces (for IP-IP Interfaces)

Syntax

show interfaces ip-*fpc/pic/port* <brief | detail | extensive>
<destination-class *destination-class-name*>
<media>
<source-class *source-class-name*>
<statistics>

Description

Display status information about IP-IP router interfaces.

Options

none—Display information about all interfaces.

ip-*fpc/pic/port*—Name of an interface.

brief—(Optional) Display brief interface information.

detail—(Optional) Display detailed interface information.

extensive—(Optional) Display very detailed interface information.

destination-class *destination-class-name*—(Optional) Name of a logical grouping of prefixes that count packets having the destination address matching those prefixes. Whenever a destination class is specified, you must also specify a particular logical interface, not all interfaces.

media—(Optional) Display media-specific information about network interfaces.

source-class *source-class-name*—(Optional) Name of a logical grouping of prefixes that count packets having the source address matching those prefixes. Whenever a source class is specified, you must also specify a particular logical interface, not all interfaces.

statistics—(Optional) Display static interface statistics.

Required Privilege Level

view

Sample Output

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Output Fields at a Glance

Table 80 summarizes the information included in the output fields of each show interfaces command option for IP-IP interfaces. In this table, output fields are listed in alphabetical order. Table 81 on page 528 lists the output fields in more detail in the order in which they are displayed.

Table 80: IP-IP Show Interfaces Output Field Summary (Alphabetical Order)

Options	Field Description
Physical Interface	
Extensive	Bucket Drops—Drops due to traffic load exceeding the interface transmit/receive leaky bucket configuration. The default is off.
Extensive	Clocking—Reference clock source. It can be Internal or External.
Extensive	Drops—Number of packets dropped by the output queue of the I/O Manager ASIC. If the interface is saturated, this number increments once for every packet that is dropped by the ASIC's RED mechanism.
All	Enabled—State of the interface. Possible values are described in "Enabled" on page 7.
All	Flags—Information about the physical device and interface.
Extensive	Framing errors—Sum of AAL5 packets that have FCS errors, AAL5 packets that have reassembly timeout errors, and AAL5 packets that have length errors.
Extensive	Generation—A unique number for use by Juniper Networks Customer Support only.
Extensive	Giants—Frames received that are larger than the giant threshold.
Detail Extensive	Hold-times—Current interface hold-time up and hold-time down, in milliseconds.
Extensive	Input errors—Input errors on the interface.
Standard	Input rate, Output rate—Rate of bits and packets received and transmitted on the interface.
Standard Detail Extensive	Interface index—Physical interface's index number, which reflects its initialization sequence.
All	Last flapped—Date, time, and how long ago the interface went from down to up.
All	LCP state—Specific PPP bits. Opened indicates that they have been initialized and opened, which means that the link is healthy.
All	Link-level type—Describes the link layer type.
All	MTU—MTU size on the physical interface.
Extensive	Output errors—Output errors on the interface.
All	NCP state—Specific PPP bits. Opened indicates that they have been initialized and opened, which means that the link is healthy.
All	Physical interface—Name of the physical interface.
Extensive	Runts—Frames received that are smaller than the runt threshold.
Standard Detail Extensive	SNMP ifIndex—SNMP index number for the physical interface.
All	Speed—Speed at which the interface is running.
Detail Extensive	Statistics last cleared—Time when the statistics for the interface were last zeroed.

Options		Field Description
Detail	Extensive	Traffic statistics—Total number of bytes and packets received and transmitted on the physical interface. These statistics are the sum of the local and transit statistics. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
All		Type—Encapsulation being used on the interface.
Logical Interface		
All		Addresses—Addresses associated with the logical interface.
Detail	Extensive	Broadcast—Broadcast address.
All		Destination—IP address of the remote side of the connection.
All		Encapsulation—Encapsulation on the logical interface.
Detail	Extensive	Filters—Name of the firewall filters to be evaluated when packets are received or transmitted on the interface.
All		Logical interface flags—Information about the logical interface. Possible values are described in "Logical Interface Flags" on page 9.
Standard		Input packets, Output packets—Number of packets received and transmitted on the logical interface.
All		IP Header—IP header of the logical interface.
All		Local—IP address of the logical interface.
Detail	Extensive	Local statistics—Statistics for traffic received from and transmitted to the Routing Engine.
All		Logical interface, Index, SNMP ifIndex—Name of the logical interface, the logical interface's index number (which reflects its initialization sequence), and the logical interface's SNMP interface index number.
All		MTU—MTU size on the logical interface.
Detail	Extensive	Policer—Policers to be evaluated when packets are received or transmitted on the interface.
Detail	Extensive	Route table—The address is located in this route table. For example, Route table:0 refers to inet.0.
Detail	Extensive	Source class—List of the names of source class usage (SCU) counters per family and per class for this interface. The counters display Packets and Bytes arriving from designated user-selected prefixes.
Detail	Extensive	Traffic statistics—Total number of bytes and packets received and transmitted on the logical interface. These statistics are the sum of the local and transit statistics. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
Detail	Extensive	Transit statistics—Statistics for traffic transiting the router. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.

Table 81: IP-IP Show Interfaces Output Field Summary (Order of Appearance)

Output Field	Output Field Description
Physical Interface	
Physical interface	Name of the physical interface.
Enabled	State of the interface. Possible values are described in "Enabled" on page 7.
Interface index	Physical interface's index number, which reflects its initialization sequence.
SNMP ifIndex	SNMP index number for the physical interface.
Generation	A unique number for use by Juniper Networks Customer Support only.
Type	Encapsulation being used on the interface.
Link-level type	Encapsulation being used on the physical interface.
MTU	MTU size on the physical interface.
Clocking	Reference clock source. It can be Internal or External.
Speed	Speed at which the interface is running.
Device flags	Information about the physical device. Possible values are described in "Device Flags" on page 7.
Interface flags	Information about the interface.
Hold-times	Current interface hold-time up and hold-time down, in milliseconds.
LCP state	Specific PPP bits. Opened indicates that they have been initialized and opened, which means that the link is healthy.
NCP state	Specific PPP bits. Opened indicates that they have been initialized and opened, which means that the link is healthy.
Statistics last cleared	Time when the statistics for the interface were last zeroed.
Last Flapped	Date, time, and how long ago the interface went from down to up. The format is Last flapped: *year-month-day hour:minute:second timezone* (*hour:minute:second* ago). For example, Last flapped: 2002-04-26 10:52:40 PDT (04:33:20 ago).
Traffic statistics	Number and rate of bytes and packets received and transmitted on the physical interface. Input bytes, Output bytes—Number of bytes received and transmitted on the interface. Input packets, Output packets—Number of packets received and transmitted on the interface.
Input rate, Output rate	(Standard output only) Rate of bits (in bps) and packets (in pps) received and transmitted on the interface.

Output Field	Output Field Description
Input errors	(Extensive output only) Input errors on the interface. The following paragraphs explain the counters whose meaning might not be obvious: Errors—Sum of the incoming frame aborts and FCS errors. Drops—Number of packets dropped by the output queue of the I/O Manager ASIC. If the interface is saturated, this number increments once for every packet that is dropped by the ASIC's RED mechanism. Invalid VCs—Number of cells that arrived for a nonexistent VC. Framing errors—Sum of AAL5 packets that have FCS errors, AAL5 packets that have reassembly timeout errors, and AAL5 packets that have length errors. Bucket Drops—Drops due to traffic load exceeding the interface transmit/receive leaky bucket configuration. The default is off. Giants—Frames received that are larger than the giant threshold. Runts—Frames received that are smaller than the runt threshold. Policed discards—Frames that the incoming packet match code discarded because they were not recognized or of interest. Usually, this field reports protocols that the JUNOS software does not handle, such as CDP. L3 incompletes—Increments when the incoming packet fails Layer 3 (usually IPv4) sanity checks of the header. For example, a frame with less than 20 bytes of available IP header would be discarded and this counter would increment. L2 channel errors—This counter increments when the software could not find a valid logical interface for an incoming frame. L2 mismatch timeouts—Count of malformed or short packets that cause the incoming packet handler to discard the frame as unreadable. SRAM errors—This counter increments when a hardware error has occurred in the SRAM on the PIC. The value in this field should always be 0. If it increments, the PIC is broken. HS link FCS errors—Number of errors on the high-speed links between the ASICs responsible for handling the router interfaces.
Output errors	(Extensive output only) Output errors on the interface. The following paragraphs explain the counters whose meaning might not be obvious: Carrier transitions—Number of times the interface has gone from down to up. This number should not increment quickly, increasing only when the cable is unplugged, the far-end system is powered down and up, or a similar problem occurs. If it increments quickly (perhaps once every 10 seconds), then either the cable, the far-end system, or the PIC is broken. Errors—Sum of the outgoing frame aborts and FCS errors. Drops—Number of packets dropped by the output queue of the I/O Manager ASIC. If the interface is saturated, this number increments once for every packet that is dropped by the ASIC's RED mechanism. Aged packets—Number of packets that remained in shared packet SDRAM for so long that the system automatically purged them. The value in this field should never increment. If it does, it is most likely a software bug or possibly broken hardware.
Logical Interface	
Logical interface, Index, SNMP ifIndex	Name of the logical interface, the logical interface's index number (which reflects its initialization sequence), and the logical interface's SNMP interface index number.
Flags	Information about the logical interface. Possible values are described in "Logical Interface Flags" on page 9.
IP Header	IP header of the logical interface.
Encapsulation	Encapsulation on the logical interface.

Output Field	Output Field Description
Input Packets, Output packets	(Standard output only) Number of packets received and transmitted on the logical interface.
Traffic statistics	Total number of bytes and packets received and transmitted on the logical interface. These statistics are the sum of the local and transit statistics. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize. Input rate—Rate of bits and packets received on the interface. Output rate—Rate of bits and packets transmitted on the interface.
Local statistics	Statistics for traffic received from and transmitted to the Routing Engine. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
Transit statistics	Statistics for traffic transiting the router. When a burst of traffic is received, the value in the output packet rate field might briefly exceed the peak cell rate. It takes a while (generally, less than 1 second) for this counter to stabilize.
MTU	MTU size on the logical interface.
Flags	Information about the protocol family flags. Possible values are described in "Family Flags" on page 9.
Generation	A unique number for use by Juniper Networks Customer Support only.
Route table	The address is located in this route table. For example, Route table:0 refers to inet.0.
Filters	Name of the firewall filters to be evaluated when packets are received or transmitted on the interface. The format is Filters: Input: *input-filter-name*, Output: *output-filter-name*.
RPF Failures: Packets: *xx*, Bytes: *yy*	The amount of incoming traffic (in packets and bytes) that failed a unicast Reverse Path Forwarding (RPF) check on this interface.
Destination class	List of the names of destination class usage (DCU) counters per family and per class for this interface. The counters display Packets and Bytes going to designated user-selected prefixes.
Source class	List of the names of source class usage (SCU) counters per family and per class for this interface. The counters display Packets and Bytes arriving from designated user-selected prefixes.
Policer	Policers to be evaluated when packets are received or transmitted on the interface. The format is Policer: Input: *type-fpc/pic/port*-in-policer, Output: *type-fpc/pic/port*-out-policer.
Addresses	Addresses associated with the logical interface.
Flags	Information about the address flags. Possible values are described in "Address Flags" on page 10.
Destination	IP address of the remote side of the connection.
Local	IP address of the logical interface.
Broadcast	Broadcast address.

show interfaces (standard) (for IP-IP Interfaces)

```
user@host> show interfaces ip-3/1/0
Physical interface: ip-3/1/0, Enabled, Physical link is Up
  Interface index: 82, SNMP ifIndex: 77
  Type: IPIP, Link-level type: IP-over-IP, MTU: Unlimited, Speed: 800mbps
  Device flags   : Present Running
  Interface flags: SNMP-Traps
  Input rate     : 0 bps (0 pps)
  Output rate    : 0 bps (0 pps)

  Logical interface ip-3/1/0.0 (Index 11) (SNMP ifIndex 353)
    Flags: Point-To-Point SNMP-Traps
    IP-Header 10.255.14.114:10.255.14.132:4:df:64:00000000
    Encapsulation: IPv4-NULL
  Input packets : 35
  Output packets: 36
    Protocol inet, MTU: 4450, Flags: None
      Addresses, Flags: Is-Preferred Is-Primary
        Destination: 10.11.0.0/30, Local: 10.11.0.1
```

show interfaces brief (for IP-IP Interfaces)

```
user@host> show interfaces ip-3/1/0 brief
Physical interface: ip-3/1/0, Enabled, Physical link is Up
  Type: IPIP, Link-level type: IP-over-IP, MTU: Unlimited, Speed: 800mbps
  Device flags   : Present Running
  Interface flags: SNMP-Traps

  Logical interface ip-3/1/0.0
    Flags: Point-To-Point SNMP-Traps
    IP-Header 10.255.14.114:10.255.14.132:4:df:64:00000000
    Encapsulation: IPv4-NULL
    inet  10.11.0.1/30
```

show interfaces detail (for IP-IP Interfaces)

```
user@host> show interfaces ip-3/1/0 detail
Physical interface: ip-3/1/0, Enabled, Physical link is Up
  Interface index: 82, SNMP ifIndex: 77, Generation: 81
  Type: IPIP, Link-level type: IP-over-IP, MTU: Unlimited, Speed: 800mbps
  Hold-times     : Up 0 ms, Down 0 ms
  Device flags   : Present Running
  Interface flags: SNMP-Traps
  Statistics last cleared: Never
  Traffic statistics:
   Input  bytes :              1152                 0 bps
   Output bytes :                 0                 0 bps
   Input  packets:               30                 0 pps
   Output packets:                0                 0 pps

  Logical interface ip-3/1/0.0 (Index 11) (SNMP ifIndex 353) (Generation 26)
    Flags: Point-To-Point SNMP-Traps
    IP-Header 10.255.14.114:10.255.14.132:4:df:64:00000000
    Encapsulation: IPv4-NULL
    Traffic statistics:
     Input  bytes :              1152
     Output bytes :              1748
     Input  packets:               30
     Output packets:               30
    Local statistics:
     Input  bytes :              1152
     Output bytes :              1748
     Input  packets:               30
     Output packets:               30
    Transit statistics:
     Input  bytes :                 0                 0 bps
     Output bytes :                 0                 0 bps
     Input  packets:                0                 0 pps
     Output packets:                0                 0 pps
    Protocol inet, MTU: 4450, Flags: None, Generation: 47 Route table: 0
      Addresses, Flags: Is-Preferred Is-Primary
        Destination: 10.11.0.0/30, Local: 10.11.0.1, Broadcast: Unspecified,
        Generation: 43
```

show interfaces extensive (for IP-IP Interfaces)

```
user@host> show interfaces ip-3/1/0 extensive
Physical interface: ip-3/1/0, Enabled, Physical link is Up
  Interface index: 82, SNMP ifIndex: 77, Generation: 81
  Type: IPIP, Link-level type: IP-over-IP, MTU: Unlimited, Speed: 800mbps
  Hold-times     : Up 0 ms, Down 0 ms
  Device flags   : Present Running
  Interface flags: SNMP-Traps
  Statistics last cleared: Never
  Traffic statistics:
   Input  bytes :              1044                 0 bps
   Output bytes :                 0                 0 bps
   Input  packets:               27                 0 pps
   Output packets:                0                 0 pps

  Logical interface ip-3/1/0.0 (Index 11) (SNMP ifIndex 353) (Generation 26)
    Flags: Point-To-Point SNMP-Traps
    IP-Header 10.255.14.114:10.255.14.132:4:df:64:00000000
    Encapsulation: IPv4-NULL
    Traffic statistics:
     Input  bytes :              1044
     Output bytes :              1636
     Input  packets:               27
     Output packets:               28
    Local statistics:
     Input  bytes :              1044
     Output bytes :              1636
     Input  packets:               27
     Output packets:               28
    Transit statistics:
     Input  bytes :                 0                 0 bps
     Output bytes :                 0                 0 bps
     Input  packets:                0                 0 pps
     Output packets:                0                 0 pps
    Protocol inet, MTU: 4450, Flags: None, Generation: 47 Route table: 0
      Addresses, Flags: Is-Preferred Is-Primary
        Destination: 10.11.0.0/30, Local: 10.11.0.1, Broadcast: Unspecified,
        Generation: 43
```

show interfaces media (for IP-IP Interfaces)

```
user@host> show interfaces media ip-3/1/0
Physical interface: ip-3/1/0, Enabled, Physical link is Up
  Interface index: 82, SNMP ifIndex: 77
  Type: IPIP, Link-level type: IP-over-IP, MTU: Unlimited, Speed: 800mbps
  Device flags   : Present Running
  Interface flags: SNMP-Traps
  Input rate     : 136 bps (0 pps)
  Output rate    : 0 bps (0 pps)
```

show interfaces statistics (for IP-IP Interfaces)

```
user@host> show interfaces statistics ip-3/1/0
Physical interface: ip-3/1/0, Enabled, Physical link is Up
  Interface index: 82, SNMP ifIndex: 77
  Type: IPIP, Link-level type: IP-over-IP, MTU: Unlimited, Speed: 800mbps
  Device flags   : Present Running
  Interface flags: SNMP-Traps
  Statistics last cleared: Never
  Input rate     : 0 bps (0 pps)
  Output rate    : 0 bps (0 pps)

  Logical interface ip-3/1/0.0 (Index 11) (SNMP ifIndex 353)
    Flags: Point-To-Point SNMP-Traps
    IP-Header 10.255.14.114:10.255.14.132:4:df:64:00000000
    Encapsulation: IPv4-NULL
  Input packets : 692
  Output packets: 729
    Protocol inet, MTU: 4450, Flags: None
      Addresses, Flags: Is-Preferred Is-Primary
        Destination: 10.11.0.0/30, Local: 10.11.0.1
```