

Chapter 4

Operational Mode Commands

This section summarizes the command-line interface (CLI) commands introduced or modified in JUNOS Release 8.0 to monitor the M120 Internet router.

request chassis fabric plane

| | |
|---|--|
| Syntax | request chassis fabric plane <i>plane-number</i> (offline online) |
| Release Information | Command introduced in JUNOS Release 8.0. |
| Description | (M120 router only) Control the operation of the specified fabric plane. |
| Options | offline—Take the fabric plane offline. online—Bring the fabric plane online. <i>plane plane-number</i> —Fabric plane slot number. Replace <i>plane-number</i> with a value from 0 through 3. |
| Required Privilege Level | maintenance |
| List of Sample Output | request chassis fabric plane 0 online on page 33 request chassis fabric plane 0 offline on page 33 |
| Output Fields | When you enter this command, you are provided feedback on the status of your request. |
| request chassis fabric plane 0 online | user@host> request chassis fabric plane 0 online Online initiated, use “show chassis fabric plane” to verify |
| request chassis fabric plane 0 offline | user@host> request chassis fabric plane 0 offline Offline initiated, use “show chassis fabric plane” to verify |

request chassis feb restart slot

| | |
|---|---|
| Syntax | request chassis feb restart slot <i>slot-number</i> |
| Release Information | Command introduced in JUNOS Release 8.0 |
| Description | (M120 router only) Restart the specified Forwarding Engine Board (FEB). |
| Options | slot <i>slot-number</i> —FEB slot number. Replace <i>slot-number</i> with a value from 0 through 5. |
| Required Privilege Level | maintenance |
| List of Sample Output | request chassis feb restart slot 0 on page 34 |
| Output Fields | When you enter this command, you are provided feedback on the status of your request. |
| request chassis feb restart slot 0 | user@host> request chassis feb restart slot 0 Restart initiated, use “show chassis feb” to verify |

show chassis fabric feb

Syntax show chassis fabric feb

Release Information Command introduced in JUNOS Release 8.0.

Description (M120 router only) Display the state of the electrical and optical switching fabric links between the Forwarding Engine Boards (FEBs) and the fabric planes, as interpreted by the FEB.

Options none—Display the switching fabric link state for all FEBs.

Required Privilege Level view

List of Sample Output show chassis fabric feb on page 35

Output Fields Table 8 lists the output fields for the show chassis fabric feb command.

Table 8: show chassis fabric feb

| Field Name | Field Description |
|-----------------------------|--|
| Fabric management FEB state | State of the switching fabric link between each FEB and fabric plane: desalination error, disabled, enabled, link error, link ok, or unused. |

```

user@host> show chassis fabric feb
Fabric management      FEB state
FEB 0                  Plane 0: Plane enabled
                       Plane 1: Plane enabled
                       Plane 2: Plane enabled
                       Plane 3: Plane enabled

FEB 4                  Plane 0: Plane enabled
                       Plane 1: Plane enabled
                       Plane 2: Plane enabled
                       Plane 3: Plane enabled

```

show chassis fabric map

- Syntax** show chassis fabric map plane <plane-number>
- Release Information** Command introduced in JUNOS Release 8.0.
- Description** (M120 router only) Displays the state of the switching fabric map for connections from the Forwarding Engine Boards to the ports on the fabric planes, as interpreted by the fabric plane.
- Options** none—Display the switching fabric map state for the M120 router.
- plane *plane-number*—(Optional) Display the state of the fabric link for the specified plane number. Replace *plane-number* with a value from 0 through 3.
- Required Privilege Level** view
- List of Sample Output** show chassis fabric map plane on page 36
- Output Fields** Table 9 lists the output fields for the `show chassis fabric map` command. Output fields are listed in the approximate order in which they appear.

Table 9: show chassis fabric map

| Field Name | Field Description |
|------------|--|
| in-links | Fabric map for receive side links. |
| out-links | Fabric map for transmit side links. |
| state | State of the fabric link: RESET, UP, DOWN, or FAULT. |

```

user@host> show chassis fabric map plane
FEB0->CB0F0_00 up CB0F0_08->FEB7 Down

FEB1->CB0F0_01 Down CB0F0_09->FEB6 Down

FEB6->CB0F0_02 Down CB0F0_10->FEB1 Down

FEB2->CB0F0_03 Down CB0F0_11->FEB0 up

FEB3->CB0F0_04 Down CB0F0_12->FEB3 Down

FEB4->CB0F0_05 up CB0F0_13->FEB2 Down

FEB7->CB0F0_06 Down CB0F0_14->FEB5 Down

FEB5->CB0F0_07 Down CB0F0_15->FEB4 up:

```

show chassis fabric plane

Syntax show chassis fabric plane

Description (M120 router only) Displays the state of all fabric plane connections to the Forwarding Engine Boards (FEBs).

Required Privilege Level view

List of Sample Output show chassis fabric plane on page 37

Output Fields Table 10 lists the output fields for the show chassis fabric plane command. Output fields are listed in the approximate order in which they appear.

Table 10: show chassis fabric plane

| Field Name | Field Description |
|-------------------------------|--|
| Fabric management plane state | State of switching fabric link for each plane: check, fault, link error, link ok, or unused. |
| FEB | FEB number and state of links to each FEB: link error, link ok, or unused. |
| Plane state | State of each plane: ACTIVE, EMPTY or FAULTY. |

show chassis fabric plane user@host> **show chassis fabric plane**

```
Fabric management PLANE state
Plane 0
Plane state: ACTIVE
FEB 0: Links ok
FEB 1: Links ok
FEB 2: Links ok
FEB 3: Links ok
FEB 4: Links ok
FEB 5: Links ok
Plane 1
Plane state: ACTIVE
FEB 0: Links ok
FEB 1: Links ok
FEB 2: Links ok
FEB 3: Links ok
FEB 4: Links ok
FEB 5: Links ok
Plane 2
Plane state: ACTIVE
FEB 0: Links ok
FEB 1: Links ok
FEB 2: Links ok
FEB 3: Links ok
FEB 4: Links ok
FEB 5: Links ok
Plane 3
Plane state: ACTIVE
FEB 0: Links ok
FEB 1: Links ok
FEB 2: Links ok
FEB 3: Links ok
FEB 4: Links ok
FEB 5: Links ok
```

show chassis fabric plane-location

Syntax show chassis fabric plane-location

Release Information Command introduced in JUNOS Release 8.0.

Description (M120 router only) Display the Control Board (CB) location of each plane. This command can be used on the master Routing Engine or the backup Routing Engine.

Options none—Display the CB location of all planes.

Required Privilege Level view

List of Sample Output show chassis fabric plane-location on page 38

```
user@host> show chassis fabric plane-location
-----Fabric Plane Locations----- Plane 0 Control Board 0 Plane 1
Control Board 0 Plane 2 Control Board 1 Plane 3 Control Board 1
```

show chassis feb

| | |
|---------------------------------|---|
| Syntax | show chassis feb <detail> |
| Release Information | Command introduced before JUNOS Release 7.4. |
| Description | (M5, M10, and M120 routers only) Display Forwarding Engine Board (FEB) status information. |
| Options | none—Display status information for all FEBs. detail—(Optional) Display detailed status information for all FEBs. |
| Required Privilege Level | view |
| List of Sample Output | show chassis feb (M120 Router) on page 40 show chassis feb detail (M120 Router) on page 40 |
| Output Fields | Table 11 lists the output fields for the <code>show chassis feb</code> command. Output fields are listed in the approximate order in which they appear. |

Table 11: show chassis feb

| Field Name | Field Description |
|--|--|
| State | State of the FEB: Offline , Online , or Check . |
| Temp (C) or Intake temperature | Temperature of the air passing by the FEB, in degrees Celsius or in both degrees Celsius and degrees Fahrenheit. |
| CPU Utilization (%)—(Standard output only) | Percentage of CPU being used: <ul style="list-style-type: none"> ■ Total—Total percentage of CPU being used by the FEB processor. ■ Interrupt—Of the total CPU being used by the FEB processor, the percentage being used for interrupts. |
| Memory DRAM (MB)—(Standard output only) | Total DRAM, in megabytes, available to the FEB processor. |
| Utilization (%)—(Standard output only) | Percentage of memory utilization: <ul style="list-style-type: none"> ■ Heap—Percentage of heap space (dynamic memory) being used by the FEB processor. If this number exceeds 80 percent, you might experience a software problem (memory leak). ■ Buffer—Percentage of buffer space being used by the FPC processor for buffering internal messages. |
| Exhaust A temperature | Temperature of the air flowing past Exhaust A. |
| Exhaust B temperature | Temperature of the air flowing past Exhaust B. |
| Total DDR DRAM | Amount of double data rate dynamic random access memory (DDR DRAM) available to the FEB CPU. |
| Total RLDRAM | Amount of reduced latency dynamic random access memory (RLDRAM) available to the FEB CPU. |
| Start time (Detail output only) | Time when the Routing Engine detected that the FEB was running. |
| Uptime (Detail output only) | How long the Routing Engine has been connected to the FEB, and therefore, how long the Flexible PIC Concentrator (PIC) has been up and running. |

**show chassis feb
(M120 Router)**

```

user@host> show chassis feb

```

| Slot | State | Temp (C) | CPU Total | Utilization (%) Interrupt | Memory DRAM (MB) | Utilization (%) Heap | Buffer |
|------|--------|----------|-----------|---------------------------|------------------|----------------------|--------|
| 0 | Online | 47 | 4 | 0 | 512 | 7 | 60 |
| 1 | Online | 54 | 3 | 0 | 512 | 7 | 59 |
| 2 | Online | 50 | 4 | 0 | 512 | 7 | 59 |
| 3 | Online | 49 | 4 | 0 | 512 | 7 | 59 |
| 4 | Online | 46 | 3 | 0 | 512 | 7 | 59 |
| 5 | Online | 35 | 3 | 0 | 512 | 7 | 59 |

**show chassis feb detail
(M120 Router)**

```

user@host> show chassis feb detail

```

Slot 0 information:

- State: Online
- Intake temperature: 48 degrees C / 118 degrees F
- Exhaust A temperature: 51 degrees C / 123 degrees F
- Exhaust B temperature: 52 degrees C / 125 degrees F
- Total DDR DRAM: 512 MB
- Total RLDRAM: 32 MB
- Start time: 2006-06-28 15:00:40 PDT
- Uptime: 10 minutes, 21 seconds

Slot 1 information:

- State: Online
- Intake temperature: 55 degrees C / 131 degrees F
- Exhaust A temperature: 46 degrees C / 114 degrees F
- Exhaust B temperature: 45 degrees C / 113 degrees F
- Total DDR DRAM: 512 MB
- Total RLDRAM: 32 MB
- Start time: 2006-06-28 15:00:33 PDT
- Uptime: 10 minutes, 28 seconds

Slot 2 information:

- State: Online
- Intake temperature: 50 degrees C / 122 degrees F
- Exhaust A temperature: 47 degrees C / 116 degrees F
- Exhaust B temperature: 47 degrees C / 116 degrees F
- Total DDR DRAM: 512 MB
- Total RLDRAM: 32 MB
- Start time: 2006-06-28 15:00:35 PDT
- Uptime: 10 minutes, 26 seconds

Slot 3 information:

- State: Online
- Intake temperature: 49 degrees C / 120 degrees F
- Exhaust A temperature: 47 degrees C / 116 degrees F
- Exhaust B temperature: 49 degrees C / 120 degrees F
- Total DDR DRAM: 512 MB
- Total RLDRAM: 32 MB
- Start time: 2006-06-28 15:00:43 PDT
- Uptime: 10 minutes, 18 seconds

Slot 4 information:

- State: Online
- Intake temperature: 45 degrees C / 113 degrees F
- Exhaust A temperature: 42 degrees C / 107 degrees F
- Exhaust B temperature: 42 degrees C / 107 degrees F
- Total DDR DRAM: 512 MB
- Total RLDRAM: 32 MB
- Start time: 2006-06-28 15:00:29 PDT
- Uptime: 10 minutes, 32 seconds

Slot 5 information:

- State: Online
- Intake temperature: 35 degrees C / 95 degrees F
- Exhaust A temperature: 33 degrees C / 91 degrees F
- Exhaust B temperature: 40 degrees C / 104 degrees F
- Total DDR DRAM: 512 MB

```
Total RLDRAM          32 MB
Start time:            2006-06-28 15:00:27 PDT
Uptime:                10 minutes, 34 seconds
```

show chassis fpc-feb-connectivity

- Syntax** show chassis fpc-feb-connectivity
- Release Information** Command introduced in JUNOS Release 8.0
- Description** (M120 router only) Displays the FPC and FEB mapping and their respective states.
- Required Privilege Level** view
- List of Sample Output** show chassis fpc-feb-connectivity on page 42

Output Fields Table 12 lists the output fields for the show chassis fpc-feb-connectivity command. Output fields are listed in the approximate order in which they appear.

Table 12: show chassis fpc-feb-connectivity

| Field Name | Field Description |
|---------------|--|
| FPC | Slot number of the FPC |
| FPC type | Type of FPC: Type 1, Type 2, Type 3, or cFPC. |
| FPC state | State of the FPC: Announce offline, Announce online, Empty, Offline, Online, Present, or Ready. |
| Connected FEB | Slot number of the FEB connected to the FPC or None if the FPC is not connected to a FEB. |
| FEB state | State of the FEB: Announce offline, Announce online, Empty, Offline, Online, Present, or Ready. |
| Link status | Status of the link connecting the R-FEB and R-FPC: <ul style="list-style-type: none"> ■ Error ■ Misconfiguration—Configuration between the R-FEB and the F-FPC is incorrect. ■ OK |

show chassis fpc-feb-connectivity

```
user@host> show chassis fpc-feb-connectivity
```

| FPC | FPC type | FPC state | Connected FEB | FEB state | Link status |
|-----|----------|-----------|---------------|-----------|-------------|
| 0 | cFPC | Online | 0 | Empty | |
| 1 | cFPC | Online | 1 | Online | OK |
| 2 | Type 3 | Online | 3 | Online | OK |
| 3 | Type 2 | Online | None | | |
| 4 | Type 1 | Online | 4 | Online | OK |
| 5 | Type 3 | Online | None | | |

show interfaces (10-Gigabit Ethernet)

| | |
|---------------------------------|---|
| Syntax | show interfaces <i>xe-fpc/pic/port</i> <brief detail extensive terse> <descriptions> <media> <snmp-index <i>snmp-index</i> > <statistics> |
| Release Information | Command introduced in JUNOS Release 8.0. |
| Description | (M120, M320, and T-series routing platforms only) Display status information about the specified 10-Gigabit Ethernet interface. |
| Options | <p>none—Display standard information about the specified 10-Gigabit Ethernet interface.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>descriptions—(Optional) Display interface description strings.</p> <p>media—(Optional) Display media-specific information about network interfaces.</p> <p>snmp-index <i>snmp-index</i>—(Optional) Display information for the specified SNMP interface index.</p> <p>statistics—(Optional) Display static interface statistics.</p> |
| Required Privilege Level | view |
| List of Sample Output | <p>show interfaces extensive (10-Gigabit Ethernet, LAN PHY Mode) on page 52</p> <p>show interfaces extensive (10-Gigabit Ethernet, WAN PHY Mode) on page 53</p> |
| Output Fields | Table 13 on page 44 lists the output fields for the show interfaces (10-Gigabit Ethernet) command. Output fields are listed in the approximate order in which they appear. |

Table 13: 10-Gigabit Ethernet show interfaces Output Fields (1 of 8)

| Field Name | Field Description | Level of Output |
|---------------------------|---|-----------------------|
| Physical Interface | | |
| Physical interface | Name of the physical interface. | All levels |
| Enabled | State of the interface: enabled or disabled . | All levels |
| Interface index | Index number of the physical interface, which reflects its initialization sequence. | detail extensive none |
| SNMP ifIndex | SNMP index number for the physical interface. | detail extensive none |
| Generation | Unique number for use by Juniper Networks technical support only. | detail extensive |
| Link-level type | Encapsulation being used on the physical interface. | All levels |
| MTU | Maximum transmission unit size on the physical interface. | All levels |
| Speed | Speed at which the interface is running. | All levels |
| Loopback | Loopback status: Enabled or Disabled . If loopback is enabled, type of loopback: Local or Remote | All levels |
| Source filtering | Source filtering status: Enabled or Disabled . | All levels |
| LAN-PHY mode | 10-Gigabit Ethernet interface operating in local area network physical layer device (LAN PHY) mode. LAN PHY allows 10-Gigabit Ethernet wide-area links to use existing Ethernet applications. | All levels |
| WAN-PHY mode | 10-Gigabit Ethernet interface operating in wide area network physical layer device (WAN PHY) mode. WAN PHY allows 10-Gigabit Ethernet wide-area links to use fiber-optic cables and other devices intended for SONET/SDH. | All levels |
| Flow control | Flow control status: Enabled or Disabled . | All levels |
| Auto-negotiation | (Gigabit Ethernet interfaces) Autonegotiation status: Enabled or Disabled . | All levels |
| Remote-Fault | (Gigabit Ethernet interfaces) Remote fault status: <ul style="list-style-type: none"> ■ Online—Autonegotiation is manually configured as online. ■ Offline—Autonegotiation is manually configured as offline | All levels |
| Device flags | Information about the physical device. | All levels |
| Interface flags | Information about the interface. | All levels |
| Link flags | Information about the link. | All levels |
| CoS queues | Number of CoS queues configured. | detail extensive none |
| Hold-times | Current interface hold-time up and hold-time down, in milliseconds. | detail extensive |
| Current address | Configured MAC address. | detail extensive none |
| Hardware address | Hardware MAC address. | detail extensive none |
| 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) . | detail extensive none |
| Statistics last cleared | Time when the statistics for the interface were last set to zero. | detail extensive |
| Traffic statistics | Number and rate of bytes and packets received and transmitted on the physical interface. <ul style="list-style-type: none"> ■ Input bytes—Number of bytes received on the interface ■ Output bytes—Number of bytes transmitted on the interface. ■ Input packets—Number of packets received on the interface. ■ Output packets—Number of packets transmitted on the interface. | detail extensive |

Table 13: 10-Gigabit Ethernet show interfaces Output Fields (2 of 8)

| Field Name | Field Description | Level of Output |
|--------------|---|-----------------|
| Input errors | <p data-bbox="402 373 1149 426">Input errors on the interface. The following paragraphs explain the counters whose meaning might not be obvious:</p> <ul style="list-style-type: none"> <li data-bbox="402 436 1000 462">■ Errors—Sum of the incoming frame aborts and FCS errors. <li data-bbox="402 472 1162 552">■ Drops—Number of packets dropped by the input 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. <li data-bbox="402 562 1179 615">■ Framing errors—Number of packets received with an invalid frame checksum (FCS). <li data-bbox="402 625 1170 651">■ Runts—Number of frames received that are smaller than the runt threshold. <li data-bbox="402 661 1166 741">■ Policed discards—Number of frames that the incoming packet match code discarded because they were not recognized or not of interest. Usually, this field reports protocols that the JUNOS software does not handle. <li data-bbox="402 751 1179 831">■ L3 incompletes—Number of incoming packets discarded because they failed. The Layer 3 (usually IPv4) header sanity check. For example, a frame with less than 20 bytes of available IP header is discarded. <li data-bbox="402 842 1166 894">■ L2 channel errors—Number of times the software did not find a valid logical interface for an incoming frame. <li data-bbox="402 905 1162 957">■ L2 mismatch timeouts—Number of malformed or short packets that caused the incoming packet handler to discard the frame as unreadable. <li data-bbox="402 968 1154 1020">■ HS link CRC errors—Number of errors on the high-speed links between the ASICs responsible for handling the router interfaces. <li data-bbox="402 1031 1149 1083">■ HS link FIFO overflows—Number of FIFO overflows on the high-speed links between the ASICs responsible for handling the router interfaces. <li data-bbox="402 1094 1179 1173">■ FIFO errors—Number of FIFO errors in the receive direction that are reported by the ASIC on the PIC. If this value is ever nonzero, the PIC is probably malfunctioning. <li data-bbox="402 1184 824 1209">■ Resource errors—Sum of transmit drops. | extensive |

Table 13: 10-Gigabit Ethernet show interfaces Output Fields (3 of 8)

| Field Name | Field Description | Level of Output |
|----------------|---|------------------|
| Output errors | <p>Output errors on the interface. The following paragraphs explain the counters whose meaning might not be obvious:</p> <ul style="list-style-type: none"> ■ Carrier transitions—Number of times the interface has gone from down to up. This number does not normally increment quickly, increasing only when the cable is unplugged, the far-end system is powered down and then up, or another problem occurs. If the number of carrier transitions increments quickly (perhaps once every 10 seconds), the cable, the far-end system, or the PIC or PIM is malfunctioning. ■ 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. ■ Collisions—Number of Ethernet collisions. The Gigabit Ethernet PIC supports only full-duplex operation, so for Gigabit Ethernet PICs, this number should always remain 0. If the number is not zero, there is an internal software problem. ■ Aged packets—Number of packets that remained in shared packet SDRAM so long that the system automatically purged them. The value in this field should never increment. If it does, it is most likely an internal software problem or possibly malfunctioning hardware. ■ FIFO errors—Number of FIFO errors in the send direction as reported by the ASIC on the PIC. If this value is ever nonzero, the PIC is probably malfunctioning. ■ HS link CRC errors—Number of errors on the high-speed links between the ASICs responsible for handling the router interfaces. ■ MTU errors—Number of packets whose size exceeded the MTU of the interface. ■ Resource errors—Sum of transmit drops. | extensive |
| Egress queues | Total number of egress queues supported on the specified interface. | detail extensive |
| Queue counters | <p>CoS queue number and its associated user-configured forwarding class name:</p> <ul style="list-style-type: none"> ■ Queued packets—Number of queued packets. ■ Transmitted packets—Number of transmitted packets. ■ Dropped packets—Number of packets dropped by the ASIC's RED mechanism. | detail extensive |

Table 13: 10-Gigabit Ethernet show interfaces Output Fields (4 of 8)

| Field Name | Field Description | Level of Output |
|----------------------------------|--|-----------------------|
| Active alarms and Active defects | <p>Ethernet-specific defects that can prevent the interface from passing packets. When a defect persists for a certain amount of time, it is promoted to an alarm. Based on the router configuration, an alarm can ring the red or yellow alarm bell on the router, or turn on the red or yellow alarm LED on the craft interface. These fields can contain the following values:</p> <ul style="list-style-type: none"> ■ None—There are no active defects or alarms. ■ Link—Interface has lost its link state, which usually means that the cable is unplugged, the far-end system has been turned off, or the PIC is malfunctioning. <p>In WAN PHY mode, the interface displays SONET alarms and defects:</p> <ul style="list-style-type: none"> ■ BIP-B1—Bit interleaved parity for SONET section overhead ■ SEF—Severely errored framing ■ LOL—Loss of light ■ LOF—Loss of frame ■ ES-S—Errored seconds (section) ■ SES-S—Severely errored seconds (section) ■ SEFS-S—Severely errored framing seconds (section) ■ BIP-B2—Bit interleaved parity for SONET line overhead ■ REI-L—Remote error indication (near-end line) ■ RDI-L—Remote defect indication (near-end line) ■ AIS-L—Alarm indication signal (near-end line) ■ BERR-SF—Bit error rate fault (signal failure) ■ BERR-SD—Bit error rate defect (signal degradation) ■ ES-L—Errored seconds (near-end line) ■ SES-L—Severely errored seconds (near-end line) ■ UAS-L—Unavailable seconds (near-end line) ■ ES-LFE—Errored seconds (far-end line) ■ SES-LFE—Severely errored seconds (far-end line) ■ UAS-LFE—Unavailable seconds (far-end line) ■ BIP-B3—Bit interleaved parity for SONET section overhead ■ REI-P—Remote error indication ■ LCD-P—Loss of codegroup delineation (path) ■ LOP-P—Loss of pointer (path) ■ AIS-P—Path alarm indication signal ■ RDI-P—Path remote defect indication ■ UNEQ-P—Path unequipped ■ PLM-P—Path payload label mismatch ■ ES-P—Errored seconds (near-end STS path) ■ SES-P—Severely errored seconds (near-end STS path) ■ UAS-P—Unavailable seconds (near-end STS path) ■ SES-PFE—Severely errored seconds (far-end STS path) ■ UAS-PFE—Unavailable seconds (far-end STS path) | detail extensive none |

Table 13: 10-Gigabit Ethernet show interfaces Output Fields (5 of 8)

| Field Name | Field Description | Level of Output |
|----------------|--|------------------|
| PCS statistics | <p>Displays Physical Coding Sublayer (PCS) fault conditions from the WAN PHY or the LAN PHY device.</p> <ul style="list-style-type: none"> ■ Bit errors—High bit error rate. Indicates the number of bit errors when the PCS receiver is operating in normal mode. ■ Errored blocks—Loss of block lock. The number of errored blocks when the PCS receiver is operating in normal mode. | detail extensive |
| MAC statistics | <p>Receive and Transmit statistics reported by the PIC's MAC subsystem, including the following:</p> <ul style="list-style-type: none"> ■ Total octets and total packets—Total number of octets and packets. For Gigabit Ethernet IQ PICs, the received octets count varies by interface type. ■ Unicast packets, Broadcast packets, and Multicast packets—Number of unicast, broadcast, and multicast packets. ■ CRC/Align errors—Total number of packets received that had a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but had either a bad FCS with an integral number of octets (FCS Error) or a bad FCS with a nonintegral number of octets (Alignment Error). ■ FIFO errors—Number of FIFO errors that are reported by the ASIC on the PIC. If this value is ever nonzero, the PIC is probably malfunctioning. ■ MAC control frames—Number of MAC control frames. ■ MAC pause frames—Number of MAC control frames with pause operational code. ■ Oversized frames—Number of frames that exceed 1518 octets. ■ Jabber frames—Number of frames that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either an FCS error or an alignment error. This definition of jabber is different from the definition in IEEE-802.3 section 8.2.1.5 (10BASE5) and section 10.3.1.4 (10BASE2). These documents define jabber as the condition in which any packet exceeds 20 ms. JUNOS software instead supports a range to detect jabber between 20 ms and 150 ms. ■ Fragment frames—Total number of packets that were less than 64 octets in length (excluding framing bits, but including FCS octets), and had either an FCS error or an alignment error. Fragment frames normally increment because both runts (which are normal occurrences caused by collisions) and noise hits are counted. ■ VLAN tagged frames—Number of frames that are VLAN tagged. The system uses the TPID of 0x8100 in the frame to determine whether a frame is tagged or not. ■ Code violations—Number of times an event caused the PHY to indicate "Data reception error" or "invalid data symbol error." | extensive |

Table 13: 10-Gigabit Ethernet show interfaces Output Fields (6 of 8)

| Field Name | Field Description | Level of Output |
|-------------------|--|-----------------|
| Filter Statistics | <p>Receive and Transmit statistics reported by the PIC's MAC address filter subsystem. The filtering is done by the content-addressable memory (CAM) on the PIC. The filter examines a packet's source and destination MAC addresses to determine whether the packet should enter the system or be rejected.</p> <ul style="list-style-type: none"> ■ Input packet count—Number of packets received from the MAC hardware that the filter processed. ■ Input packet rejects—Number of packets that the filter rejected because of either the source MAC address or the destination MAC address. ■ Input DA rejects—Number of packets that the filter rejected because the destination MAC address of the packet is not on the accept list. It is normal for this value to increment. When it increments very quickly and no traffic is entering the router from the far-end system, either there is a bad ARP entry on the far-end system, or multicast routing is not on and the far-end system is sending many multicast packets to the local router (which the router is rejecting). ■ Input SA rejects—Number of packets that the filter rejected because the source MAC address of the packet is not on the accept list. The value in this field should increment only if source MAC address filtering has been enabled. If filtering is enabled, if the value increments quickly, and if the system is not receiving traffic that it should from the far-end system, it means that the user-configured source MAC addresses for this interface are incorrect. ■ Output packet count—Number of packets that the filter has given to the MAC hardware. ■ Output packet pad count—Number of packets the filter padded to the minimum Ethernet size (60 bytes) before giving the packet to the MAC hardware. Usually, padding is done only on small ARP packets, but some very small IP packets can also require padding. If this value increments rapidly, either the system is trying to find an ARP entry for a far-end system that does not exist or it is misconfigured. ■ Output packet error count—Number of packets with an indicated error that the filter was given to transmit. These packets are usually aged packets or are the result of a bandwidth problem on the FPC hardware. On a normal system, the value of this field should not increment. ■ CAM destination filters, CAM source filters—Number of entries in the CAM dedicated to destination and source MAC address filters. There can only be up to 64 source entries. If source filtering is disabled, which is the default, the values for these fields should be 0. | extensive |
| PMA PHY | <p>(10-Gigabit Ethernet interfaces, WAN PHY mode) SONET error information:</p> <ul style="list-style-type: none"> ■ Seconds—Number of seconds the defect has been active. ■ Count—Number of times that the defect has gone from inactive to active. ■ State—State of the error. Any state other than OK indicates a problem. <p>Subfields are:</p> <ul style="list-style-type: none"> ■ PHY Lock—Phase-locked loop ■ PHY Light—Loss of optical signal | extensive |

Table 13: 10-Gigabit Ethernet show interfaces Output Fields (7 of 8)

| Field Name | Field Description | Level of Output |
|-------------|---|-----------------|
| WIS section | <p>(10-Gigabit Ethernet interfaces, WAN PHY mode) SONET error information:</p> <ul style="list-style-type: none"> ■ Seconds—Number of seconds the defect has been active. ■ Count—Number of times that the defect has gone from inactive to active. ■ State—State of the error. Any state other than OK indicates a problem. <p>Subfields are:</p> <ul style="list-style-type: none"> ■ BIP-B1—Bit interleaved parity for SONET section overhead ■ SEF—Severely errored framing ■ LOL—Loss of light ■ LOF—Loss of frame ■ ES-S—Errored seconds (section) ■ SES-S—Severely errored seconds (section) ■ SEFS-S—Severely errored framing seconds (section) | extensive |
| WIS line | <p>(10-Gigabit Ethernet interfaces, WAN PHY mode) Active alarms and defects, plus counts of specific SONET errors with detailed information.</p> <ul style="list-style-type: none"> ■ Seconds—Number of seconds the defect has been active. ■ Count—Number of times that the defect has gone from inactive to active. ■ State—State of the error. Any state other than OK indicates a problem. <p>Subfields are:</p> <ul style="list-style-type: none"> ■ BIP-B2—Bit interleaved parity for SONET line overhead ■ REI-L—Remote error indication (near-end line) ■ RDI-L—Remote defect indication (near-end line) ■ AIS-L—Alarm indication signal (near-end line) ■ BERR-SF—Bit error rate fault (signal failure) ■ BERR-SD—Bit error rate defect (signal degradation) ■ ES-L—Errored seconds (near-end line) ■ SES-L—Severely errored seconds (near-end line) ■ UAS-L—Unavailable seconds (near-end line) ■ ES-LFE—Errored seconds (far-end line) ■ SES-LFE—Severely errored seconds (far-end line) ■ UAS-LFE—Unavailable seconds (far-end line) | extensive |

Table 13: 10-Gigabit Ethernet show interfaces Output Fields (8 of 8)

| Field Name | Field Description | Level of Output |
|---|--|-----------------|
| WIS path | <p>(10-Gigabit Ethernet interfaces, WAN PHY mode) Active alarms and defects, plus counts of specific SONET errors with detailed information.</p> <ul style="list-style-type: none"> ■ Seconds—Number of seconds the defect has been active. ■ Count—Number of times that the defect has gone from inactive to active. ■ State—State of the error. Any state other than OK indicates a problem. <p>Subfields are:</p> <ul style="list-style-type: none"> ■ BIP-B3—Bit interleaved parity for SONET section overhead ■ REI-P—Remote error indication (path) ■ LCD-P—Loss of codegroup delineation (path) ■ LOP-P—Loss of pointer (path) ■ AIS-P—Path alarm indication signal ■ RDI-P—Path remote defect indication ■ UNEQ-P—Path unequipped ■ PLM-P—Path payload label mismatch ■ ES-P—Errored seconds (near-end STS path) ■ SES-P—Severely errored seconds (near-end STS path) ■ UAS-P—Unavailable seconds (near-end STS path) ■ SES-PFE—Severely errored seconds (far-end STS path) ■ UAS-PFE—Unavailable seconds (far-end STS path) | extensive |
| Received path trace, Transmitted path trace | <p>(10-Gigabit Ethernet interfaces, WAN PHY mode) SONET/SDH interfaces allow path trace bytes to be sent inband across the SONET/SDH link. Juniper Networks and other router manufacturers use these bytes to help diagnose misconfigurations and network errors by setting the transmitted path trace message so that it contains the system hostname and name of the physical interface. The received path trace value is the message received from the router at the other end of the fiber. The transmitted path trace value is the message that this router transmits.</p> | extensive |
| Packet Forwarding Engine configuration | <p>Information about the configuration of the Packet Forwarding Engine:</p> <ul style="list-style-type: none"> ■ Destination slot—FPC slot number. ■ CoS transmit queue—Queue number and its associated user-configured forwarding class name. <ul style="list-style-type: none"> ■ Bandwidth %—Percentage of bandwidth allocated to the queue. ■ Bandwidth bps—Bandwidth allocated to the queue (in bps). ■ Buffer %—Percentage of buffer space allocated to the queue. ■ Buffer usec—Amount of buffer space allocated to the queue, in microseconds. This value is nonzero only if the buffer size is configured in terms of time. ■ Priority—Queue priority. Possible values are low and high. ■ Limit—Displayed if rate limiting is configured for the queue. Possible values are none and exact. If exact is configured, the queue transmits only up to the configured bandwidth, even if excess bandwidth is available. If none is configured, the queue transmits beyond the configured bandwidth if bandwidth is available. | extensive |

```

show interfaces      user@host> show interfaces xe-1/0/0 extensive
extensive           Physical interface: xe-1/1/0, Enabled, Physical link is Up
(10-Gigabit Ethernet, Interface index: 141, SNMP ifIndex: 34, Generation: 47
LAN PHY Mode)      Link-level type: Ethernet, MTU: 1514, Speed: 10Gbps, Loopback: Disabled,
                    LAN-PHY mode
                    Source filtering: Disabled, Flow control: Enabled
                    Device flags   : Present Running
                    Interface flags: SNMP-Traps 16384
                    Link flags     : None
                    CoS queues     : 4 supported
                    Hold-times      : Up 0 ms, Down 0 ms
                    Current address: 00:05:85:a2:10:9d, Hardware address: 00:05:85:a2:10:9d
                    Last flapped   : 2005-07-07 11:22:34 PDT (3d 12:28 ago)
                    Statistics last cleared: Never
                    Traffic statistics:
                    Input bytes   :                0                0 bps
                    Output bytes  :                0                0 bps
                    Input packets:                0                0 pps
                    Output packets:                0                0 pps
                    Input errors:
                    Errors: 0, Drops: 0, Framing errors: 0, Runts: 0, Policed discards: 0,
                    L3 incompletes: 0, L2 channel errors: 0, L2 mismatch timeouts: 0,
                    HS Link CRC errors: 0, HS Link FIFO overflows: 0,
                    Resource errors: 0
                    Output errors:
                    Carrier transitions: 1, Errors: 0, Drops: 0, Collisions: 0,
                    Aged packets: 0, FIFO errors: 0, HS link CRC errors: 0, MTU errors: 0,
                    Resource errors: 0
                    Queue counters:
                    Queued packets  Transmitted packets  Dropped packets
                    0 best-effort    0                  0                  0
                    1 expedited-fo   0                  0                  0
                    2 assured-forw   0                  0                  0
                    3 network-cont   0                  0                  0
                    Active alarms  : None
                    Active defects : None
                    PCS statistics
                    Seconds        Count
                    Bit errors      0                0
                    Errored blocks  0                0
                    MAC statistics:
                    Receive        Transmit
                    ...

```

**show interfaces
extensive
(10-Gigabit Ethernet,
WAN PHY Mode)**

```

user@host> show interfaces xe-1/0/0 extensive
Physical interface: xe-1/0/0, Enabled, Physical link is Down
Interface index: 128, SNMP ifIndex: 28, Generation: 432
Link-level type: Ethernet, MTU: 1514, Clocking: Internal, WAN-PHY mode,
Speed: 0C192, Loopback: None, Source filtering: Disabled, Flow control:
Enabled
Device flags   : Present Running Down
Interface flags: Hardware-Down SNMP-Traps Internal: 0x4000
Link flags     : None
CoS queues    : 8 supported, 8 maximum usable queues
Hold-times    : Up 0 ms, Down 0 ms
Current address: 00:14:f6:11:21:fe, Hardware address: 00:14:f6:11:21:fe
Last flapped  : 2006-06-22 16:28:16 PDT (00:00:42 ago)
Statistics last cleared: Never
Traffic statistics:
Input bytes   :                0                0 bps
Output bytes  :                0                0 bps
Input packets :                0                0 pps
Output packets:                0                0 pps
Input errors:
Errors: 0, Drops: 0, Framing errors: 0, Runts: 0, Policed discards: 0,
L3 incompletes: 0, L2 channel errors: 0, L2 mismatch timeouts: 0, FIFO
errors: 0,
Resource errors: 0
Output errors:
Carrier transitions: 64, Errors: 0, Drops: 0, Collisions: 0, Aged packets:
0,
FIFO errors: 0, HS link CRC errors: 0, MTU errors: 0, Resource errors: 0
Egress queues: 8 supported, 8 in use
Queue counters:      Queued packets  Transmitted packets  Dropped packets
0 best-effort        0                0                0
1 expedited-fo       0                0                0
2 assured-forw       0                0                0
3 network-cont       0                0                0
Active alarms  : PLL, LOS, LINK
Active defects : PLL, LOF, LOS, SEF, LOP, BERR-SF, PLM-P, LINK
PCS statistics          Seconds
Bit errors              0
Errored blocks          3
MAC statistics:          Receive          Transmit
Total octets            0                0
Total packets           0                0
Unicast packets         0                0
Broadcast packets       0                0
Multicast packets       0                0
CRC/Align errors        0                0
FIFO errors             0                0
MAC control frames      0                0
MAC pause frames        0                0
Oversized frames        0
Jabber frames           0
Fragment frames         0
VLAN tagged frames      0
Code violations          0
Filter statistics:
Input packet count      273
Input packet rejects    0
Input DA rejects        0
Input SA rejects        0
Output packet count     0
Output packet pad count 0
Output packet error count 0
CAM destination filters: 1, CAM source filters: 0

```

```

PMA PHY:                Seconds      Count  State
  PLL Lock                405          3  PLL Lock Error
  PHY Light                0          0  OK
WIS section:
  BIP-B1                   0          0
  SEF                     434         437  Defect Active
  LOS                     434          3  Defect Active
  LOF                     433          2  Defect Active
  ES-S                    434
  SES-S                   434
  SEFS-S                  434
WIS line:
  BIP-B2                   0          0
  REI-L                   0          0
  RDI-L                    5          2  OK
  AIS-L                    0          0  OK
  BERR-SF                 430          1  Defect Active
  BERR-SD                  7          3  OK
  ES-L                    434
  SES-L                   434
  UAS-L                   421
  ES-LFE                   5
  SES-LFE                  5
  UAS-LFE                  0
WIS path:
  BIP-B3                   0          0
  REI-P                   0          0
  LOP-P                   434          9  Defect Active
  AIS-P                    0          0  OK
  RDI-P                   432        10822  OK
  UNEQ-P                   5          5  OK
  PLM-P                   434        17012  Defect Active
  ES-P                    434
  SES-P                   434
  UAS-P                   421
  ES-PFE                  432
  SES-PFE                 432
  UAS-PFE                 421
Received path trace:
  00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
Transmitted path trace: xe-1/0/0
  78 67 65 2d 31 2f 30 2f 30 00 00 00 00 00 00 00  xe-1/0/0.....
Packet Forwarding Engine configuration:
  Destination slot: 1
  CoS transmit queue      Bandwidth      Buffer Priority
Limit                    %      bps      %      usec      low
  0 best-effort           95    9455616000  95      0
  none
  3 network-control       5     497664000  5      0
  none
  ...

```