

Chapter 21

Monitor Channelized DS-3 Interfaces

This chapter describes how to monitor Channelized DS-3 interfaces and begin the process of isolating Channelized DS-3 interface problems when they occur. (See Table 47.)

Table 47: Checklist for Monitoring Channelized DS-3 Interfaces

Monitor Channelized DS-3 Interfaces Tasks	Command or Action
Monitor Channelized DS-3 Interfaces on page 214	
1. Display the Status of Channelized DS-3 Interfaces on page 214	<code>show interfaces terse t1*</code>
2. Display the Status of a Specific Channelized DS-3 Interface on page 216	<code>show interfaces t1-fpc/pic/port:channel</code>
3. Display Extensive Status Information for a Specific Channelized DS-3 Interface on page 219	<code>show interfaces t1-fpc/pic/port:channel extensive</code>
4. Monitor Statistics for a Channelized DS-3 Interface on page 224	<code>monitor interfaces t1-fpc/pic/port:channel</code>

Monitor Channelized DS-3 Interfaces

Purpose By monitoring Channelized DS-3 interfaces, you begin the process of isolating Channelized DS-3 interface problems when they occur.

Steps To Take To monitor your Channelized DS-3 interfaces, follow these steps:

1. Display the Status of Channelized DS-3 Interfaces on page 214
2. Display the Status of a Specific Channelized DS-3 Interface on page 216
3. Display Extensive Status Information for a Specific Channelized DS-3 Interface on page 219
4. Monitor Statistics for a Channelized DS-3 Interface on page 224

Step 1: Display the Status of Channelized DS-3 Interfaces

Action To display the status of Channelized DS-3 interfaces, use the following JUNOS command-line interface (CLI) operational mode command:

```
user@host> show interfaces t1* terse
```

Sample Output 1

```
user@host> show interfaces t1* terse
Interface      Admin Link Proto Local      Remote
t1-1/2/0:1     up   down
t1-1/2/0:2     up   down
t1-1/2/0:3     up   down
t1-1/2/0:4     up   down
t1-1/2/0:5     up   up
t1-1/2/0:5.0   up   up   inet 172.16.1.33/30
t1-1/2/0:6     up   up
t1-1/2/0:6.0   up   up   inet 172.16.1.37/30
t1-1/2/0:7     up   up
t1-1/2/0:7.0   up   up   inet 172.16.1.41/30
t1-1/2/0:8     up   down
t1-1/2/0:9     up   down
t1-1/2/0:10    up   down
t1-1/2/0:11    up   up
t1-1/2/0:11.0  up   up   inet 172.16.1.45/30
t1-1/2/0:12    up   up
t1-1/2/0:12.0  up   up   inet 172.16.1.49/30
t1-1/2/0:13    up   up
t1-1/2/0:13.0  up   up   inet 172.16.1.53/30
t1-1/2/0:14    up   up
t1-1/2/0:14.0  up   up   inet 172.16.1.153/30
t1-1/2/0:15    up   up
t1-1/2/0:15.0  up   up   inet 172.16.1.177/30
t1-1/2/0:16    up   up
t1-1/2/0:16.0  up   up   inet 172.16.1.181/30
t1-1/2/0:17    up   up
t1-1/2/0:17.0  up   up   inet 172.16.1.129/30
t1-1/2/0:18    up   up
t1-1/2/0:18.0  up   up   inet 172.16.1.133/30
t1-1/2/0:19    up   down
t1-1/2/0:19.0  up   down inet 172.16.1.137/30
t1-1/2/0:20    up   down
t1-1/2/0:21    up   down
t1-1/2/0:22    up   down
```

```

t1-1/2/0:23    up   down
t1-1/2/0:24    up   down
t1-1/2/0:25    up   down
t1-1/2/0:26    up   down
t1-1/2/0:27    up   down
t1-1/2/0:28    up   down

```

Sample Output 2

```

user@host> show interfaces t1* terse
Interface      Admin Link Proto Local      Remote
t1-0/3/3:0    down down
t1-0/3/3:0.0 up  down inet 10.10.1/30
t1-0/3/3:1     up   up
t1-0/3/3:1.0   up   up   inet 10.10.10.5/30
t1-0/3/3:2     up   up
t1-0/3/3:2.0   up   up   inet 10.10.10.53/30

```

What It Means

The sample output shows the status of both the physical and logical interfaces. Sample output 1 shows that 12 of the possible 28 channels have IP addresses and are connected. Of the 12 connected channels, the last channel (t1-1/2/0:19.0) is currently down.

Sample output 2 shows that all links are up except for interface t1-0/3/3:0, which has both the physical and logical links down.

Step 2: Display the Status of a Specific Channelized DS-3 Interface

Action To display the status of a specific Channelized DS-3 interface, use the following JUNOS CLI operational mode command:

```
user@host> show interfaces t1-fpc/pic/port:channel
```

Sample Output 1

```
user@host> show interfaces t1-1/2/0:5
Physical interface: t1-1/2/0:5, Enabled, Physical link is Up
  Interface index: 181, SNMP ifIndex: 210
  Description: T1 to Tombstone – Circuit # 123456789
  Link-level type: PPP, MTU: 1504, Clocking: Internal, Speed: T1, Loopback: None, FCS: 16, Framing: ESF,
  Parent: ct3-1/2/0 Interface index 173
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps
  Link flags     : Keepalives
  Keepalive settings: Interval 60 seconds, Up-count 1, Down-count 3
  Keepalive: Input: 6898 (00:00:48 ago), Output: 6874 (00:00:07 ago)
  LCP state: Opened
  NCP state: inet: Opened, inet6: Not-configured, iso: Not-configured, mpls: Not-configured
  CHAP state: Not-configured
  CoS queues    : 4 supported
  Last flapped  : 2004-05-11 16:01:30 EDT (5d 02:41 ago)
  Input rate    : 2648 bps (6 pps)
  Output rate   : 14608 bps (4 pps)
  DS1 alarms : None
  DS1 defects : None

  Logical interface t1-1/2/0:5.0 (Index 86) (SNMP ifIndex 238)
  Flags: Point-To-Point SNMP-Traps Encapsulation: PPP
  Protocol inet, MTU: 1500
  Flags: None
  Addresses, Flags: Is-Preferred Is-Primary
  Destination: 68.71.141.32/30, Local: 68.71.141.33, Broadcast: 68.71.141.35
```

Sample Output 2

```
user@host> show interfaces t1-0/3/3:2
Physical interface: t1-0/3/3:2, Enabled, Physical link is Up
  Interface index: 239, SNMP ifIndex: 127
  Description:
  Link-level type: Cisco-HDLC, MTU: 1504, Clocking: Internal, Speed: T1,
  Loopback: None, FCS: 16, Mode: M23, Framing: ESF
  Device flags   : Present Running
  Interface flags: Point-To-Point SNMP-Traps
  Link flags     : Keepalives
  Keepalive settings: Interval 10 seconds, Up-count 1, Down-count 3
  Keepalive: Input: 124789 (00:00:08 ago), Output: 125379 (00:00:04 ago)
  CoS queues    : 4 supported
  Last flapped  : 2004-04-30 09:12:44 UTC (2w0d 10:45 ago)
  Input rate    : 3984 bps (10 pps)
  Output rate   : 56328 bps (14 pps)
  DS1 alarms   : None
  DS3 alarms   : None
  DS1 defects  : None
  DS3 defects  : None

  Logical interface t1-0/3/3:2.0 (Index 132) (SNMP ifIndex 236)
  Flags: Point-To-Point SNMP-Traps Encapsulation: Cisco-HDLC
  Input packets : 33897375
  Output packets: 40673351
  Protocol inet, MTU: 1500
  Flags: No-Redirects, uRPF, uRPF-loose
  Addresses, Flags: Primary Is-Preferred Is-Primary
```

Destination: 10.10.10.52/30, Local: 10.10.10.53,
Broadcast: 10.10.10.55

Sample Output 3 user@host> **show interfaces t1-1/2/0:1**
Physical interface: t1-1/2/0:1, Enabled, **Physical link is Down**
Interface index: 177, SNMP ifIndex: 205
Description: T1 to Bedrock #1 - RESERVED
Link-level type: PPP, MTU: 1504, Clocking: Internal, Speed: T1, **Loopback: None**, FCS: 16, Framing: ESF,
Parent: ct3-1/2/0 Interface index 173
Device flags : Present Running Down
Interface flags: Hardware-Down Point-To-Point SNMP-Traps
Link flags : Keepalives
CoS queues : 4 supported
Last flapped : 2004-04-02 09:12:49 EST (6w2d 08:29 ago)
Input rate : 0 bps (0 pps)
Output rate : 0 bps (0 pps)
DS1 alarms : AIS, LOF
DS1 defects : AIS, LOF

Sample Output 4 user@host> **show interfaces t1-1/2/0:19**
Physical interface: t1-1/2/0:19, Enabled, **Physical link is Down**
Interface index: 148, SNMP ifIndex: 224
Description: T1 to Rock City #6 – Circuit # 987654321
Link-level type: PPP, MTU: 1504, Clocking: Internal, Speed: T1, Loopback: None, FCS: 16, Framing: ESF,
Parent: ct3-1/2/0 Interface index 173
Device flags : Present Running Down
Interface flags: Hardware-Down Point-To-Point SNMP-Traps
Link flags : Keepalives
Keepalive settings: Interval 60 seconds, Up-count 1, Down-count 3
Keepalive: Input: 0 (never), Output: 0 (never)
LCP state: Conf-req-sent
NCP state: inet: Down, inet6: Not-configured, iso: Not-configured, mpls: Not-configured
CHAP state: Not-configured
CoS queues : 4 supported
Last flapped : 2004-05-14 15:56:43 EDT (2d 02:47 ago)
Input rate : 0 bps (0 pps)
Output rate : 0 bps (0 pps)
DS1 alarms : AIS, LOF
DS1 defects : AIS, LOF

Logical interface t1-1/2/0:19.0 (Index 91) (SNMP ifIndex 256)
Flags: Hardware-Down Device-Down Point-To-Point SNMP-Traps Encapsulation: PPP
Protocol inet, MTU: 1500
Flags: Protocol-Down
Addresses, Flags: Dest-route-down Is-Preferred Is-Primary
Destination: 68.71.141.136/30, Local: 68.71.141.137, Broadcast: 68.71.141.139

What It Means The first line of the output shows the status of the channel. If this line shows that the physical link is up, the physical link is healthy and can pass packets. If this line shows that the physical link is down, the physical link is unhealthy and cannot pass packets.

Sample output 1 shows a channel that is connected and operating correctly. You can verify the following information to check that the interface is functioning correctly:

Encapsulation used on the physical interface, Link-level type: PPP

Reference clock source, Clocking: Internal

Frame checksum sequence, FCS: 16

Physical layer framing format used on the link, Framing: ESF

Because the link-level type is Point-to-Point Protocol (PPP), the link control protocol (LCP) state is Opened, and the network control protocol (NCP) state has one protocol, NCP: inet: Opened, indicating that the link is healthy. There are no DS-1 alarms or defects.

Sample output 2 shows a channel that is connected and operating correctly. However, this channel has Cisco HDLC configured as the link-level type and a logical interface (t1-0/3/3:2.0) configured.

Sample output 3 shows a channel that is not connected, Physical link is Down. Loopback is not configured, Loopback: None, and the input and output counters are zero. In addition, there are alarm indication signal (AIS) and loss of frame (LOF) alarms and defects.

Sample output 4 shows a channel that is assigned but down, Physical link is Down. Information about the physical interfaces shows the device flags are Present Running Down, and one of the interface flags is Hardware-Down. In addition, interface protocol initialization failed to complete successfully on logical interface t1-1/2/0:19.0, Flags: Hardware-Down Device-Down.

Step 3: Display Extensive Status Information for a Specific Channelized DS-3 Interface

Action To display the status of Channelized DS-3 interfaces, use the following JUNOS CLI operational mode command:

```
user@host> show interfaces t1-fpc/pic/port:channel extensive
```

Sample Output 1

```
user@host> show interfaces t1-1/2/0:5 extensive
Physical interface: t1-1/2/0:5, Enabled, Physical link is Up
Interface index: 181, SNMP ifIndex: 210, Generation: 96
Description: T1 to Tombstone – Circuit # 123456789
Link-level type: PPP, MTU: 1504, Clocking: Internal, Speed: T1, Loopback: None, FCS: 16, Framing: ESF,
Parent: ct3-1/2/0 Interface index 173
Device flags : Present Running
Interface flags: Point-To-Point SNMP-Traps
Link flags : Keepalives
Hold-times : Up 0 ms, Down 0 ms
Keepalive settings: Interval 60 seconds, Up-count 1, Down-count 3
Keepalive statistics:
  Input : 6910 (last seen 00:00:21 ago)
  Output: 6886 (last sent 00:00:04 ago)
LCP state: Opened
NCP state: inet: Opened, inet6: Not-configured, iso: Not-configured, mpls: Not-configured
CHAP state: Not-configured
CoS queues : 4 supported
Last flapped : 2004-05-11 16:01:30 EDT (5d 02:53 ago)
Statistics last cleared: 2004-05-11 23:43:42 EDT (4d 19:10 ago)
Traffic statistics:
Input bytes :      551301316      4432 bps
Output bytes :    4091306894      2696 bps
Input packets:    5231609         6 pps
Output packets:  4867661         3 pps
Input errors:
  Errors: 47, Drops: 0, Framing errors: 0, Runts: 0, Giants: 0, Policed discards: 398, L3 incompletes: 0, L2 channel
errors: 0,
  L2 mismatch timeouts: 0, HS link CRC errors: 0, SRAM errors: 0
Output errors:
  Carrier transitions: 0, Errors: 0, Drops: 0, Aged packets: 0
Queue counters:   Queued packets  Transmitted packets  Dropped packets
0 best-effort    4820512             4804578             24909
1 expedited-fo      0                   0                   0
2 assured-forw     0                   0                   0
3 network-cont    63083              63083              0
DS1 alarms : None
DS1 defects : None
T1 media:
  Seconds  Count State
SEF      5      4 OK
BEE    246    127 OK
AIS        0      0 OK
LOF        0      0 OK
LOS        0      0 OK
YELLOW     0      0 OK
BPV        0      0
EXZ        0      0
LCV       246    538
PCV        0      0
CS         0      0
LES        0
ES         0
SES        8
SEFS       12
BES        0
```

```

UAS          0
HDLC configuration:
Policing bucket: Disabled
Shaping bucket : Disabled
Giant threshold: 1514, Runt threshold: 0
Timeslots   : All active
Line encoding: B8ZS, Byte encoding: Nx64K
Buildout    : 0 to 132 feet
Data inversion: Disabled, Idle cycle flag: flags, Start end flag: shared
DS1 BERT configuration:
BERT time period: 10 seconds, Elapsed: 0 seconds
Induced Error rate: 10e-0, Algorithm: 2^15 - 1, O.151, Pseudorandom (9)
Packet Forwarding Engine configuration:
Destination slot: 1, PLP byte: 4 (0x01)

Logical interface t1-1/2/0:5.0 (Index 86) (SNMP ifIndex 238) (Generation 111)
Flags: Point-To-Point SNMP-Traps Encapsulation: PPP
Protocol inet, MTU: 1500, Generation: 117, Route table: 0
Flags: None
Addresses, Flags: Is-Preferred Is-Primary
Destination: 68.71.141.32/30, Local: 68.71.141.33, Broadcast: 68.71.141.35, Generation: 169
Even though there are counts in the t1 media section of the output, notice how the "State" column has all "OK"

```

Sample Output 2

```

user@host> show interfaces t1-0/3/3:2 extensive
Physical interface: t1-0/3/3:2, Enabled, Physical link is Up
Interface index: 239, SNMP ifIndex: 127, Generation: 122
Description:
Link-level type: Cisco-HDLC, MTU: 1504, Clocking: Internal, Speed: T1,
Loopback: None, FCS: 16, Mode: M23, Framing: ESF
Device flags   : Present Running
Interface flags: Point-To-Point SNMP-Traps
Link flags     : Keepalives
Hold-times     : Up 0 ms, Down 0 ms
Keepalive settings: Interval 10 seconds, Up-count 1, Down-count 3
Keepalive statistics:
Input : 124790 (last seen 00:00:03 ago)
Output: 125379 (last sent 00:00:09 ago)
CoS queues   : 4 supported
Last flapped : 2004-04-30 09:12:44 UTC (2w0d 10:45 ago)
Statistics last cleared: Never
Traffic statistics:
Input bytes :      2930724407      9560 bps
Output bytes :      9983871242      78464 bps
Input packets:    17011460      14 pps
Output packets:    20390813      19 pps
Input errors:
Errors: 0, Drops: 0, Framing errors: 0, Policed discards: 233516,
L3 incompletes: 1, L2 channel errors: 0, L2 mismatch timeouts: 0,
HS link CRC errors: 0, SRAM errors: 0
Output errors:
Carrier transitions: 1, Errors: 0, Drops: 17341, Aged packets: 0
DS1 alarms : None
DS3 alarms : None
DS1 defects : None
DS3 defects : None
T1 media:

```

	Seconds	Count	State
SEF	0	0	OK
BEE	1	1	OK
AIS	0	0	OK
LOF	0	0	OK
LOS	0	0	OK
YELLOW	7	1	OK
BPV	0	0	

```

EXZ          0      0
LCV          1    1029
PCV          0      0
CS           0      0
LES          0
ES           0
SES          1
SEFS         2
BES          0
UAS          0
DS3 media:   Seconds   Count State
PLL Lock     0         0 OK
Reframing    0         0 OK
AIS          0         0 OK
LOF          0         0 OK
LOS          0         0 OK
IDLE         0         0 OK
YELLOW       7         1 OK
BPV          1    65535
EXZ          1    65535
LCV          2   131070
PCV          1    1079
LES          1
PES          1
PSES         1
SEFS         0
UAS          0

```

Interface transmit queues:

	B/W	WRR	Packets	Bytes	Drops	Errors
Queue0	95	95	20265434	9981112904	17341	0
Queue1	5	5	125379	2758338	0	0

HDLC configuration:

```

Giant threshold: 1514, Runt threshold: 3
Timeslots      : 1-24
Line encoding: B8ZS, Byte encoding: Nx64K, Data inversion: Disabled,
Idle cycle flag: flags, Start end flag: shared

```

DS-3 BERT configuration:

```

BERT time period: 10 seconds, Elapsed: 0 seconds
Algorithm: 2^3 - 1, Pseudorandom (1), Induced error rate: 10e-0

```

DS1 BERT configuration:

```

BERT time period: 10 seconds, Elapsed: 0 seconds
Induced Error rate: 10e-0, Algorithm: 2^15 - 1, O.151, Pseudorandom (9)

```

Packet Forwarding Engine configuration:

```

Destination slot: 0, PLP byte: 2 (0x2e)
CoS transmit queue      Bandwidth      Buffer Priority Limit
                        %      bps %      bytes
0 best-effort           95    1459200 95      0    low none
3 network-control       5      76800 5       0    low none

```

Logical interface t1-0/3/3:2.0 (Index 132) (SNMP ifIndex 236) (Generation 69)

```
Flags: Point-To-Point SNMP-Traps Encapsulation: Cisco-HDLC
```

Traffic statistics:

```

Input bytes : 5789719245
Output bytes : 19909405752
Input packets: 33897585
Output packets: 40673646

```

Local statistics:

```

Input bytes : 2930724407
Output bytes : 9983871242
Input packets: 17011460
Output packets: 20390813

```

Transit statistics:

```

Input bytes : 2858994838      14784 bps

```

```

Output bytes :      9925534510      286584 bps
Input  packets:    16886125         25 pps
Output packets:    20282833         38 pps
Protocol inet, MTU: 1500, Generation: 80, Route table: 0
Flags: No-Redirects, uRPF, uRPF-loose
RPF Failures: Packets: 0, Bytes: 0
Addresses, Flags: Primary Is-Preferred Is-Primary
Destination: 10.10.10.52/30, Local: 10.10.10.53,
Broadcast: 10.10.10.55, Generation: 159
    
```

Sample Output 3

```

user@host> show interfaces t1-1/2/0:19 extensive
Physical interface: t1-1/2/0:19, Enabled, Physical link is Down
Interface index: 148, SNMP ifIndex: 224, Generation: 110
Description: T1 to Rock City – Circuit # 987654321
Link-level type: PPP, MTU: 1504, Clocking: Internal, Speed: T1, Loopback: None, FCS: 16, Framing: ESF,
Parent: ct3-1/2/0 Interface index 173
Device flags : Present Running Down
Interface flags: Hardware-Down Point-To-Point SNMP-Traps
Link flags   : Keepalives
Hold-times   : Up 0 ms, Down 0 ms
Keepalive settings: Interval 60 seconds, Up-count 1, Down-count 3
Keepalive statistics:
Input : 0 (last seen: never)
Output: 0 (last sent: never)
LCP state: Conf-req-sent
NCP state: inet: Down, inet6: Not-configured, iso: Not-configured, mpls: Not-configured
CHAP state: Not-configured
CoS queues  : 4 supported
Last flapped : 2004-05-14 15:56:43 EDT (2d 03:01 ago)
Statistics last cleared: 2004-04-09 13:30:02 EDT (5w2d 05:28 ago)
Traffic statistics:
Input bytes :      89198      0 bps
Output bytes :     90532      0 bps
Input  packets:    6371      0 pps
Output packets:    6448      0 pps
Input errors:
Errors: 271124, Drops: 0, Framing errors: 0, Runts: 0, Giants: 0, Policed discards: 266254, L3 incompletes: 0,
L2 channel errors: 2, L2 mismatch timeouts: 2, HS link CRC errors: 0, SRAM errors: 0
Output errors:
Carrier transitions: 32, Errors: 0, Drops: 0, Aged packets: 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    6448      6448      0
DS1 alarms : AIS, LOF
DS1 defects : AIS, LOF
T1 media:
Seconds  Count State
SEF      33     31 OK
BEE      53     47 OK
AIS      3201537    15 Defect Active
LOF      3202041    16 Defect Active
LOS       0       0 OK
YELLOW   1023435    0 OK
BPV       0       0
EXZ       0       0
LCV       53     72
PCV       0       0
CS        0       0
LES      3202041
ES       3202041
SES      3202060
SEFS     3202102
    
```

```

BES          0
UAS          3202160
HDLC configuration:
Policing bucket: Disabled
Shaping bucket : Disabled
Giant threshold: 1514, Runt threshold: 0
Timeslots   : All active
Line encoding: B8ZS, Byte encoding: Nx64K
Buildout    : 0 to 132 feet
Data inversion: Disabled, Idle cycle flag: flags, Start end flag: shared
DS1 BERT configuration:
BERT time period: 10 seconds, Elapsed: 0 seconds
Induced Error rate: 10e-0, Algorithm: 2^15 - 1, O.151, Pseudorandom (9)
Packet Forwarding Engine configuration:
Destination slot: 1, PLP byte: 4 (0x04)

Logical interface t1-1/2/0:19.0 (Index 91) (SNMP ifIndex 256) (Generation 115)
Flags: Hardware-Down Device-Down Point-To-Point SNMP-Traps Encapsulation: PPP
Protocol inet, MTU: 1500, Generation: 121, Route table: 0
Flags: Protocol-Down
Addresses, Flags: Dest-route-down Is-Preferred Is-Primary
Destination: 68.71.141.136/30, Local: 68.71.141.137, Broadcast: 68.71.141.139, Generation: 179

```

What It Means The sample output shows very detailed interface information which includes where any errors might be occurring. The first line of the output indicates if the link is up. Sample output 1 and 2 show that both links are up. Sample output 3 shows that the link is down. The main sections of the output to examine are:

DS-1 alarms

DS-1 defects

T1 media

Both sample output 1 and 2 show no DS-1 alarms or defects. Sample output 3 shows AIS and LOF alarms and defects. For more information about AIS and LOF alarms and defects, see “Locate SONET Alarms and Errors” on page 151.

Even though there are counts in the T1 media section of the output in sample output 1 and 2, the State column indicates that the media are OK. However, sample output 3, in which the link is down, shows that the AIS and LOF defects are active.

Step 4: Monitor Statistics for a Channelized DS-3 Interface

Action To display the status of Channelized DS-3 interfaces, use the following JUNOS CLI operational mode command:

```
user@host> monitor interfaces t1-fpc/pic/port:channel
```

Sample Output

```
user@host> monitor interfaces t1-1/2/0:5
host                Seconds: 35          Time: 19:02:34
                    Delay: 0/0/27

Interface: t1-1/2/0:5, Enabled, Link is Up
Encapsulation: PPP, Keepalives, Speed: T1
Traffic statistics:                Current delta
Input bytes:      551635800 (1768 bps)    [16596]
Output bytes:    4094623791 (71376 bps)   [64020]
Input packets:   5234195 (2 pps)         [211]
Output packets:  4872090 (8 pps)         [147]
Encapsulation statistics:
Input keepalives: 6918                   [1]
Output keepalives: 6893                   [0]
LCP state: Opened
Error statistics:
Input errors:      47                     [0]
Input drops:      0                       [0]
Input framing errors: 0                   [0]
Policed discards: 398                     [0]
L3 incompletes:   0                       [0]
L2 channel errors: 0                      [0]
L2 mismatch timeouts: 0                  [0]
Carrier transitions: 0                    [0]
Output errors:    0                       [0]
Output drops:    0                       [0]
Aged packets:    0                       [0]
Active alarms : None
Active defects: None
T1 statistics:
BPV              0                       [0]
EXZ              0                       [0]
LCV              538                      [0]
PCV              0                       [0]
CS               0                       [0]

Next='n', Quit='q' or ESC, Freeze='f', Thaw='t', Clear='c', Interface='i'
```

Sample Output 2

```
user@host> monitor interface t1-0/3/3:2
host                Seconds: 9          Time: 10:36:11
                    Delay: 3/3/3

Interface: t1-0/3/3:2, Enabled, Link is Up
Encapsulation: Cisco-HDLC, Keepalives, Speed: T1
Traffic statistics:                Current delta
Input bytes:      2931288250 (43936 bps)   [427]
Output bytes:    9987968300 (93512 bps)    [207]
Input packets:   17017904 (106 pps)        [14]
Output packets:  20398890 (109 pps)        [26]
Encapsulation statistics:
Input keepalives: 124817                   [0]
Output keepalives: 125405                   [0]
Error statistics:
Input errors:      0                       [0]
Input drops:      0                       [0]
Input framing errors: 0                    [0]
```

```

Input runs:          0          [0]
Input giants:        0          [0]

```

Next='n', Quit='q' or ESC, Freeze='f', Thaw='t', Clear='c', Interface='i'

Sample Output 3 user@host> monitor t1-1/2/0:19

```

host                               Seconds: 9           Time: 19:05:23
                                Delay: 0/0/68
Interface: t1-1/2/0:19, Enabled, Link is Down
Encapsulation: PPP, Keepalives, Speed: T1
Traffic statistics:                Current delta
Input bytes:          89198 (0 bps)    [0]
Output bytes:        90532 (0 bps)    [0]
Input packets:      6371 (0 pps)      [0]
Output packets:    6448 (0 pps)      [0]
Encapsulation statistics:
Input keepalives:    0                [0]
Output keepalives:  0                [0]
LCP state: Conf-req-sent
Error statistics:
Input errors:        271124           [0]
Input drops:         0                [0]
Input framing errors: 0                [0]
Policed discards:   266254           [0]
L3 incompletes:     0                [0]
L2 channel errors:  2                [0]
L2 mismatch timeouts: 2              [0]
Carrier transitions: 32               [0]
Output errors:       0                [0]
Output drops:        0                [0]
Aged packets:        0                [0]
Active alarms : AIS LOF
Active defects: AIS LOF
T1 statistics:
BPV                   0                [0]
EXZ                   0                [0]
LCV                   72               [0]
PCV                   0                [0]
CS                    0                [0]

Interface warnings:
o Outstanding DS1 alarm(s)
o INET NCP is not Opened
o LCP state is not Opened

Next='n', Quit='q' or ESC, Freeze='f', Thaw='t', Clear='c', Interface='i'

```

What It Means The sample output shows common interface failures, indicates whether loopback is detected, and shows increases in framing errors. Use information from this command to help narrow down possible causes of an interface problem.

The output in the examples is static, however, the counters in real time change as they are updated every second. The counters in sample output 3 show that there is no traffic for the interface that is down, and that it has active alarms, defects, and there are interface warnings.



NOTE: If you are accessing the router from the console connection, make sure you set the CLI terminal type using the `set cli terminal` command.



CAUTION: We recommend that you use this command only for diagnostic purposes. Do not leave it on during normal router operations because real-time monitoring of traffic consumes additional CPU and memory resources.
