

## Chapter 23

# Locate Channelized DS-3 Alarms and Errors

This chapter describes the most common Channelized DS-3 alarms and errors when investigating line problems on a Juniper Networks router. (See Table 49.)

Table 49: Checklist for Channelized DS-3 Alarms and Errors

Channelized DS-3 Alarms and Errors Tasks	Command or Action
Display Alarms and Errors for Channelized DS-3 Interfaces on page 242	<code>show interfaces t1-fpc/pic/port:channel extensive</code>

## Display Alarms and Errors for Channelized DS-3 Interfaces

**Action** To display channelized DS-3 alarms and errors, use the following JUNOS command-line interface (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
HDLCD 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

```

**Sample Output 2**

```

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
HDLIC 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 the active alarms and active defects. Sample output 1 shows no active alarms or defects.

Sample output 2 shows that the physical and logical links are down, with active alarms and defects. When a major error (such as an alarm indication signal [AIS]) is seen for a few consecutive frames, a defect is declared within 1 second from detection. At the defect level, the interface is taken down and routing protocols are immediately notified (this is the default). In most cases, when a defect persists for 2.5 seconds plus or minus 0.5 seconds, an alarm is declared.

Notification messages are logged at the alarm level. Depending on the type of T1 alarm, you can configure the craft panel to display the red or yellow alarm LED and simultaneously have the alarm relay activate a physically connected device (such as a bell).

Table 50 shows T1 media-specific alarms or defects that can render the interface unable to pass packets.

**Table 50: T1 Media Alarms and Error Definitions**

<b>T1 Media Alarm or Error</b>	<b>Definitions</b>
AIS	Alarm indication signal (blue alarm)
BEE	Block error event
BES	Bursty errored seconds
BPV	Bipolar violation
CS	Controlled slip
ES	Errored seconds
EXZ	Excessive zeros
LCV	Line code violation
LES	Line errored seconds
LOF	Loss of frame
LOS	Loss of signal
PCV	Path code violation
SEF	Severely errored frame
SEFS	Severely errored frame seconds
SES	Severely errored seconds
UAS	Unavailable seconds
YLW	Yellow alarm

See “Locate T1 Alarms and Errors” on page 43 for more details on T1 alarms and statistics.

