

## Chapter 3

# Monitor T1 Interfaces

This chapter describes how to monitor T1 interfaces and begin the process of isolating T1 interface problems when they occur. (See Table 6.)

**Table 6: Checklist for Monitoring T1 Interfaces**

Monitor T1 Interface Tasks	Command or Action
<b>Monitor T1 Interfaces on page 24</b>	
1. Display the Status of T1 Interfaces on page 24	<code>show interfaces terse t1 *</code>
2. Display the Status of a Specific T1 Interface on page 25	<code>show interfaces t1-<i>fpc/pic/port</i></code>
3. Display Extensive Status Information for a Specific T1 Interface on page 25	<code>show interfaces t1-<i>fpc/pic/port</i> extensive</code>
4. Monitor Statistics for a T1 Interface on page 27	<code>monitor interface t1-<i>fpc/pic/port</i></code>

## Monitor T1 Interfaces

**Purpose** By monitoring T1 interfaces, you begin the process of isolating T1 interface problems when they occur.

**Steps To Take** To monitor your T1 interfaces, follow these steps:

1. Display the Status of T1 Interfaces on page 24
2. Display the Status of a Specific T1 Interface on page 25
3. Display Extensive Status Information for a Specific T1 Interface on page 25
4. Monitor Statistics for a T1 Interface on page 27

### Step 1: Display the Status of T1 Interfaces

**Action** To display the status of T1 interfaces, use the following JUNOS command-line interface (CLI) operational mode command:

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

**Sample Output**

```
user@host> show interfaces terse t1*
Interface  Admin Link Proto Local      Remote
t1-1/0/0   down up          --- administratively disabled
t1-1/0/0.0 up   down inet  1.1.1.1/30
t1-1/0/1   up   down          --- physical layer down
t1-1/0/1.0 up   down inet  2.2.2.2/30 --- link layer down
t1-1/0/2   up   up
t1-1/0/2.0 up   up   inet  3.3.3.3/30 --- link layer up
t1-1/0/3   up   down
```

**What It Means** This sample output shows the status of both the physical and logical interfaces. See Table 7 for a description of what the output means.

**Table 7: Status of T1 Interfaces**

Physical Interface	Logical Interface	Status Description
t1-1/0/0 Admin Down Link Up	t1-1/0/0.0 Admin Up Link Down	This interface is administratively disabled and the physical link is healthy (Link Up), but the logical interface is not established. The logical interface is administratively enabled (Admin Up), but is down because the physical link is disabled.
t1-1/0/1 Admin Up Link Down	t1-1/0/12.0 Admin Up Link Down	This interface is not functioning between the local router and the remote router because both the physical and logical links are down (Link Down). The interface is not administratively disabled because both the physical and logical links are up (Admin Up).
t1-1/0/2 Admin Up Link Up	t1-1/0/2.0 Admin Up Link Up	This interface has both the physical and logical links up and running.
fe-1/0/3 Admin Up Link Down		The physical interfaces is added to the configuration, but the logical link is not configured.

## Step 2: Display the Status of a Specific T1 Interface

**Action** To display the status of a specific T1 interface when you need to investigate its status further, use the following JUNOS CLI operational mode command:

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

**Sample Output**

```
user@host> show interfaces t1-1/1/0
Physical interface: t1-1/1/0, Enabled, Physical link is Down
Interface index: 24, SNMP ifIndex: 20
Link-level type: PPP, MTU: 1504, Clocking: Internal, Speed: T1, Loopback: None, FCS: 16, Framing: ESF
Device flags : Present Running Down
Interface flags: Hardware-Down Point-To-Point SNMP-Traps
Link flags   : Keepalives
Last flapped : 2002-01-01 00:00:35 UTC (00:00:59 ago)
Input rate   : 0 bps (0 pps)
Output rate  : 0 bps (0 pps)
DS1 alarms  : LOF, LOS
DS1 defects : LOF, LOS
```

**What It Means** The first line of the sample output shows the status of the link. In this example, the first line shows that the physical link is down. If the first 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. Also, the output shows loss of frame (LOF) and loss of signal (LOS) alarms active. Any active alarm or defect can cause the interface to be down.

## Step 3: Display Extensive Status Information for a Specific T1 Interface

**Action** To display extensive status information about a specific T1 interface, use the following JUNOS CLI operational mode command:

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

**Sample Output**

```
user@host> show interfaces t1-1/1/0 extensive
Physical interface: t1-1/1/0, Enabled, Physical link is Down
Interface index: 24, SNMP ifIndex: 20, Generation: 27
Link-level type: PPP, MTU: 1504, Clocking: Internal, Speed: T1, Loopback: None, FCS: 16, Framing: ESF
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
Last flapped : 2002-01-01 00:00:35 UTC (00:01:00 ago)
Statistics last cleared: 2002-01-01 00:01:03 UTC (00:00:32 ago)
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, Policed discards: 0, 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
DS1 alarms  : LOF, LOS
DS1 defects : LOF, LOS
T1 media:      Seconds      Count State
SEF              32          0 Defect Active
```

```

BEE          0      0 OK
AIS          0      0 OK
LOF          32      0 Defect Active
LOS          32      0 Defect Active
YELLOW       0      0 OK
BPV          0      0
EXZ          0      0
LCV          0      0
PCV          32    10667
CS           0      0
LES          0
ES           32
SES          32
SEFS         32
BES          0
UAS          32
HDLC configuration:
Policing bucket: Disabled
Shaping bucket : Disabled
Giant threshold: 1514, Runt threshold: 3
Timeslots    : All active
Line encoding: B8ZS, Byte encoding: Nx64K, Data inversion: Disabled
Buildout     : 0 to 132 feet
DS1 BERT configuration:
BERT time period: 10 seconds, Elapsed: 0 seconds
Induced Error rate: 10e-0, Algorithm: Unknown (0)
Packet Forwarding Engine configuration:
Destination slot: 1, PLP byte: 1 (0x00)
CoS transmit queue    Bandwidth    Buffer  Priority Limit
                       %      bps %      bytes
0 best-effort         0      0 0      0    low  none
1 expedited-forwarding 0      0 0      0    low  none
2 assured-forwarding   0      0 0      0    low  none
3 network-control     0      0 0      0    low  none

```

**What It Means** The sample output shows where the errors might be occurring. Look at the active alarms and active defects for the T1 interface and investigate the T1 media accordingly. See “Locate T1 Alarms and Errors” on page 43 for an explanation of T1 alarms.

Step 4: Monitor Statistics for a T1 Interface

**Action** To monitor statistics for a T1 interface, use the following JUNOS CLI operational mode command:

```
user@host> monitor interface t1-fpc/pic/port
```

**Sample Output**

```
user@host> monitor interface t1-1/0/0
Seconds: 2           Time: 00:04:49 Delay: 0/0/1
Interface: t1-1/1/0, Enabled, Link is Down
Encapsulation: PPP, Keepalives, Speed: T1
Traffic statistics:           Current delta
Input bytes:                 0 (0 bps)      [0]
Output bytes:                0 (0 bps)      [0]
Input packets:               0 (0 pps)      [0]
Output packets:              0 (0 pps)      [0]
Error statistics:
Input errors:                0              [0]
Input drops:                 0              [0]
Input framing errors:        0              [0]
Policed discards:            0              [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 : LOF LOS
Active defects: LOF LOS
T1 statistics:
BPV                          0              [0]
EXZ                          0              [0]
LCV                          0              [0]
PCV                         40335           [332]
CS                           0              [0]

Interface warnings:
o Outstanding DS1 alarm(s)

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

**What It Means** The sample output shows that the T1 interface is enabled but the link is down. The bps value is in bytes per second and not bits per second. To calculate bits per second, multiply the bps value by 8.

The monitor command checks for and displays common interface failures, indicates whether loopback is detected, and shows any increases in framing errors. Use information from this command to help to narrow down possible causes of an interface problem.



**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.

Table 8 lists additional problem situations and actions to help you further diagnose a problem.

**Table 8: Problem Situations and Actions**

Problem Situation	Action
Framing errors are increasing.	Check the frame checksum sequence (FCS), scrambling, and subrate configuration.
Framing errors are increasing, and the configuration is correct.	Check the cabling to the router and have the carrier verify the integrity of the line.
Input errors are increasing.	Check the cabling to the router and have the carrier verify the integrity of the line.



**NOTE:** 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.