



# Monitoring the T1 or E1 Interface Module

This chapter provides information on monitoring the T1 or E1 interface module. Some of monitoring tools available are:

- Performance Monitoring
- [Performance Monitoring, on page 1](#)
- [Clearing the PMON Data, on page 12](#)

## Performance Monitoring

*Table 1: Feature History Table*

Feature Name	Release Information	Description
GR-820-CORE Performance Monitoring	Cisco IOS XE Bengaluru 17.5.1	The <b>show controller tabular</b> command enables you to view the performance monitoring details in tabular form as per GR-820-Core standards.

The performance monitoring result displays the statistics or error count generated on the TDM lines for DS1.

To view the performance monitoring details, use the **show controller** command:

```
Router# show controllers t1 0/1/1

T1 0/1/1 is down.
  Applique type is -48T1E1-CE
  Cablelength is short 110
  No alarms detected.
  alarm-trigger is not set
  Soaking time: 3, Clearance time: 10
  AIS State:Clear  LOS State:Clear  LOF State:Clear
  Framing is ESF, FDL is ansi, Line Code is B8ZS, Clock Source is Line.
  BER thresholds:  SF = 10e-3  SD = 10e-6
  Data in current interval (230 seconds elapsed):
    Near End
      0 Line Code Violations, 0 Path Code Violations
      0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavailable Secs
      0 Path Failures, 0 SEF/AIS Secs
    Far End
      0 Line Code Violations, 0 Path Code Violations
```

```

    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavailable Secs
    0 Path Failures
Data in Interval 1:
Near End
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 14 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 15 Unavailable Secs
    1 Path Failures, 0 SEF/AIS Secs
Far End Data
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 4 Fr Loss Secs, 2 Line Err Secs, 0 Degraded Mins
    4 Errored Secs, 0 Bursty Err Secs, 4 Severely Err Secs, 0 Unavailable Secs
    0 Path Failures
Total Data (last 1 15 minute intervals):
Near End
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 0 Fr Loss Secs, 14 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 15 Unavailable Secs
    1 Path Failures, 0 SEF/AIS Secs
Far End
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 4 Fr Loss Secs, 2 Line Err Secs, 0 Degraded Mins,
    4 Errored Secs, 0 Bursty Err Secs, 4 Severely Err Secs, 0 Unavailable Secs
    0 Path Failures

```

Router# **show controllers e1 0/1/1**

```

E1 0/1/1 is down.
Applique type is -48T1E1-CE
Cablelength is short 110
No alarms detected.
alarm-trigger is not set
Soaking time: 3, Clearance time: 10
AIS State:Clear  LOS State:Clear  LOF State:Clear
Framing is ESF, FDL is ansi, Line Code is B8ZS, Clock Source is Line.
BER thresholds:  SF = 10e-3  SD = 10e-6
Data in current interval (230 seconds elapsed):
Near End
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavailable Secs
    0 Path Failures, 0 SEF/AIS Secs
Far End
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavailable Secs
    0 Path Failures
Data in Interval 1:
Near End
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 14 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 15 Unavailable Secs
    1 Path Failures, 0 SEF/AIS Secs
Far End Data
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 4 Fr Loss Secs, 2 Line Err Secs, 0 Degraded Mins
    4 Errored Secs, 0 Bursty Err Secs, 4 Severely Err Secs, 0 Unavailable Secs
    0 Path Failures
Total Data (last 1 15 minute intervals):
Near End
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 0 Fr Loss Secs, 14 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 15 Unavailable Secs
    1 Path Failures, 0 SEF/AIS Secs

```

```

Far End
  0 Line Code Violations, 0 Path Code Violations,
  0 Slip Secs, 4 Fr Loss Secs, 2 Line Err Secs, 0 Degraded Mins,
  4 Errored Secs, 0 Bursty Err Secs, 4 Severely Err Secs, 0 Unavailable Secs
  0 Path Failures

```

To view the performance monitoring details on T1 controller, use the **show controller t1 tabular** command:

```
Router#show controllers t1 0/1/0 tabular
```

```

T1 0/1/0 is up
  Applique type is -48T1E1-CE
  Cablelength is short 110
  No alarms detected.
  alarm-trigger is not set
  Soaking time: 3, Clearance time: 10
  Framing is ESF, Line Code is B8ZS, Clock Source is Line.
  BER thresholds: SF = 10e-3 SD = 10e-6
  Near End Data
  INTERVAL      CV-L   ES-L   CV-P   ES-P   SES-P   CSS-P   SAS-P   UAS-P   FC-P
  09:49-10:01   0      0      0      0      0      0      0      0      0
  Far End Data
  INTERVAL      ES-LFE  ES-PFE  SES-PFE  SEFS-PFE  CSS-PFE  UAS-PFE  FC-PFE
  09:49-10:01   0        0        0        0        0        0        0

```

Starting with Cisco IOS XE 17.11.1, you can view the previous day performance monitoring details using the following **show controller** commands for the T1 or E1 controllers.

- show controllers { t1 | e1 }
- show controllers { t1 | e1 } tabular
- show controllers { t1 | e1 } remote performance
- show controllers { t1 | e1 } remote performance tabular

```

router#show controllers t1 0/5/0
T1 0/5/0 is down
  Applique type is A900-IMA48D-C
  Cablelength is short 110
  Receiver has loss of signal.
  alarm-trigger is not set
  Soaking time: 3, Clearance time: 10
  Framing is ESF, Line Code is B8ZS, Clock Source is Line.
  BER thresholds: SF = 10e-3 SD = 10e-6
  Data in current interval (800 seconds elapsed):
  Near End
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 799 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 799 Unavail Secs
    0 Path Failures, 0 SEF/AIS Secs
  Far End
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
    0 Path Failures
  Data in Interval 1:
  .....
  Total Data (last 24 hours)
  Near End
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 0 Fr Loss Secs, 86423 Line Err Secs, 0 Degraded Mins,

```

```

    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 86423 Unavail Secs
    0 Path Failures, 0 SEF/AIS Secs
  Far End
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavailable Secs
    0 Path Failures
  Total (Previous Day)
  Near End
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 0 Fr Loss Secs, 86438 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 86438 Unavail Secs
    2 Path Failures, 0 SEF/AIS Secs
  Far End
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavailable Secs
    0 Path Failures

```

router#show controllers t1 0/5/0 tabular

T1 0/5/0 is down

```

  Applique type is A900-IMA48D-C
  Cablelength is short 110
  Receiver has loss of signal.
  alarm-trigger is not set
  Soaking time: 3, Clearance time: 10
  Framing is ESF, Line Code is B8ZS, Clock Source is Line.
  BER thresholds: SF = 10e-3 SD = 10e-6
  Near End Data

```

INTERVAL	CV-L	ES-L	CV-P	ES-P	SES-P	CSS-P	SAS-P	UAS-P	FC-P
05:56-05:58	0	119	0	0	0	0	0	119	0
05:41-05:56	0	900	0	0	0	0	0	900	0
.....									
06:11-06:26	0	900	0	0	0	0	0	900	0
05:56-06:11	0	901	0	0	0	0	0	901	0
Total	0	86423	0	0	0	0	0	86423	0
Total (Previous Day)									
05:26-05:26	0	86438	0	0	0	0	0	86438	2

Router#show controllers T1 0/3/0 remote performance

T1 0/3/0 is down.

```

  Applique type is A900-IMA48D-C
  Receiver has loss of signal.
  Cablelength is short 110
  Framing is ESF, FDL is ansi & att, Line Code is B8ZS, Clock Source is Line.
  Far End Data in current interval (590 seconds elapsed):
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
  Far End Data in Interval 1:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
  Far End Data in Interval 2:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
  Far End Data in Interval 3:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
  Far End Data in Interval 4:

```













```

    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 85:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 86:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 87:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 88:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 89:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 90:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 91:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 92:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 93:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 94:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 95:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Far End Data in Interval 96:
    0 Line Code Violations, 0 Path Code Violations
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Total Far End Data (last 24 hours)
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs
Total (Previous Day)
    0 Line Code Violations, 0 Path Code Violations,
    0 Slip Secs, 0 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
    0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs, 0 Unavail Secs

```

```
Router#show controllers T1 0/3/0 remote performance tabular
```

```
T1 0/3/0 is down.
```

```
Applique type is A900-IMA48D-C
```

```
Receiver has loss of signal.
```

Cablelength is short 110  
 Framing is ESF, FDL is ansi & att, Line Code is B8ZS, Clock Source is Line.

## Far End Data

INTERVAL	ES-LFE	ES-PFE	SES-PFE	SEFS-PFE	CSS-PFE	UAS-PFE	FC-PFE
04:33-04:44	0	0	0	0	0	0	0
04:18-04:33	0	0	0	0	0	0	0
04:03-04:18	0	0	0	0	0	0	0
03:48-04:03	0	0	0	0	0	0	0
03:33-03:48	0	0	0	0	0	0	0
03:18-03:33	0	0	0	0	0	0	0
03:03-03:18	0	0	0	0	0	0	0
02:48-03:03	0	0	0	0	0	0	0
02:33-02:48	0	0	0	0	0	0	0
02:18-02:33	0	0	0	0	0	0	0
02:03-02:18	0	0	0	0	0	0	0
01:48-02:03	0	0	0	0	0	0	0
01:33-01:48	0	0	0	0	0	0	0
01:18-01:33	0	0	0	0	0	0	0
01:03-01:18	0	0	0	0	0	0	0
00:48-01:03	0	0	0	0	0	0	0
00:33-00:48	0	0	0	0	0	0	0
00:18-00:33	0	0	0	0	0	0	0
00:03-00:18	0	0	0	0	0	0	0
23:48-00:03	0	0	0	0	0	0	0
23:33-23:48	0	0	0	0	0	0	0
23:18-23:33	0	0	0	0	0	0	0
23:03-23:18	0	0	0	0	0	0	0
22:48-23:03	0	0	0	0	0	0	0
22:33-22:48	0	0	0	0	0	0	0
22:18-22:33	0	0	0	0	0	0	0
22:03-22:18	0	0	0	0	0	0	0
21:48-22:03	0	0	0	0	0	0	0
21:33-21:48	0	0	0	0	0	0	0
21:18-21:33	0	0	0	0	0	0	0
21:03-21:18	0	0	0	0	0	0	0
20:48-21:03	0	0	0	0	0	0	0
20:33-20:48	0	0	0	0	0	0	0
20:18-20:33	0	0	0	0	0	0	0
20:03-20:18	0	0	0	0	0	0	0
19:48-20:03	0	0	0	0	0	0	0
19:33-19:48	0	0	0	0	0	0	0
19:18-19:33	0	0	0	0	0	0	0
19:03-19:18	0	0	0	0	0	0	0
18:48-19:03	0	0	0	0	0	0	0
18:33-18:48	0	0	0	0	0	0	0
18:18-18:33	0	0	0	0	0	0	0
18:03-18:18	0	0	0	0	0	0	0
17:48-18:03	0	0	0	0	0	0	0
17:33-17:48	0	0	0	0	0	0	0
17:18-17:33	0	0	0	0	0	0	0
17:03-17:18	0	0	0	0	0	0	0
16:48-17:03	0	0	0	0	0	0	0
16:33-16:48	0	0	0	0	0	0	0
16:18-16:33	0	0	0	0	0	0	0
16:03-16:18	0	0	0	0	0	0	0
15:48-16:03	0	0	0	0	0	0	0
15:33-15:48	0	0	0	0	0	0	0
15:18-15:33	0	0	0	0	0	0	0
15:03-15:18	0	0	0	0	0	0	0
14:48-15:03	0	0	0	0	0	0	0
14:33-14:48	0	0	0	0	0	0	0
14:18-14:33	0	0	0	0	0	0	0
14:03-14:18	0	0	0	0	0	0	0
13:48-14:03	0	0	0	0	0	0	0

13:33-13:48	0	0	0	0	0	0	0
13:18-13:33	0	0	0	0	0	0	0
13:03-13:18	0	0	0	0	0	0	0
12:48-13:03	0	0	0	0	0	0	0
12:33-12:48	0	0	0	0	0	0	0
12:18-12:33	0	0	0	0	0	0	0
12:03-12:18	0	0	0	0	0	0	0
11:48-12:03	0	0	0	0	0	0	0
11:33-11:48	0	0	0	0	0	0	0
11:18-11:33	0	0	0	0	0	0	0
11:03-11:18	0	0	0	0	0	0	0
10:48-11:03	0	0	0	0	0	0	0
10:33-10:48	0	0	0	0	0	0	0
10:18-10:33	0	0	0	0	0	0	0
10:03-10:18	0	0	0	0	0	0	0
09:48-10:03	0	0	0	0	0	0	0
09:33-09:48	0	0	0	0	0	0	0
09:18-09:33	0	0	0	0	0	0	0
09:03-09:18	0	0	0	0	0	0	0
08:48-09:03	0	0	0	0	0	0	0
08:33-08:48	0	0	0	0	0	0	0
08:18-08:33	0	0	0	0	0	0	0
08:03-08:18	0	0	0	0	0	0	0
07:48-08:03	0	0	0	0	0	0	0
07:33-07:48	0	0	0	0	0	0	0
07:18-07:33	0	0	0	0	0	0	0
07:03-07:18	0	0	0	0	0	0	0
06:48-07:03	0	0	0	0	0	0	0
06:33-06:48	0	0	0	0	0	0	0
06:18-06:33	0	0	0	0	0	0	0
06:03-06:18	0	0	0	0	0	0	0
05:48-06:03	0	0	0	0	0	0	0
05:33-05:48	0	0	0	0	0	0	0
05:18-05:33	0	0	0	0	0	0	0
05:03-05:18	0	0	0	0	0	0	0
04:48-05:03	0	0	0	0	0	0	0
04:33-04:48	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Total (Previous Day)							
17:48-17:48	0	0	0	0	0	0	0

## Clearing the PMON Data

The PMON data for the device is collected and stored every 15 minutes. A total of 96 PMON datasets are collected for a day (24 hours). You can view the PMON data by using the **show controller** command. However, if required, the dataset can be reset using the **clear counters** command.

Table 2: Feature History

Feature Name	Release Information	Description
Clear Counters command	Cisco IOS XE 17.15.1	<ul style="list-style-type: none"> <li>• Unlike the previous release, where the <b>clear counters</b> command reset the old dataset, from this release onwards, the command resets all the PMON datasets, including the current dataset.</li> <li>• You can clear the PMON data for a specific interface module on the device using the <b>clear controller hw-module</b> command</li> </ul>



**Note** The **clear counters** command erases all the PMON data that can't be retrieved. Use the command carefully and only if necessary.

Following are the different **clear counters** command:

- Use the following command if you want to clear the PMON data for all interface modules on the device:

```
clear counters
```

- Use the following command if you want to clear the PMON data for a specific interface module:

```
clear controller hw-module <slot>
```

The command is useful in the following scenarios:

The command is useful when there is a need for a fresh set of data, like troubleshooting any network issues or monitoring the performance of a new configuration. After clearing, you can then monitor and analyze the new data that gets collected.

