Monitoring the T3 or E3 Interface Module

This chapter provides information on monitoring the T3 or E3 interface module. Some of monitoring tools available are:

- Maintenance Data Link (MDL) messages

- Perfomance Monitoring

MDL Messages

MDL messages are used to communicate identification information between local and remote ports. The MDL message includes:

- Equipment Identification Code (EIC)

- Location Identification Code (LIC)

- Frame Identification Code (FIC)

- Unit

- Path Facility Identification (PFI)

- Port Number

- Generator Identification Number

Note MDL messages are only supported when the T3 framing is set for C-bit parity.

The **no mdl** command removes the configuration of mdl messages.

Note MDL configuration is *not* supported for E3 interfaces.

Configuring MDL for Path Transmission

To configure MDL path transmission messages on T3 controller configuration mode, use the following commands:

```
enable
configure terminal
controller t3 0/0/17
framing c-bit
mdl string eic beic
mdl  string lic beic
mdl  string fic bfix
mdl  string unit bunit
mdl  string pfi bpfi
mdl  transmit path
```

Verifying MDL for Path Transmission Configuration

For PE1 Configuration:

Use the **show controller** command to display the verification of MDL path transmission configuration.

```
Router# show controllers t3 0/0/17

T3 0/0/17 is up.
  Hardware is ASR903-48T3E3-CE

  Applique type is Channelized T3
  No alarms detected.
  MDL transmission is disabled

  FEAC code received: No code is being received
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  BER thresholds:  SF = 10e-10  SD = 10e-10
  Clock Source is internal
  Equipment customer loopback
  Data in current interval (240 seconds elapsed):
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     0 Unavailable Secs, 0 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     0 Severely Errored Line Secs, 0 Path Failures
     0 AIS Defect Secs, 0 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs
  Data in Interval 1:
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     20 Unavailable Secs, 20 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     20 Severely Errored Line Secs, 1 Path Failures
     0 AIS Defect Secs, 20 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
```

```
          0 Code Violations, 0 Service Affecting Secs
     Total Data (last 1 15 minute intervals):
      Near End
        0 Line Code Violations, 0 P-bit Coding Violations,
        0 C-bit Coding Violations, 0 P-bit Err Secs,
        0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
        20 Unavailable Secs, 20 Line Errored Secs,
        0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
        20 Severely Errored Line Secs, 1 path failures
        0 AIS Defect Secs, 20 LOS Defect Secs
      Far End
        0 Errored Secs, 0 Severely Errored Secs
        0 C-bit Unavailable Secs, 0 Path Failures
        0 Code Violations, 0 Service Affecting Secs

T1 1 is up
  timeslots:
  FDL per AT&T 54016 spec.
  No alarms detected.
  Framing is ESF, Clock Source is Internal
  Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
     2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
     0 Unavailable Secs, 0 Stuffed Secs
     1 Path Failures, 2 SEF/AIS Secs
   Far End
     0 Line Code Violations, 0 Path Code Violations
     0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
     3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
     2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
     0 Unavailable Secs, 0 Stuffed Secs
     1 Path Failures, 2 SEF/AIS Secs
   Far End
     0 Line Code Violations,0 Path Code Violations
     0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
     3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
     0 Unavailable Secs, 0 Path Failures
```

For PE2 Configuration:

Use the **show controller** command to display the verification of MDL path transmission configuration.

```
Router# show controllers t3 0/0/18

T3 0/0/18 is up.
```

```
      Hardware is ASR903-48T3E3-CE

Applique type is Channelized T3
  No alarms detected.
  MDL transmission is enabled

  Far-End MDL Information Received
     EIC: beic, LIC: beic, FIC: bfix, UNIT: bunit
     Idle Signal PORT_NO: bport
  FEAC code received: DS3 Out-Of-Frame
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  Clock Source is internal
  Equipment customer loopback

  Data in current interval (240 seconds elapsed):
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     0 Unavailable Secs, 0 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     0 Severely Errored Line Secs, 0 Path Failures
     0 AIS Defect Secs, 0 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs
  Data in Interval 1:
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     20 Unavailable Secs, 20 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     20 Severely Errored Line Secs, 1 Path Failures
     0 AIS Defect Secs, 20 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs
  Total Data (last 1 15 minute intervals):
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations,
     0 C-bit Coding Violations, 0 P-bit Err Secs,
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
     20 Unavailable Secs, 20 Line Errored Secs,
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     20 Severely Errored Line Secs, 1 path failures
     0 AIS Defect Secs, 20 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs

T1 1 is up
  timeslots:
  FDL per AT&T 54016 spec.
  No alarms detected.
  Framing is ESF, Clock Source is Internal
  Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
                               2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
                               0 Unavailable Secs, 0 Stuffed Secs
                               1 Path Failures, 2 SEF/AIS Secs
                            Far End
                               0 Line Code Violations, 0 Path Code Violations
                               0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
                               3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
                               2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
                               0 Unavailable Secs, 0 Stuffed Secs
                               1 Path Failures, 2 SEF/AIS Secs
                            Far End
                               0 Line Code Violations,0 Path Code Violations
                               0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
                               3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
                               0 Unavailable Secs, 0 Path Failures
```

Configuring MDL for Test Signal

To configure MDL test signal messages on T3 controller configuration mode, use the following commands:

```
enable
configure terminal
controller t3 0/0/17
framing c-bit
mdl string eic beic
mdl string lic beic
mdl string fic bfix
mdl string unit bunit
mdl string generator bgen
mdl transmit test-signal
```

Verifying MDL for Test Signal Configuration

For PE1 Configuration:

Use the **show controller** command to display the verification of MDL for test signal configuration.

```
Router# show controllers t3 0/0/17
T3 0/0/17 is up.
  Hardware is ASR903-48T3E3-CE

  Applique type is Channelized T3
  No alarms detected.
  MDL transmission is enabled
```

```
      EIC: beic, LIC: beic, FIC: bfix, UNIT: bunit
      Test Signal GEN_NO: bgen
   FEAC code received: DS3 Out-Of-Frame
   Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
   Clock Source is internal
   Equipment customer loopback
   Data in current interval (240 seconds elapsed):
    Near End
      0 Line Code Violations, 0 P-bit Coding Violations
      0 C-bit Coding Violations, 0 P-bit Err Secs
      0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
      0 Unavailable Secs, 0 Line Errored Secs
      0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
      0 Severely Errored Line Secs, 0 Path Failures
      0 AIS Defect Secs, 0 LOS Defect Secs
    Far End
      0 Errored Secs, 0 Severely Errored Secs
      0 C-bit Unavailable Secs, 0 Path Failures
      0 Code Violations, 0 Service Affecting Secs
   Data in Interval 1:
    Near End
      0 Line Code Violations, 0 P-bit Coding Violations
      0 C-bit Coding Violations, 0 P-bit Err Secs
      0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
      20 Unavailable Secs, 20 Line Errored Secs
      0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
      20 Severely Errored Line Secs, 1 Path Failures
      0 AIS Defect Secs, 20 LOS Defect Secs
    Far End
      0 Errored Secs, 0 Severely Errored Secs
      0 C-bit Unavailable Secs, 0 Path Failures
      0 Code Violations, 0 Service Affecting Secs
   Total Data (last 1 15 minute intervals):
    Near End
      0 Line Code Violations, 0 P-bit Coding Violations,
      0 C-bit Coding Violations, 0 P-bit Err Secs,
      0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
      20 Unavailable Secs, 20 Line Errored Secs,
      0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
      20 Severely Errored Line Secs, 1 path failures
      0 AIS Defect Secs, 20 LOS Defect Secs
    Far End
      0 Errored Secs, 0 Severely Errored Secs
      0 C-bit Unavailable Secs, 0 Path Failures
      0 Code Violations, 0 Service Affecting Secs

T1 1 is up
  timeslots:
  FDL per AT&T 54016 spec.
  No alarms detected.
  Framing is ESF, Clock Source is Internal
  Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
      0 Unavailable Secs, 0 Stuffed Secs
      1 Path Failures, 2 SEF/AIS Secs
    Far End
      0 Line Code Violations, 0 Path Code Violations
      0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
      2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
      0 Unavailable Secs, 0 Stuffed Secs
      1 Path Failures, 2 SEF/AIS Secs
    Far End
      0 Line Code Violations,0 Path Code Violations
      0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
      3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
      0 Unavailable Secs, 0 Path Failures
```

For PE2 Configuration:

Use the **show controller** command to display the verification of MDL for test signal configuration.

```
Router#  show controllers t3 0/0/18
T3 0/0/18 is up.
  Hardware is ASR903-48T3E3-CE

  Applique type is Channelized T3
  No alarms detected.
  MDL transmission is disabled

  Far-End MDL Information Received
     EIC: beic, LIC: beic, FIC: bfix, UNIT: bunit
     Test Signal GEN_NO: bgen
  FEAC code received: DS3 Out-Of-Frame
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  Clock Source is internal
  Equipment customer loopback
  Data in current interval (240 seconds elapsed):
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     0 Unavailable Secs, 0 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     0 Severely Errored Line Secs, 0 Path Failures
     0 AIS Defect Secs, 0 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs
  Data in Interval 1:
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     20 Unavailable Secs, 20 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     20 Severely Errored Line Secs, 1 Path Failures
```

```
         0 AIS Defect Secs, 20 LOS Defect Secs
       Far End
         0 Errored Secs, 0 Severely Errored Secs
         0 C-bit Unavailable Secs, 0 Path Failures
         0 Code Violations, 0 Service Affecting Secs
     Total Data (last 1 15 minute intervals):
      Near End
         0 Line Code Violations, 0 P-bit Coding Violations,
         0 C-bit Coding Violations, 0 P-bit Err Secs,
         0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
         20 Unavailable Secs, 20 Line Errored Secs,
         0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
         20 Severely Errored Line Secs, 1 path failures
         0 AIS Defect Secs, 20 LOS Defect Secs
       Far End
         0 Errored Secs, 0 Severely Errored Secs
         0 C-bit Unavailable Secs, 0 Path Failures
         0 Code Violations, 0 Service Affecting Secs

 T1 1 is up
   timeslots:
   FDL per AT&T 54016 spec.
   No alarms detected.
   Framing is ESF, Clock Source is Internal
   Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
       2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
       0 Unavailable Secs, 0 Stuffed Secs
       1 Path Failures, 2 SEF/AIS Secs
    Far End
       0 Line Code Violations, 0 Path Code Violations
       0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
       3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
       2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
       0 Unavailable Secs, 0 Stuffed Secs
       1 Path Failures, 2 SEF/AIS Secs
    Far End
       0 Line Code Violations,0 Path Code Violations
       0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
       3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
       0 Unavailable Secs, 0 Path Failures
```

Configuring MDL for Idle Signal

To configure MDL idle signal messages on T3 controller configuration mode, use the following commands:

```
enable
configure terminal
controller T3 0/0/17
framing c-bit
mdl string eic beic
mdl string lic beic
mdl string fic bfix
mdl string unit bunit
mdl string port bport
mdl transmit idle-signal
```

Verifying MDL for Idle Signal Configuration

For PE1 Configuration:

Use the **show controller** command to display the verification of MDL for idle signal configuration.

```
Router# show controllers t3 0/0/17

T3 0/0/17 is up.
  Hardware is ASR903-48T3E3-CE

  Applique type is Channelized T3
  No alarms detected.
  MDL transmission is disabled

  FEAC code received: No code is being received
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  BER thresholds:  SF = 10e-10  SD = 10e-10
  Clock Source is internal
  Equipment customer loopback
  Data in current interval (240 seconds elapsed):
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     0 Unavailable Secs, 0 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     0 Severely Errored Line Secs, 0 Path Failures
     0 AIS Defect Secs, 0 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs
  Data in Interval 1:
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     20 Unavailable Secs, 20 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     20 Severely Errored Line Secs, 1 Path Failures
     0 AIS Defect Secs, 20 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs
```

```
       Total Data (last 1 15 minute intervals):
        Near End
           0 Line Code Violations, 0 P-bit Coding Violations,
           0 C-bit Coding Violations, 0 P-bit Err Secs,
           0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
           20 Unavailable Secs, 20 Line Errored Secs,
           0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
           20 Severely Errored Line Secs, 1 path failures
           0 AIS Defect Secs, 20 LOS Defect Secs
        Far End
           0 Errored Secs, 0 Severely Errored Secs
           0 C-bit Unavailable Secs, 0 Path Failures
           0 Code Violations, 0 Service Affecting Secs

  T1 1 is up
    timeslots:
    FDL per AT&T 54016 spec.
    No alarms detected.
    Framing is ESF, Clock Source is Internal
    Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
        2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
        0 Unavailable Secs, 0 Stuffed Secs
        1 Path Failures, 2 SEF/AIS Secs
     Far End
        0 Line Code Violations, 0 Path Code Violations
        0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
        3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
        2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
        0 Unavailable Secs, 0 Stuffed Secs
        1 Path Failures, 2 SEF/AIS Secs
     Far End
        0 Line Code Violations,0 Path Code Violations
        0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
        3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
        0 Unavailable Secs, 0 Path Failures
```

For PE2 Configuration:

Use the **show controller** command to display the verification of MDL for idle signal configuration.

```
Router# show controllers t3 0/0/18

T3 0/0/18 is up.
  Hardware is ASR903-48T3E3-CE
```

```
Applique type is Channelized T3
No alarms detected.
MDL transmission is enabled

Far-End MDL Information Received
   EIC: beic, LIC: beic, FIC: bfix, UNIT: bunit
   Idle Signal PORT_NO: bport
FEAC code received: DS3 Out-Of-Frame
Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
Clock Source is internal
Equipment customer loopback

Data in current interval (240 seconds elapsed):
 Near End
   0 Line Code Violations, 0 P-bit Coding Violations
   0 C-bit Coding Violations, 0 P-bit Err Secs
   0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
   0 Unavailable Secs, 0 Line Errored Secs
   0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
   0 Severely Errored Line Secs, 0 Path Failures
   0 AIS Defect Secs, 0 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs
Data in Interval 1:
 Near End
   0 Line Code Violations, 0 P-bit Coding Violations
   0 C-bit Coding Violations, 0 P-bit Err Secs
   0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
   20 Unavailable Secs, 20 Line Errored Secs
   0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
   20 Severely Errored Line Secs, 1 Path Failures
   0 AIS Defect Secs, 20 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs
 Total Data (last 1 15 minute intervals):
 Near End
   0 Line Code Violations, 0 P-bit Coding Violations,
   0 C-bit Coding Violations, 0 P-bit Err Secs,
   0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
   20 Unavailable Secs, 20 Line Errored Secs,
   0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
   20 Severely Errored Line Secs, 1 path failures
   0 AIS Defect Secs, 20 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs

T1 1 is up
  timeslots:
  FDL per AT&T 54016 spec.
  No alarms detected.
  Framing is ESF, Clock Source is Internal
  Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
      0 Unavailable Secs, 0 Stuffed Secs
      1 Path Failures, 2 SEF/AIS Secs
   Far End
      0 Line Code Violations, 0 Path Code Violations
      0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
      2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
      0 Unavailable Secs, 0 Stuffed Secs
      1 Path Failures, 2 SEF/AIS Secs
   Far End
      0 Line Code Violations,0 Path Code Violations
      0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
      3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
      0 Unavailable Secs, 0 Path Failures
```

Performance Monitoring

You can view the statistics or error count generated on the TDM lines for T3 interfaces.

enable
configure terminal
controller MediaType *0/0/0*
mode t3
controller t3 *0/0/0*
framing *c-bit*
cablelength
long 224-450 ft
short 0-224 ft
controller MediaType *0/0/15*
mode t3
controller T3 *0/0/15*
framing *c-bit*
cablelength short

To view the statistics or error count generated on the TDM lines for T3 interfaces, use the **show controller** command:

```
Router# show controller T3 0/0/0
T3 0/0/0 is up.
  Hardware is ASR900-48T3E3-CE

  Applique type is Channelized T3
  No alarms detected.
  MDL transmission is disabled

  FEAC code received: No code is being received
```

```
Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
BER thresholds:  SF = 10e-10  SD = 10e-10
Clock Source is internal
Equipment customer loopback
Data in current interval (240 seconds elapsed):
 Near End
   0 Line Code Violations, 0 P-bit Coding Violations
   0 C-bit Coding Violations, 0 P-bit Err Secs
   0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
   0 Unavailable Secs, 0 Line Errored Secs
   0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
   0 Severely Errored Line Secs, 0 Path Failures
   0 AIS Defect Secs, 0 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs
Data in Interval 1:
 Near End
   0 Line Code Violations, 0 P-bit Coding Violations
   0 C-bit Coding Violations, 0 P-bit Err Secs
   0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
   20 Unavailable Secs, 20 Line Errored Secs
   0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
   20 Severely Errored Line Secs, 1 Path Failures
   0 AIS Defect Secs, 20 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs
Total Data (last 1 15 minute intervals):
 Near End
   0 Line Code Violations, 0 P-bit Coding Violations,
   0 C-bit Coding Violations, 0 P-bit Err Secs,
   0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
   20 Unavailable Secs, 20 Line Errored Secs,
   0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
   20 Severely Errored Line Secs, 1 path failures
   0 AIS Defect Secs, 20 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs

T1 1 is up
timeslots:
FDL per AT&T 54016 spec.
No alarms detected.
Framing is ESF, Clock Source is Internal
Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
      0 Unavailable Secs, 0 Stuffed Secs
      1 Path Failures, 2 SEF/AIS Secs
   Far End
      0 Line Code Violations, 0 Path Code Violations
      0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
      2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
      0 Unavailable Secs, 0 Stuffed Secs
      1 Path Failures, 2 SEF/AIS Secs
   Far End
      0 Line Code Violations,0 Path Code Violations
      0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
      3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
      0 Unavailable Secs, 0 Path Failures
```

Use Case 1

If your configuration is as follows:

- T3 is up

- No Alarms

- Framing is unframed

- Clock Source is Internal

This performance monitoring result is displayed:

```
T3 is up
No alarms detected.
Framing is unframed, Clock Source is Internal
Data in current interval (240 seconds elapsed):
   Near End
      0 Line Code Violations, 0 P-bit Coding Violations
      0 C-bit Coding Violations, 0 P-bit Err Secs
      0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
      0 Unavailable Secs, 0 Line Errored Secs
      0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
      0 Severely Errored Line Secs, 0 Path Failures
      0 AIS Defect Secs, 0 LOS Defect Secs
   Far End
      0 Errored Secs, 0 Severely Errored Secs
      0 C-bit Unavailable Secs, 0 Path Failures
      0 Code Violations, 0 Service Affecting Secs
  Data in Interval 1:
   Near End
      0 Line Code Violations, 0 P-bit Coding Violations
      0 C-bit Coding Violations, 0 P-bit Err Secs
      0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
      20 Unavailable Secs, 20 Line Errored Secs
      0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
      20 Severely Errored Line Secs, 1 Path Failures
      0 AIS Defect Secs, 20 LOS Defect Secs
   Far End
      0 Errored Secs, 0 Severely Errored Secs
      0 C-bit Unavailable Secs, 0 Path Failures
```

```
       0 Code Violations, 0 Service Affecting Secs
   Total Data (last 1 15 minute intervals):
    Near End
       0 Line Code Violations, 0 P-bit Coding Violations,
       0 C-bit Coding Violations, 0 P-bit Err Secs,
       0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
       20 Unavailable Secs, 20 Line Errored Secs,
       0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
       20 Severely Errored Line Secs, 1 path failures
       0 AIS Defect Secs, 20 LOS Defect Secs
    Far End
       0 Errored Secs, 0 Severely Errored Secs
       0 C-bit Unavailable Secs, 0 Path Failures
       0 Code Violations, 0 Service Affecting Secs

   T1 1 is up
   timeslots:
   FDL per AT&T 54016 spec.
   No alarms detected.
   Framing is ESF, Clock Source is Internal
   Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
       2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
       0 Unavailable Secs, 0 Stuffed Secs
       1 Path Failures, 2 SEF/AIS Secs
    Far End
       0 Line Code Violations, 0 Path Code Violations
       0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
       3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
       2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
       0 Unavailable Secs, 0 Stuffed Secs
       1 Path Failures, 2 SEF/AIS Secs
    Far End
       0 Line Code Violations,0 Path Code Violations
       0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
       3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
       0 Unavailable Secs, 0 Path Failures
```

Use Case 2

If your configuration is as follows:

- T1 28 is up or E1 16 is up

- No alarm received

• Framing is unframed

• Clock Source is Internal

This performance monitoring result is displayed:

```
T1 28 is up
No alarms detected.
Framing is unframed, Clock Source is Internal
Data in current interval (240 seconds elapsed):
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     0 Unavailable Secs, 0 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     0 Severely Errored Line Secs, 0 Path Failures
     0 AIS Defect Secs, 0 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs
  Data in Interval 1:
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations
     0 C-bit Coding Violations, 0 P-bit Err Secs
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
     20 Unavailable Secs, 20 Line Errored Secs
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     20 Severely Errored Line Secs, 1 Path Failures
     0 AIS Defect Secs, 20 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs
  Total Data (last 1 15 minute intervals):
   Near End
     0 Line Code Violations, 0 P-bit Coding Violations,
     0 C-bit Coding Violations, 0 P-bit Err Secs,
     0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
     20 Unavailable Secs, 20 Line Errored Secs,
     0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
     20 Severely Errored Line Secs, 1 path failures
     0 AIS Defect Secs, 20 LOS Defect Secs
   Far End
     0 Errored Secs, 0 Severely Errored Secs
     0 C-bit Unavailable Secs, 0 Path Failures
     0 Code Violations, 0 Service Affecting Secs

 T1 1 is up
 timeslots:
 FDL per AT&T 54016 spec.
 No alarms detected.
 Framing is ESF, Clock Source is Internal
 Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
       2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
       0 Unavailable Secs, 0 Stuffed Secs
       1 Path Failures, 2 SEF/AIS Secs
    Far End
       0 Line Code Violations, 0 Path Code Violations
       0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
       3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
       2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
       0 Unavailable Secs, 0 Stuffed Secs
       1 Path Failures, 2 SEF/AIS Secs
    Far End
       0 Line Code Violations,0 Path Code Violations
       0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
       3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
       0 Unavailable Secs, 0 Path Failures
```

To view the statistics or error count generated on the TDM lines for T3 interfaces, use the **show controller** command is:

```
Router# show controllers t3 0/0/0
T3 0/0/0 is down.
  Hardware is ASR900-48T3E3-CE

  Applique type is Channelized T3
  Receiver has loss of signal.
  Framing is Unknown, Line Code is B3ZS, Cablelength Short less than 225ft
  Clock Source is internal
  Equipment customer loopback
  Data in current interval (240 seconds elapsed):
   Near End
      0 Line Code Violations, 0 P-bit Coding Violations
      0 C-bit Coding Violations, 0 P-bit Err Secs
      0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
      0 Unavailable Secs, 0 Line Errored Secs
      0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
      0 Severely Errored Line Secs, 0 Path Failures
      0 AIS Defect Secs, 0 LOS Defect Secs
   Far End
      0 Errored Secs, 0 Severely Errored Secs
      0 C-bit Unavailable Secs, 0 Path Failures
      0 Code Violations, 0 Service Affecting Secs
  Data in Interval 1:
   Near End
      0 Line Code Violations, 0 P-bit Coding Violations
      0 C-bit Coding Violations, 0 P-bit Err Secs
      0 P-bit Severely Err Secs, 0 Severely Err Framing Secs
      20 Unavailable Secs, 20 Line Errored Secs
      0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
      20 Severely Errored Line Secs, 1 Path Failures
      0 AIS Defect Secs, 20 LOS Defect Secs
   Far End
      0 Errored Secs, 0 Severely Errored Secs
      0 C-bit Unavailable Secs, 0 Path Failures
```

```
     0 Code Violations, 0 Service Affecting Secs
   Total Data (last 1 15 minute intervals):
    Near End
      0 Line Code Violations, 0 P-bit Coding Violations,
      0 C-bit Coding Violations, 0 P-bit Err Secs,
      0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
      20 Unavailable Secs, 20 Line Errored Secs,
      0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
      20 Severely Errored Line Secs, 1 path failures
      0 AIS Defect Secs, 20 LOS Defect Secs
    Far End
      0 Errored Secs, 0 Severely Errored Secs
      0 C-bit Unavailable Secs, 0 Path Failures
      0 Code Violations, 0 Service Affecting Secs

   T1 1 is up
   timeslots:
   FDL per AT&T 54016 spec.
   No alarms detected.
   Framing is ESF, Clock Source is Internal
   Data in current interval (250 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 Stuffed 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
      0 Unavailable Secs, 0 Stuffed Secs
      1 Path Failures, 2 SEF/AIS Secs
    Far End
      0 Line Code Violations, 0 Path Code Violations
      0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins
      3 Errored Secs, 0 Bursty Err Secs, 3 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, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
      2 Errored Secs, 0 Bursty Err Secs, 2 Severely Err Secs
      0 Unavailable Secs, 0 Stuffed Secs
      1 Path Failures, 2 SEF/AIS Secs
    Far End
      0 Line Code Violations,0 Path Code Violations
      0 Slip Secs, 2 Fr Loss Secs, 0 Line Err Secs, 0 Degraded Mins,
      3 Errored Secs, 0 Bursty Err Secs, 3 Severely Err Secs
      0 Unavailable Secs, 0 Path Failures
```

The performance monitoring result displays the statistics TDM lines for DS1.

Table 1: Feature History Table

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

To view the performance monitoring details on T3 controller, use the **show controller t3 tabular** command:

```
Router#show controllers t3 0/2/0 tabular
T3 0/2/0 is up.
  Hardware is ASR900-48T3E3-CE

  Applique type is Subrate T3
  No alarms detected.
  MDL transmission is disabled

  FEAC code received: No code is being received
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  BER thresholds:  SF = 10e-3  SD = 10e-6
  Clock Source is internal
  Equipment customer loopback
  Near End Data
  INTERVAL        CV-L   ES-L  SES-L LOSS-L   CVP-P CVCP-P  ESP-P ESCP-P SESP-P SESCP-P  SAS-P
AISS-P  FC-P UASP-P UASCP-P
  19:03-19:11        0      0      0      0       0      0      0      0      0       0      0
      0      0      0       0
  18:48-19:03        0      0      0      0       0      0      0      0      0       0      0
      0      0      0       0
  Total              0      0      0      0       0      0      0      0      0       0      0
      0      0      0       0
  Far End Data
  INTERVAL        CVCP-PFE   ESCP-PFE   SESCP-PFE   UASCP-PFE   FCCP-PFE   SASCP-PFE
  19:03-19:11            0          0           0           0          0           0
  18:48-19:03            0          0           0           0          0           0
  Total                 0          0           0           0          0           0
```

To view the performance monitoring details on channelised T1-T3 controller, use the **show controller t3 tabular** command:

```
Router#show controllers t3 0/2/4 tabular
T3 0/2/4 is down.
  Hardware is ASR900-48T3E3-CE

  Applique type is Channelized T3/T1
  Receiver has loss of signal.
  MDL transmission is disabled

  FEAC code received: No code is being received
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  BER thresholds:  SF = 10e-3  SD = 10e-6
  Clock Source is internal
  Equipment customer loopback
  Near End Data
  INTERVAL        CV-L   ES-L  SES-L LOSS-L   CVP-P CVCP-P  ESP-P ESCP-P SESP-P SESCP-P  SAS-P
AISS-P  FC-P UASP-P UASCP-P
  19:02-19:09        0    459    459    459       0      0      0      0      0       0      0
      0      1    459     459
  Far End Data
  INTERVAL        CVCP-PFE   ESCP-PFE   SESCP-PFE   UASCP-PFE   FCCP-PFE   SASCP-PFE
  19:02-19:09            0          0           0           0          0           0
```

```
T3 0/2/4.1 T1 is down
timeslots:
FDL per AT&T 54016 spec.
Receiver is getting AIS.
Framing is ESF, Clock Source is Internal
Near End Data
INTERVAL     CV-L   ES-L   CV-P   ES-P  SES-P  CSS-P  SAS-P  UAS-P   FC-P
19:02-19:09    0      0      0      0      0      0      0      0      1
Far End Data
INTERVAL     ES-LFE  ES-PFE  SES-PFE  SEFS-PFE  CSS-PFE  UAS-PFE  FC-PFE
19:02-19:09     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, and T3 or E3 controllers.

- show controllers { t1 | e1 | t3 | e3}

- show controllers { t1 | e1 | t3 | e3} tabular

- show controllers { t1 | e1 | t3 | e3} remote performance

- show controllers { t1 | e1 | t3 | e3} remote performance tabular

```
router#show controllers t3 0/9/1
T3 0/9/1 is down.
  Hardware is NCS4200-48T3E3-CE
  Applique type is Channelized T3/T1
  Receiver has loss of signal.
  MDL transmission is disabled

  FEAC code received: No code is being received
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  BER thresholds:  SF = 10e-3  SD = 10e-6
  Clock Source is internal
  Equipment customer loopback
  Data in current interval (220 seconds elapsed):
...........
    0 Code Violations, 0 Service Affecting Secs
  Total Data (last 24 hours)
   Near End
    0 Line Code Violations, 0 P-bit Coding Violation,
    0 C-bit Coding Violation, 0 P-bit Err Secs,
    0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
    86423 Unavailable Secs, 86423 Line Errored Secs,
    0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
    86423 Severely Errored Line Secs, 0 path failures
    0 AIS Defect Secs, 86423 LOS Defect Secs
   Far End
    0 Errored Secs, 0 Severely Errored Secs
    0 C-bit Unavailable Secs, 0 Path Failures
    0 Code Violations, 0 Service Affecting Secs
  Total (Previous Day)
   Near End
    0 Line Code Violations, 0 P-bit Coding Violation,
    0 C-bit Coding Violation, 0 P-bit Err Secs,
    0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
    86440 Unavailable Secs, 86440 Line Errored Secs,
    0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
    86440 Severely Errored Line Secs, 2 path failures
    0 AIS Defect Secs, 86440 LOS Defect Secs
   Far End
    0 Errored Secs, 0 Severely Errored Secs
    0 C-bit Unavailable Secs, 0 Path Failures
```

```
     0 Code Violations, 0 Service Affecting Secs


  T3 0/9/1.1 T1 is down
  timeslots: 1-3
  FDL per AT&T 54016 spec.
  Receiver is getting AIS.
  Framing is ESF, Clock Source is Internal
  Data in current interval (220 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
     219 Unavail Secs, 0 Stuffed Secs
     0 Path Failures, 0 SEF/AIS Secs
   Far End
     0 Line Code Violations, 0 Path Code Violations
..................
     0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs
     0 Unavail Secs 0 Path Failures
  Total Data (last 24 hours)
   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
     86423 Unavail Secs, 0 Stuffed 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, 0 Line Err Secs, 0 Degraded Mins,
     0 Errored Secs, 0 Bursty Err Secs, 0 Severely Err Secs
     86415 Unavail Secs, 0 Stuffed 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


router#show controllers t3 0/9/1 tabular
T3 0/9/1 is down.
  Hardware is NCS4200-48T3E3-CE
  Applique type is Channelized T3/T1
  Receiver has loss of signal.
  MDL transmission is disabled

  FEAC code received: No code is being received
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  BER thresholds:  SF = 10e-3  SD = 10e-6
  Clock Source is internal
  Equipment customer loopback
  Near End Data
  INTERVAL       CV-L    ES-L   SES-L  LOSS-L   CVP-P  CVCP-P   ESP-P  ESCP-P  SESP-P  SESCP-P   SAS-P
  AISS-P  FC-P UASP-P UASCP-P
  06:11-06:15       0     249     249     249       0       0       0       0       0        0       0
       0      0    249     249
  05:56-06:11       0     900     900     900       0       0       0       0       0        0       0
       0      0    900     900
  05:41-05:56       0     900     900     900       0       0       0       0       0        0       0
```

```
        0      0    900      900
..........................
 06:26-06:41     0    900     900     900      0      0      0      0      0      0      0
        0      0    900      900
 06:11-06:26     0    901     901     901      0      0      0      0      0      0      0
        0      0    901      901
 Total           0  86423   86423   86423      0      0      0      0      0      0      0
        0      0  86423    86423
 Total (Previous Day)
 05:26-05:26     0  86440   86440   86440      0      0      0      0      0      0      0
        0      2  86440    86440
 Far End Data
 INTERVAL        CVCP-PFE   ESCP-PFE   SESCP-PFE   UASCP-PFE   FCCP-PFE   SASCP-PFE
 06:11-06:15         0          0          0           0          0           0
 05:56-06:11         0          0          0           0          0           0
.......................
 06:11-06:26         0          0          0           0          0           0
 Total              0          0          0           0          0           0
 Total (Previous Day)
 05:26-05:26         0          0          0           0          0           0


 T3 0/9/1.1 T1 is down
 timeslots: 1-3
 FDL per AT&T 54016 spec.
 Receiver is getting AIS.
 Framing is ESF, Clock Source is Internal
 Near End Data
 INTERVAL    CV-L   ES-L   CV-P   ES-P   SES-P   CSS-P   SAS-P   UAS-P   FC-P
 06:11-06:15    0      0      0      0      0      0       0      249      0
 05:56-06:11    0      0      0      0      0      0       0      900      0
 05:41-05:56    0      0      0      0      0      0       0      900      0
.......................
 06:26-06:41    0      0      0      0      0      0       0      900      0
 06:11-06:26    0      0      0      0      0      0       0      901      0
 Total          0      0      0      0      0      0       0    86423      0
 Total (Previous Day)
 05:26-05:26    0      0      0      0      0      0       0    86415      0
 Far End Data
 INTERVAL    ES-LFE   ES-PFE   SES-PFE   SEFS-PFE   CSS-PFE   UAS-PFE   FC-PFE
 06:11-06:15     0        0        0          0         0         0         0
.......................
 06:56-07:11     0        0        0          0         0         0         0
 06:41-06:56     0        0        0          0         0         0         0
 06:26-06:41     0        0        0          0         0         0         0
 06:11-06:26     0        0        0          0         0         0         0
 Total           0        0        0          0         0         0         0
 Total (Previous Day)
 05:26-05:26     0        0        0          0         0         0         0


 T3 0/9/1.2 T1 is down
 timeslots:
 FDL per AT&T 54016 spec.
 Receiver is getting AIS.
 Framing is ESF, Clock Source is Internal
 Near End Data
 INTERVAL    CV-L   ES-L   CV-P   ES-P   SES-P   CSS-P   SAS-P   UAS-P   FC-P
 06:11-06:15    0      0      0      0      0      0       0      249      0
 05:56-06:11    0      0      0      0      0      0       0      900      0


router#show controllers t3 0/9/1 remote performance

T3 0/9/1 is down.
  Hardware is NCS4200-48T3E3-CE
```

```
Applique type is Channelized T3/T1
Receiver has loss of signal.
MDL transmission is disabled

FEAC code received: No code is being received
Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
BER thresholds:  SF = 10e-3  SD = 10e-6
Clock Source is internal
Equipment customer loopback
Data in current interval (250 seconds elapsed):
 Near End
   0 Line Code Violations, 0 P-bit Coding Violation
   0 C-bit Coding Violation, 0 P-bit Err Secs
.................
   901 Severely Errored Line Secs, 0 Path Failures
   0 AIS Defect Secs, 901 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs
Total Data (last 24 hours)
 Near End
   0 Line Code Violations, 0 P-bit Coding Violation,
   0 C-bit Coding Violation, 0 P-bit Err Secs,
   0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
   86423 Unavailable Secs, 86423 Line Errored Secs,
   0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
   86423 Severely Errored Line Secs, 0 path failures
   0 AIS Defect Secs, 86423 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs
Total (Previous Day)
 Near End
   0 Line Code Violations, 0 P-bit Coding Violation,
   0 C-bit Coding Violation, 0 P-bit Err Secs,
   0 P-bit Severely Err Secs, 0 Severely Err Framing Secs,
   86440 Unavailable Secs, 86440 Line Errored Secs,
   0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
   86440 Severely Errored Line Secs, 2 path failures
   0 AIS Defect Secs, 86440 LOS Defect Secs
 Far End
   0 Errored Secs, 0 Severely Errored Secs
   0 C-bit Unavailable Secs, 0 Path Failures
   0 Code Violations, 0 Service Affecting Secs

T1 1 - Remote Performance Data
Data in current interval (260 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
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
Data in Interval 2:
   0 Line Code Violations, 0 Path Code Violations
......................
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 Data (last 24 hours)
      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 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


  T1 2 - Remote Performance Data
  Data in current interval (260 seconds elapsed):
      0 Line Code Violations, 0 Path Code Violations


router#show controllers t3 0/9/1 remote performance tabular

T3 0/9/1 is down.
  Hardware is NCS4200-48T3E3-CE

  Applique type is Channelized T3/T1
  Receiver has loss of signal.
  MDL transmission is disabled

  FEAC code received: No code is being received
  Framing is C-BIT Parity, Line Code is B3ZS, Cablelength Short less than 225ft
  BER thresholds:  SF = 10e-3  SD = 10e-6
  Clock Source is internal
  Equipment customer loopback
  Near End Data
  INTERVAL       CV-L   ES-L  SES-L LOSS-L  CVP-P CVCP-P  ESP-P ESCP-P SESP-P SESCP-P  SAS-P
 AISS-P  FC-P UASP-P UASCP-P
  06:11-06:16      0    279    279    279      0      0      0      0      0      0      0
     0     0    279    279
  05:56-06:11      0    900    900    900      0      0      0      0      0      0      0
     0     0    900    900
  05:41-05:56      0    900    900    900      0      0      0      0      0      0      0
     0     0    900    900
...............
  06:11-06:26      0    901    901    901      0      0      0      0      0      0      0
     0     0    901    901
  Total            0  86423  86423  86423      0      0      0      0      0      0      0
     0     0  86423  86423
  Total (Previous Day)
  05:26-05:26      0  86440  86440  86440      0      0      0      0      0      0      0
     0     2  86440  86440
  Far End Data
  INTERVAL       CVCP-PFE  ESCP-PFE  SESCP-PFE  UASCP-PFE  FCCP-PFE  SASCP-PFE
  06:11-06:16       0         0          0          0         0          0
  05:56-06:11       0         0          0          0         0          0
  05:41-05:56       0         0          0          0         0          0
..............
  06:11-06:26       0         0          0          0         0          0
  Total             0         0          0          0         0          0
  Total (Previous Day)
  05:26-05:26       0         0          0          0         0          0

  T1 1 - Remote Performance Data
  INTERVAL       LCV   PCV   CSS  SELS   LES    DM    ES   BES   SES   UAS
  06:11-06:16      0     0     0     0     0     0     0     0     0     0
  05:56-06:11      0     0     0     0     0     0     0     0     0     0
  05:41-05:56      0     0     0     0     0     0     0     0     0     0
```

```
..............
  06:56-07:11     0      0      0      0      0      0      0      0      0      0
  06:41-06:56     0      0      0      0      0      0      0      0      0      0
  06:26-06:41     0      0      0      0      0      0      0      0      0      0
  06:11-06:26     0      0      0      0      0      0      0      0      0      0
  Total           0      0      0      0      0      0      0      0      0      0
  Total (Previous Day)
  05:26-05:26     0      0      0      0      0      0      0      0      0      0

  T1 2 - Remote Performance Data
  INTERVAL       LCV    PCV    CSS   SELS    LES     DM     ES    BES    SES    UAS
  06:11-06:16     0      0      0      0      0      0      0      0      0      0
  05:56-06:11     0      0      0      0      0      0      0      0      0      0
  05:41-05:56     0      0      0      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	• Unlike the previous release, where the **clear counters** command reset the old dataset, from this release onwards, the command resets all the PMON datasets, including the current dataset. • You can clear the PMON data for a specific interface module on the device using the **clear controller hw-module** command

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.