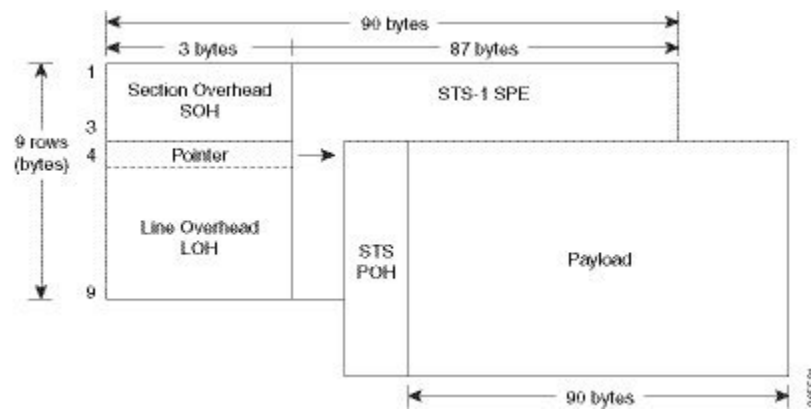




STS-1 Electricals

A standard STS-1 frame is nine rows by 90 bytes. The first three bytes of each row represent the Section and Line overhead. These overhead bits comprise framing bits and pointers to different parts of the STS-1 frame.

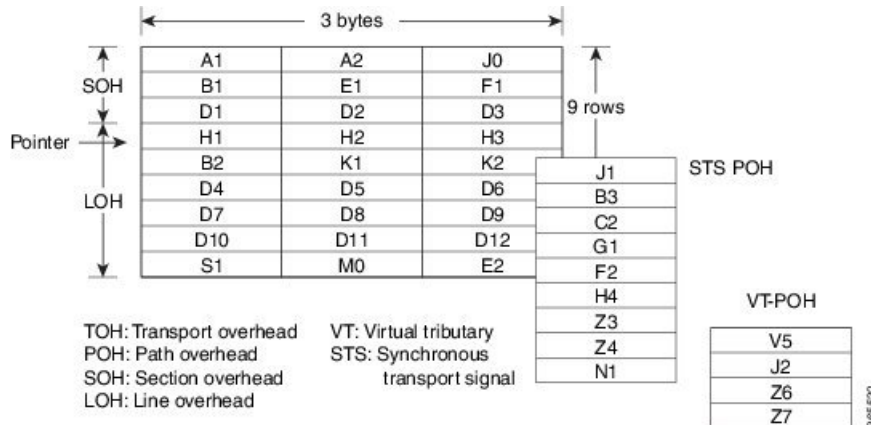
Figure 1: STS-1 Frame Structure



There is one column of bytes in the payload that represents the STS path overhead. This column frequently "floats" throughout the frame. Its location in the frame is determined by a pointer in the Section and Line overhead.

The combination of the Section and Line overhead comprises the transport overhead, and the remainder is the SPE.

Figure 2: STS-1 Overhead



For STS-1, a single frame is transmitted in 125 microseconds, or 8000 frames per second. $8000 \text{ fps} * 810 \text{ B/frame} = 51.84 \text{ Mbs}$, of which the payload is roughly 49.5 Mbs, enough to encapsulate 28 DS-1s, a full DS-3, or 21 CEPT-1s.

STS-1electrical ports are also supported. Each port operates at 51.840 Mbps over a single 75-ohm, 728A or equivalent coaxial span. Ports range from 12 to 15 are supported.

- [Restrictions for STS-1e, on page 2](#)
- [Prerequisites for Configuring STS-1e, on page 3](#)
- [Configuring MediaType Controller, on page 3](#)
- [Configuring STS-1e Modes, on page 3](#)
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Restrictions for STS-1e

- Only 16 BERT patterns can be configured at a time.
- PMON fields are not supported for VT1.5 VT and T3.
- PMON far-end parameters are not supported.
- APS and card-protection are not supported for STS-1e port.
- In the unframed mode, ACR and DCR are not supported.
- CESoPSN is not supported.
- Framed SAToP is not supported .

Restrictions for Clock Source Configuration

- Only 4 ports can be configured in STS-1e line for clock source configuration per chassis.
- You should configure the clock source line and network-clock sync together to receive the clock from a remote port that is connected to the STS-1e port.

Prerequisites for Configuring STS-1e

You must select the MediaType controller to configure and enter the controller configuration mode.

You must configure the controller as a STS-1e port.

Configuring MediaType Controller

To configure MediaType Controller, use the following commands:

```
enable
configure terminal
controller MediaType 0/0/16
mode STS-1e
end
```

Configuring STS-1e Modes

Configuring STS-1e Modes for Unframed SAToP

STS-1e supports unframed SAToP and you can configure STS-1e under VT-15, CT3, T3, and unframed modes. There is no default mode for STS-1e.

To configure STS-1e modes for unframed SAToP, use the following commands:

```
enable
configure terminal
controller sts-1e 0/0/16
sts-1 1
mode {vt-15 | ct3 | t3 | unframed}
end
```



Note To restore the system to its default condition, use the **no** form of the command.

Configuring VT-15 Mode of STS-1e

Configuring VT-15 Mode of STS-1e for Unframed SAToP

To configure VT-15 mode of STS-1e for unframed SAToP, enter the following commands:

```
enable
configure terminal
```

```

controller STS1E 0/3/14
no ais-shut
alarm-report all
clock source internal
!
sts-1 1
clock source internal
mode vt-15
vtg 1 t1 1 framing unframed
vtg 1 t1 1 cem-group 0 unframed

```

Configuring T1 CT3 mode of STS-1e

Configuring T1 CT3 mode of STS-1e for Unframed SAToP

To configure T1 CT3 mode of STS-1, you can configure the T1 link using the following steps:

```

enable
configure terminal
controller sts-1e 0/0/16
sts-1 1
mode ct3
t1 1 clock source internal
t1 1 framing unframed
end

```



Note To restore the system to its default condition, use the **no** form of the command.

Configuring T3 mode of STS-1e

Configuring T3 mode of STS-1e for Unframed SAToP

```

controller STS1E 0/3/14
no ais-shut
alarm-report all
clock source internal
!
sts-1 1
clock source internal
mode t3
cem-group 0 unframed
t3 clock source internal

```

Configuring Unframed Mode of STS-1e

```

controller STS1E 0/3/14
no ais-shut
alarm-report all
clock source internal
!
sts-1 1
clock source internal
mode unframed
cem-group 0 cep

```

Configuring Line and Section Overhead

To configure line and section overhead, use the following commands:

```
enable
configure terminal
controller MediaType 0/0/16
mode sts-1e
controller sts-1e 0/0/16
overhead s1s0 2
overhead j0 tx length 1-byte
end
```



Note To restore the system to its default condition, use the **no** form of the command.

Configuring Line Loopback

To configure loopback, use the following commands:

```
enable
configure terminal
controller sts-1e 0/0/16
loopback local
end
```



Note To restore the system to its default condition, use the **no** form of the command.

Configuring AIS Shut

Alarm Indication Signal (AIS) shut when enabled on the STS-1e controller results in sending AIS alarm to peer node.

To configure AIS-Shut, use the following commands:

```
enable
configure terminal
controller sts-1e 0/0/16
ais-shut
end
```



Note The **no ais-shut** command will not send AIS.

Configuring Shut

To configure Shut, use the following commands:

```
enable
configure terminal
controller sts-1e 0/0/16
shutdown
end
```



Note Use the **no shutdown** command to disable the interface.

Configuring Clock

To configure clock, use the following commands:

```
enable
configure terminal
controller MediaType 0/0/16
mode sts-1e
controller sts-1e 0/0/16
clock source line
end
```



Note The default mode is internal.



Note ACR and DCR clock recovery are also supported.

Configuring Network-Clock STS-1e

To configure network-clock STS-1e, use the following commands:

```
enable
configure terminal
network-clock input-source 1 controller STS-1e 0/0/16
end
```

Verifying STS-1e Configuration

The following sample output shows the verification of STS-1e configuration in unframed mode:

```
router#show controllers sts1e 0/3/14
STS1E 0/3/14 is up.                               =====> this is the controller/port status.

Hardware is A900-IMA3G-IMSG
```

Port configured rate: OC3 =====> this is the rate the port is configured on it.
 Applique type is Channelized STS1E
 Clock Source is Internal ==> the clocking config
 Medium info:
 Type: STS1E, Line Coding: NRZ,
 Alarm Throttling: OFF
 SECTION:
 LOS = 0 LOF = 0 BIP(B1) = 0 =====> the section level alarm counter (from last clear counters)

STS1E Section Tables

INTERVAL	CV	ES	SES	SEFS
05:26-05:28	0	49	49	49

LINE:
 AIS = 0 RDI = 0 REI = 0 BIP(B2) = 0 =====> the line level alarm counter (from last clear counters)
 Active Defects: None
 Detected Alarms: None
 Asserted/Active Alarms: None =====> present active alarms on the port.
 Alarm reporting enabled for: SLOS SLOF LAIS SF SD LRDI B1-TCA B2-TCA
 BER thresholds: SF = 10e-3 SD = 10e-6 =====> ber thresholds
 TCA thresholds: B1 = 10e-6 B2 = 10e-6
 Rx: S1S0 = 00
 J0 = 00
 RX S1 = 00
 Tx: S1S0 = 00
 J0 = 04

Tx J0 Length : 64
 Tx J0 Trace :
 52 53 50 32 20 20 20 20 20 20 20 20 20 20 20 20 RSP2
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 00 00 ..

Expected J0 Length : 64
 Expected J0 Trace :
 52 53 50 32 20 20 20 20 20 20 20 20 20 20 20 20 RSP2
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 00 00 ..

Rx J0 Length : 16
 Rx J0 Trace :
 CRC-7: 0xD8 ERROR
 BC 4B 69 CC 79 24 1B 01 E8 EB 9C 36 FC 29 A9 00 .Ki.y\$.6.)..

STS1E Line Tables

INTERVAL	CV	ES	SES	UAS	CVFE	ESFE	SESFE	UASFE
05:26-05:28	0	0	0	50	0	0	0	0

High Order Path:
 PATH 1:
 Clock Source is internal

```

AIS = 0          RDI = 0          REI = 0          BIP(B3) = 0
LOP = 0          PSE = 0          NSE = 0          NEWPTR = 0
LOM = 0          PLM = 0          UNEQ = 0
    
```

```

Active Defects: None
Detected Alarms: None
Asserted/Active Alarms: None
Alarm reporting enabled for: PAIS PRDI PUNEQ PLOP PPLM LOM B3-TCA
    
```

```

TCA threshold: B3 = 10e-6
Rx: C2 = 04
Tx: C2 = 01
    
```

```

Tx J1 Length : 64
Tx J1 Trace
    
```

```

52 53 50 32 20 30 2F 33 2F 31 34 2E 31 00 00 00      RSP2 0/3/14.1...
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
    
```

```

Expected J1 Length : 64
Expected J1 Trace
    
```

```

52 53 50 32 20 30 2F 33 2F 31 34 2E 31 00 00 00      RSP2 0/3/14.1...
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
    
```

PATH TRACE BUFFER : UNSTABLE

```

Rx J1 Length : 64
Rx J1 Trace
    
```

```

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
    
```

SONET Path Tables

INTERVAL	CV	ES	SES	UAS	CVFE	ESFE	SESFE	UASFE
05:26-05:28	0	0	0	48	0	0	0	0

```

STS1E 0/3/14.1 PATH mode UNFRAMED is up
cep is configured: TRUE cem_id :0
clock source internal
    
```

The following sample output shows the verification of STS-1e configuration in VT-15 mode:

```

router#show controllers sts1e 0/3/14
STS1E 0/3/14 is up.
Hardware is A900-IMA3G-IMSG

Port configured rate: OC1
Applique type is Channelized STS1E
Clock Source is Internal
Medium info:
Type: STS1E, Line Coding: NRZ,
Alarm Throttling: OFF
SECTION:
LOS = 0          LOF = 0          BIP(B1) = 0

STS1E Section Tables
    
```


INTERVAL CV ES SES SEFS
05:33-05:33 0 0 0 0

LINE:

AIS = 0 RDI = 0 REI = 0 BIP(B2) = 0

Active Defects: None

Detected Alarms: None

Asserted/Active Alarms: None

Alarm reporting enabled for: SLOS SLOF LAIS SF SD LRDI B1-TCA B2-TCA

BER thresholds: SF = 10e-3 SD = 10e-6

TCA thresholds: B1 = 10e-6 B2 = 10e-6

Rx: S1S0 = 00

J0 = 00

RX S1 = 00

Tx: S1S0 = 00

J0 = 04

Tx J0 Length : 64

Tx J0 Trace :

52 53 50 32 20 20 20 20 20 20 20 20 20 20 20 20 RSP2
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 00 00 ..

Expected J0 Length : 64

Expected J0 Trace :

52 53 50 32 20 20 20 20 20 20 20 20 20 20 20 20 RSP2
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 00 00 ..

Rx J0 Length : 16

Rx J0 Trace :

CRC-7: 0xD8 ERROR

BC 4B 69 CC 79 24 1B 01 E8 EB 9C 36 FC 29 A9 00 .Ki.y\$......6.)..

STS1E Line Tables

INTERVAL CV ES SES UAS CVFE ESFE SESFE UASFE
05:33-05:33 0 0 0 0 0 0 0 0

High Order Path:

PATH 1:

Clock Source is internal

AIS = 0 RDI = 0 REI = 0 BIP(B3) = 0

LOP = 0 PSE = 0 NSE = 0 NEWPTR = 0

LOM = 0 PLM = 0 UNEQ = 0

Active Defects: None

Detected Alarms: None

Asserted/Active Alarms: None

Alarm reporting enabled for: PAIS PRDI PUNEQ PLOP PPLM LOM B3-TCA

TCA threshold: B3 = 10e-6

Rx: C2 = 02

Tx: C2 = 02

Verifying STS-1e Configuration

Tx J1 Length : 64
Tx J1 Trace

```

52 53 50 32 20 30 2F 33 2F 31 34 2E 31 00 00 00      RSP2 0/3/14.1...
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
    
```

Expected J1 Length : 64
Expected J1 Trace

```

52 53 50 32 20 30 2F 33 2F 31 34 2E 31 00 00 00      RSP2 0/3/14.1...
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
    
```

PATH TRACE BUFFER : UNSTABLE

Rx J1 Length : 64
Rx J1 Trace

```

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
    
```

SONET Path Tables

INTERVAL	CV	ES	SES	UAS	CVFE	ESFE	SESFE	UASFE
05:33-05:33	0	0	0	0	0	0	0	0

STS1E 0/3/14.1 PATH is up.
Hardware is A900-IMA3G-IMSG

Applique type is VT1.5

STS-1 1, VTG 1, VT 1 (STS1E 0/3/14.1/1/1 VT) is up
No VT alarms detected.

cep is configured: FALSE cem_id (0)
fwd_alarm_ais :0 fwd_alarm_rai :0
Framing is unframed, Clock Source is Internal
BIP2-tca:6, BIP2-sf:3, BIP2-sd:6

Tx V5:1

Rx V5:2

Tx J2 Length=64

TX J2 Trace Buffer:

```

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
    
```

Expected J2 Length=64

Expected J2 Trace Buffer:

```

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00      .....
    
```

Rx J2 Length=16

RX J2 Trace Buffer:

CRC-7: 0x80 OK

```

4A 44 53 55 00 00 00 00 00 00 00 00 00 00 00 00      JDSU.....
    
```

```
Data in current interval (1 seconds elapsed)
Near End
  0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 0 Unavailable Secs
Far End
  0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 0 Unavailable Secs
```

```
STS-1 1, VTG 1, T1 1 (STS1E 0/3/14.1/1/1 T1) is up
No alarms detected.
Framing is unframed, Clock Source is Internal
Data in current interval (0 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 Severly Err Secs
  0 Unavail Secs, 0 Stuffed 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 Severly Err Secs
  0 Unavail Secs
```

The following sample output shows the verification of STS-1e configuration in T3 mode:

```
router#show controllers sts1e 0/3/14
STS1E 0/3/14 is up.
Hardware is A900-IMA3G-IMSG

Port configured rate: OC1
Applique type is Channelized STS1E
Clock Source is Internal
Medium info:
Type: STS1E, Line Coding: NRZ,
Alarm Throttling: OFF
SECTION:
  LOS = 0                LOF = 0                BIP(B1) = 0

STS1E Section Tables
  INTERVAL    CV    ES    SES  SEFS
  05:35-05:35   0    0    0    0

LINE:
  AIS = 0                RDI = 0                REI = 0                BIP(B2) = 0
Active Defects: None
Detected Alarms: None
Asserted/Active Alarms: None
Alarm reporting enabled for: SLOS SLOF LAIS SF SD LRDI B1-TCA B2-TCA
BER thresholds: SF = 10e-3 SD = 10e-6
TCA thresholds: B1 = 10e-6 B2 = 10e-6
Rx: S1S0 = 00
     J0 = 00

     RX S1 = 00

Tx: S1S0 = 00
     J0 = 04

Tx J0 Length : 64
Tx J0 Trace :

  52 53 50 32 20 20 20 20 20 20 20 20 20 20 20 20 20 20 RSP2
  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
  20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
  20 20 20 20 20 20 20 20 20 20 20 20 20 20 00 00

Expected J0 Length : 64
```

Verifying STS-1e Configuration

Expected J0 Trace :

52 53 50 32 20 20 20 20 20 20 20 20 20 20 20 20 RSP2
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 ..
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 20 20 20 20 20 20 20 20 20 20 20 20 20 20 00 00

Rx J0 Length : 16

Rx J0 Trace :

CRC-7: 0xD8 ERROR

BC 4B 69 CC 79 24 1B 01 E8 EB 9C 36 FC 29 A9 00 .Ki.y\$.6.))..

STS1E Line Tables

INTERVAL	CV	ES	SES	UAS	CVFE	ESFE	SESFE	UASFE
05:35-05:35	0	0	0	73	0	0	0	0

High Order Path:

PATH 1:

Clock Source is internal

AIS = 0	RDI = 0	REI = 0	BIP(B3) = 0
LOP = 0	PSE = 0	NSE = 0	NEWPTR = 0
LOM = 0	PLM = 0	UNEQ = 0	

Active Defects: None

Detected Alarms: None

Asserted/Active Alarms: None

Alarm reporting enabled for: PAIS PRDI PUNEQ PLOP PPLM LOM B3-TCA

TCA threshold: B3 = 10e-6

Rx: C2 = 04

Tx: C2 = 04

Tx J1 Length : 64

Tx J1 Trace

52 53 50 32 20 30 2F 33 2F 31 34 2E 31 00 00 00 RSP2 0/3/14.1...
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Expected J1 Length : 64

Expected J1 Trace

52 53 50 32 20 30 2F 33 2F 31 34 2E 31 00 00 00 RSP2 0/3/14.1...
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

PATH TRACE BUFFER : UNSTABLE

Rx J1 Length : 64

Rx J1 Trace

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

SONET Path Tables

INTERVAL	CV	ES	SES	UAS	CVFE	ESFE	SESFE	UASFE

05:26-05:36 0 0 0 12 0 0 0 0

```

STS1E 0/3/14.1 T3 is up.
  Hardware is A900-IMA3G-IMSG

  Applique type is T3
  No alarms detected.
  Framing is Unframed, Cablelength is 224
  BER thresholds:  SF = 10e-3  SD = 10e-6
  Clock Source is internal
  Equipment customer loopback
  Data in current interval (560 seconds elapsed):
  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
    275 Unavailable Secs, 0 Line Errored Secs
    0 C-bit Errored Secs, 0 C-bit Severely Errored Secs
    0 Severely Errored Line Secs, 3 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
  
```

The following sample output shows the verification of STS-1e configuration in CT3 mode:

```

router#show controllers stslE 0/3/14
STS1E 0/3/14 is up.
  Hardware is A900-IMA3G-IMSG

  Port configured rate: OC1
  Applique type is Channelized STS1E
  Clock Source is Internal
Medium info:
  Type: STS1E, Line Coding: NRZ,
  Alarm Throttling: OFF
SECTION:
  LOS = 0                      LOF = 0                      BIP(B1) = 0

STS1E Section Tables
  INTERVAL      CV      ES      SES      SEFS
  05:41-05:42    0      10      10      10

LINE:
  AIS = 0                      RDI = 0                      REI = 0                      BIP(B2) = 0
Active Defects: None
Detected Alarms: None
Asserted/Active Alarms: None
Alarm reporting enabled for: SLOS SLOF LAIS SF SD LRDI B1-TCA B2-TCA
BER thresholds:  SF = 10e-3  SD = 10e-6
TCA thresholds:  B1 = 10e-6  B2 = 10e-6
Rx: S1S0 = 00
      J0 = 00

      RX S1 = 00

Tx: S1S0 = 00
      J0 = 04

Tx J0 Length : 64
Tx J0 Trace :

  52 53 50 32 20 20 20 20 20 20 20 20 20 20 20 20      RSP2
  
```

Verifying STS-1e Configuration

```

20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 00 00 ..

```

Expected J0 Length : 64
 Expected J0 Trace :

```

52 53 50 32 20 20 20 20 20 20 20 20 20 20 20 20 RSP2
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 00 00 ..

```

Rx J0 Length : 16
 Rx J0 Trace :

```

CRC-7: 0xD8 ERROR

BC 4B 69 CC 79 24 1B 01 E8 EB 9C 36 FC 29 A9 00 .Ki.y$.....6.)..

```

STS1E Line Tables

INTERVAL	CV	ES	SES	UAS	CVFE	ESFE	SESFE	UASFE
05:41-05:42	0	0	0	10	0	0	0	0

High Order Path:

PATH 1:
 Clock Source is internal

```

AIS = 0          RDI = 0          REI = 0          BIP(B3) = 0
LOP = 0          PSE = 0          NSE = 0          NEWPTR = 0
LOM = 0          PLM = 0          UNEQ = 0

```

Active Defects: None
 Detected Alarms: None
 Asserted/Active Alarms: None
 Alarm reporting enabled for: PAIS PRDI PUNEQ PLOP PPLM LOM B3-TCA

TCA threshold: B3 = 10e-6
 Rx: C2 = 04
 Tx: C2 = 04

Tx J1 Length : 64
 Tx J1 Trace

```

52 53 50 32 20 30 2F 33 2F 31 34 2E 31 00 00 00 RSP2 0/3/14.1...
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

```

Expected J1 Length : 64
 Expected J1 Trace

```

52 53 50 32 20 30 2F 33 2F 31 34 2E 31 00 00 00 RSP2 0/3/14.1...
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

```

PATH TRACE BUFFER : UNSTABLE

Rx J1 Length : 64
 Rx J1 Trace

```

00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

```

```
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
```

SONET Path Tables

INTERVAL	CV	ES	SES	UAS	CVFE	ESFE	SESFE	UASFE
05:42-05:42	0	0	0	0	0	0	0	0

STS1E 0/3/14.1 T3 is up.
Hardware is A900-IMA3G-IMSG

Applique type is Channelized T3 to T1
No alarms detected.
MDL transmission is disabled

FEAC code received: No code is being received
Framing is C-BIT Parity, Cablelength is 224
BER thresholds: SF = 10e-3 SD = 10e-6
Clock Source is internal
Equipment customer loopback
Data in current interval (60 seconds elapsed):
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
25 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

STS-1 1, T1 1 (STS1E 0/3/14.1/1 T1) is up
No alarms detected.
Framing is unframed, Clock Source is Internal
Data in current interval (60 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
25 Unavail Secs, 0 Stuffed 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

STS-1 1, T1 2 (STS1E 0/3/14.1/2 T1) is up
timeslots:
FDL per AT&T 54016 spec.
No alarms detected.
Framing is ESF, Clock Source is Internal
Data in current interval (60 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
26 Unavail Secs, 0 Stuffed 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

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 STS-1e controllers.

- show controller sts1e
- show controller sts1e tabular
- show controller sts1e remote performance
- show controller sts1e remote performance tabular

```

router#show controllers sts1e 0/3/0

sts1e 0/3/0 is down.
  Hardware is

  Port configured rate: OC3
  Applique type is Channelized Sonet
  Clock Source is Internal
Medium info:
  Type: sts1e, Line Coding: NRZ,
  Alarm Throttling: OFF
SECTION:
  LOS = 1          LOF = 0          BIP(B1) = 0

sts1e Section Tables
  INTERVAL      CV    ES    SES  SEFS
  06:14-06:24   0    611  611  611
  05:59-06:14   0    901  901  901
  .....
  06:29-06:44   0    901  901  901
  06:14-06:29   0    901  901  901
Total of Data in Current and Previous Intervals
  06:14-06:24   0 87107 87107 87107
Total (Previous Day)
  05:29-05:29   0 86494 86494 86494

LINE:
  AIS = 0          RDI = 0          REI = 0          BIP(B2) = 0
Active Defects: None
Detected Alarms: SLOS SLOF LAIS
Asserted/Active Alarms: SLOS
.....
sts1e Line Tables
  INTERVAL      CV    ES    SES  UAS  CVFE  ESFE  SESFE  UASFE
  06:14-06:24   0    0    0    611  0    0    0    0
  05:59-06:14   0    0    0    901  0    0    0    0
  05:44-05:59   0    0    0    901  0    0    0    0
  05:29-05:44   0    0    0    901  0    0    0    0
  .....
  06:14-06:29   0    0    0    901  0    0    0    0
Total of Data in Current and Previous Intervals
  06:14-06:24   0    0    0 87107 0    0    0    0
Total (Previous Day)
  05:29-05:29   0    0    0 86494 0    0    0    0

PATH 1:
Clock Source is internal

  AIS = 0          RDI = 0          REI = 0          BIP(B3) = 8
  LOM = 0          PLM = 0          UNEQ = 0         LOP = 0
  .....

```


SONET Path Tables

INTERVAL	CV	ES	SES	UAS	CVFE	ESFE	SESFE	UASFE
06:14-06:24	0	0	0	609	0	0	0	0
05:59-06:14	0	0	0	901	0	0	0	0
05:44-05:59	0	0	0	900	0	0	0	0
05:29-05:44	0	0	0	901	0	0	0	0
.....								
06:29-06:44	0	0	0	900	0	0	0	0
06:14-06:29	0	0	0	900	0	0	0	0
Total of Data in Current and Previous Intervals								
06:14-06:24	0	0	0	87045	0	0	0	0
Total (Previous Day)								
05:29-05:29	0	0	0	86435	0	0	0	0

PATH 2:

Clock Source is internal
.....

sts1e 0/3/0.1 PATH is down.
Hardware is A900-IMA1Z8S-CX

Applique type is VT1.5

STS-1 1, VTG 1, VT 1 (sts1e 0/3/0.1/1/1 VT) is down
VT Receiver has LP_AIS.

cep is configured: FALSE cem_id (0)
fwd_alarm_ais :0 fwd_alarm_rai :0, Clock Source is Internal
BIP2-tca:6, BIP2-sf:3, BIP2-sd:6

Tx V5:2
Rx V5:0

Tx J2 Length=64

TX J2 Trace Buffer:
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Expected J2 Length=64

Expected J2 Trace Buffer:
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Rx J2 Length=16

RX J2 Trace Buffer:

CRC-7: 0x60 ERROR

C9 79 F7 0F 5F D8 5D D2 D2 7C F6 0E 53 B2 0E 00 .y.._]...|..S...

Data in current interval (610 seconds elapsed)

Near End
0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 609 Unavailable Secs
Far End
0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 0 Unavailable Secs

Data in Interval 1:

Near End
0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 901 Unavailable Secs
Far End
0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 0 Unavailable Secs

.....
Data in Interval 96:

Near End

```

    0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 900 Unavailable Secs
Far End
    0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 0 Unavailable Secs
Total Data (last 96 fifteen minute intervals):
Near End
    0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 86436 Unavailable Secs
Far End
    0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 0 Unavailable Secs
Total (Previous Day):
Near End
    0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 86435 Unavailable Secs
Far End
    0 CodeViolations, 0 ErrorSecs, 0 Severly Err Secs, 0 Unavailable Secs

```

STS-1 1, VTG 1, T1 1 (sts1e 0/3/0.1/1/1 T1) is down

timeslots: 1-4

FDL per AT&T 54016 spec.

Receiver is getting AIS.

Framing is ESF, Clock Source is Internal

Data in current interval (610 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 Severly Err Secs
    609 Unavail Secs, 0 Stuffed 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 Severly Err Secs
    0 Unavail Secs

```

Data in Interval 1:

```

Near End
    0 Line Code Violations, 0 Path Code Violations
.....

```

```

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 Severly Err Secs
    0 Unavail Secs

```

Data in Interval 96:

```

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 Severly Err Secs
    900 Unavail Secs, 0 Stuffed 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 Severly Err Secs
    0 Unavail Secs

```

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 Severly Err Secs
    86436 Unavail Secs, 0 Stuffed 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 Severly Err Secs
    0 Unavailable Secs

```

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
86435 Unavail Secs, 0 Stuffed 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
    
```

STS-1 1, VTG 1, VT 2 (SONET 0/3/0.1/1/2 VT) is down
 VT Receiver has LP_AIS.

router#show controllers stsle 0/3/0 tabular

Section/Line/Path same as previous.

stsle 0/3/0.1 PATH is down.
 Hardware is

Applique type is VT1.5

STS-1 1, VTG 1, VT 1 (SONET 0/3/0.1/1/1 VT) is down
 VT Receiver has LP_AIS.

cep is configured: FALSE cem_id (0)
 fwd_alarm_ais :0 fwd_alarm_rai :0, Clock Source is Internal
 BIP2-tca:6, BIP2-sf:3, BIP2-sd:6

Tx V5:2
 Rx V5:0

Tx J2 Length=64

TX J2 Trace Buffer:
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Expected J2 Length=64

Expected J2 Trace Buffer:
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Rx J2 Length=16

RX J2 Trace Buffer:
 CRC-7: 0x60 ERROR

C9 79 F7 0F 5F D8 5D D2 D2 7C F6 0E 53 B2 0E 00 .y.._]..|..S...

INTERVAL	CV-V	ES-V	SES-V	UAS-V	CV-VFE	ES-VFE	SES-VFE	UAS-VFE
06:14-06:24	0	0	0	619	0	0	0	0
05:59-06:14	0	0	0	901	0	0	0	0
05:44-05:59	0	0	0	900	0	0	0	0
05:29-05:44	0	0	0	901	0	0	0	0
05:14-05:29	0	0	0	900	0	0	0	0
04:59-05:14	0	0	0	900	0	0	0	0
.....								
06:44-06:59	0	0	0	901	0	0	0	0
06:29-06:44	0	0	0	900	0	0	0	0
06:14-06:29	0	0	0	900	0	0	0	0
Total	0	0	0	86436	0	0	0	0
Total (Previous Day):								
05:29-05:29	0	0	0	86435	0	0	0	0

```

STS-1 1, VTG 1, T1 1 (SONET 0/3/0.1/1/1 T1) is down
timeslots: 1-4
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
06:14-06:24   0       0       0       0       0       0       0       619     0
05:59-06:14   0       0       0       0       0       0       0       901     0
.....
06:44-06:59   0       0       0       0       0       0       0       901     0
06:29-06:44   0       0       0       0       0       0       0       900     0
06:14-06:29   0       0       0       0       0       0       0       900     0
Total         0       0       0       0       0       0       0       86436   0
Total (Previous Day):
05:29-05:29   0       0       0       0       0       0       0       86435   0
Far End Data
INTERVAL      ES-LFE  ES-PFE  SES-PFE  SEFS-PFE  CSS-PFE  UAS-PFE  FC-PFE
06:14-06:24   0       0       0       0       0       0       0
05:59-06:14   0       0       0       0       0       0       0
.....
06:29-06:44   0       0       0       0       0       0       0
06:14-06:29   0       0       0       0       0       0       0
Total         0       0       0       0       0       0       0
Total (Previous Day):
05:29-05:29   0       0       0       0       0       0       0

```

```

STS-1 1, VTG 1, VT 2 (SONET 0/3/0.1/1/2 VT) is down
VT Receiver has LP_AIS.
cep is configured: FALSE cem_id (0)
fwd_alarm_ais :0   fwd_alarm_rai :0, Clock Source is Internal

```

router#show controllers sts1e 0/3/0 remote performance

Section/Line/Path same as previous.

```

sts1e 0/3/0.1 PATH is down.
Hardware is

```

```

STS-1 1, VTG 1, VT 1 (VT1.5 1/1/1) - Remote Performance Data
Far end MIB Data:
Data in current interval (630 seconds elapsed)
0 CodeViolations , 0 ErrorSecs,0 Severly Err Secs, 0 Unavail Secs
FarEnd VT Interval data:
Total Data (last 96 15 minute intervals):
0 CodeViolations, 0 ErrorSec, 0 Severly Err Secs, 0 Unavail Secs

Total (Previous Day):
0 CodeViolations, 0 ErrorSec, 0 Severly Err Secs, 0 Unavail Secs

```

```

STS-1 1, VTG 1, T1 1 (SONET 0/3/0.1/1/1 T1) - Remote Performance Data
Data in current interval (630 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 Severly Err Secs
0 Unavail Secs
Data in Interval 1:
.....
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 Severly 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 Severly 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 Severly Err Secs
    0 Unavail Secs

```

```

STS-1 1, VTG 1, VT 2 (VT1.5 1/1/2) - Remote Performance Data
Far end MIB Data:
Data in curerent interval (630 seconds elapsed)
0 CodeViolations , 0 ErrorSecs,0 Severly Err Secs, 0 Unavail Secs
FarEnd VT Interval data:
Total Data (last 96 15 minute intervals):
0 CodeViolations, 0 ErrorSec, 0 Severly Err Secs, 0 Unavail Secs

Total (Previous Day):
0 CodeViolations, 0 ErrorSec, 0 Severly Err Secs, 0 Unavail Secs

```

router#show controllers stsl 0/3/0 remote performance tabular

Section/Line/Path same as previous.

```

stsl 0/3/0.1 PATH is down.
Hardware is

```

```

STS-1 1, VTG 1, VT 1 (VT1.5 1/1/1) - Remote Performance Data
Far end MIB Data:
INTERVAL      CV      ES      SES      UAS
06:14-06:24   0       0       0       0
FarEnd VT Interval data:
INTERVAL      CV      ES      SES      UAS
05:59-06:14   0       0       0       0
05:44-05:59   0       0       0       0
05:29-05:44   0       0       0       0
05:14-05:29   0       0       0       0
.....
06:29-06:44   0       0       0       0
06:14-06:29   0       0       0       0

Total
CV      ES      SES      UAS      0       0       0       0

Total (Previous Day)
CV      ES      SES      UAS      0       0       0       0

```

```

STS-1 1, VTG 1, T1 1 (SONET 0/3/0.1/1/1 T1) - Remote Performance Data
INTERVAL      LCV      PCV      CSS      SELS      LES      DM      ES      BES      SES      UAS
06:14-06:24   0       0       0       0       0       0       0       0       0       0
05:59-06:14   0       0       0       0       0       0       0       0       0       0
05:44-05:59   0       0       0       0       0       0       0       0       0       0
.....

```

```

06:44-06:59      0      0      0      0      0      0      0      0      0      0
06:29-06:44      0      0      0      0      0      0      0      0      0      0
06:14-06:29      0      0      0      0      0      0      0      0      0      0
Total            0      0      0      0      0      0      0      0      0      0
Total (Previous Day)
05:29-05:29      0      0      0      0      0      0      0      0      0      0

```

STS-1 1, VTG 1, VT 2 (VT1.5 1/1/2) - Remote Performance Data

Far end MIB Data:

```

INTERVAL      CV      ES      SES      UAS
06:14-06:24   0      0      0      0

```

FarEnd VT Interval data:

```

INTERVAL      CV      ES      SES      UAS
05:59-06:14   0      0      0      0

```

controller sts-1e

To configure a STS-1e controller and enter controller configuration mode, use the **controller sts-1e** command in global configuration mode.

controller sts-1e *slot/subslot/port*

<i>slot</i>	Physical slot number. The slot is always 0.
<i>/subslot</i>	Physical sub-slot number. The range for sub-slot is 0-5.
<i>/port</i>	STS-1e port number. The range of port number for 3GMS is 12-15 and for 48 T3E3 CE is 0-47.

Command Default *port* : 0

Command Modes Global configuration

Command History	Release	Modification
	XE Fuji 16.9.1	This command was integrated into the Cisco ASR 900 Series, Cisco ASR 920 Series, and Cisco NCS 4200 Series Routers.

Usage Guidelines This command can be enabled only after configuring the **mode sts1e** command under **controller mediatype slot/subslot/port** command, as shown below:

```

Router(config)#controller mediaType 0/3/13
Router(config-controller)#mode
Router(config-controller)#mode sts1e

```

Example

```

enable
configure terminal
controller sts-1e 0/0/16
sts-1 1
mode sts-1e
t1 1 clock source internal
t1 1 framing unframed
end

```

mode sts-1e

Use this command to configure the sts-1e mode.

None.

Command Default

None.

Command Modes

Controller configuration.

Command History

Release	Modification
IOS XE Fuji 16.9.1	This command was integrated into the Cisco ASR 900 Series, Cisco ASR 920 Series, and the Cisco NCS 4200 Series.

Usage Guidelines

You can change the mode of a controller only when there are no subinterfaces defined for the controller.

Example

```
enable
configure terminal
controller MediaType 0/0/16
mode STS-1e
end
```

