Definitions of Managed Objects
for the DS3/E3 Interface Type

Status of this Memo

This RFC specifies an IAB standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "IAB Official Protocol Standards" for the standardization state and status of this protocol. Distribution of this memo is unlimited.

Abstract

This memo defines an extension to the Management Information Base (MIB) for use with network management protocols in TCP/IP-based internets. In particular, it defines objects for managing DS3 and E3 Interfaces. This document is a companion document with Definitions of Managed Objects for the DS1 Interface Type.

This document entirely replaces RFC 1233, which contains a fundamental error: many objects are encoded as Counters that must be encoded as INTEGERs or Gauges. The magnitude of the change required is sufficient that virtually every object changed. Therefore, the MIB documented in RFC 1233 should not be implemented.

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1. The Network Management Framework

The Internet-standard Network Management Framework consists of three components. They are:

STD 16/RFC 1155 which defines the SMI, the mechanisms used for describing and naming objects for the purpose of management. STD 16/RFC 1212 defines a more concise description mechanism, which is wholly consistent with the SMI.

RFC 1156 which defines MIB-I, the core set of managed objects for the Internet suite of protocols. STD 17/RFC 1213, defines MIB-II, an evolution of MIB-I based on implementation experience and new operational requirements.

STD 15/RFC 1157 which defines the SNMP, the protocol used for network access to managed objects.

The Framework permits new objects to be defined for the purpose of experimentation and evaluation.

2. Objects

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the subset of Abstract Syntax Notation One (ASN.1) [7] defined in the SMI. In particular, each object has a name, a syntax, and an encoding. The name is an object identifier, an administratively assigned name, which specifies an object type. The object type together with an object instance serves to uniquely identify a specific instantiation of the object. For human convenience, we often use a textual string, termed the OBJECT DESCRIPTOR, to also refer to the object type.
The syntax of an object type defines the abstract data structure corresponding to that object type. The ASN.1 language is used for this purpose. However, the SMI [3] purposely restricts the ASN.1 constructs which may be used. These restrictions are explicitly made for simplicity.

The encoding of an object type is simply how that object type is represented using the object type’s syntax. Implicitly tied to the notion of an object type’s syntax and encoding is how the object type is represented when being transmitted on the network. The SMI specifies the use of the basic encoding rules of ASN.1 [8], subject to the additional requirements imposed by the SNMP.

2.1. Format of Definitions

Section 4 contains the specification of all object types contained in this MIB module. The object types are defined using the conventions defined in the SMI, as amended by the extensions specified in STD 16, RFC 1212 [13].

2.2. Changes from RFC 1233

This MIB obsoletes RFC 1233. The changes from RFC 1233 are the following:

-- This MIB module contains information to manage an E3 interface, also.

-- This MIB module contains three groups:
   DS3/E3 Near End Group which is mandatory,
   DS3 Far End Group which is optional, and
   DS3 Fractional Group which is optional.

-- The DS3 Far End Group is a new group and contains configuration information and statistics that are collected from the far end DS3/E3 interface. Presently, the Far End Group may only be implemented by DS3 systems that use C-bit Parity or SYNTRAN.

-- The DS3 Fractional Group is a new group and is modeled after the DS1 Fractional Group.

-- ds3CSUIndex has been redefined and renamed to dsx3LineIndex. This object is the identifier of a DS3/E3 Interface on a device. On a CSU, a single DS3/E3 data stream will cross two DS3/E3 interfaces, which have separate dsx3LineIndex values.
ds3Index has been redefined and renamed to dsx3IfIndex. This value for this object is equal to the value of ifIndex from the Interfaces table of MIB II (STD 17, RFC 1213).

The ACCESS for objects in the dsx3ConfigTable has been set to read-write for items that are configurable.

The dsx3ZeroCoding has been renamed to dsx3LineCoding.

A new object has been added called dsx3LoopbackConfig, which better describes the loopback capabilities of a DS3/E3 interface on a device.

The dsx3SendCode object has been updated to reflect different types of loopback messages.

A new object has been added called dsx3LineStatus. This object better describes the status (e.g., failure state and loopback state) of a DS3/E3 interface.

A new object has been added called dsx3TransmitClockSource. This object identifies the source for the transmit clock.

All Counters have been changed to Gauges.

A Line Errored Seconds object has been added to all near end tables.

Line Coding Violations are counted instead of Bipolar Violations.

A new Coding Violation counter has been added to count coding violations reported via the C-bits of SYNTTRAN and C-bit Parity DS3 applications. The original Coding Violation counter has been renamed to PCV to mean coding violations reported via the P-bits. This count is also added for symmetry with the far end statistics.

A new Errored Second counter and Severely Errored Second counter has been added to count these performance events via the C-bits of the SYNTTRAN and C-bit Parity DS3 applications. The original ES and SES counters have been renamed to PES and PSES to mean reported via the P-bits. These counts are also added for symmetry with the far end statistics.
3.  Overview

These objects are used when the particular media being used to realize an interface is a DS3/E3 interface. At present, this applies to these values of the ifType variable in the Internet-standard MIB:

    ds3 (30)

The DS3 definitions contained herein are based on the DS3 specifications in ANSI T1.102-1987, ANSI T1.107-1988, ANSI T1.107a-1990, and ANSI T1.404-1989 [9,10,10a,11]. The E3 definitions contained herein are based on the E3 specifications in CCITT G.751 [14].

3.1.  Binding between ifIndex and DS3/E3 Interfaces

Different physical configurations for the support of SNMP with DS3/E3 equipment exist. To accommodate these scenarios, two different indices for DS3/E3 interfaces are introduced in this MIB. These indices are dsx3IfIndex and dsx3LineIndex.

External interface scenario: the SNMP Agent represents all managed DS3/E3 lines as external interfaces (for example, an Agent residing on the device supporting DS3/E3 interfaces directly):

For this scenario, all interfaces are assigned an integer value equal to ifIndex, and the following applies:

    ifIndex=dsx3IfIndex=dsx3LineIndex for all interfaces.

The dsx3IfIndex column of the DS3/E3 Configuration table relates each DS3/E3 interface to its corresponding interface (ifIndex) in the Internet-standard MIB (MIB-II STD 17, RFC 1213).

External/Internal interface scenario: the SNMP Agents resides on an host external from the device supporting DS3/E3 interfaces (e.g., a router). The Agent represents both the host and the DS3/E3 device. The index dsx3LineIndex is used to not only represent the DS3/E3 interfaces external from the host/DS3/E3-device combination, but also the DS3/E3 interfaces connecting the host and the DS3/E3 device. The index dsx3IfIndex is always equal to ifIndex.

Example:

A shelf full of CSUs connected to a Router. An SNMP Agent residing on the router proxies for itself and the CSU. The router has also an Ethernet interface:
The assignment of the index values could for example be:

<table>
<thead>
<tr>
<th>ifIndex (= dsx3IfIndex)</th>
<th>dsx3LineIndex</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>Line#A</td>
</tr>
<tr>
<td>3</td>
<td>Line#B</td>
</tr>
<tr>
<td>4</td>
<td>Line#C</td>
</tr>
<tr>
<td>5</td>
<td>Line#D</td>
</tr>
<tr>
<td>2</td>
<td>Line#A</td>
</tr>
<tr>
<td>3</td>
<td>Line#B</td>
</tr>
<tr>
<td>4</td>
<td>Line#C</td>
</tr>
<tr>
<td>5</td>
<td>Line#D</td>
</tr>
<tr>
<td>2</td>
<td>Line#A</td>
</tr>
<tr>
<td>3</td>
<td>Line#B</td>
</tr>
<tr>
<td>4</td>
<td>Line#C</td>
</tr>
<tr>
<td>5</td>
<td>Line#D</td>
</tr>
</tbody>
</table>

For this example, ifNumber is equal to 5. Note the following description of dsx3LineIndex: the dsx3LineIndex identifies a DS3/E3 Interface on a managed device. If there is an ifEntry that is directly associated with this and only this DS3/E3 interface, it should have the same value as ifIndex. Otherwise, number the dsx3LineIndices with an unique identifier following the rules of choosing a number greater than ifNumber and numbering inside interfaces (e.g., equipment side) with even numbers and outside interfaces (e.g., network side) with odd numbers.

If the CSU shelf is managed by itself by a local SNMP Agent, the situation would be:
3.2. Objectives of this MIB Module

There are numerous things that could be included in a MIB for DS3/E3 signals: the management of multiplexors, CSUs, DSUs, and the like. The intent of this document is to facilitate the common management of all devices with DS3/E3 interfaces. As such, a design decision was made up front to very closely align the MIB with the set of objects that can generally be read from DS3/E3 devices that are currently deployed.

3.3. DS3/E3 Terminology

The terminology used in this document to describe error conditions on a DS3 interface as monitored by a DS3 device are based on the definitions from the ANSI T1M1.3/92-005R1 draft standard [12]. If the definition in this document does not match the definition in the ANSI T1M1.3/92-005R1 draft document, the implementer should follow the definition described in this document.

3.3.1. Error Events

Bipolar Violation (BPV) Error Event
A bipolar violation error event, for B3ZS(HDB3)-coded signals, is the occurrence of a pulse of the same polarity as the previous pulse without being part of the zero substitution code, B3ZS(HDB3). For B3ZS(HDB3)-coded signals, a bipolar violation error event may also include other error patterns such as: three(four) or more consecutive zeros and incorrect polarity.

Excessive Zeros (EXZ) Error Event
An EXZ is the occurrence of any zero string length equal to or greater than 3 for B3ZS, or greater than 4 for HDB3.

Line Coding Violation (LCV) Error Event
This parameter is a count of both BPVs and EXZs occurring over the accumulation period. An EXZ
increments the LCV by one regardless of the length of the zero string.

P-bit Coding Violation (PCV) Error Event
For all DS3 applications, a coding violation error event is a P-bit Parity Error event. A P-bit Parity Error event is the occurrence of a received P-bit code on the DS3 M-frame that is not identical to the corresponding locally-calculated code.

C-bit Coding Violation (CCV) Error Event
For C-bit Parity and SYNTRAN DS3 applications, this is the count of coding violations reported via the C-bits. For C-bit Parity, it is a count of CP-bit parity errors occurring in the accumulation interval. For SYNTRAN, it is a count of CRC-9 errors occurring in the accumulation interval.

3.3.2. Performance Parameters

All performance parameters are accumulated in fifteen minute intervals and up to 96 intervals (24 hours worth) are kept by an agent. Fewer than 96 intervals of data will be available if the agent has been restarted within the last 24 hours. In addition, there is a rolling 24-hour total of each performance parameter.

There is no requirement for an agent to ensure fixed relationship between the start of a fifteen minute interval and any wall clock; however some agents may align the fifteen minute intervals with quarter hours.

Line Errored Seconds (LES)
A Line Errored Second is a second in which one or more CVs occurred OR one or more LOS defects.

P-bit Errored Seconds (PES)
An PES is a second with one or more PCVs OR one or more Out of Frame defects OR a detected incoming AIS. This gauge is not incremented when UASs are counted.

P-bit Severely Errored Seconds (PSES)
A PSES is a second with 44 or more PCVs OR one or more Out of Frame defects OR a detected incoming AIS. This gauge is not incremented when UASs are counted.

C-bit Errored Seconds (CES)
An CES is a second with one or more CCVs OR
one or more Out of Frame defects OR a detected incoming AIS. This count is only for the SYNTRAN and C-bit Parity DS3 applications. This gauge is not incremented when UASs are counted.

C-bit Severely Errored Seconds (CSES)
A CSES is a second with 44 or more CCVs OR one or more Out of Frame defects OR a detected incoming AIS. This count is only for the SYNTRAN and C-bit Parity DS3 applications. This gauge is not incremented when UASs are counted.

Severely Errored Framing Seconds (SEFS)
A SEFS is a second with one or more Out of Frame defects OR a detected incoming AIS.

Unavailable Seconds (UAS)
UAS are calculated by counting the number of seconds that the interface is unavailable. The DS3 interface is said to be unavailable from the onset of 10 contiguous PSESs, or the onset of the condition leading to a failure (see Failure States). If the condition leading to the failure was immediately preceded by one or more contiguous PSESs, then the DS3 interface unavailability starts from the onset of these PSESs. Once unavailable, and if no failure is present, the DS3 interface becomes available at the onset of 10 contiguous seconds with no PSESs. Once unavailable, and if a failure is present, the DS3 interface becomes available at the onset of 10 contiguous seconds with no PSESs, if the failure clearing time is less than or equal to 10 seconds. If the failure clearing time is more than 10 seconds, the DS3 interface becomes available at the onset of 10 contiguous seconds with no PSESs, or the onset period leading to the successful clearing condition, whichever occurs later. With respect to the DS3 error counts, all counters are incremented while the DS3 interface is deemed available. While the interface is deemed unavailable, the only count that is incremented is UASs.

A special case exists when the 10 or more second period crosses the 900 second statistics window boundary, as the foregoing description implies that the PSES and UAS counters must be adjusted when the Unavailable Signal State is entered. Clearly, successive GETs of the affected dsx3IntervalPSESs and dsx3IntervalUASs objects will return differing values if the first GET occurs during the first few seconds of the window. This is
viewed as an unavoidable side-effect of selecting the presently defined managed objects as a basis for this memo.

3.3.3. Performance Defects

Failure States:
The Remote Alarm Indication (RAI) failure, in SYNTRAN applications, is declared after detecting the Yellow Alarm Signal on the alarm channel. See ANSI T1.107a-1990 [10]. The Remote Alarm Indication failure, in C-bit Parity DS3 applications, is declared as soon as the presence of either one or two alarm signals are detected on the Far End Alarm Channel. See [10]. The Remote Alarm Indication failure may also be declared after detecting the far-end SEF/AIS defect (aka yellow). The Remote Alarm Indication failure is cleared as soon as the presence of the any of the above alarms are removed.

Also, the incoming failure state is declared when a defect persists for at least 2-10 seconds. The defects are the following: Loss of Signal (LOS), an Out of Frame (OOF) or an incoming Alarm Indication Signal (AIS). The Failure State is cleared when the defect is absent for less than or equal to 20 seconds.

Far End SEF/AIS defect (aka yellow)
A Far End SEF/AIS defect is the occurrence of the two X-bits in a M-frame set to zero. The Far End SEF/AIS defect is terminated when the two X-bits in a M-frame are set to one.

Out of Frame (OOF) defect
A DS3 OOF defect is detected when any three or more errors in sixteen or fewer consecutive F-bits occur within a DS3 M-frame. An OOF defect may also be called a SeverelyErrored Frame (SEF) defect. An OOF defect is cleared when reframe occurs. A DS3 Loss of Frame (LOF) failure is declared when the DS3 OOF defect is consistent for 2 to 10 seconds. The DS3 OOF defect ends when reframe occurs. The DS3 LOF failure is cleared when the DS3 OOF defect is absent for 10 to 20 seconds.

An E3 OOF defect is detected when four consecutive frame alignment signals have been incorrectly received in their predicted positions in an E3 signal. E3 frame alignment occurs when the presence of three consecutive frame alignment signals have been detected.
Loss of Signal (LOS) defect
The DS3 LOS defect is declared upon observing 175 +/- 75 contiguous pulse positions with no pulses of either positive or negative polarity. The DS3 LOS defect is terminated upon observing an average pulse density of at least 33% over a period of 175 +/- 75 contiguous pulse positions starting with the receipt of a pulse.

Alarm Indication Signal (AIS) defect
The DS3 AIS is framed with "stuck stuffing." This implies that it has a valid M-subframe alignments bits, M-frame alignment bits, and P bits. The information bits are set to a 1010... sequence, starting with a one (1) after each M-subframe alignment bit, M-frame alignment bit, X bit, P bit, and C bit. The C bits are all set to zero giving what is called "stuck stuffing." The X bits are set to one. The DS3 AIS defect is declared after DS3 AIS is present in contiguous M-frames for a time equal to or greater than T, where 0.2 ms <= T <= 100 ms. The DS3 AIS defect is terminated after AIS is absent in contiguous M-frames for a time equal to or greater than T.

The E3 binary content of the AIS is nominally a continuous stream of ones. AIS detection and the application of consequent actions, should be completed within a time limit of 1 ms.

3.3.4. Other Terms

Circuit Identifier
This is a character string specified by the circuit vendor, and is useful when communicating with the vendor during the troubleshooting process.
4. Object Definitions

RFC1407-MIB DEFINITIONS ::= BEGIN

IMPORTS
    Gauge
FROM RFC1155-SMI
    DisplayString, transmission
FROM RFC1213-MIB
    OBJECT-TYPE
FROM RFC-1212;

-- This MIB module uses the extended OBJECT-TYPE macro
-- as defined in RFC 1212.

ds3  OBJECT IDENTIFIER ::= { transmission 30 }

-- The DS3/E3 Near End Group

-- Implementation of this group is mandatory for all
-- systems that attach to a DS3/E3 Interface.

-- The DS3/E3 Near End Group consists of four tables:
--  -- DS3/E3 Configuration
--  -- DS3/E3 Current
--  -- DS3/E3 Interval
--  -- DS3/E3 Total

-- the DS3/E3 Configuration
dsx3ConfigTable OBJECT-TYPE
SYNTAX  SEQUENCE OF Dsx3ConfigEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION  "The DS3/E3 Configuration table."
 ::= { ds3 5 }

dsx3ConfigEntry OBJECT-TYPE
SYNTAX  Dsx3ConfigEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION  "An entry in the DS3/E3 Configuration table."
INDEX { dsx3LineIndex }
 ::= { dsx3ConfigTable 1 }
Dsx3ConfigEntry ::= SEQUENCE {
    dsx3LineIndex
        INTEGER,
    dsx3IfIndex
        INTEGER,
    dsx3TimeElapsed
        INTEGER,
    dsx3ValidIntervals
        INTEGER,
    dsx3LineType
        INTEGER,
    dsx3LineCoding
        INTEGER,
    dsx3SendCode
        INTEGER,
    dsx3CircuitIdentifier
        DisplayString,
    dsx3LoopbackConfig
        INTEGER,
    dsx3LineStatus
        INTEGER,
    dsx3TransmitClockSource
        INTEGER
}

dsx3LineIndex OBJECT-TYPE
SYNTAX INTEGER (1..65535)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"This object is the identifier of a DS3/E3 Interface on a managed device. If there is an
ifEntry that is directly associated with this and only this DS3/E3 interface, it should have
the same value as ifIndex. Otherwise, number the dsx3LineIndices with an unique identifier
following the rules of choosing a number that is greater than ifNumber and numbering the
inside interfaces (e.g., equipment side) with even numbers and outside interfaces (e.g,
network side) with odd numbers."
::= { dsx3ConfigEntry 1 }

dsx3IfIndex OBJECT-TYPE
SYNTAX INTEGER (1..65535)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"This value for this object is equal to the value of ifIndex from the Interfaces table of MIB II (RFC 1213)."
 ::= { dsx3ConfigEntry 2 }

dsx3TimeElapsed OBJECT-TYPE
SYNTAX INTEGER (0..899)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The number of seconds that have elapsed since the beginning of the near end current error-measurement period."
 ::= { dsx3ConfigEntry 3 }

nds3ValidIntervals OBJECT-TYPE
SYNTAX INTEGER (0..96)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The number of previous near end intervals for which valid data was collected. The value will be 96 unless the interface was brought online within the last 24 hours, in which case the value will be the number of complete 15 minute near end intervals since the interface has been online."
 ::= { dsx3ConfigEntry 4 }

nds3LineType OBJECT-TYPE
SYNTAX INTEGER {
   dsx3other(1),
   dsx3M23(2),
   dsx3SYNTRAN(3),
   dsx3CbitParity(4),
   dsx3ClearChannel(5),
   e3other(6),
   e3Framed(7),
   e3P1cp(8)
}
ACCESS read-write
STATUS mandatory
DESCRIPTION
"This variable indicates the variety of DS3 C-bit or E3 application implementing this interface. The type of interface affects the interpretation of the usage and error statistics."
The rate of DS3 is 44.736 Mbps and E3 is 34.368 Mbps. The dsx3ClearChannel value means that the C-bits are not used except for sending/receiving AIS.

The values, in sequence, describe:

<table>
<thead>
<tr>
<th>TITLE</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>dsx3M23</td>
<td>ANSI T1.107-1988</td>
</tr>
<tr>
<td>dsx3SYNTRAN</td>
<td>ANSI T1.107-1988</td>
</tr>
<tr>
<td>dsx3CbitParity</td>
<td>ANSI T1.107a-1989</td>
</tr>
<tr>
<td>dsx3ClearChannel</td>
<td>ANSI T1.102-1987</td>
</tr>
<tr>
<td>e3Framed</td>
<td>CCITT G.751</td>
</tr>
<tr>
<td>e3Plcp</td>
<td>ETSI T/NA(91)18.</td>
</tr>
</tbody>
</table>

::= { dsx3ConfigEntry 5 }
"This variable indicates what type of code is being sent across the DS3/E3 interface by the device. (These are optional for E3 interfaces.) The values mean:

```
  dsx3SendNoCode
      sending looped or normal data

  dsx3SendLineCode
      sending a request for a line loopback

  dsx3SendPayloadCode
      sending a request for a payload loopback
      (i.e., all DS1/E1s in a DS3/E3 frame)

  dsx3SendResetCode
      sending a loopback deactivation request

  dsx3SendDS1LoopCode
      requesting to loopback a particular DS1/E1
      within a DS3/E3 frame

  dsx3SendTestPattern
      sending a test pattern.
```

```::= { dsx3ConfigEntry 7 }
```

```
dsx3CircuitIdentifier OBJECT-TYPE
SYNTAX  DisplayString (SIZE (0..255))
ACCESS  read-write
STATUS  mandatory
DESCRIPTION
   "This variable contains the transmission vendor’s circuit identifier, for the purpose of facilitating troubleshooting."
::= { dsx3ConfigEntry 8 }
```

```
dsx3LoopbackConfig OBJECT-TYPE
SYNTAX  INTEGER {
    dsx3NoLoop(1),
    dsx3PayloadLoop(2),
    dsx3LineLoop(3),
    dsx3OtherLoop(4)
}
ACCESS  read-write
STATUS  mandatory
DESCRIPTION
   "This variable represents the loopback configuration of the DS3/E3 interface.
```
The values mean:

dsx3NoLoop
   Not in the loopback state. A device that is not capable of performing a loopback on the interface shall always return this as it’s value.

dsx3PayloadLoop
   The received signal at this interface is looped through the device. Typically the received signal is looped back for retransmission after it has passed through the device’s framing function.

dsx3LineLoop
   The received signal at this interface does not go through the device (minimum penetration) but is looped back out.

::= { dsx3ConfigEntry 9 }

dsx3LineStatus OBJECT-TYPE
SYNTAX  INTEGER (1..1023)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
   "This variable indicates the Line Status of the interface. It contains loopback state information and failure state information. The dsx3LineStatus is a bit map represented as a sum, therefore, it can represent multiple failures and a loopback (see dsx3LoopbackConfig object for the type of loopback) simultaneously. The dsx3NoAlarm should be set if and only if no other flag is set.

The various bit positions are:
   1  dsx3NoAlarm  No alarm present
   2  dsx3RcvRAIFailure Receiving Yellow/Remote Alarm Indication
   4  dsx3XmitRAIAlarm Transmitting Yellow/Remote Alarm Indication
<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>dsx3RcvAIS Receiving AIS failure state</td>
</tr>
<tr>
<td>16</td>
<td>dsx3XmitAIS Transmitting AIS</td>
</tr>
<tr>
<td>32</td>
<td>dsx3LOF Receiving LOF failure state</td>
</tr>
<tr>
<td>64</td>
<td>dsx3LOS Receiving LOS failure state</td>
</tr>
<tr>
<td>128</td>
<td>dsx3LoopbackState Looping the received signal</td>
</tr>
<tr>
<td>256</td>
<td>dsx3RcvTestCode Receiving a Test Pattern</td>
</tr>
<tr>
<td>512</td>
<td>dsx3OtherFailure any line status not defined here</td>
</tr>
</tbody>
</table>

```
::= { dsx3ConfigEntry 10 }
```

```plaintext
dsx3TransmitClockSource OBJECT-TYPE
SYNTAX INTEGER {
  loopTiming(1),
  localTiming(2),
  throughTiming(3)
}
ACCESS read-write
STATUS mandatory
DESCRIPTION
"The source of Transmit Clock. is derived from the recovered receive clock of another DS3 interface."
::= { dsx3ConfigEntry 11 }
```

```
-- the DS3/E3 Current

-- The DS3/E3 current table contains various statistics being collected for the current 15 minute interval.

dsx3CurrentTable OBJECT-TYPE
SYNTAX SEQUENCE OF Dsx3CurrentEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"The DS3/E3 Current table."
::= { ds3 6 }
```

```
dsx3CurrentEntry OBJECT-TYPE
SYNTAX Dsx3CurrentEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"An entry in the DS3/E3 Current table."
INDEX { dsx3CurrentIndex }
::= { dsx3CurrentTable 1 }
```
Dsx3CurrentEntry ::= 
SEQUENCE { 
  dsx3CurrentIndex
   INTEGER,
  dsx3CurrentPESs
   Gauge,
  dsx3CurrentPSEs
   Gauge,
  dsx3CurrentSEFSs
   Gauge,
  dsx3CurrentUASs
   Gauge,
  dsx3CurrentLCVs
   Gauge,
  dsx3CurrentPCVs
   Gauge,
  dsx3CurrentLESs
   Gauge,
  dsx3CurrentCCVs
   Gauge,
  dsx3CurrentCESs
   Gauge,
  dsx3CurrentCSESs
   Gauge
}

dsx3CurrentIndex OBJECT-TYPE
SYNTAX   INTEGER (1..65535)
ACCESS   read-only
STATUS   mandatory
DESCRIPTION
   "The index value which uniquely identifies the
   DS3/E3 interface to which this entry is
   applicable. The interface identified by a
   particular value of this index is the same
   interface as identified by the same value an
dsx3LineIndex object instance."
::= { dsx3CurrentEntry 1 }

dsx3CurrentPESs OBJECT-TYPE
SYNTAX   Gauge
ACCESS   read-only
STATUS   mandatory
DESCRIPTION
   "The counter associated with the number of P-bit
   Errored Seconds, encountered by a DS3 interface in
   the current 15 minute interval."
::= { dsx3CurrentEntry 2 }
dsx3CurrentPSESs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of P-bit Severely Errored Seconds, encountered by a DS3 interface in the current 15 minute interval."
::= { dsx3CurrentEntry 3 }

dsx3CurrentSEFSs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Severely Errored Framing Seconds, encountered by a DS3/E3 interface in the current 15 minute interval."
::= { dsx3CurrentEntry 4 }

dsx3CurrentUASs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Unavailable Seconds, encountered by a DS3 interface in the current 15 minute interval."
::= { dsx3CurrentEntry 5 }

dsx3CurrentLCVs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Line Coding Violations encountered by a DS3/E3 interface in the current 15 minute interval."
::= { dsx3CurrentEntry 6 }

dsx3CurrentPCVs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of P-bit Coding Violations, encountered by a DS3 interface
dsx3CurrentLESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The number of Line Errored Seconds encountered by a DS3/E3 interface in the current 15 minute interval."
::= { dsx3CurrentEntry 7 }

dsx3CurrentCCVs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The number of C-bit Coding Violations encountered by a DS3 interface in the current 15 minute interval."
::= { dsx3CurrentEntry 8 }

dsx3CurrentCESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The number of C-bit Errored Seconds encountered by a DS3 interface in the current 15 minute interval."
::= { dsx3CurrentEntry 9 }

dsx3CurrentCSESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The number of C-bit Severely Errored Seconds encountered by a DS3 interface in the current 15 minute interval."
::= { dsx3CurrentEntry 10 }

-- the DS3/E3 Interval

-- The DS3/E3 Interval Table contains various statistics collected by each DS3/E3 Interface over the previous 24
-- hours of operation. The past 24 hours are broken into 96
-- completed 15 minute intervals.

dsx3IntervalTable OBJECT-TYPE
SYNTAX  SEQUENCE OF Dsx3IntervalEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
 "The DS3/E3 Interval table."
 ::= { ds3 7 }

dsx3IntervalEntry OBJECT-TYPE
SYNTAX  Dsx3IntervalEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
 "An entry in the DS3/E3 Interval table."
INDEX   { dsx3IntervalIndex, dsx3IntervalNumber }
 ::= { dsx3IntervalTable 1 }

Dsx3IntervalEntry ::= 
SEQUENCE { 
  dsx3IntervalIndex
   INTEGER,
  dsx3IntervalNumber
   INTEGER,
  dsx3IntervalPESs
   Gauge,
  dsx3IntervalPSESs
   Gauge,
  dsx3IntervalSEFSs
   Gauge,
  dsx3IntervalUASs
   Gauge,
  dsx3IntervalLCVs
   Gauge,
  dsx3IntervalPCVs
   Gauge,
  dsx3IntervalLESs
   Gauge,
  dsx3IntervalCCVs
   Gauge,
  dsx3IntervalCESs
   Gauge,
  dsx3IntervalCSESs
   Gauge
}

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dsx3IntervalIndex OBJECT-TYPE
SYNTAX  INTEGER (1..65535)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The index value which uniquely identifies the
DS3/E3 interface to which this entry is
applicable. The interface identified by a
particular value of this index is the same
interface as identified by the same value an
dsx3LineIndex object instance."
 ::= { dsx3IntervalEntry 1 }

dsx3IntervalNumber OBJECT-TYPE
SYNTAX  INTEGER (1..96)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"A number between 1 and 96, where 1 is the most
recently completed 15 minute interval and 96 is
the least recently completed 15 minutes interval
(assuming that all 96 intervals are valid)."
 ::= { dsx3IntervalEntry 2 }

dsx3IntervalPESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of P-bit
Errored Seconds, encountered by a DS3 interface in
one of the previous 96, individual 15 minute,
intervals."
 ::= { dsx3IntervalEntry 3 }

dsx3IntervalPSESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of P-bit
Severely Errored Seconds, encountered by a DS3
interface in one of the previous 96, individual 15
minute, intervals."
 ::= { dsx3IntervalEntry 4 }

dsx3IntervalSEFSs OBJECT-TYPE
SYNTAX  Gauge
dsx3IntervalPSESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Severely Errored Framing Seconds, encountered by a DS3/E3 interface in one of the previous 96, individual 15 minute, intervals."
::= { dsx3IntervalEntry 5 }

dsx3IntervalUASs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Unavailable Seconds, encountered by a DS3 interface in one of the previous 96, individual 15 minute, intervals."
::= { dsx3IntervalEntry 6 }

dsx3IntervalLCVs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Line Coding Violations encountered by a DS3/E3 interface in one of the previous 96, individual 15 minute, intervals."
::= { dsx3IntervalEntry 7 }

dsx3IntervalPCVs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of P-bit Coding Violations, encountered by a DS3 interface in one of the previous 96, individual 15 minute, intervals."
::= { dsx3IntervalEntry 8 }

dsx3IntervalLESs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The number of Line Errored Seconds (BPVs or
illegal zero sequences) encountered by a DS3/E3
interface in one of the previous 96, individual
15 minute, intervals."
::= { dsx3IntervalEntry 9 }

dsx3IntervalCCVs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
 "The number of C-bit Coding Violations encountered
by a DS3 interface in one of the previous 96,
individual 15 minute, intervals."
::= { dsx3IntervalEntry 10 }

dsx3IntervalCESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
 "The number of C-bit Errored Seconds encountered
by a DS3 interface in one of the previous 96,
individual 15 minute, intervals."
::= { dsx3IntervalEntry 11 }

dsx3IntervalCSESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
 "The number of C-bit Severely Errored Seconds
encountered by a DS3 interface in one of the
previous 96, individual 15 minute, intervals."
::= { dsx3IntervalEntry 12 }

-- the DS3/E3 Total

-- The DS3/E3 Total Table contains the cumulative sum of the
-- various statistics for the 24 hour period preceding the
-- current interval.

dsx3TotalTable OBJECT-TYPE
SYNTAX  SEQUENCE OF Dsx3TotalEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
 "The DS3/E3 Total table. 24 hour interval."
dsx3TotalEntry OBJECT-TYPE
SYNTAX  Dsx3TotalEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
   "An entry in the DS3/E3 Total table."
INDEX   { dsx3TotalIndex }
 ::= { dsx3TotalTable 1 }

Dsx3TotalEntry ::= SEQUENCE {
    dsx3TotalIndex
        INTEGER,
    dsx3TotalPESs
        Gauge,
    dsx3TotalPSESs
        Gauge,
    dsx3TotalSEFSs
        Gauge,
    dsx3TotalUASs
        Gauge,
    dsx3TotalLCVs
        Gauge,
    dsx3TotalPCVs
        Gauge,
    dsx3TotalLESs
        Gauge,
    dsx3TotalCCVs
        Gauge,
    dsx3TotalCESs
        Gauge,
    dsx3TotalCSESs
        Gauge
}

dsx3TotalIndex OBJECT-TYPE
SYNTAX  INTEGER (1..65535)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
   "The index value which uniquely identifies the DS3/E3 interface to which this entry is applicable. The interface identified by a particular value of this index is the same interface as identified by the same value an dsx3LineIndex object instance."
::= { dsx3TotalEntry 1 }

dsx3TotalPESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of P-bit
Errored Seconds, encountered by a DS3 interface in
the previous 24 hour interval"
::= { dsx3TotalEntry 2 }

dsx3TotalPSESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of P-bit
Severely Errored Seconds, encountered by a DS3
interface in the previous 24 hour interval."
::= { dsx3TotalEntry 3 }

dsx3TotalSEFSs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of
Severely Errored Framing Seconds, encountered by a
DS3/E3 interface in the previous 24 hour
interval."
::= { dsx3TotalEntry 4 }

dsx3TotalUASs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of
Unavailable Seconds, encountered by a DS3
interface in the previous 24 hour interval."
::= { dsx3TotalEntry 5 }

dsx3TotalLCVs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of Line Coding Violations encountered by a DS3/E3 interface in the previous 24 hour interval."

::= { dsx3TotalEntry 6 }

dsx3TotalPCVs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of P-bit Coding Violations, encountered by a DS3 interface in the previous 24 hour interval."
::= { dsx3TotalEntry 7 }

dsx3TotalLESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The number of Line Errored Seconds (BPVs or illegal zero sequences) encountered by a DS3/E3 interface in the previous 24 hour interval."
::= { dsx3TotalEntry 8 }

dsx3TotalCCVs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The number of C-bit Coding Violations encountered by a DS3 interface in the previous 24 hour interval."
::= { dsx3TotalEntry 9 }

dsx3TotalCESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The number of C-bit Errored Seconds encountered by a DS3 interface in the previous 24 hour interval."
::= { dsx3TotalEntry 10 }

dsx3TotalCSESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The number of C-bit Severely Errored Seconds
encountered by a DS3 interface in the previous 24
hour interval."
 ::= ( dsx3TotalEntry 11 )

-- The DS3 Far End Group

-- Implementation of this group is optional for all systems
-- that attach to a DS3 Interface.
-- However, only C-bit Parity and SYNTRAN DS3 applications
-- have the capability (option) of providing this information.

-- The DS3 Far End Group consists of four tables:
--   DS3 Far End Configuration
--   DS3 Far End Current
--   DS3 Far End Interval
--   DS3 Far End Total

-- The DS3 Far End Configuration Table contains
-- configuration information
-- reported in the C-bits from the remote end.

dsx3FarEndConfigTable OBJECT-TYPE
SYNTAX  SEQUENCE OF Dsx3FarEndConfigEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
"The DS3 Far End Configuration table."
 ::= ( ds 3 9 )

Dsx3FarEndConfigEntry OBJECT-TYPE
SYNTAX  Dsx3FarEndConfigEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
"An entry in the DS3 Far End Configuration table."
INDEX  ( dsx3FarEndLineIndex )
 ::= ( dsx3FarEndConfigTable 1 )

Dsx3FarEndConfigEntry ::= SEQUENCE {
   dsx3FarEndLineIndex
      INTEGER,
   dsx3FarEndEquipCode

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SYNTAX  INTEGER (1..65535)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The index value which uniquely identifies the DS3 interface to which this entry is applicable. The interface identified by a particular value of this index is the same interface as identified by the same value an dsx3LineIndex object instance."
::= { dsx3FarEndConfigEntry 1 }

dsx3FarEndEquipCode OBJECT-TYPE
SYNTAX  DisplayString (SIZE (0..10))
ACCESS  read-write
STATUS  mandatory
DESCRIPTION
"This is the Far End Equipment Identification code that describes the specific piece of equipment. It is sent within the Path Identification Message."
::= { dsx3FarEndConfigEntry 2 }

dsx3FarEndLocationIDCode OBJECT-TYPE
SYNTAX  DisplayString (SIZE (0..11))
ACCESS  read-write
STATUS  mandatory
DESCRIPTION
"This is the Far End Location Identification code that describes the specific location of the equipment. It is sent within the Path Identification Message."
::= { dsx3FarEndConfigEntry 3 }
dsx3FarEndFrameIDCode OBJECT-TYPE
SYNTAX  DisplayString (SIZE (0..10))
ACCESS  read-write
STATUS  mandatory
DESCRIPTION
  "This is the Far End Frame Identification code that identifies where the equipment is located within a building at a given location. It is sent within the Path Identification Message."
 ::= { dsx3FarEndConfigEntry 4 }

dsx3FarEndUnitCode OBJECT-TYPE
SYNTAX  DisplayString (SIZE (0..6))
ACCESS  read-write
STATUS  mandatory
DESCRIPTION
  "This is the Far End code that identifies the equipment location within a bay. It is sent within the Path Identification Message."
 ::= { dsx3FarEndConfigEntry 5 }

dsx3FarEndFacilityIDCode OBJECT-TYPE
SYNTAX  DisplayString (SIZE (0..38))
ACCESS  read-write
STATUS  mandatory
DESCRIPTION
  "This code identifies a specific Far End DS3 path. It is sent within the Path Identification Message."
 ::= { dsx3FarEndConfigEntry 6 }

-- The DS3 Far End Current

-- The DS3 Far End Current table contains various statistics being collected for the current 15 minute interval.
-- The statistics are collected from the far end block error code within the C-bits.

dsx3FarEndCurrentTable OBJECT-TYPE
SYNTAX  SEQUENCE OF Dsx3FarEndCurrentEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
  "The DS3 Far End Current table."
 ::= { ds3 10 }
dsx3FarEndCurrentEntry OBJECT-TYPE
SYNTAX  Dsx3FarEndCurrentEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
   "An entry in the DS3 Far End Current table."
INDEX   { dsx3FarEndCurrentIndex }
 ::= { dsx3FarEndCurrentTable 1 }

Dsx3FarEndCurrentEntry ::=  
   SEQUENCE {
      dsx3FarEndCurrentIndex  INTEGER,
      dsx3FarEndTimeElapsed  INTEGER,
      dsx3FarEndValidIntervals  INTEGER,
      dsx3FarEndCurrentCESs  Gauge,
      dsx3FarEndCurrentCSESs  Gauge,
      dsx3FarEndCurrentCCVs  Gauge,
      dsx3FarEndCurrentUASs  Gauge
   }

dsx3FarEndCurrentIndex  OBJECT-TYPE
SYNTAX  INTEGER (1..65535)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
   "The index value which uniquely identifies the DS3 interface
to which this entry is applicable. The interface identified by a particular value of this index is the same interface as identified by the same value an dsx3LineIndex object instance."
 ::= { dsx3FarEndCurrentEntry 1 }

dsx3FarEndTimeElapsed  OBJECT-TYPE
SYNTAX  INTEGER (0..899)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
   "The number of seconds that have elapsed since the beginning of the far end current error-measurement period."
dsx3FarEndValidIntervals OBJECT-TYPE
SYNTAX INTEGER (0..96)
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The number of previous far end intervals for which valid data was collected. The value will be 96 unless the interface was brought online within the last 24 hours, in which case the value will be the number of complete 15 minute far end intervals since the interface has been online."

dsx3FarEndCurrentCESs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Far End C-bit Errored Seconds encountered by a DS3 interface in the current 15 minute interval."

dsx3FarEndCurrentCSEs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Far End C-bit Severely Errored Seconds encountered by a DS3 interface in the current 15 minute interval."

dsx3FarEndCurrentCCVs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Far End C-bit Coding Violations reported via the far end block error count encountered by a DS3 interface in the current 15 minute interval."
dsx3FarEndCurrentUASs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
"The counter associated with the number of Far End unavailable seconds encountered by a DS3 interface in the current 15 minute interval."
::= { dsx3FarEndCurrentEntry 7 }

-- The DS3 Far End Interval

-- The DS3 Far End Interval Table contains various statistics collected by each DS3 interface over the previous 24 hours of operation. The past 24 hours are broken into 96 completed 15 minute intervals.

dsx3FarEndIntervalTable OBJECT-TYPE
SYNTAX SEQUENCE OF Dsx3FarEndIntervalEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"The DS3 Far End Interval table."
::= { ds3 11 }

dsx3FarEndIntervalEntry OBJECT-TYPE
SYNTAX Dsx3FarEndIntervalEntry
ACCESS not-accessible
STATUS mandatory
DESCRIPTION
"An entry in the DS3 Far End Interval table."
INDEX { dsx3FarEndIntervalIndex, dsx3FarEndIntervalNumber }
::= { dsx3FarEndIntervalTable 1 }

Dsx3FarEndIntervalEntry ::= SEQUENCE {
  dsx3FarEndIntervalIndex
  INTEGER,
  dsx3FarEndIntervalNumber
  INTEGER,
  dsx3FarEndIntervalCESs
  Gauge,
  dsx3FarEndIntervalCSESs
  Gauge,
dsx3FarEndIntervalCCVs
    Gauge,
    dsx3FarEndIntervalUASs
    Gauge
}

dsx3FarEndIntervalIndex OBJECT-TYPE
SYNTAX  INTEGER (1..65535)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
    "The index value which uniquely identifies the DS3 interface
to which this entry is applicable. The interface identified by a particular value of
this index is the same interface as identified by the same value an dsx3LineIndex object
instance."
 ::= { dsx3FarEndIntervalEntry 1 }

dsx3FarEndIntervalNumber OBJECT-TYPE
SYNTAX  INTEGER (1..96)
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
    "A number between 1 and 96, where 1 is the most
recently completed 15 minute interval and 96 is
the least recently completed 15 minutes
interval (assuming that all 96 intervals are
valid)."
 ::= { dsx3FarEndIntervalEntry 2 }

dsx3FarEndIntervalCESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
    "The counter associated with the number of
Far End C-bit Errored Seconds encountered
by a DS3 interface in one of the previous 96,
individual 15 minute, intervals."
 ::= { dsx3FarEndIntervalEntry 3 }

dsx3FarEndIntervalCSESs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
dsx3FarEndIntervalCCVs OBJECT-TYPE
SYNTAX   Gauge
ACCESS   read-only
STATUS   mandatory
DESCRIPTION
 "The counter associated with the number of
 Far End C-bit Coding Violations reported via
 the far end block error count
 encountered by a
 DS3 interface in one of the previous 96,
 individual 15 minute, intervals."
 ::= { dsx3FarEndIntervalEntry 5 }

dsx3FarEndIntervalUASs OBJECT-TYPE
SYNTAX   Gauge
ACCESS   read-only
STATUS   mandatory
DESCRIPTION
 "The counter associated with the number of
 Far End unavailable seconds
 encountered by a
 DS3 interface in one of the previous 96,
 individual 15 minute, intervals."
 ::= { dsx3FarEndIntervalEntry 6 }

-- The DS3 Far End Total

-- The DS3 Far End Total Table contains the cumulative sum
-- of the various statistics for the 24 hour period preceding
-- the current interval.

dsx3FarEndTotalTable OBJECT-TYPE
SYNTAX   SEQUENCE OF Dsx3FarEndTotalEntry
ACCESS   not-accessible
STATUS   mandatory
DESCRIPTION
 "The DS3 Far End Total table. 24 hour interval."
 ::= { ds3 12 }

dsx3FarEndTotalEntry OBJECT-TYPE
SYNTAX   Dsx3FarEndTotalEntry
Dsx3FarEndTotalEntry ::= 
SEQUENCE {
  dsx3FarEndTotalIndex
    INTEGER,
  dsx3FarEndTotalCESs
    Gauge,
  dsx3FarEndTotalCSESs
    Gauge,
  dsx3FarEndTotalCCVs
    Gauge,
  dsx3FarEndTotalUASs
    Gauge
}

dsx3FarEndTotalIndex OBJECT-TYPE
SYNTAX INTEGER (1..65535)
ACCESS read-only
STATUS mandatory
DESCRIPTION
  "The index value which uniquely identifies the DS3 interface
to which this entry is applicable. The interface identified by a particular value of this index is the same interface as identified by the same value an dsx3LineIndex object instance."
::= { dsx3FarEndTotalEntry 1 }

dsx3FarEndTotalCESs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
  "The counter associated with the number of Far End C-bit Errored Seconds encountered by a DS3 interface in the previous 24 hour interval."
::= { dsx3FarEndTotalEntry 2 }

dsx3FarEndTotalCSESs OBJECT-TYPE
SYNTAX Gauge
ACCESS read-only
STATUS mandatory
DESCRIPTION
  "An entry in the DS3 Far End Total table."
INDEX { dsx3FarEndTotalIndex }
::= { dsx3FarEndTotalTable 1 }
DESCRIPTION
"The counter associated with the number of
Far End C-bit Severely Errored Seconds
encountered by a DS3 interface in the previous 24
hour interval."
::= { dsx3FarEndTotalEntry 3 }

dsx3FarEndTotalCCVs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of
Far End C-bit Coding Violations reported via the
far end block error count
encountered by a
DS3 interface in the previous 24 hour interval."
::= { dsx3FarEndTotalEntry 4 }

dsx3FarEndTotalUASs OBJECT-TYPE
SYNTAX  Gauge
ACCESS  read-only
STATUS  mandatory
DESCRIPTION
"The counter associated with the number of
Far End unavailable seconds
encountered by a
DS3 interface in the previous 24 hour interval."
::= { dsx3FarEndTotalEntry 5 }

-- the DS3/E3 Fractional Group

-- Implementation of this group is optional. It is designed
-- for those systems dividing a DS3/E3 into channels
-- containing different data streams that are of local
-- interest.

-- The DS3/E3 fractional table identifies which DS3/E3
-- channels associated with a CSU are being used to
-- support a logical interface, i.e., an entry in the
-- interfaces table from the Internet-standard MIB.

-- For example, consider a DS3 device with 4 high speed links
-- carrying router traffic, a feed for voice, a feed for
-- video, and a synchronous channel for a non-routed
-- protocol.
-- We might describe the allocation of channels, in the
-- dsx3FracTable, as follows:

-- dsx3FracIfIndex.2. 1 = 3  dsx3FracIfIndex.2.15 = 4
-- dsx3FracIfIndex.2. 2 = 3  dsx3FracIfIndex.2.16 = 6
-- dsx3FracIfIndex.2. 3 = 3  dsx3FracIfIndex.2.17 = 6
-- dsx3FracIfIndex.2. 4 = 3  dsx3FracIfIndex.2.18 = 6
-- dsx3FracIfIndex.2. 5 = 3  dsx3FracIfIndex.2.19 = 6
-- dsx3FracIfIndex.2. 6 = 3  dsx3FracIfIndex.2.20 = 6
-- dsx3FracIfIndex.2. 7 = 4  dsx3FracIfIndex.2.21 = 6
-- dsx3FracIfIndex.2. 8 = 4  dsx3FracIfIndex.2.22 = 6
-- dsx3FracIfIndex.2. 9 = 4  dsx3FracIfIndex.2.23 = 6
-- dsx3FracIfIndex.2.10 = 4  dsx3FracIfIndex.2.24 = 6
-- dsx3FracIfIndex.2.11 = 4  dsx3FracIfIndex.2.25 = 6
-- dsx3FracIfIndex.2.12 = 5  dsx3FracIfIndex.2.26 = 6
-- dsx3FracIfIndex.2.13 = 5  dsx3FracIfIndex.2.27 = 6
-- dsx3FracIfIndex.2.14 = 5  dsx3FracIfIndex.2.28 = 6

-- For dsx3M23, dsx3SYNTRAN, dsx3CbitParity, and dsx3ClearChannel there are 28 legal channels, numbered 1 through 28.

-- For e3Framed there are 16 legal channels, numbered 1 through 16. The channels (1..16) correspond directly to the equivalently numbered time-slots.

dsx3FracTable OBJECT-TYPE
SYNTAX  SEQUENCE OF Dsx3FracEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
   "The DS3 Fractional table."
 ::= { ds3 13 }

dsx3FracEntry OBJECT-TYPE
SYNTAX  Dsx3FracEntry
ACCESS  not-accessible
STATUS  mandatory
DESCRIPTION
   "An entry in the DS3 Fractional table."
INDEX  { dsx3FracIndex, dsx3FracNumber }
 ::= { dsx3FracTable 1 }

Dsx3FracEntry ::= SEQUENCE {
   dsx3FracIndex
      INTEGER,
   dsx3FracNumber
      INTEGER,
dsx3FracIfIndex
   INTEGER

dsx3FracIndex OBJECT-TYPE
   SYNTAX  INTEGER (1..'7fffffff'h)
   ACCESS  read-only
   STATUS  mandatory
   DESCRIPTION
      "The index value which uniquely identifies the
      DS3 interface to which this entry is applicable
      The interface identified by a particular
      value of this index is the same interface as
      identified by the same value an dsx3LineIndex
      object instance."
   ::= { dsx3FracEntry 1 }

dsx3FracNumber OBJECT-TYPE
   SYNTAX  INTEGER (1..31)
   ACCESS  read-only
   STATUS  mandatory
   DESCRIPTION
      "The channel number for this entry."
   ::= { dsx3FracEntry 2 }

dsx3FracIfIndex OBJECT-TYPE
   SYNTAX  INTEGER (1..'7fffffff'h)
   ACCESS  read-write
   STATUS  mandatory
   DESCRIPTION
      "An index value that uniquely identifies an
      interface. The interface identified by a particular
      value of this index is the same interface as
      identified by the same value an ifIndex
      object instance. If no interface is currently using
      a channel, the value should be zero. If a
      single interface occupies more than one time
      slot, that ifIndex value will be found in multiple
      time slots."
   ::= { dsx3FracEntry 3 }

END
5. Acknowledgments

This document was produced by the Trunk MIB Working Groups:

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6. References


7. Security Considerations

Security issues are not discussed in this memo.

8. Authors’ Addresses

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