The ATM Forum
Technical Committee

SNMP M4 Network Element View MIB

AF-NM-0095.001

July, 1998

SNMP M4 Network Element View MIB

The ATM Forum
Worldwide Headquarters
2570 West El Camino Real, Suite 304
Mountain View, CA 94040-1313
Tel:+1-650-949-6700
Fax: +1-650-949-6705

Contents

(This page intentionally left blank)

1. Introduction

This document defines an experimental portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it describes objects that provide management system access to the ATM Forum's M4 (Network Element View) interface via SNMP.

This document specifies a MIB module in a manner that is both compliant to the SNMPv2 SMI, and semantically identical to the peer SNMPv1 definitions.

The SNMPv2 MIB module defined in this document, in conjunction with other MIB modules defined in other documents, meets the functional requirements of the ATM Forum's M4 interface, as defined in ATM Forum af-nm-0020.000, "M4 Interface Requirements and Logical MIB" [10]. This document includes an SNMPv2 conformance statement formally specifying the use of these other MIB modules.

1.1. Objectives

- This MIB is intended to meet the functional requirements of the M4 Network Element View Interface Requirements and Logical MIB [10].

- It must, wherever possible, refer to existing standard MIBs (e.g., RFC 1695 [8]), rather than containing objects that are similar or identical those defined elsewhere.

- To the extent that SNMP does not have the required facilities to support a particular requirement or function in [10], that lack will be explicitly noted.

1.2. SNMP Network Management Framework

The SNMP Network Management Framework presently consists of three major components. They are:

- the SMI, described in RFC 1902 [1] - the mechanisms used for describing and naming objects for the purpose of management.

- the MIB-II, STD 17, RFC 1213 [2] - the core set of managed objects for the Internet suite of protocols.

- the protocol, RFC 1157 [3] and/or RFC 1905 [4] - the protocol for accessing managed objects.

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

This document also makes use of the following additional components of the SNMPv2 Network Management Framework:

- RFC 1903 [15] which defines textual conventions for the specification of managed objects,

- RFC 1904 [6] which defines conformance statements for the specification of managed objects,

- RFC 2233 [5] which defines extensions to MIB-II for use by all interface types,

- RFC 1451 [13] which defines managed objects for use between SNMP managers, including threshold management. Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB.[1]

- RFC 2037 [16] which defines managed objects used for managing multiple logical and physical entities managed by a single SNMP agent.

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) defined in the SMI. In particular, each object type is named by an OBJECT IDENTIFIER, an administratively assigned name. 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 descriptor, to also refer to the object type.

1.3. Related MIB Modules

This document also makes use of MIB modules from the following documents:

- RFC 1695 [8] which defines managed objects for use with ATM,

- RFC 1595 [9] which defines managed objects for use with SONET/SDH interfaces,

- RFC 1407 [11] which defines managed objects for use with DS3 and E3 interfaces,

- RFC 1406 [12] which defines managed objects for use with DS1 and E1 interfaces,

- RFC 1514 [14] which defines managed objects for administering host systems, including actual time.

2. Overview

The protocol-independent definition of the M4 interface does not map directly into SNMP. This section summarizes the way in which some of the functions required for M4 have been implemented in SNMP.

Wherever possible, already existing MIB objects have been re-used, and new MIB objects and traps have been defined to resemble similar features in other MIB modules.

2.1. ATM NE

The following attributes of the ATM NE object are already defined in other documents, location name in MIB-II (sysLocation), managed entity ID either in MIB-II (sysName) or as the agent's IP address or both, external time in the host resources MIB defined in RFC 1514 (hrSystemDate). The M4 operational state is not relevant for the SNMP agent because the agent will not be reachable if it is out of service due to some fault. Objects to model the vendor name, version, start-up time, and alarm severity assignment are defined in this document.

It should be noted that an SNMP agent is expected to model a timestamp as *time-ticks*, or hundredths of a second since the agent's startup time. This document has conformed to the SNMP model in this case. The start time attribute can be used to determine the real time associated with a specific timestamp value.

[1] Note that RFC 1451 now has a “historical” status in the IETF, and is no longer documents an IETF standard. However, it supports functionality that is required for this specification. Once the IETF completes work on a replacement specification, this document should be amended to use that document rather than RFC 1451.

The other ATM NE attributes (vendor, version, start time, alarm severity profile index, and suppress all-zero counts) are defined in this document.

2.2. Hardware and software

The Host Resources MIB defined in RFC 1514 includes three tables for the management of software: software, running software performance, and installed software. The M4 SNMP interface requires the first and third of these tables.

A single hardware unit table provides management access for Equipment, Equipment Holder, and Plug-In Unit components. A type field in each table entry identifies which type of component it represents, and additional columns contain type-specific attributes. A separate table maintains containment relationships between hardware units.

Two additional tables associate hardware units with the software running and installed on them respectively.

2.3. ATM interfaces

Management information relating to the physical medium itself is maintained by the appropriate medium-specific MIB. The interface table entry representing a physical media interface already contains two of the attributes of the M4 Physical Path Termination Point object: physical path type (ifType) and framing format (a media-specific attribute). The relation between a physical media interface and an ATM interface running over it is maintained by the ifStackTable defined in RFC 2233.

The physical path TP and TC adapter resides in the same interface table row as the ATM cell layer (UNI, B-ICI, or B- ISSI). The ATM MIB defined in RFC 1695 defines some of the columns common to all ATM cell layer interfaces; this document extends the MIB as required for M4 management. Where appropriate, the interface table entry also includes the columns of the DS3 PLCP table defined in RFC 1695.

The M4 SNMP interface makes use of the MIB-II system and interface tables as described in RFC 1695. This includes the columns ifType (atm(37)), ifAdminStatus, and ifOperStatus. Note that the status variables refer to the entire interface, including the physical path termination point and TC adapter sub-layers.

MIB-II does not have any provision for creating and deleting entries from the interface table, nor does the ATM interface configuration table in RFC 1695 add this facility. The creation of entries in this table shall be outside the scope of the M4 interface. Such entries are comprised of the columns in the following tables: from this document, physical path termination point and TC adapter objects, from RFC 1695, atmInterfaceConfTable, atmInterfaceDs3PlcpTable, and atmInterfaceTCTable. They also include at least one column from the ATM cell layer interface table defined in this document.

This means that an entry in the ATM layer interface table exists even when there is no UNI, etc., defined. In this case the column atmfM4IfType has the value none(0). The management system defines a UNI or other interface for the table entry by modifying this column. (The terminology in this situation is confusing, but the distinction should be kept in mind between rows in the interface table and ATM cell layer interfaces, which can be of type UNI, B-ICI, B-ISSI and which may or may not exist on any given row in the table.)

2.4. Virtual paths and virtual connections

The ATM MIB defined in RFC 1695 supports most of M4's requirements for managing VPs and VCs (point-to-point, as well as multi-point) but needs some extensions.

The following discussion refers to VPs, but the same is true for management of VCs.

RFC 1695 defines the atmVplTable to maintain information regarding both VPL and VPC termination points. The values of the administrative status and cross-connect identifier columns indicate whether or not the VPL TP has a VPC TP associated with it. This document describes an extension to the VPL table (using the AUGMENTS mechanism of SNMPv2's SMI) used to indicate whether or not the TP is a segment endpoint.

Traffic descriptors and quality-of-service parameters are stored in a separate table. Each entry in the VPL table includes two indexes into this table (one for each direction of traffic). It should be noted that the values used for traffic descriptor types in the ILMI MIB are different from those used in RFC 1695; the latter will be used for M4.

Cross-connections are maintained by a third table, indexed by a unique value and by the cross-connect endpoints. Multi-point cross-connections are represented by multiple entries in this table; entries comprising a single multi-point connection will have the same cross-connect index. This document describes an extension to the cross-connect table required for support of the recovery type attribute (again using the AUGMENTS mechanism).

RFC 1695 outlines the procedure to be used in creating VPLs, cross-connections, and VPC termination points.

The above description applies to VCs, as well.

RFC 1695 does not provide a mechanism for the agent, rather than the management system, to select the VPI value for a VPL cross-connect, or the VCI value for a VCL cross-connect (as in requirement CM-8). This is provided using two new tables that will supply appropriate next index values. These tables are optional, as not all SNMP agents will be able to perform this function.

2.5. Statistics

RFC 1407, dated January 1993, defines statistics for DS3/E3 interfaces but appears to make use of earlier versions of documents than those referenced for the M4 interface (which specifies ANSI T1.231-1993 and ANSI T1.pmnew). RFC 1407 should be updated to take account of any changes since its last release; the M4 MIB will incorporate it by reference.

RFC 1595, dated March 1994, defines statistics for SONET/SDH interfaces but does not make use of G.774-01 (January 1994), which is specified for the M4 interface. (It does make use of the January 1993 version of ANSI T1.231.) RFC 1595 should be updated to take account of any changes since its last release; the M4 MIB will incorporate it by reference.

The current and historical fifteen-minute interval statistics to be maintained for ATM Cell Level Protocol Monitoring, TC Adapter Protocol Monitoring, and UPC/NPC Disagreement Monitoring are defined in this document. (RFC 1695 uses a column in the standard ifTable for one of the ATM cell statistics, but it stores a count since the agent was started, not since the beginning of the current interval.) The historical statistics tables follow the pattern used for such statistics in the DS1, DS3, and SONET/SDH MIBs. Because VPL and VPC termination points are indexed differently, UPC/NPC statistics for each of these object types are in a different table.

2.6. Thresholds

Thresholds for ATM interfaces, as well as for VPL and VCL termination points, should be managed and reported using the standard threshold facilities defined for SNMPv2. These are described in the manager-to-

manager MIB, RFC 1451[2]. These facilities are adequate for ATM Cell Level Protocol Monitoring, measured at the interface level, as well as UPC/NPC Disagreement Monitoring, measured at VPL and VPC endpoints.

2.7. Diagnostics

This document defines two tables similar to the ifTestTable defined in RFC 1573 [17], for the purpose of starting diagnostic tests on VP and VC endpoints, to be used for the OAM Loopback test.

It should be noted that RFC 1573 requires that the manager query the agent in order to discover the results of the test. An SNMP agent cannot return test results in the response to the SNMP set-request that initiated the test because the test will likely take longer to complete than an SNMP management system can wait for a set-result; and if the agent were to emit a trap containing the test results, the inherent unreliability of the transport service means that the management system might never receive it. Also note that ifTestTable was later deprecated in RFC 2233.

2.8. Traps

The CMIP version of the M4 interface is able to make use of the standard trap logging and forwarding facilities. Equivalents of these for SNMP do not exist. This document defines such facilities where required for the M4 functional requirements. These should be considered provisional, until similar functions are standardized for the use of all SNMP agents.

Rather than defining generic trap types for the CMIP-style events corresponding to object creation, fault alarm, and so on, this document defines these events with a separate trap for each object type that can generate them. In the case of alarms, each combination of alarm category, generic trouble (i.e., probable cause), and object type corresponds to a different trap type. (As specified in the M4 Interface Requirements [10], most alarms can be generated by only one or two types of objects.) This conforms to the procedure followed by other SNMP MIB modules. It also allows an M4 SNMP agent to be used with applications that make decisions based on trap ID, particularly generic SNMP management applications, but also some MIB modules.

The trap forwarding configuration table allows traps to be discriminated on trap type, generating object, and alarm severity (when appropriate). This MIB table is intended to be implemented at a trap logging element manager, rather than at each individual network element: at any given SNMP agent there can be one log for every combination of ATM NE and log type (creation, deletion, state change, configuration change, and alarm). However, the MIB does not preclude logging at the individual ATM network element if desired.

Many SNMP agents will be unable to include event logging capabilities. For this reason, conformance to the trap log portions of the MIB module is defined separately from conformance to the other M4 functions, in the expectation that the former functions are most likely to reside in an element manager, rather than in the ATM network element itself.

2.9. Conformance statements

This document includes SNMPv2 SMI conformance statements specifying the required and optional features of the M4 interface. They cover the MIBs defined specifically for M4, as well as the required elements of other MIBs, defined elsewhere.

[2] See the discussion in Footnote 1 on page 2.

3. MIB

```
ATM-FORUM-SNMP-M4-MIB DEFINITIONS ::= BEGIN

IMPORTS
     MODULE-IDENTITY, OBJECT-TYPE,
     NOTIFICATION-TYPE, OBJECT-IDENTITY,
     Integer32, IpAddress, Gauge32,
     Unsigned32, enterprises            FROM SNMPv2-SMI
     TEXTUAL-CONVENTION, DisplayString,
     AutonomousType, RowStatus,
     TestAndIncr, RowPointer,
     TruthValue, TimeStamp,
     DateAndTime, TimeInterval          FROM SNMPv2-TC
     MODULE-COMPLIANCE, OBJECT-GROUP,
     NOTIFICATION-GROUP                 FROM SNMPv2-CONF
     ifIndex, ifOperStatus, OwnerString FROM IF-MIB
     atmVplEntry, atmVplVpi,
     atmVplOperStatus,
     atmVclEntry, atmVclVpi, atmVclVci,
     atmVclOperStatus,
     atmVpCrossConnectEntry,
     atmVpCrossConnectL2HOperStatus,
     atmVpCrossConnectH2LOperStatus,
     atmVcCrossConnectEntry,
     atmVcCrossConnectL2HOperStatus,
     atmVcCrossConnectH2LOperStatus     FROM ATM-MIB
     entPhysicalIndex, entPhysicalClass,
     entPhysicalContainedIn,
     entPhysicalParentRelPos
                                        FROM ENTITY-MIB
     hrSWInstalledIndex,
     hrSWInstalledName                  FROM HOST-RESOURCES-MIB;


atmfM4MIB MODULE-IDENTITY
     LAST-UPDATED   "9805140000Z"
     ORGANIZATION   "The ATM Forum"
     CONTACT-INFO
           "The ATM Forum
            2570 West El Camino Real, Suite 304
            Mountain View, CA 94040-1313 USA
            Phone: +1 415-949-6700
            Fax:   +1 415-949-6705
            info@atmforum.com"
     DESCRIPTION
           "This MIB module is the SNMP version of the ATM Forum's
            M4 interface (network element view)."
     REVISION   "9805140000Z"
     DESCRIPTION
           "Initial version of MIB module ATM-FORUM-SNMP-M4-MIB."
    ::= { atmfM4SnmpNEView 1 }

atmForum                OBJECT IDENTIFIER ::= { enterprises 353 }
atmForumNetworkManagement    OBJECT IDENTIFIER ::= { atmForum 5 }
atmfM4      OBJECT IDENTIFIER ::= { atmForumNetworkManagement 1 }
atmfM4SnmpNEView               OBJECT IDENTIFIER ::= { atmfM4 3 }

atmfM4MIBObjects    OBJECT IDENTIFIER ::= { atmfM4MIB 1 }
atmfM4MIBTraps      OBJECT IDENTIFIER ::= { atmfM4MIB 2 }
```

```
atmfM4MIBTrapPrefix OBJECT IDENTIFIER ::= { atmfM4MIBTraps 0 }
atmfM4MIBConformance OBJECT IDENTIFIER ::= { atmfM4MIB 3 }

--   This MIB module consists of the following groups:
--        (1)   ATM NE High-Level Objects
--        (2)   Interfaces: Physical Path Termination Point Table
--        (3)   TC Adapter Table
--        (4)   ATM Cell Layer Interface Table
--        (5)   VPL Termination Point Table Extensions
--        (6)   VCL Termination Point Table Extensions
--        (7)   VP Cross-Connect Table Extensions
--        (8)   VC Cross-Connect Table Extensions
--        (9)   VP 'next VPI' Table
--        (10)  VC 'next VCI' Table
--        (11)  ATM Cell Protocol Monitoring Current Data Table
--        (12)  ATM Cell Protocol Monitoring History Data Table
--        (13)  ATM Cell Protocol Monitoring Error Log Table
--        (14)  TC Adapter Protocol Monitoring Current Data Table
--        (15)  TC Adapter Protocol Monitoring History Data Table
--        (16)  VPL UPC/NPC Disagreement Monitoring Current Data Table
--        (17)  VPL UPC/NPC Disagreement Monitoring History Data Table
--        (18)  VCL UPC/NPC Disagreement Monitoring Current Data Table
--        (19)  VCL UPC/NPC Disagreement Monitoring History Data Table
--        (20)  OAM Loopback Test Definitions
--        (21)  VPL/VPC Termination Point Test Table
--        (22)  VCL/VCC Termination Point Test Table
--        (23)  Equipment Table extension
--        (24)  Equipment Holder Table extension
--        (25)  Plug-In Unit Table extension
--        (26)  Hardware Unit/Running Software Relationship Table
--        (27)  Hardware Unit/Installed Software Relationship Table
--        (28)  Alarm Forwarding Discriminator Table
--        (29)  Trap Log Table
--        (30)  Trap Log Entry Table
--        (31)  Alarm Trap Log Entry Table extension
--        (32)  Notifications (traps)
--        (33)  Conformance statements


-- ATM Forum M4 ATM network element (NE) high-level objects

atmfM4NeVendor OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The vendor of the ATM network element."
     ::= { atmfM4MIBObjects 1 }

atmfM4NeVersion OBJECT-TYPE
     SYNTAX    AutonomousType
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The version of the ATM network element."
     ::= { atmfM4MIBObjects 2 }

atmfM4NeStartTime OBJECT-TYPE
     SYNTAX    DateAndTime
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The time at which the agent was last started; in other
          words, the time at which sysUpTime was zero."
```

```
     ::= { atmfM4MIBObjects 3 }

atmfM4NeAlarmSeverityIndex OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "An index into the alarm severity profile table, specifying
          the severity assignments for M4 alarms reported for the
          ATM network element.  The default value for this object is
          zero."
     ::= { atmfM4MIBObjects 4 }

atmfM4NeSuppressZeroStats OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "When the value of this object is true, no entry will be
          created in any of the historical statistics tables for
          intervals in which all counts are zero.  The default value for
          this object is true(1)."
     ::= { atmfM4MIBObjects 5 }


-- ATM Forum M4 Interface Configuration Table Extensions
-- Physical Path Termination Point Layer

atmfM4PhysPathTpTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4PhysPathTpEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 interface Configuration table extensions
          for the physical path termination point."
     ::= { atmfM4MIBObjects 6 }

atmfM4PhysPathTpEntry OBJECT-TYPE
     SYNTAX    AtmfM4PhysPathTpEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Columns conceptually added to the interface table
          entry for an ATM interface to model the physical path
          termination point.

          The row of the interface table modeling this object should
          also include columns for the TC Adapter object and the ATM
          interface table defined in RFC 1695.

          The interface table entry for the physical path TP
          fields of an ATM interface are set up without management
          system control (or else that setup is outside the
          scope of M4)."
     INDEX          { ifIndex }
     ::= { atmfM4PhysPathTpTable 1 }

AtmfM4PhysPathTpEntry ::= SEQUENCE {
     atmfM4PhysPathTpHwUnitIndex         Integer32,
     atmfM4PhysPathTpPortID              Integer32,
     atmfM4PhysPathTpAlarmSeverityIndex  Integer32
          }

atmfM4PhysPathTpHwUnitIndex OBJECT-TYPE
```

```
     SYNTAX    Integer32 (1..2147483647)
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Specifies the index of the entry in the entPhysicalTable
          that represents the device (i.e., card) on which the
          physical path terminates."
     ::= { atmfM4PhysPathTpEntry 1 }

atmfM4PhysPathTpPortID OBJECT-TYPE
     SYNTAX    Integer32 (1..2147483647)
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Identifies the port (within the card identified by the
          hardware unit index) on which the physical path terminates."
     ::= { atmfM4PhysPathTpEntry 2 }

atmfM4PhysPathTpAlarmSeverityIndex OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "Specifies the index of the entry in the communications
          alarm severity profile table that should be used.  The default
          value of this object is zero."
     ::= { atmfM4PhysPathTpEntry 3 }


-- ATM Forum M4 Interface Configuration Table Extensions
-- TC Adapter Layer

atmfM4TcAdapterTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4TcAdapterEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 interface Configuration table extensions
          for the TC Adapter."
     ::= { atmfM4MIBObjects 7 }

atmfM4TcAdapterEntry OBJECT-TYPE
     SYNTAX    AtmfM4TcAdapterEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Columns conceptually added to the interface table
          entry for an ATM interface to model the TC Adapter.

          The row of the interface table modeling this object should
          also include columns for the physical path TP and the ATM
          interface table defined in RFC 1695.

          The interface table entry for the TC Adapter
          fields of an ATM interface are set up without management
          system control (or else that setup is outside the
          scope of M4)."
     INDEX          { ifIndex }
     ::= { atmfM4TcAdapterTable 1 }

AtmfM4TcAdapterEntry ::= SEQUENCE {
     atmfM4TcACellScrambling       TruthValue,
     atmfM4TcAlarmSeverityIndex    Integer32
          }
```

```
atmfM4TcACellScrambling OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "This attribute is used by the management system to
          activate and deactivate the ATM cell scrambling function.
          When the value of this attribute is TRUE, cell scrambling
          on the interface is activated.

          This attribute shall be present only for interfaces that
          support the deactivation of cell scrambling.  The ATM Forum
          UNI specification requires cell scrambling for ATM/SONET
          interfaces but allows cell scrambling to be controlled
          (i.e., turned on and off) for ATM/DS3 interfaces.

          The default value of this object is true(1)."
     ::= { atmfM4TcAdapterEntry 1 }

atmfM4TcAlarmSeverityIndex OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "Specifies the index of the entry in the communications
          alarm severity profile table that should be used.  The
          default value of this object is zero."
     ::= { atmfM4TcAdapterEntry 2 }


-- ATM Forum M4 Interface Configuration Table Extensions
-- ATM Cell Layer

atmfM4AtmLayerTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4AtmLayerEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 interface Configuration table extensions
          for the ATM cell layer."
     ::= { atmfM4MIBObjects 8 }

atmfM4AtmLayerEntry OBJECT-TYPE
     SYNTAX    AtmfM4AtmLayerEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Columns conceptually added to the interface table
          entry for an ATM interface to model the ATM cell layer.
          The row of the interface table modeling this object should
          also include columns for the physical path TP and TC Adapter
          object, as well as the ATM interface table defined in
          RFC 1695.

          The default configuration of an entry in this table is
          used whenever the entries for the physical path TP, etc.,
          are created.  The management system configures a UNI,
          B-ICI, or B-ISSI on the interface by first modifying the
          atmfM4IfType column (this can be done in the same SNMP
          set-request that sets up the other necessary variables."
     INDEX          { ifIndex }
     ::= { atmfM4AtmLayerTable 1 }
```

```
AtmfM4AtmLayerEntry ::= SEQUENCE {
     atmfM4IfType                  INTEGER,
     atmfM4IfLoopbackLocationCode  Integer32,
     atmfM4IfSubscriberAddress     DisplayString,
     atmfM4IfPreferredCarrier      DisplayString,
     atmfM4IfFarEndCarrierNetwork  DisplayString
          }

atmfM4IfType OBJECT-TYPE
     SYNTAX    INTEGER {
                    none(0),
                    uni(1),
                    bici(2),
                    bissi(3)
                         }
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "Specifies the type of ATM cell layer interface defined
          on the physical path termination point modeled by this
          entry in the interface table.  The default value of this
          object is none(0)."
     ::= { atmfM4AtmLayerEntry 1 }

atmfM4IfLoopbackLocationCode OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "Specifies the code that shall exist in incoming OAM
          Loopback cells that are to be looped back at this
          interface.

          A value of zero shall indicate that the management system
          has not set any loopback location code for this interface.
          Therefore, zero should not be used as the actual loopback
          location code for any interface.

          This object shall be present only for table entries that
          represent an actual ATM cell layer interface (i.e., the
          atmfM4IfType is not none(0)).

          The default value of this object is zero."
     ::= { atmfM4AtmLayerEntry 2 }

atmfM4IfSubscriberAddress OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "Specifies the address or newline-delimited list of
          addresses assigned to the UNI.

          This object shall be present only for table entries that
          represent a UNI interface.

          The default value of this object is the null string."
     ::= { atmfM4AtmLayerEntry 3 }

atmfM4IfPreferredCarrier OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
```

```
          "Specifies the name of the default carrier to use when one
          is not explicitly identified in the call set-up message.

          This object shall be present only for table entries that
          represent a UNI interface and only when SVC services are
          supported.

          The default value of this object is the null string."
     ::= { atmfM4AtmLayerEntry 4 }

atmfM4IfFarEndCarrierNetwork OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "Specifies the adjacent carrier to which the B-ICI
          transmission path is connected.

          This object shall be present only for table entries that
          represent a B-ICI interface and only when SVC services are
          supported.

          The default value of this object is the null string."
     ::= { atmfM4AtmLayerEntry 5 }



-- ATM Forum M4 VPL Termination Point Configuration Table Extensions

atmfM4VplTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VplEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VPL Termination Point Configuration
          table extensions.  This table augments the VPL
          configuration table in RFC 1695."
     ::= { atmfM4MIBObjects 9 }

atmfM4VplEntry OBJECT-TYPE
     SYNTAX    AtmfM4VplEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Additional columns for the VPL configuration table entry."
     AUGMENTS { atmVplEntry }
     ::= { atmfM4VplTable 1 }

AtmfM4VplEntry ::= SEQUENCE {
     atmfM4VplSegEndPt        TruthValue
          }

atmfM4VplSegEndPt OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "Specifies whether the VPL termination point is a segment
          end-point."
     DEFVAL    { false }
     ::= { atmfM4VplEntry 1 }
```

```
-- ATM Forum M4 VCL Termination Point Configuration Table Extensions

atmfM4VclTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VclEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VCL Termination Point Configuration
          table extensions.  This table augments the VCL
          configuration table in RFC 1695."
     ::= { atmfM4MIBObjects 10 }

atmfM4VclEntry OBJECT-TYPE
     SYNTAX    AtmfM4VclEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Additional columns for the VCL configuration table entry."
     AUGMENTS { atmVclEntry }
     ::= { atmfM4VclTable 1 }

AtmfM4VclEntry ::= SEQUENCE {
     atmfM4VclSegEndPt        TruthValue
          }

atmfM4VclSegEndPt OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "Specifies whether the VCL termination point is a segment
          end-point."
     DEFVAL    { false }
     ::= { atmfM4VclEntry 1 }


-- ATM Forum M4 VP Cross-Connect Table Extensions

atmfM4VpXConnTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VpXConnEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VP Cross-Connect Configuration
          table extensions.  This table augments the VP Cross-Connect
          configuration table in RFC 1695."
     ::= { atmfM4MIBObjects 11 }

atmfM4VpXConnEntry OBJECT-TYPE
     SYNTAX    AtmfM4VpXConnEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Additional columns for the VP Cross-Connect table entry."
     AUGMENTS { atmVpCrossConnectEntry }
     ::= { atmfM4VpXConnTable 1 }

AtmfM4VpXConnEntry ::= SEQUENCE {
     atmfM4VpXConnRecover     TruthValue
          }

atmfM4VpXConnRecover OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-create
```

```
     STATUS    current
     DESCRIPTION
          "If FALSE, this cross-connection will be removed on
          failure."
     DEFVAL    { true }
     ::= { atmfM4VpXConnEntry 1 }


-- ATM Forum M4 VC Cross-Connect Table Extensions

atmfM4VcXConnTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VcXConnEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VC Cross-Connect Configuration
          table extensions.  This table augments the VC Cross-Connect
          configuration table in RFC 1695."
     ::= { atmfM4MIBObjects 12 }

atmfM4VcXConnEntry OBJECT-TYPE
     SYNTAX    AtmfM4VcXConnEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Additional columns for the VC Cross-Connect table entry."
     AUGMENTS { atmVcCrossConnectEntry }
     ::= { atmfM4VcXConnTable 1 }

AtmfM4VcXConnEntry ::= SEQUENCE {
     atmfM4VcXConnRecover     TruthValue
          }

atmfM4VcXConnRecover OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "If FALSE, this cross-connection will be removed on
          failure."
     DEFVAL    { true }
     ::= { atmfM4VcXConnEntry 1 }


-- ATM Forum M4 VP "Next VPI" Table

atmfM4VpNextVpiTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VpNextVpiEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VP Next VPI value table.  This optional
          table supplies unused VPI values for use in creating
          entries in the atmVplTable."
     ::= { atmfM4MIBObjects 13 }

atmfM4VpNextVpiEntry OBJECT-TYPE
     SYNTAX    AtmfM4VpNextVpiEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Each entry in this table represents the 'next' VPI
          value available for a given ATM interface.
```

```
          Each ATM interface (UNI, BICI, BISSI) automatically has
          an entry in this table associated with it."
     INDEX          { ifIndex }
     ::= { atmfM4VpNextVpiTable 1 }

AtmfM4VpNextVpiEntry ::= SEQUENCE {
     atmfM4VpNextVpiValue     INTEGER
          }

atmfM4VpNextVpiValue OBJECT-TYPE
     SYNTAX    INTEGER (-1..4095)
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This object contains an appropriate value to be used for
          atmVplVpi when creating entries in the atmVplTable.  The
          value -1 indicates that no unassigned entries are available.
          To obtain the atmVplVpi value for a new entry, the manager
          issues a management protocol retrieval operation to obtain
          the current value of this object.  After each retrieval, the
          agent should modify the value to the next unassigned index
          (or -1)."
     ::= { atmfM4VpNextVpiEntry 1 }


-- ATM Forum M4 VC "Next VCI" Table

atmfM4VcNextVciTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VcNextVciEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VC Next VCI value table.  This optional
          table supplies unused VCI values for use in creating
          entries in the atmVclTable."
     ::= { atmfM4MIBObjects 14 }

atmfM4VcNextVciEntry OBJECT-TYPE
     SYNTAX    AtmfM4VcNextVciEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Each entry in this table represents the 'next' VCI
          value available for a given ATM interface.

          Each VPL Termination Point automatically has
          an entry in this table associated with it."
     INDEX          { ifIndex,
                      atmVplVpi }
     ::= { atmfM4VcNextVciTable 1 }

AtmfM4VcNextVciEntry ::= SEQUENCE {
     atmfM4VcNextVciValue     INTEGER
          }

atmfM4VcNextVciValue OBJECT-TYPE
     SYNTAX    INTEGER (-1..65535)
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This object contains an appropriate value to be used for
          atmVclVci when creating entries in the atmVclTable.  The
          value -1 indicates that no unassigned entries are available.
          To obtain the atmVclVci value for a new entry, the manager
```

```
          issues a management protocol retrieval operation to obtain
          the current value of this object.  After each retrieval, the
          agent should modify the value to the next unassigned index
          (or -1)."
     ::= { atmfM4VcNextVciEntry 1 }


-- ATM Cell Protocol Monitoring Current Data (per interface)

atmfM4CellProtoCurrTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4CellProtoCurrEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Cell Protocol Monitoring Current Data
          table.

          This table maintains per-interface statistics for the
          fifteen-minute interval currently being collected."
     ::= { atmfM4MIBObjects 15 }

atmfM4CellProtoCurrEntry OBJECT-TYPE
     SYNTAX    AtmfM4CellProtoCurrEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 Cell Protocol Monitoring
          Current Data table.

          Each ATM interface (UNI, BICI, BISSI) automatically has
          an entry in this table associated with it."
     INDEX          { ifIndex }
     ::= { atmfM4CellProtoCurrTable 1 }

AtmfM4CellProtoCurrEntry ::= SEQUENCE {
     atmfM4CellProtoCurrSuspect         TruthValue,
     atmfM4CellProtoCurrElapsedTime     TimeInterval,
     atmfM4CellProtoCurrSupprIntvls     Gauge32,
     atmfM4CellProtoCurrProtoErrors     Gauge32,
     atmfM4CellProtoCurrInOAMCells      Gauge32
          }

atmfM4CellProtoCurrSuspect OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "If true, the statistics in this entry may be unreliable."
     ::= { atmfM4CellProtoCurrEntry 1 }

atmfM4CellProtoCurrElapsedTime OBJECT-TYPE
     SYNTAX    TimeInterval
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Amount of time, measured in units of 0.01 second, that
          statistics for this entry (the current interval) have been
          counted."
     ::= { atmfM4CellProtoCurrEntry 2 }

atmfM4CellProtoCurrSupprIntvls OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
```

```
     DESCRIPTION
          "This attribute is non-zero only if the ATM NE is
          suppressing ATM Cell Protocol Monitoring History Data
          entry creation when the current interval terminates with
          'all-zeroes' performance measurements.

          When non-zero, this attribute represents the number of
          'all-zeroes' intervals that were suppressed immediately
          prior to the current interval.

          Note that the suppression of 'all-zeroes' intervals is
          controlled by the atmfM4NeSuppressZeroStats object."
     ::= { atmfM4CellProtoCurrEntry 3 }

atmfM4CellProtoCurrProtoErrors OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of ATM cells dropped on this interface, due to
          an unrecognized field or set of fields in the ATM cell
          header, since the start of this interval."
     ::= { atmfM4CellProtoCurrEntry 4 }

atmfM4CellProtoCurrInOAMCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of OAM cells received at this interface since
          the start of this interval."
     ::= { atmfM4CellProtoCurrEntry 5 }


-- ATM Cell Protocol Monitoring History Data (per interface and time
-- interval)

atmfM4CellProtoHistTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4CellProtoHistEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Cell Protocol Monitoring History Data
          table.

          This table maintains per-interface statistics for previous
          fifteen-minute intervals."
     ::= { atmfM4MIBObjects 16 }

atmfM4CellProtoHistEntry OBJECT-TYPE
     SYNTAX    AtmfM4CellProtoHistEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 Cell Protocol Monitoring
          History Data table.

          Each ATM interface (UNI, BICI, BISSI) automatically has
          an entry in this table associated with it for each fifteen-
          minute interval in which statistics are collected for it."
     INDEX          { ifIndex,
                      atmfM4CellProtoHistIndex }
     ::= { atmfM4CellProtoHistTable 1 }
```

```
AtmfM4CellProtoHistEntry ::= SEQUENCE {
     atmfM4CellProtoHistIndex           INTEGER,
     atmfM4CellProtoHistSuspect         TruthValue,
     atmfM4CellProtoHistElapsedTime     TimeInterval,
     atmfM4CellProtoHistSupprIntvls     Gauge32,
     atmfM4CellProtoHistProtoErrors     Gauge32,
     atmfM4CellProtoHistInOAMCells      Gauge32
          }

atmfM4CellProtoHistIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..96)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A number between 1 and 96, which identifies the interval
          for which the set of statistics in this entry was
          collected.

          The interval identified by 1 is the most recently completed
          15 minute interval, and the interval identified by N is the
          interval immediately preceding the one identified by N-1."
     ::= { atmfM4CellProtoHistEntry 1 }

atmfM4CellProtoHistSuspect OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "If true, the statistics in this entry may be unreliable."
     ::= { atmfM4CellProtoHistEntry 2 }

atmfM4CellProtoHistElapsedTime OBJECT-TYPE
     SYNTAX    TimeInterval
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Amount of time, measured in units of 0.01 second, that
          statistics for this entry (the current interval) have been
          counted."
     ::= { atmfM4CellProtoHistEntry 3 }

atmfM4CellProtoHistSupprIntvls OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attribute is non-zero only if the ATM NE is
          suppressing ATM Cell Protocol Monitoring History Data
          entry creation when the current interval terminates with
          'all-zeroes' performance measurements.

          When non-zero, this attribute represents the number of
          'all-zeroes' intervals that were suppressed immediately
          prior to this 'non-all-zeroes' history interval.

          Note that the suppression of 'all-zeroes' intervals is
          controlled by the atmfM4NeSuppressZeroStats object."
     ::= { atmfM4CellProtoHistEntry 4 }

atmfM4CellProtoHistProtoErrors OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
```

```
     DESCRIPTION
          "The number of ATM cells dropped on this interface, due to
          an unrecognized field or set of fields in the ATM cell
          header, during this interval."
     ::= { atmfM4CellProtoHistEntry 5 }

atmfM4CellProtoHistInOAMCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of OAM cells received at this interface during
          this interval."
     ::= { atmfM4CellProtoHistEntry 6 }


-- ATM Cell Protocol Monitoring Error Log (per interface, error code)

atmfM4CellProtoErrorTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4CellProtoErrorEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Cell Protocol Monitoring Error Log
          table.

          This table maintains a record of the last error of each
          type encountered on each interface, as a result of ATM
          Cell Protocol Monitoring."
     ::= { atmfM4MIBObjects 17 }

atmfM4CellProtoErrorEntry OBJECT-TYPE
     SYNTAX    AtmfM4CellProtoErrorEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 Cell Protocol Monitoring
          Error Log table.

          Each ATM interface (UNI, BICI, BISSI) automatically has
          an entry in this table associated with it for each error
          that has occurred since agent start-up."
     INDEX          { ifIndex,
                    atmfM4CellProtoErrorCode }
     ::= { atmfM4CellProtoErrorTable 1 }

AtmfM4CellProtoErrorEntry ::= SEQUENCE {
     atmfM4CellProtoErrorCode      Integer32,
     atmfM4CellProtoErrorTime      TimeStamp,
     atmfM4CellProtoErrorReason    INTEGER,
     atmfM4CellProtoErrorVpi       INTEGER,
     atmfM4CellProtoErrorVci       INTEGER
          }

atmfM4CellProtoErrorCode OBJECT-TYPE
     SYNTAX    Integer32 (0..2147483647)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Indicates the type of error for which this entry contains
          information.  The range and interpretation of this error
          code value is left up to the individual agent implementor."
     ::= { atmfM4CellProtoErrorEntry 1 }
```

```
atmfM4CellProtoErrorTime OBJECT-TYPE
     SYNTAX    TimeStamp
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Value of sysUpTime when the error occurred."
     ::= { atmfM4CellProtoErrorEntry 2 }

atmfM4CellProtoErrorReason OBJECT-TYPE
     SYNTAX    INTEGER {
                    unassignedVpiVciValue(1),
                    outOfRangeVpiVciValue(2)
                         }
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The cell header abnormality type: the reason for discarding
          the ATM cell (i.e., unassigned VPI/VCI value or VPI/VCI
          value out of range)."
     ::= { atmfM4CellProtoErrorEntry 3 }

atmfM4CellProtoErrorVpi OBJECT-TYPE
     SYNTAX    INTEGER (0..4095)
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The VPI value of the discarded cell."
     ::= { atmfM4CellProtoErrorEntry 4 }

atmfM4CellProtoErrorVci OBJECT-TYPE
     SYNTAX    INTEGER (0..65535)
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The VCI value of the discarded cell."
     ::= { atmfM4CellProtoErrorEntry 5 }


-- TC Adapter Protocol Monitoring Current Data (per interface)

atmfM4TcProtoCurrTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4TcProtoCurrEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 TC Adapter Protocol Monitoring Current
          Data table.

          This table maintains per-interface statistics for the
          fifteen-minute interval currently being collected."
     ::= { atmfM4MIBObjects 18 }

atmfM4TcProtoCurrEntry OBJECT-TYPE
     SYNTAX    AtmfM4TcProtoCurrEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 TC Adapter Protocol Monitoring
          Current Data table.

          Each ATM interface (UNI, BICI, BISSI) automatically has
          an entry in this table associated with it."
     INDEX          { ifIndex }
     ::= { atmfM4TcProtoCurrTable 1 }
```

```
AtmfM4TcProtoCurrEntry ::= SEQUENCE {
     atmfM4TcProtoCurrSuspect           TruthValue,
     atmfM4TcProtoCurrElapsedTime       TimeInterval,
     atmfM4TcProtoCurrSupprIntvls       Gauge32,
     atmfM4TcProtoCurrDiscardHECViol    Gauge32
          }

atmfM4TcProtoCurrSuspect OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "If true, the statistics in this entry may be unreliable."
     ::= { atmfM4TcProtoCurrEntry 1 }

atmfM4TcProtoCurrElapsedTime OBJECT-TYPE
     SYNTAX    TimeInterval
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Amount of time, measured in units of 0.01 second, that
          statistics for this entry (the current interval) have been
          counted."
     ::= { atmfM4TcProtoCurrEntry 2 }

atmfM4TcProtoCurrSupprIntvls OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attribute is non-zero only if the ATM NE is
          suppressing ATM TC Adapter Protocol Monitoring History Data
          entry creation when the current interval terminates with
          'all-zeroes' performance measurements.

          When non-zero, this attribute represents the number of
          'all-zeroes' intervals that were suppressed immediately
          prior to the current interval.

          Note that the suppression of 'all-zeroes' intervals is
          controlled by the atmfM4NeSuppressZeroStats object."
     ::= { atmfM4TcProtoCurrEntry 3 }

atmfM4TcProtoCurrDiscardHECViol OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of ATM cells discarded on this interface, due to
          a HEC violation, since the start of this interval."
     ::= { atmfM4TcProtoCurrEntry 4 }


-- ATM TC Adapter Protocol Monitoring History Data (per interface and
-- time interval)

atmfM4TcProtoHistTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4TcProtoHistEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 TC Adapter Protocol Monitoring History
          Data table.
```

```
          This table maintains per-interface statistics for previous
          fifteen-minute intervals."
     ::= { atmfM4MIBObjects 19 }

atmfM4TcProtoHistEntry OBJECT-TYPE
     SYNTAX    AtmfM4TcProtoHistEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 TC Adapter Protocol Monitoring
          History Data table.

          Each ATM interface (UNI, BICI, BISSI) automatically has
          an entry in this table associated with it for each fifteen-
          minute interval in which statistics are collected for it."
     INDEX          { ifIndex,
                      atmfM4TcProtoHistIndex }
     ::= { atmfM4TcProtoHistTable 1 }

AtmfM4TcProtoHistEntry ::= SEQUENCE {
     atmfM4TcProtoHistIndex             INTEGER,
     atmfM4TcProtoHistSuspect           TruthValue,
     atmfM4TcProtoHistElapsedTime       TimeInterval,
     atmfM4TcProtoHistSupprIntvls       Gauge32,
     atmfM4TcProtoHistDiscardHECViol    Gauge32
          }

atmfM4TcProtoHistIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..96)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A number between 1 and 96, which identifies the interval
          for which the set of statistics in this entry was
          collected.

          The interval identified by 1 is the most recently completed
          15 minute interval, and the interval identified by N is the
          interval immediately preceding the one identified by N-1."
     ::= { atmfM4TcProtoHistEntry 1 }

atmfM4TcProtoHistSuspect OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "If true, the statistics in this entry may be unreliable."
     ::= { atmfM4TcProtoHistEntry 2 }

atmfM4TcProtoHistElapsedTime OBJECT-TYPE
     SYNTAX    TimeInterval
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Amount of time, measured in units of 0.01 second, that
          statistics for this entry (the current interval) have been
          counted."
     ::= { atmfM4TcProtoHistEntry 3 }

atmfM4TcProtoHistSupprIntvls OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
```

```
     DESCRIPTION
          "This attribute is non-zero only if the ATM NE is
          suppressing ATM Cell Protocol Monitoring History Data
          entry creation when the current interval terminates with
          'all-zeroes' performance measurements.

          When non-zero, this attribute represents the number of
          'all-zeroes' intervals that were suppressed immediately
          prior to this 'non-all-zeroes' history interval.

          Note that the suppression of 'all-zeroes' intervals is
          controlled by the atmfM4NeSuppressZeroStats object."
     ::= { atmfM4TcProtoHistEntry 4 }

atmfM4TcProtoHistDiscardHECViol OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of ATM cells discarded on this interface, due to
          a HEC violation, during this interval."
     ::= { atmfM4TcProtoHistEntry 5 }


-- UPC/NPC Disagreement Monitoring Current Data (per VPL
-- termination point)

atmfM4VpUpcNpcCurrTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VpUpcNpcCurrEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 UPC/NPC Disagreement Monitoring Current
          Data table for VPL termination points.

          This table maintains per-TP statistics for the
          fifteen-minute interval currently being collected."
     ::= { atmfM4MIBObjects 20 }

atmfM4VpUpcNpcCurrEntry OBJECT-TYPE
     SYNTAX    AtmfM4VpUpcNpcCurrEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 UPC/NPC Disagreement
          Monitoring Current Data table for VPL termination points.

          Each VPL Termination Point automatically has
          an entry in this table associated with it."
     INDEX          { ifIndex,
                      atmVplVpi }
     ::= { atmfM4VpUpcNpcCurrTable 1 }

AtmfM4VpUpcNpcCurrEntry ::= SEQUENCE {
     atmfM4VpUpcNpcCurrSuspect          TruthValue,
     atmfM4VpUpcNpcCurrElapsedTime      TimeInterval,
     atmfM4VpUpcNpcCurrSupprIntvls      Gauge32,
     atmfM4VpUpcNpcCurrDiscardedCells   Gauge32,
     atmfM4VpUpcNpcCurrDiscardedClp0    Gauge32,
     atmfM4VpUpcNpcCurrPassedCells      Gauge32,
     atmfM4VpUpcNpcCurrPassedClp0       Gauge32
          }

atmfM4VpUpcNpcCurrSuspect OBJECT-TYPE
```

```
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "If true, the statistics in this entry may be unreliable."
     ::= { atmfM4VpUpcNpcCurrEntry 1 }

atmfM4VpUpcNpcCurrElapsedTime OBJECT-TYPE
     SYNTAX    TimeInterval
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Amount of time, measured in units of 0.01 second, that
          statistics for this entry (the current interval) have been
          counted."
     ::= { atmfM4VpUpcNpcCurrEntry 2 }

atmfM4VpUpcNpcCurrSupprIntvls OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attribute is non-zero only if the ATM NE is
          suppressing UPC/NPC Disagreement Monitoring History Data
          entry creation when the current interval terminates with
          'all-zeroes' performance measurements.

          When non-zero, this attribute represents the number of
          'all-zeroes' intervals that were suppressed immediately
          prior to the current interval.

          Note that the suppression of 'all-zeroes' intervals is
          controlled by the atmfM4NeSuppressZeroStats object."
     ::= { atmfM4VpUpcNpcCurrEntry 3 }

atmfM4VpUpcNpcCurrDiscardedCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of discarded cells due to combined CLP=0 and
          CLP=1 UPC/NPC policing."
     ::= { atmfM4VpUpcNpcCurrEntry 4 }

atmfM4VpUpcNpcCurrDiscardedClp0 OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of discarded CLP=0 cells due to CLP=0 only
          UPC/NPC policing.

          This object shall be present only if CLP=0 traffic is
          separately policed."
     ::= { atmfM4VpUpcNpcCurrEntry 5 }

atmfM4VpUpcNpcCurrPassedCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of cells that have been successfully passed by
          the combined CLP=0 and CLP=1 UPC/NPC policing."
     ::= { atmfM4VpUpcNpcCurrEntry 6 }
```

```
atmfM4VpUpcNpcCurrPassedClp0 OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of CLP=0 cells that have been successfully
          passed by the CLP=0 UPC/NPC policing.

          This object shall be present only if CLP=0 traffic is
          separately policed."
     ::= { atmfM4VpUpcNpcCurrEntry 7 }


-- UPC/NPC Disagreement Monitoring History (per VPL termination
-- point and time interval)

atmfM4VpUpcNpcHistTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VpUpcNpcHistEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 UPC/NPC Disagreement Monitoring History
          Data table for VPL termination points.

          This table maintains per-interface statistics for previous
          fifteen-minute intervals."
     ::= { atmfM4MIBObjects 21 }

atmfM4VpUpcNpcHistEntry OBJECT-TYPE
     SYNTAX    AtmfM4VpUpcNpcHistEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 UPC/NPC Disagreement
          Monitoring History Data table for VPL termination points.

          Each VPL Termination Point automatically has
          an entry in this table associated with it."
     INDEX          { ifIndex,
                    atmVplVpi,
                    atmfM4VpUpcNpcHistIndex }
     ::= { atmfM4VpUpcNpcHistTable 1 }

AtmfM4VpUpcNpcHistEntry ::= SEQUENCE {
     atmfM4VpUpcNpcHistIndex            INTEGER,
     atmfM4VpUpcNpcHistSuspect          TruthValue,
     atmfM4VpUpcNpcHistElapsedTime      TimeInterval,
     atmfM4VpUpcNpcHistSupprIntvls      Gauge32,
     atmfM4VpUpcNpcHistDiscardedCells   Gauge32,
     atmfM4VpUpcNpcHistDiscardedClp0    Gauge32,
     atmfM4VpUpcNpcHistPassedCells      Gauge32,
     atmfM4VpUpcNpcHistPassedClp0       Gauge32
          }

atmfM4VpUpcNpcHistIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..96)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A number between 1 and 96, which identifies the interval
          for which the set of statistics in this entry was
          collected.
```

```
          The interval identified by 1 is the most recently completed
          15 minute interval, and the interval identified by N is the
          interval immediately preceding the one identified by N-1."
     ::= { atmfM4VpUpcNpcHistEntry 1 }

atmfM4VpUpcNpcHistSuspect OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "If true, the statistics in this entry may be unreliable."
     ::= { atmfM4VpUpcNpcHistEntry 2 }

atmfM4VpUpcNpcHistElapsedTime OBJECT-TYPE
     SYNTAX    TimeInterval
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Amount of time, measured in units of 0.01 second, that
          statistics for this entry (the current interval) have been
          counted."
     ::= { atmfM4VpUpcNpcHistEntry 3 }

atmfM4VpUpcNpcHistSupprIntvls OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attribute is non-zero only if the ATM NE is
          suppressing UPC/NPC Disagreement Monitoring History Data
          entry creation when the current interval terminates with
          'all-zeroes' performance measurements.

          When non-zero, this attribute represents the number of
          'all-zeroes' intervals that were suppressed immediately
          prior to this 'non-all-zeroes' history interval.

          Note that the suppression of 'all-zeroes' intervals is
          controlled by the atmfM4NeSuppressZeroStats object."
     ::= { atmfM4VpUpcNpcHistEntry 4 }

atmfM4VpUpcNpcHistDiscardedCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of discarded cells due to combined CLP=0 and
          CLP=1 UPC/NPC policing."
     ::= { atmfM4VpUpcNpcHistEntry 5 }

atmfM4VpUpcNpcHistDiscardedClp0 OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of discarded CLP=0 cells due to CLP=0 only
          UPC/NPC policing.

          This object shall be present only if CLP=0 traffic is
          separately policed."
     ::= { atmfM4VpUpcNpcHistEntry 6 }

atmfM4VpUpcNpcHistPassedCells OBJECT-TYPE
     SYNTAX    Gauge32
```

```
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of cells that have been successfully passed by
          the combined CLP=0 and CLP=1 UPC/NPC policing."
     ::= { atmfM4VpUpcNpcHistEntry 7 }

atmfM4VpUpcNpcHistPassedClp0 OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of CLP=0 cells that have been successfully
          passed by the CLP=0 UPC/NPC policing.

          This object shall be present only if CLP=0 traffic is
          separately policed."
     ::= { atmfM4VpUpcNpcHistEntry 8 }



-- UPC/NPC Disagreement Monitoring Current Data (per VCL
-- termination point)

atmfM4VcUpcNpcCurrTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VcUpcNpcCurrEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 UPC/NPC Disagreement Monitoring Current
          Data table for VCL termination points.

          This table maintains per-TP statistics for the
          fifteen-minute interval currently being collected."
     ::= { atmfM4MIBObjects 22 }

atmfM4VcUpcNpcCurrEntry OBJECT-TYPE
     SYNTAX    AtmfM4VcUpcNpcCurrEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 UPC/NPC Disagreement
          Monitoring Current Data table for VCL termination points.

          Each VCL Termination Point automatically has
          an entry in this table associated with it."
     INDEX          { ifIndex,
                      atmVclVpi,
                      atmVclVci }
     ::= { atmfM4VcUpcNpcCurrTable 1 }

AtmfM4VcUpcNpcCurrEntry ::= SEQUENCE {
     atmfM4VcUpcNpcCurrSuspect          TruthValue,
     atmfM4VcUpcNpcCurrElapsedTime      TimeInterval,
     atmfM4VcUpcNpcCurrSupprIntvls      Gauge32,
     atmfM4VcUpcNpcCurrDiscardedCells   Gauge32,
     atmfM4VcUpcNpcCurrDiscardedClp0    Gauge32,
     atmfM4VcUpcNpcCurrPassedCells      Gauge32,
     atmfM4VcUpcNpcCurrPassedClp0       Gauge32
          }

atmfM4VcUpcNpcCurrSuspect OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
```

```
     STATUS    current
     DESCRIPTION
          "If true, the statistics in this entry may be unreliable."
     ::= { atmfM4VcUpcNpcCurrEntry 1 }

atmfM4VcUpcNpcCurrElapsedTime OBJECT-TYPE
     SYNTAX    TimeInterval
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Amount of time, measured in units of 0.01 second, that
          statistics for this entry (the current interval) have been
          counted."
     ::= { atmfM4VcUpcNpcCurrEntry 2 }

atmfM4VcUpcNpcCurrSupprIntvls OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attribute is non-zero only if the ATM NE is
          suppressing UPC/NPC Disagreement Monitoring History Data
          entry creation when the current interval terminates with
          'all-zeroes' performance measurements.

          When non-zero, this attribute represents the number of
          'all-zeroes' intervals that were suppressed immediately
          prior to the current interval.

          Note that the suppression of 'all-zeroes' intervals is
          controlled by the atmfM4NeSuppressZeroStats object."
     ::= { atmfM4VcUpcNpcCurrEntry 3 }

atmfM4VcUpcNpcCurrDiscardedCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of discarded cells due to combined CLP=0 and
          CLP=1 UPC/NPC policing."
     ::= { atmfM4VcUpcNpcCurrEntry 4 }

atmfM4VcUpcNpcCurrDiscardedClp0 OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of discarded CLP=0 cells due to CLP=0 only
          UPC/NPC policing.

          This object shall be present only if CLP=0 traffic is
          separately policed."
     ::= { atmfM4VcUpcNpcCurrEntry 5 }

atmfM4VcUpcNpcCurrPassedCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of cells that have been successfully passed by
          the combined CLP=0 and CLP=1 UPC/NPC policing."
     ::= { atmfM4VcUpcNpcCurrEntry 6 }

atmfM4VcUpcNpcCurrPassedClp0 OBJECT-TYPE
```

```
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of CLP=0 cells that have been successfully
          passed by the CLP=0 UPC/NPC policing.

          This object shall be present only if CLP=0 traffic is
          separately policed."
     ::= { atmfM4VcUpcNpcCurrEntry 7 }


-- UPC/NPC Disagreement Monitoring History (per VCL termination
-- point and time interval)

atmfM4VcUpcNpcHistTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VcUpcNpcHistEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 UPC/NPC Disagreement Monitoring History
          Data table for VCL termination points.

          This table maintains per-interface statistics for previous
          fifteen-minute intervals."
     ::= { atmfM4MIBObjects 23 }

atmfM4VcUpcNpcHistEntry OBJECT-TYPE
     SYNTAX    AtmfM4VcUpcNpcHistEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 UPC/NPC Disagreement
          Monitoring History Data table for VCL termination points.

          Each VCL Termination Point automatically has
          an entry in this table associated with it."
     INDEX          { ifIndex,
                      atmVclVpi,
                      atmVclVci,
                      atmfM4VcUpcNpcHistIndex }
     ::= { atmfM4VcUpcNpcHistTable 1 }

AtmfM4VcUpcNpcHistEntry ::= SEQUENCE {
     atmfM4VcUpcNpcHistIndex            INTEGER,
     atmfM4VcUpcNpcHistSuspect          TruthValue,
     atmfM4VcUpcNpcHistElapsedTime      TimeInterval,
     atmfM4VcUpcNpcHistSupprIntvls      Gauge32,
     atmfM4VcUpcNpcHistDiscardedCells   Gauge32,
     atmfM4VcUpcNpcHistDiscardedClp0    Gauge32,
     atmfM4VcUpcNpcHistPassedCells      Gauge32,
     atmfM4VcUpcNpcHistPassedClp0       Gauge32
          }

atmfM4VcUpcNpcHistIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..96)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A number between 1 and 96, which identifies the interval
          for which the set of statistics in this entry was
          collected.

          The interval identified by 1 is the most recently completed
```

```
          15 minute interval, and the interval identified by N is the
          interval immediately preceding the one identified by N-1."
     ::= { atmfM4VcUpcNpcHistEntry 1 }

atmfM4VcUpcNpcHistSuspect OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "If true, the statistics in this entry may be unreliable."
     ::= { atmfM4VcUpcNpcHistEntry 2 }

atmfM4VcUpcNpcHistElapsedTime OBJECT-TYPE
     SYNTAX    TimeInterval
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Amount of time, measured in units of 0.01 second, that
          statistics for this entry (the current interval) have been
          counted."
     ::= { atmfM4VcUpcNpcHistEntry 3 }

atmfM4VcUpcNpcHistSupprIntvls OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attribute is non-zero only if the ATM NE is
          suppressing UPC/NPC Disagreement Monitoring History Data
          entry creation when the current interval terminates with
          'all-zeroes' performance measurements.

          When non-zero, this attribute represents the number of
          'all-zeroes' intervals that were suppressed immediately
          prior to this 'non-all-zeroes' history interval.

          Note that the suppression of 'all-zeroes' intervals is
          controlled by the atmfM4NeSuppressZeroStats object."
     ::= { atmfM4VcUpcNpcHistEntry 4 }

atmfM4VcUpcNpcHistDiscardedCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of discarded cells due to combined CLP=0 and
          CLP=1 UPC/NPC policing."
     ::= { atmfM4VcUpcNpcHistEntry 5 }

atmfM4VcUpcNpcHistDiscardedClp0 OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of discarded CLP=0 cells due to CLP=0 only
          UPC/NPC policing.

          This object shall be present only if CLP=0 traffic is
          separately policed."
     ::= { atmfM4VcUpcNpcHistEntry 6 }

atmfM4VcUpcNpcHistPassedCells OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
```

```
     STATUS    current
     DESCRIPTION
          "The number of cells that have been successfully passed by
          the combined CLP=0 and CLP=1 UPC/NPC policing."
     ::= { atmfM4VcUpcNpcHistEntry 7 }

atmfM4VcUpcNpcHistPassedClp0 OBJECT-TYPE
     SYNTAX    Gauge32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The number of CLP=0 cells that have been successfully
          passed by the CLP=0 UPC/NPC policing.

          This object shall be present only if CLP=0 traffic is
          separately policed."
     ::= { atmfM4VcUpcNpcHistEntry 8 }


-- ATM Forum M4 Test Types

atmfM4TestTypes     OBJECT IDENTIFIER
     ::= { atmfM4MIBObjects 24 }


-- OAM Loopback Tests (VPL, VPC, VCL, and VCC termination points):

atmfM4TestOAMLoopbackSeg OBJECT-IDENTITY
     STATUS    current
     DESCRIPTION
          "This identifies an OAM Loopback Test on a VPL, VPC,
          VCL, or VCC termination point, using a segment OAM
          cell.

          The test type must have appended to it a code that uniquely
          identifies an intermediate point responsible for looping
          back the cell.  If this is absent, the loopback is performed
          at the end of the segment or connection.

          E.g., the OID { atmfM4TestOAMLoopbackSeg 5 } identifies
          that the loopback should be performed at the intermediate
          point labeled 5."
     ::= { atmfM4TestTypes 1 }

atmfM4TestOAMLoopbackE2E OBJECT-IDENTITY
     STATUS    current
     DESCRIPTION
          "This identifies an OAM Loopback Test on a VPL, VPC,
          VCL, or VCC termination point, using an end-to-end OAM
          cell."
     ::= { atmfM4TestTypes 2 }


-- ATM Forum M4 VP Termination Point Test Table

atmfM4VpTestTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4VpTestEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VP Termination Point Test table.
          This table allows tests to be run on VPL and VPC
          termination points.
```

```
          The operation of this table is entirely analogous to
          that of the ifTestTable in RFC 1573 (which was later
          deprecated in RFC 2233), except that the indexes into
          this table are different."
     ::= { atmfM4MIBObjects 25 }

atmfM4VpTestEntry OBJECT-TYPE
     SYNTAX    AtmfM4VpTestEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry containing objects for invoking tests on a
          VPL or VPC termination point."
     INDEX          { ifIndex,
                      atmVplVpi,
                      atmfM4VpTestObject }
     ::= { atmfM4VpTestTable 1 }

AtmfM4VpTestEntry ::= SEQUENCE {
     atmfM4VpTestObject  INTEGER,
     atmfM4VpTestId      TestAndIncr,
     atmfM4VpTestStatus  INTEGER,
     atmfM4VpTestType    AutonomousType,
     atmfM4VpTestResult  INTEGER,
     atmfM4VpTestCode    OBJECT IDENTIFIER,
     atmfM4VpTestOwner   OwnerString
          }

atmfM4VpTestObject OBJECT-TYPE
     SYNTAX    INTEGER {
                    vplTp(1),
                    vpcTp(2)
                         }
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Specifies whether the test applies to the VPL termination
          point with the specified VPI, or the VPC termination point."
     ::= { atmfM4VpTestEntry 1 }

atmfM4VpTestId         OBJECT-TYPE
     SYNTAX       TestAndIncr
     MAX-ACCESS   read-write
     STATUS       current
     DESCRIPTION
           "This object identifies the current invocation of the
           interface's test."
     ::= { atmfM4VpTestEntry 2 }

atmfM4VpTestStatus     OBJECT-TYPE
     SYNTAX       INTEGER { notInUse(1), inUse(2) }
     MAX-ACCESS   read-write
     STATUS       current
     DESCRIPTION
           "This object indicates whether or not some manager
           currently has the necessary 'ownership' required to
           invoke a test on this interface.  A write to this
           object is only successful when it changes its value
           from 'notInUse(1)' to 'inUse(2)'.  After completion of
           a test, the agent resets the value back to
           'notInUse(1)'."
     ::= { atmfM4VpTestEntry 3 }

atmfM4VpTestType       OBJECT-TYPE
```

```
     SYNTAX       AutonomousType
     MAX-ACCESS   read-write
     STATUS       current
     DESCRIPTION
           "A control variable used to start and stop operator-
           initiated interface tests.  Most OBJECT IDENTIFIER
           values assigned to tests are defined elsewhere, in
           association with specific types of interface.
           However, this document assigns a value for a full-
           duplex loopback test, and defines the special meanings
           of the subject identifier:

               noTest  OBJECT IDENTIFIER ::= { 0 0 }

           When the value noTest is written to this object, no
           action is taken unless a test is in progress, in which
           case the test is aborted.  Writing any other value to
           this object is only valid when no test is currently in
           progress, in which case the indicated test is
           initiated.

           When read, this object always returns the most recent
           value that atmfM4VpTestType was set to.  If it has not been
           set since the last initialization of the network
           management subsystem on the agent, a value of noTest
           is returned."
     ::= { atmfM4VpTestEntry 4 }

atmfM4VpTestResult  OBJECT-TYPE
     SYNTAX       INTEGER {
                      none(1),          -- no test yet requested
                      success(2),
                      inProgress(3),
                      notSupported(4),
                      unAbleToRun(5),   -- due to state of system
                      aborted(6),
                      failed(7)
                  }
     MAX-ACCESS   read-only
     STATUS       current
     DESCRIPTION
           "This object contains the result of the most recently
           requested test, or the value none(1) if no tests have
           been requested since the last reset.  Note that this
           facility provides no provision for saving the results
           of one test when starting another, as could be
           required if used by multiple managers concurrently."
     ::= { atmfM4VpTestEntry 5 }

atmfM4VpTestCode  OBJECT-TYPE
     SYNTAX       OBJECT IDENTIFIER
     MAX-ACCESS   read-only
     STATUS       current
     DESCRIPTION
           "This object contains a code which contains more
           specific information on the test result, for example
           an error-code after a failed test.  Error codes and
           other values this object may take are specific to the
           type of interface and/or test.  The value may have the
           semantics of either the AutonomousType or
           RowPointer textual conventions as defined in RFC
           1903 [15].  The identifier:

               testCodeUnknown  OBJECT IDENTIFIER ::= { 0 0 }
```

```
            is defined for use if no additional result code is
            available."
      ::= { atmfM4VpTestEntry 6 }

atmfM4VpTestOwner      OBJECT-TYPE
      SYNTAX       OwnerString
      MAX-ACCESS   read-write
      STATUS       current
      DESCRIPTION
            "The entity which currently has the 'ownership'
            required to invoke a test on this interface."
      ::= { atmfM4VpTestEntry 7 }



-- ATM Forum M4 VC Termination Point Test Table

atmfM4VcTestTable OBJECT-TYPE
      SYNTAX    SEQUENCE OF    AtmfM4VcTestEntry
      MAX-ACCESS     not-accessible
      STATUS    current
      DESCRIPTION
           "The ATM Forum M4 VC Termination Point Test table.
           This table allows tests to be run on VCL and VCC
           termination points.

           The operation of this table is entirely analogous to
           that of the ifTestTable in RFC 1573 (which was later
           deprecated in RFC 2233), except that the indexes into
           this table are different."
      ::= { atmfM4MIBObjects 26 }

atmfM4VcTestEntry OBJECT-TYPE
      SYNTAX    AtmfM4VcTestEntry
      MAX-ACCESS     not-accessible
      STATUS    current
      DESCRIPTION
           "An entry containing objects for invoking tests on a
           VCL or VCC termination point."
      INDEX          { ifIndex,
                       atmVclVpi,
                       atmVclVci,
                       atmfM4VcTestObject }
      ::= { atmfM4VcTestTable 1 }

AtmfM4VcTestEntry ::= SEQUENCE {
      atmfM4VcTestObject  INTEGER,
      atmfM4VcTestId      TestAndIncr,
      atmfM4VcTestStatus  INTEGER,
      atmfM4VcTestType    AutonomousType,
      atmfM4VcTestResult  INTEGER,
      atmfM4VcTestCode    OBJECT IDENTIFIER,
      atmfM4VcTestOwner   OwnerString
           }

atmfM4VcTestObject OBJECT-TYPE
      SYNTAX    INTEGER {
                       vclTp(1),
                       vccTp(2)
                            }
      MAX-ACCESS     not-accessible
      STATUS    current
      DESCRIPTION
```

```
          "Specifies whether the test applies to the VCL termination
          point with the specified VPI and VCI values, or to the VCC
          termination point."
     ::= { atmfM4VcTestEntry 1 }

atmfM4VcTestId         OBJECT-TYPE
     SYNTAX       TestAndIncr
     MAX-ACCESS   read-write
     STATUS       current
     DESCRIPTION
          "This object identifies the current invocation of the
          interface's test."
     ::= { atmfM4VcTestEntry 2 }

atmfM4VcTestStatus     OBJECT-TYPE
     SYNTAX       INTEGER { notInUse(1), inUse(2) }
     MAX-ACCESS   read-write
     STATUS       current
     DESCRIPTION
          "This object indicates whether or not some manager
          currently has the necessary 'ownership' required to
          invoke a test on this interface.  A write to this
          object is only successful when it changes its value
          from 'notInUse(1)' to 'inUse(2)'.  After completion of
          a test, the agent resets the value back to
          'notInUse(1)'."
     ::= { atmfM4VcTestEntry 3 }

atmfM4VcTestType       OBJECT-TYPE
     SYNTAX       AutonomousType
     MAX-ACCESS   read-write
     STATUS       current
     DESCRIPTION
          "A control variable used to start and stop operator-
          initiated interface tests.  Most OBJECT IDENTIFIER
          values assigned to tests are defined elsewhere, in
          association with specific types of interface.
          However, this document assigns a value for a full-
          duplex loopback test, and defines the special meanings
          of the subject identifier:

              noTest  OBJECT IDENTIFIER ::= { 0 0 }

          When the value noTest is written to this object, no
          action is taken unless a test is in progress, in which
          case the test is aborted.  Writing any other value to
          this object is only valid when no test is currently in
          progress, in which case the indicated test is
          initiated.

          When read, this object always returns the most recent
          value that atmfM4VcTestType was set to.  If it has not been
          set since the last initialization of the network
          management subsystem on the agent, a value of noTest
          is returned."
     ::= { atmfM4VcTestEntry 4 }

atmfM4VcTestResult  OBJECT-TYPE
     SYNTAX       INTEGER {
                      none(1),          -- no test yet requested
                      success(2),
                      inProgress(3),
                      notSupported(4),
                      unAbleToRun(5),   -- due to state of system
```

```
                    aborted(6),
                    failed(7)
                }
     MAX-ACCESS   read-only
     STATUS       current
     DESCRIPTION
          "This object contains the result of the most recently
          requested test, or the value none(1) if no tests have
          been requested since the last reset.  Note that this
          facility provides no provision for saving the results
          of one test when starting another, as could be
          required if used by multiple managers concurrently."
     ::= { atmfM4VcTestEntry 5 }

atmfM4VcTestCode  OBJECT-TYPE
     SYNTAX       OBJECT IDENTIFIER
     MAX-ACCESS   read-only
     STATUS       current
     DESCRIPTION
          "This object contains a code which contains more
          specific information on the test result, for example
          an error-code after a failed test.  Error codes and
          other values this object may take are specific to the
          type of interface and/or test.  The value may have the
          semantics of either the AutonomousType or
          RowPointer textual conventions as defined in RFC
          1903 [15].  The identifier:

              testCodeUnknown  OBJECT IDENTIFIER ::= { 0 0 }

          is defined for use if no additional result code is
          available."
     ::= { atmfM4VcTestEntry 6 }

atmfM4VcTestOwner      OBJECT-TYPE
     SYNTAX       OwnerString
     MAX-ACCESS   read-write
     STATUS       current
     DESCRIPTION
          "The entity which currently has the 'ownership'
          required to invoke a test on this termination point."
     ::= { atmfM4VcTestEntry 7 }


-- ATM Forum M4 Equipment Table

atmfM4EquipTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4EquipEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Equipment table.  This table augments the
          entPhysicalTable."
     ::= { atmfM4MIBObjects 28 }

atmfM4EquipEntry OBJECT-TYPE
     SYNTAX    AtmfM4EquipEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 Equipment table.  Each entry
          of this table represents a piece of equipment within the ATM
          NE that neither is nor accepts a replaceable plug-in unit."
     INDEX          { entPhysicalIndex }
```

```
     ::= { atmfM4EquipTable 1 }

AtmfM4EquipEntry ::= SEQUENCE {
     atmfM4EquipAdminStatus   INTEGER,
     atmfM4EquipLocation      DisplayString,
     atmfM4EquipOperStatus    INTEGER,
     atmfM4EquipVendor        DisplayString,
     atmfM4EquipVersion       AutonomousType,
     atmfM4EquipUserLabel     DisplayString,
     atmfM4EquipAlarmSeverityIndex Integer32
          }

atmfM4EquipAdminStatus OBJECT-TYPE
     SYNTAX    INTEGER {
                    up(1),
                    down(2)
                         }
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "Used by the administrator to lock and unlock the object."
     ::= { atmfM4EquipEntry 1 }

atmfM4EquipLocation OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "The specific or general location of the component."
     ::= { atmfM4EquipEntry 2 }

atmfM4EquipOperStatus OBJECT-TYPE
     SYNTAX    INTEGER {
                    up(1),
                    down(2),
                    unknown(3)
                         }
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attributes identifies whether or not the component is
          capable of performing its normal functions."
     ::= { atmfM4EquipEntry 3 }

atmfM4EquipVendor OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The vendor of the component."
     ::= { atmfM4EquipEntry 4 }

atmfM4EquipVersion OBJECT-TYPE
     SYNTAX    AutonomousType
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The version of the component."
     ::= { atmfM4EquipEntry 5 }

atmfM4EquipUserLabel OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-write
     STATUS    current
```

```
     DESCRIPTION
          "A user-friendly name for the piece of equipment.  The
          default value of this object is the null string."
     ::= { atmfM4EquipEntry 6 }

atmfM4EquipAlarmSeverityIndex OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "An index into the alarm severity profile table, specifying
          the severity assignments for M4 alarms reported for this
          component.  The default value of this object is zero."
     ::= { atmfM4EquipEntry 7 }


-- ATM Forum M4 Equipment Holder Table

atmfM4EquipHolderTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4EquipHolderEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Equipment Holder table.  This table
          augments the entPhysicalTable."
     ::= { atmfM4MIBObjects 29 }

atmfM4EquipHolderEntry OBJECT-TYPE
     SYNTAX    AtmfM4EquipHolderEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 Equipment Holder table.  Each
          entry of this table represents a component within the ATM NE
          that accepts a replaceable plug-in unit."
     INDEX          { entPhysicalIndex }
     ::= { atmfM4EquipHolderTable 1 }

AtmfM4EquipHolderEntry ::= SEQUENCE {
     atmfM4EquipHolderType              INTEGER,
     atmfM4EquipHolderAcceptableTypes   DisplayString,
     atmfM4EquipHolderSlotStatus        INTEGER,
     atmfM4EquipHolderSwLoad            INTEGER
          }

atmfM4EquipHolderType OBJECT-TYPE
     SYNTAX    INTEGER {
                    rack(1),
                    shelf(2),
                    drawer(3),
                    slot(4)
                         }
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The type of the component."
     ::= { atmfM4EquipHolderEntry 1 }

atmfM4EquipHolderAcceptableTypes OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The types of plug-in units that can be supported by the
```

```
          slot, separated by newline characters.

          This attribute shall be present only when the Equipment
          Holder represents a slot."
     ::= { atmfM4EquipHolderEntry 2 }

atmfM4EquipHolderSlotStatus OBJECT-TYPE
     SYNTAX    INTEGER {
                    empty(1),
                    full(2)
                         }
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attributes identifies whether or not a plug-in unit is
          present in the slot.

          This attribute shall be present only when the Equipment
          Holder represents a slot."
     ::= { atmfM4EquipHolderEntry 3 }

atmfM4EquipHolderSwLoad OBJECT-TYPE
     SYNTAX    INTEGER (1..2147483647)
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "An index into the installed software table, specifying
          the software that is to be loaded into the plug-in unit
          whenever an automatic reload of software is needed.

          This attribute shall be present only when the Equipment
          Holder represents a slot."
     ::= { atmfM4EquipHolderEntry 4 }


-- ATM Forum M4 Plug-In Unit Table

atmfM4PlugInUnitTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4PlugInUnitEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Plug-In Unit table.  This table augments
          the entPhysicalTable."
     ::= { atmfM4MIBObjects 30 }

atmfM4PlugInUnitEntry OBJECT-TYPE
     SYNTAX    AtmfM4PlugInUnitEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 Plug-In Unit table.  Each
          entry of this table represents a piece of equipment within
          the ATM NE that is inserted into and removed from an
          Equipment Holder."
     INDEX          { entPhysicalIndex }
     ::= { atmfM4PlugInUnitTable 1 }

AtmfM4PlugInUnitEntry ::= SEQUENCE {
     atmfM4PlugInUnitAdminStatus   INTEGER,
     atmfM4PlugInUnitAvailStatus   INTEGER,
     atmfM4PlugInUnitOperStatus    INTEGER,
     atmfM4PlugInUnitVendor        DisplayString,
     atmfM4PlugInUnitVersion       AutonomousType,
```

```
     atmfM4PlugInUnitAlarmSeverityIndex Integer32
          }

atmfM4PlugInUnitAdminStatus OBJECT-TYPE
     SYNTAX    INTEGER {
                    up(1),
                    down(2)
                         }
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "Used by the administrator to lock and unlock the object."
     ::= { atmfM4PlugInUnitEntry 1 }

atmfM4PlugInUnitAvailStatus OBJECT-TYPE
     SYNTAX    INTEGER {
                    available(1),
                    inTest(2),
                    failed(3),
                    powerOff(4),
                    notInstalled(5),
                    offLine(6),
                    dependency(7)
                         }
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Provides further information regarding the state of the
          component."
     ::= { atmfM4PlugInUnitEntry 2 }

atmfM4PlugInUnitOperStatus OBJECT-TYPE
     SYNTAX    INTEGER {
                    up(1),
                    down(2),
                    unknown(3)
                         }
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This attributes identifies whether or not the component is
          capable of performing its normal functions."
     ::= { atmfM4PlugInUnitEntry 3 }

atmfM4PlugInUnitVendor OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The vendor of the component."
     ::= { atmfM4PlugInUnitEntry 4 }

atmfM4PlugInUnitVersion OBJECT-TYPE
     SYNTAX    AutonomousType
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The version of the component."
     ::= { atmfM4PlugInUnitEntry 5 }

atmfM4PlugInUnitAlarmSeverityIndex OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-write
     STATUS    current
```

```
     DESCRIPTION
          "An index into the alarm severity profile table, specifying
          the severity assignments for M4 alarms reported for this
          component.  The default value of this object is zero."
     ::= { atmfM4PlugInUnitEntry 6 }

-- ATM Forum M4 Hardware Unit/Running Software Relationship Table

atmfM4HwRunningSwTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4HwRunningSwEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Hardware Unit/Running Software
          relationship table.  This table describes the software that
          is running on each hardware unit in the ATM NE."
     ::= { atmfM4MIBObjects 32 }

atmfM4HwRunningSwEntry OBJECT-TYPE
     SYNTAX    AtmfM4HwRunningSwEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 Hardware Unit/Running Software
          relationship table.  Each entry of this table identifies an
          entry in the entPhysicalTable and one in the hrSWRunTable."
     INDEX          { atmfM4HwRunningSwHwIndex,
                      atmfM4HwRunningSwIndex }
     ::= { atmfM4HwRunningSwTable 1 }

AtmfM4HwRunningSwEntry ::= SEQUENCE {
     atmfM4HwRunningSwHwIndex INTEGER,
     atmfM4HwRunningSwIndex        INTEGER,
     atmfM4HwRunningSwSwIndex INTEGER
          }

atmfM4HwRunningSwHwIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..2147483647)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The index, in the entPhysicalTable, of the containing
          hardware unit in this pair."
     ::= { atmfM4HwRunningSwEntry 1 }

atmfM4HwRunningSwIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..2147483647)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A unique number within the context of the containing
          hardware unit."
     ::= { atmfM4HwRunningSwEntry 2 }

atmfM4HwRunningSwSwIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..2147483647)
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The index, in the hrSWRunTable, of the software product
          represented by this entry."
     ::= { atmfM4HwRunningSwEntry 3 }
```

```
-- ATM Forum M4 Hardware Unit/Installed Software Relationship Table

atmfM4HwInstalledSwTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4HwInstalledSwEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Hardware Unit/Installed Software
          relationship table.  This table describes the software that
          is installed on each hardware unit in the ATM NE."
     ::= { atmfM4MIBObjects 33 }

atmfM4HwInstalledSwEntry OBJECT-TYPE
     SYNTAX    AtmfM4HwInstalledSwEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in the ATM Forum M4 Hardware Unit/Installed
          Software relationship table.  Each entry of this table
          identifies an entry in the entPhysicalTable and one in
          the hrSWInstalledTable."
     INDEX          { atmfM4HwInstalledSwHwIndex,
                    atmfM4HwInstalledSwIndex }
     ::= { atmfM4HwInstalledSwTable 1 }

AtmfM4HwInstalledSwEntry ::= SEQUENCE {
     atmfM4HwInstalledSwHwIndex    INTEGER,
     atmfM4HwInstalledSwIndex      INTEGER,
     atmfM4HwInstalledSwSwIndex    INTEGER,
     atmfM4HwSwAlarmSeverityIndex  Integer32
          }

atmfM4HwInstalledSwHwIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..2147483647)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The index, in the entPhysicalTable, of the containing
          physical entity in this pair."
     ::= { atmfM4HwInstalledSwEntry 1 }

atmfM4HwInstalledSwIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..2147483647)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A unique number within the context of the containing
          hardware unit."
     ::= { atmfM4HwInstalledSwEntry 2 }

atmfM4HwInstalledSwSwIndex OBJECT-TYPE
     SYNTAX    INTEGER (1..2147483647)
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The index, in the hrSWInstalledTable, of the software
          product represented by this entry."
     ::= { atmfM4HwInstalledSwEntry 3 }

atmfM4HwSwAlarmSeverityIndex OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
```

```
          "An index into the alarm severity profile table, specifying
          the severity assignments for M4 alarms reported for this
          piece of software installed on the hardware unit.  The
          default value of this object is zero."
     ::= { atmfM4HwInstalledSwEntry 4 }



-- ATM Forum M4 Alarm Severity Identifier Textual Convention

AtmfM4AlarmLogSeverity ::= TEXTUAL-CONVENTION
     STATUS    current
     DESCRIPTION
          "The value of this object identifies the severity of
          an alarm in the log, including 'cleared'."
     SYNTAX    INTEGER {
                    cleared(-1),
                    indeterminate(0),
                    critical(1),
                    major(2),
                    minor(3),
                    warning(4)
                         }

AtmfM4AlarmSeverity ::= TEXTUAL-CONVENTION
     STATUS    current
     DESCRIPTION
          "The value of this object identifies the severity of
          an alarm that has occurred.  (Note that there is no
          value corresponding to 'cleared'.)"
     SYNTAX    INTEGER {
                    indeterminate(0),
                    critical(1),
                    major(2),
                    minor(3),
                    warning(4)
                         }

-- ATM Forum M4 Alarm Severity Profile Table

atmfM4AlarmSevDefault OBJECT-TYPE
     SYNTAX    AtmfM4AlarmSeverity
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "The default severity value used for new profile
          index/trap ID pairs that have not yet been modified.
          This value is also used whenever an object's alarm
          severity profile index is set to 0.  The default value
          of this object is minor(3)."
     ::= { atmfM4MIBObjects 34 }

atmfM4AlarmSevProfileIndexNext OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "This object contains an appropriate value to be used for
          atmfM4AlarmSevProfileIndex when creating entries in the
          atmfM4AlarmSevProfileTable.

          The value -1 indicates that no unassigned entries are
          available.
```

```
          To obtain the index value for a new entry, the manager
          issues a management protocol retrieval operation to obtain
          the current value of this object.  After each retrieval, the
          agent should modify the value to the next unassigned index
          (or -1)."
     ::= { atmfM4MIBObjects 35 }

atmfM4AlarmSevProfileTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4AlarmSevProfileEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 alarm severity profile table.
          This table specifies which profiles exist. Creating
          or deleting an entry in this table automatically
          creates or deletes the corresponding entries in the
          atmfM4AlarmSeverityTable."
     ::= { atmfM4MIBObjects 36 }

atmfM4AlarmSevProfileEntry OBJECT-TYPE
     SYNTAX    AtmfM4AlarmSevProfileEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A group of severities, one for each alarm type in
          the communications alarm group."
     INDEX          { atmfM4AlarmSevProfileIndex }
     ::= { atmfM4AlarmSevProfileTable 1 }

AtmfM4AlarmSevProfileEntry ::= SEQUENCE {
     atmfM4AlarmSevProfileIndex         Integer32,
     atmfM4AlarmSevProfileRowStatus     RowStatus
          }

atmfM4AlarmSevProfileIndex OBJECT-TYPE
     SYNTAX    Integer32 (1..2147483647)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A number identifying this alarm severity profile."
     ::= { atmfM4AlarmSevProfileEntry 1 }

atmfM4AlarmSevProfileRowStatus OBJECT-TYPE
     SYNTAX    RowStatus
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "This object is used to create a new row or to delete
          an existing row in the table."
     ::= { atmfM4AlarmSevProfileEntry 2 }


-- ATM Forum M4 Alarm Severity Table

atmfM4AlarmSevTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4AlarmSevEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 alarm severity table.
          This table associates profile index and trap
          ID pairs with severities to be used for
          M4 alarm traps that have occurred.
          (Note that this table does not apply to cleared alarms.)"
```

```
     ::= { atmfM4MIBObjects 37 }

atmfM4AlarmSevEntry OBJECT-TYPE
     SYNTAX    AtmfM4AlarmSevEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "An entry in this table associates an alarm severity
          profile index/trap ID pair with a severity.
          Deleting a particular profile's row in the alarm severity
          profile table deletes all rows in this table with the
          same profile index.
          Conceptually, rows corresponding to all possible trap ID's
          are created in this table when a new alarm severity profile
          is created, but the agent will return a default value
          except for those few traps for which values have been set."
     INDEX          { atmfM4AlarmSevProfileIndex,
                      atmfM4AlarmSevTrapId }
     ::= { atmfM4AlarmSevTable 1 }

AtmfM4AlarmSevEntry ::= SEQUENCE {
     atmfM4AlarmSevTrapId     OBJECT IDENTIFIER,
     atmfM4AlarmSeverity      AtmfM4AlarmSeverity
          }

atmfM4AlarmSevTrapId OBJECT-TYPE
     SYNTAX    OBJECT IDENTIFIER
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ID of the trap type to which this entry applies."
     ::= { atmfM4AlarmSevEntry 1 }

atmfM4AlarmSeverity OBJECT-TYPE
     SYNTAX    AtmfM4AlarmSeverity
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "The severity to be used for this trap type when the TrapId
          is selected.
          If no value for this object has ever been set since
          the corresponding profile was created, the agent should
          return the value of the object atmfM4AlarmSevDefault."
     ::= { atmfM4AlarmSevEntry 2 }


-- ATM Forum M4 Alarm Forwarding Discriminator Table

atmfM4ForwardAllTraps OBJECT-IDENTITY
     STATUS    current
     DESCRIPTION
          "This is used as the value of the object
          atmfM4ForwardedTrapObject when traps from all objects
          are to be forwarded, or when there is only one
          object of the type that forwards the specified
          trap type."
     ::= { atmfM4MIBObjects 38 }


atmfM4TrapForwardingTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4TrapForwardingEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
```

```
          "The ATM Forum M4 Trap forwarding discriminator
          table.
          This table specifies which traps will be sent to
          which management system."
     ::= { atmfM4MIBObjects 39 }

atmfM4TrapForwardingEntry OBJECT-TYPE
     SYNTAX    AtmfM4TrapForwardingEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Information about a group of traps to be sent to
          a particular IP address.

          A new entry must have values for all attributes that
          do not have default values before its RowStatus column
          can be set to active(1)."
     INDEX          { atmfM4TrapForwardingIndex }
     ::= { atmfM4TrapForwardingTable 1 }

AtmfM4TrapForwardingEntry ::= SEQUENCE {
     atmfM4TrapForwardingIndex     Integer32,
     atmfM4TrapForwardingDest      IpAddress,
     atmfM4ForwardedTrapId         OBJECT IDENTIFIER,
     atmfM4ForwardedTrapObject     RowPointer,
     atmfM4TrapForwardingPort      Integer32,
     atmfM4LowestForwardedSeverity AtmfM4AlarmSeverity,
     atmfM4ForwardedIndeterminate  TruthValue,
     atmfM4TrapForwardingRowStatus RowStatus
          }

atmfM4TrapForwardingIndex OBJECT-TYPE
     SYNTAX    Integer32 (1..2147483647)
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A unique number identifying the table entry."
     ::= { atmfM4TrapForwardingEntry 1 }

atmfM4TrapForwardingDest OBJECT-TYPE
     SYNTAX    IpAddress
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "The IP address to which traps identified by this
          table entry should be sent."
     ::= { atmfM4TrapForwardingEntry 2 }

atmfM4ForwardedTrapId OBJECT-TYPE
     SYNTAX    OBJECT IDENTIFIER
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "The ID of the trap type to which this entry applies."
     ::= { atmfM4TrapForwardingEntry 3 }

atmfM4ForwardedTrapObject OBJECT-TYPE
     SYNTAX    RowPointer
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "The object to which this entry applies.
          By convention, this is the name of the first object in
          the row in the table referenced.
```

```
          The special value { 0 0 } indicates that
          traps of this type from all objects of the type that can
          generate it.  It should also be used when traps from the
          ATM NE are to be specified."
     ::= { atmfM4TrapForwardingEntry 4 }

atmfM4TrapForwardingPort OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "The UDP port on the specified management system to
          which traps identified by this entry should be sent."
     DEFVAL    { 162 }
     ::= { atmfM4TrapForwardingEntry 5 }

atmfM4LowestForwardedSeverity OBJECT-TYPE
     SYNTAX    AtmfM4AlarmSeverity
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "The lowest severity of traps of this type from
          the specified object that should be sent to this
          address.
          This object has significance only if the trap type
          specified has a severity associated with it."
     DEFVAL    { minor }
     ::= { atmfM4TrapForwardingEntry 6 }

atmfM4ForwardedIndeterminate OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "When this object has the value TRUE, traps with
          indeterminate severity will be forwarded to the
          specified event.
          This object has significance only if the trap type
          specified has a severity associated with it."
     DEFVAL    { false }
     ::= { atmfM4TrapForwardingEntry 7 }

atmfM4TrapForwardingRowStatus OBJECT-TYPE
     SYNTAX    RowStatus
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "This object is used to create a new row or to delete
          an existing row in the table."
     ::= { atmfM4TrapForwardingEntry 8 }


-- ATM Forum M4 Trap Agent MIB Log Table

atmfM4TrapLogTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4TrapLogEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Trap Agent log table.
          This table defines the trap logs currently maintained
          by the agent.
          The management system creates entries in this table to
```

```
          specify which types of traps, from which ATM network
          elements, should be logged.
          Deleting an entry in this table deletes all entries in
          the corresponding log."
     ::= { atmfM4MIBObjects 40 }

atmfM4TrapLogEntry OBJECT-TYPE
     SYNTAX    AtmfM4TrapLogEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Information about a single trap log."
     INDEX          { atmfM4TrapLogSrc,
                      atmfM4TrapLogType }
     ::= { atmfM4TrapLogTable 1 }

AtmfM4TrapLogEntry ::= SEQUENCE {
     atmfM4TrapLogSrc              IpAddress,
     atmfM4TrapLogType             INTEGER,
     atmfM4TrapLogAdminStatus      INTEGER,
     atmfM4TrapLogOperStatus       INTEGER,
     atmfM4TrapLogFullAction       INTEGER,
     atmfM4TrapLogRowStatus        RowStatus
          }

atmfM4TrapLogSrc OBJECT-TYPE
     SYNTAX    IpAddress
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The IP address of the SNMP agent whose traps are
          stored in this log."
     ::= { atmfM4TrapLogEntry 1 }

atmfM4TrapLogType OBJECT-TYPE
     SYNTAX    INTEGER {
                    objectCreated(1),
                    objectDeleted(2),
                    configChange(3),
                    stateChange(4),
                    alarm(5)
                         }
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The type of traps stored in this log."
     ::= { atmfM4TrapLogEntry 2 }

atmfM4TrapLogAdminStatus OBJECT-TYPE
     SYNTAX    INTEGER {
                    up(1),
                    down(2)
                         }
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "The management system uses this object to stop and
          start the operations of this object."
     DEFVAL    { up }
     ::= { atmfM4TrapLogEntry 3 }

atmfM4TrapLogOperStatus OBJECT-TYPE
     SYNTAX    INTEGER {
                    up(1),
```

```
                    down(2),
                    logFull(3)
                         }
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Indicates whether or not the log is capable of
          performing its normal operations."
     ::= { atmfM4TrapLogEntry 4 }

atmfM4TrapLogFullAction OBJECT-TYPE
     SYNTAX    INTEGER {
                    halt(1),
                    wrap(2)
                         }
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "Indicates the action that should be performed when no
          more log entries can be created due to a log-full
          condition.  If the value of this object is wrap(2),
          each new log entry will cause the deletion of the oldest
          entry still in the log, for as long as the log is still
          full."
     DEFVAL    { wrap }
     ::= { atmfM4TrapLogEntry 5 }

atmfM4TrapLogRowStatus OBJECT-TYPE
     SYNTAX    RowStatus
     MAX-ACCESS     read-create
     STATUS    current
     DESCRIPTION
          "This object is used to create a new row or to delete
          an existing row in the table."
     ::= { atmfM4TrapLogEntry 6 }


-- ATM Forum M4 Trap Agent MIB Logged Trap Table

atmfM4LoggedTrapTable OBJECT-TYPE
     SYNTAX    SEQUENCE OF    AtmfM4LoggedTrapEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Trap Agent logged trap table.
          This table is used to maintain the traps logged."
     ::= { atmfM4MIBObjects 41 }

atmfM4LoggedTrapEntry OBJECT-TYPE
     SYNTAX    AtmfM4LoggedTrapEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Information about a single trap in the log.
          Entries in this table are created automatically but
          can be deleted by the management system.
          Entries that represent 'alarm' log types are augmented
          by the atmfM4LoggedAlarmEntry table."
     INDEX          { atmfM4TrapLogSrc,
                    atmfM4TrapLogType,
                    atmfM4LoggedTrapIndex }
     ::= { atmfM4LoggedTrapTable 1 }

AtmfM4LoggedTrapEntry ::= SEQUENCE {
```

```
     atmfM4LoggedTrapIndex         Unsigned32,
     atmfM4LoggedTrapTime          DateAndTime,
     atmfM4LoggedTrapID            Integer32,
     atmfM4LoggedTrapObject        RowPointer,
     atmfM4LoggedTrapRowStatus     RowStatus
          }

atmfM4LoggedTrapIndex OBJECT-TYPE
     SYNTAX    Unsigned32
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "A unique number identifying this entry in the log.
          When the maximum value for this object has been reached,
          it will wrap around to 0."
     ::= { atmfM4LoggedTrapEntry 1 }

atmfM4LoggedTrapTime OBJECT-TYPE
     SYNTAX    DateAndTime
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The time at which this trap was logged."
     ::= { atmfM4LoggedTrapEntry 2 }

atmfM4LoggedTrapID OBJECT-TYPE
     SYNTAX    Integer32
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The type of trap to which this entry applies.
          Together with the logged trap ID object, this object
          specifies the entity to which this logged trap referred."
     ::= { atmfM4LoggedTrapEntry 3 }

atmfM4LoggedTrapObject OBJECT-TYPE
     SYNTAX    RowPointer
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The object to which this entry applies.
          By convention, this is the name of the first object in
          the row in the table referenced.
          Together with the logged trap ID object, this object
          specifies the entity to which this logged trap referred.

          The special value { 0 0 } indicates that the trap refers
          to the ATM NE entity itself."
     ::= { atmfM4LoggedTrapEntry 4 }

atmfM4LoggedTrapRowStatus OBJECT-TYPE
     SYNTAX    RowStatus
     MAX-ACCESS     read-write
     STATUS    current
     DESCRIPTION
          "This object is used to delete an existing row in the
          table.  Note that the only value to which a management
          system can set this object is destroy(6)."
     ::= { atmfM4LoggedTrapEntry 5 }


-- ATM Forum M4 Trap Agent MIB Logged Alarm Table

atmfM4LoggedAlarmTable OBJECT-TYPE
```

```
     SYNTAX    SEQUENCE OF    AtmfM4LoggedAlarmEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Trap Agent logged alarm trap table.
          This table is used to maintain extra information for
          logged traps that represent alarm types."
     ::= { atmfM4MIBObjects 42 }

atmfM4LoggedAlarmEntry OBJECT-TYPE
     SYNTAX    AtmfM4LoggedAlarmEntry
     MAX-ACCESS     not-accessible
     STATUS    current
     DESCRIPTION
          "Information about the alarm-specific attributes of
          a single trap in the log."
     INDEX          { atmfM4TrapLogSrc,
                    atmfM4TrapLogType,
                    atmfM4LoggedTrapIndex }
     ::= { atmfM4LoggedAlarmTable 1 }

AtmfM4LoggedAlarmEntry ::= SEQUENCE {
     atmfM4LoggedAlarmSeverity     AtmfM4AlarmLogSeverity,
     atmfM4LoggedAlarmBackedUp     TruthValue,
     atmfM4LoggedAlarmBUObject     RowPointer,
     atmfM4LoggedAlarmSpecificProb DisplayString,
     atmfM4LoggedAlarmRepairAct    DisplayString
          }

atmfM4LoggedAlarmSeverity OBJECT-TYPE
     SYNTAX    AtmfM4AlarmLogSeverity
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "The perceived severity of the alarm, as specified by
          the agent that generated it."
     ::= { atmfM4LoggedAlarmEntry 1 }

atmfM4LoggedAlarmBackedUp OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "If the value of this object is true, the agent reported
          in this trap that the failed object had been backed up.

          This object is only present if it was included in the
          alarm trap corresponding to this log entry."
     ::= { atmfM4LoggedAlarmEntry 2 }

atmfM4LoggedAlarmBUObject OBJECT-TYPE
     SYNTAX    RowPointer
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Indicates the object that provided back-up services to
          the failed object.

          This object is only present if it was included in the
          alarm trap corresponding to this log entry."
     ::= { atmfM4LoggedAlarmEntry 3 }

atmfM4LoggedAlarmSpecificProb OBJECT-TYPE
     SYNTAX    DisplayString
```

```
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Indicates further refinements to the problem identified
          by the alarm type.  If more than one specific problem
          is described in this object, the problem descriptions are
          separated by newline characters.

          This object is only present if it was included in the
          alarm trap corresponding to this log entry."
     ::= { atmfM4LoggedAlarmEntry 4 }

atmfM4LoggedAlarmRepairAct OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     read-only
     STATUS    current
     DESCRIPTION
          "Indicates proposed repair actions reported by the agent
          for the problem identified by the alarm.  If more than
          one action is described in this object, the problem
          descriptions are separated by newline characters.

          This object is only present if it was included in the
          alarm trap corresponding to this log entry."
     ::= { atmfM4LoggedAlarmEntry 5 }


-- ATM M4 MIB Notification types

-- Auxiliary definitions for alarms

-- Except for perceived severity, the following objects may be
-- optionally appended to any alarm notification.

atmfM4TrapAlarmSeverity OBJECT-TYPE
     SYNTAX    AtmfM4AlarmLogSeverity
     MAX-ACCESS     accessible-for-notify
     STATUS    current
     DESCRIPTION
          "The perceived severity of the alarm, as specified by
          the agent that generated it."
     ::= { atmfM4MIBObjects 43 }

atmfM4TrapAlarmBackedUp OBJECT-TYPE
     SYNTAX    TruthValue
     MAX-ACCESS     accessible-for-notify
     STATUS    current
     DESCRIPTION
          "If the value of this object is true, the failed object
          has been backed up."
     ::= { atmfM4MIBObjects 44 }

atmfM4TrapAlarmBUObject OBJECT-TYPE
     SYNTAX    RowPointer
     MAX-ACCESS     accessible-for-notify
     STATUS    current
     DESCRIPTION
          "Indicates the object that provided back-up services to
          the failed object."
     ::= { atmfM4MIBObjects 45 }

atmfM4TrapAlarmSpecificProb OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     accessible-for-notify
```

```
     STATUS    current
     DESCRIPTION
          "Indicates further refinements to the problem identified
          by the alarm type.  If more than one specific problem
          is described in this object, the problem descriptions are
          separated by newline characters."
     ::= { atmfM4MIBObjects 46 }

atmfM4TrapAlarmRepairAct OBJECT-TYPE
     SYNTAX    DisplayString
     MAX-ACCESS     accessible-for-notify
     STATUS    current
     DESCRIPTION
          "Indicates proposed repair actions reported by the agent
          for the problem identified by the alarm.  If more than
          one action is described in this object, the problem
          descriptions are separated by newline characters."
     ::= { atmfM4MIBObjects 47 }


-- ATM M4 MIB Notifications

-- Note that index values for interfaces, hardware units, VPL TPs,
-- VCL TPs, etc. can be derived from the instance values of the
-- objects included in the notifications.  As examples, the ifIndex
-- value for an interface can be derived from the ifOperStatus
-- instance value, whereas the entPhysicalIndex value can be derived
-- from any of the entPhysicalContainedIn, entPhysicalParentRelPos,
-- and entPhysicalClass instance values.


-- Communications Alarms (interface)

atmfM4IfAisAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that an AIS alarm condition has occurred
          on the physical path TP associated with the specified
          interface."
     ::= { atmfM4MIBTrapPrefix 1 }

atmfM4IfLcdAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that an LCD (Loss of Cell Delineation)
          condition has occurred on the TC Adapter associated
          with the specified interface."
     ::= { atmfM4MIBTrapPrefix 2 }

atmfM4IfLofAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that an LOF (Loss of Frame)
          condition has occurred on the physical path TP associated
          with the specified interface."
     ::= { atmfM4MIBTrapPrefix 3 }

atmfM4IfLopAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
```

```
          "Indicates that an LOP (Loss of Pointer)
          condition has occurred on the physical path TP associated
          with the specified interface."
     ::= { atmfM4MIBTrapPrefix 4 }

atmfM4IfLosAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that an LOS (Loss of Signal)
          condition has occurred on the physical path TP associated
          with the specified interface."
     ::= { atmfM4MIBTrapPrefix 5 }

atmfM4IfPayloadMismatchAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that a payload type mismatch condition has
          occurred on the physical path TP associated with the specified
          interface."
     ::= { atmfM4MIBTrapPrefix 6 }

atmfM4IfXmissionErrAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that an transmission error condition has occurred
          on the physical path TP associated with the specified
          interface."
     ::= { atmfM4MIBTrapPrefix 7 }

atmfM4IfPathTraceMismatchAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that path trace mismatch condition has occurred
          on the physical path TP associated with the specified
          interface."
     ::= { atmfM4MIBTrapPrefix 8 }

atmfM4IfRdiAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that an RDI (Remote Defect Indication)
          condition has occurred on the physical path TP associated
          with the specified interface."
     ::= { atmfM4MIBTrapPrefix 9 }

atmfM4IfSignalLabelMismatchAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4TrapAlarmSeverity }
     STATUS    current
     DESCRIPTION
          "Indicates that a signal label mismatch has occurred
          on the physical path TP associated with the specified
          interface."
     ::= { atmfM4MIBTrapPrefix 10 }


-- Communications alarms (VPL termination point)

atmfM4VplTpAisAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus,
```

```
                atmVplOperStatus,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that an AIS alarm condition has occurred
          on the VPL TP associated with the specified
          interface and VPI."
     ::= { atmfM4MIBTrapPrefix 11 }

atmfM4VplTpRdiAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus,
                atmVplOperStatus,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that an RDI (Remote Defect Indication)
          condition has occurred on the VPL TP associated
          with the specified interface and VPI."
     ::= { atmfM4MIBTrapPrefix 12 }


-- Communications alarms (VPC termination point)

atmfM4VpcTpAisAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus,
                atmVplOperStatus,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that an AIS alarm condition has occurred
          on the VPC TP associated with the specified
          interface and VPI."
     ::= { atmfM4MIBTrapPrefix 13 }

atmfM4VpcTpRdiAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus,
                atmVplOperStatus,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that an RDI (Remote Defect Indication)
          condition has occurred on the VPC TP associated
          with the specified interface and VPI."
     ::= { atmfM4MIBTrapPrefix 14 }


-- Communications alarms (VCL termination point)

atmfM4VclTpAisAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus,
                atmVclOperStatus,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that an AIS alarm condition has occurred
          on the VCL TP associated with the specified
          interface, VPI, and VCI."
     ::= { atmfM4MIBTrapPrefix 15 }
```

```
atmfM4VclTpRdiAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus,
                 atmVclOperStatus,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that an RDI (Remote Defect Indication)
          condition has occurred on the VCL TP associated
          with the specified interface, VPI, and VCI."
     ::= { atmfM4MIBTrapPrefix 16 }


-- Communications alarms (VCC termination point)

atmfM4VccTpAisAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus,
                 atmVclOperStatus,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that an AIS alarm condition has occurred
          on the VCC TP associated with the specified
          interface, VPI, and VCI."
     ::= { atmfM4MIBTrapPrefix 17 }

atmfM4VccTpRdiAlarm NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus,
                 atmVclOperStatus,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that an RDI (Remote Defect Indication)
          condition has occurred on the VCC TP associated
          with the specified interface, VPI, and VCI."
     ::= { atmfM4MIBTrapPrefix 18 }


-- ATM NE and Hardware Unit Alarms

atmfM4HwBackPlaneAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a back-plane failure condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 19 }

atmfM4HwCallEstErrAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
```

```
                entPhysicalClass,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that a call establishment error condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 20 }

atmfM4HwCongestionAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                entPhysicalParentRelPos,
                entPhysicalClass,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that a congestion condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 21 }

atmfM4HwExtIfDevProbAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                entPhysicalParentRelPos,
                entPhysicalClass,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that an external interface device problem
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 22 }

atmfM4HwLineCardAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                entPhysicalParentRelPos,
                entPhysicalClass,
                atmfM4TrapAlarmSeverity
                }
     STATUS    current
     DESCRIPTION
          "Indicates that a line-card problem condition
          has occurred on the hardware unit associated
```

```
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 23 }

atmfM4HwMultiplexerAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a multiplexer problem condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 24 }

atmfM4HwPowerAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a power problem alarm condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 25 }

atmfM4HwProcessorAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a processor problem alarm condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
```

```
     ::= { atmfM4MIBTrapPrefix 26 }

atmfM4HwProtectionPathAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a protection path problem condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 27 }

atmfM4HwReceiverFailAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a receiver failure condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 28 }

atmfM4HwPIUnitMissingAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a plug-in unit missing condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 29 }

atmfM4HwPIUnitProbAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
```

```
                }
     STATUS    current
     DESCRIPTION
          "Indicates that a plug-in unit problem condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 30 }

atmfM4HwPIUnitMismatchAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a plug-in unit type mismatch condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 31 }

atmfM4HwTimingProbAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a timing problem alarm condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 32 }

atmfM4HwXmitterFailAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a transmitter failure condition
          has occurred on the hardware unit associated
          with the specified index.
```

```
          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 33 }

atmfM4HwTrunkCardAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a trunk-card problem condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 34 }

atmfM4HwStorageCapacityAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a storage capacity problem condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 35 }

atmfM4HwMemoryMismatchAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a memory mismatch alarm condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 36 }
```

```
atmfM4HwCorruptDataAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a corrupt data alarm condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 37 }

atmfM4HwSwEnvironAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a software environment problem
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 38 }

atmfM4HwSwDownloadFailAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a software download failure
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 39 }

atmfM4HwVersionMismatchAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
```

```
     DESCRIPTION
          "Indicates that a version mismatch condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 40 }

atmfM4HwFanFailAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a cooling fan failure condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 41 }

atmfM4HwDoorOpenAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that an enclosure door open condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 42 }

atmfM4HwFuseFailAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a fuse failure alarm condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
```

```
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 43 }

atmfM4HwHighTempAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a high temperature condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 44 }


-- Software alarms

atmfM4SwVersionMismatchAlarm NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass,
                 atmfM4HwInstalledSwSwIndex,
                 atmfM4TrapAlarmSeverity
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that a version mismatch condition
          has occurred on the hardware unit associated
          with the specified index.

          An entPhysicalClass of unknown(2) along with
          both an entPhysicalContainedIn of 0 and an
          entPhysicalParentRelPos of -1 indicates that
          the error occurred in the ATM NE but not in any
          one hardware unit maintained in the MIB table."
     ::= { atmfM4MIBTrapPrefix 45 }


--  State change notification traps

atmfM4VplTpUp NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVplOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          VPL termination point has transitioned to 'up'."
     ::= { atmfM4MIBTrapPrefix 46 }

atmfM4VplTpDown NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVplOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          VPL termination point has transitioned to 'down'."
```

```
     ::= { atmfM4MIBTrapPrefix 47 }

atmfM4VclTpUp NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVclOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          VCL termination point has transitioned to 'up'."
     ::= { atmfM4MIBTrapPrefix 48 }

atmfM4VclTpDown NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVclOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          VCL termination point has transitioned to 'down'."
     ::= { atmfM4MIBTrapPrefix 49 }

atmfM4VplXConnUp NOTIFICATION-TYPE
     OBJECTS   { atmVpCrossConnectL2HOperStatus,
                 atmVpCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          VPL cross-connection has transitioned to 'up'."
     ::= { atmfM4MIBTrapPrefix 50 }

atmfM4VplXConnDown NOTIFICATION-TYPE
     OBJECTS   { atmVpCrossConnectL2HOperStatus,
                 atmVpCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          VPL cross-connection has transitioned to 'down'."
     ::= { atmfM4MIBTrapPrefix 51 }

atmfM4VclXConnUp NOTIFICATION-TYPE
     OBJECTS   { atmVcCrossConnectL2HOperStatus,
                 atmVcCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          VCL cross-connection has transitioned to 'up'."
     ::= { atmfM4MIBTrapPrefix 52 }

atmfM4VclXConnDown NOTIFICATION-TYPE
     OBJECTS   { atmVcCrossConnectL2HOperStatus,
                 atmVcCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          VCL cross-connection has transitioned to 'down'."
     ::= { atmfM4MIBTrapPrefix 53 }

atmfM4HwUnitUp NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass
                 }
     STATUS    current
```

```
     DESCRIPTION
          "Indicates that the operational state of the specified
          hardware unit has transitioned to 'up'."
     ::= { atmfM4MIBTrapPrefix 54 }

atmfM4HwUnitDown NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the operational state of the specified
          hardware unit has transitioned to 'down'."
     ::= { atmfM4MIBTrapPrefix 55 }


-- Object creation and deletion notification traps

atmfM4AtmCellIfCreated NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmfM4IfType }
     STATUS    current
     DESCRIPTION
          "Indicates that an ATM cell layer interface has just
          been created on the interface."
     ::= { atmfM4MIBTrapPrefix 56 }

atmfM4AtmCellIfDeleted NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the ATM cell layer interface has just
          been deleted."
     ::= { atmfM4MIBTrapPrefix 57 }

atmfM4VpcTpCreated NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVplOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the VPC termination point has just
          been created."
     ::= { atmfM4MIBTrapPrefix 58 }

atmfM4VpcTpDeleted NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVplOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the VPC termination point has just
          been deleted."
     ::= { atmfM4MIBTrapPrefix 59 }

atmfM4VccTpCreated NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVclOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the VCC termination point has just
          been created."
     ::= { atmfM4MIBTrapPrefix 60 }

atmfM4VccTpDeleted NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVclOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the VCC termination point has just
```

```
          been deleted."
     ::= { atmfM4MIBTrapPrefix 61 }

atmfM4VplXConnCreated NOTIFICATION-TYPE
     OBJECTS   { atmVpCrossConnectL2HOperStatus,
                 atmVpCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the VPL cross-connection has just
          been created.  When a cross-connection is created along
          with its VPL endpoints, this trap should be emitted
          to indicate the creation of the entire group of objects."
     ::= { atmfM4MIBTrapPrefix 62 }

atmfM4VplXConnDeleted NOTIFICATION-TYPE
     OBJECTS   { atmVpCrossConnectL2HOperStatus,
                 atmVpCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the VPL cross-connection has just
          been deleted.  When a cross-connection is deleted along
          with its VPL endpoints, this trap should be emitted
          to indicate the deletion of the entire group of objects."
     ::= { atmfM4MIBTrapPrefix 63 }

atmfM4VclXConnCreated NOTIFICATION-TYPE
     OBJECTS   { atmVcCrossConnectL2HOperStatus,
                 atmVcCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the VCL cross-connection has just
          been created.  When a cross-connection is created along
          with its VCL endpoints, this trap should be emitted
          to indicate the creation of the entire group of objects."
     ::= { atmfM4MIBTrapPrefix 64 }

atmfM4VclXConnDeleted NOTIFICATION-TYPE
     OBJECTS   { atmVcCrossConnectL2HOperStatus,
                 atmVcCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the VCL cross-connection has just
          been deleted.  When a cross-connection is deleted along
          with its VCL endpoints, this trap should be emitted
          to indicate the deletion of the entire group of objects."
     ::= { atmfM4MIBTrapPrefix 65 }

atmfM4HwUnitCreated NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the specified hardware unit has been
          installed at the specified location."
     ::= { atmfM4MIBTrapPrefix 66 }

atmfM4HwUnitDeleted NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
```

```
                entPhysicalParentRelPos,
                entPhysicalClass
                }
     STATUS    current
     DESCRIPTION
          "Indicates that the specified hardware unit has been
          removed or de-installed from the specified location."
     ::= { atmfM4MIBTrapPrefix 67 }

atmfM4InstalledSwCreated NOTIFICATION-TYPE
     OBJECTS   { atmfM4HwInstalledSwSwIndex,
                hrSWInstalledIndex,
                hrSWInstalledName
                }
     STATUS    current
     DESCRIPTION
          "Indicates that the specified software package has been
          installed."
     ::= { atmfM4MIBTrapPrefix 68 }

atmfM4InstalledSwDeleted NOTIFICATION-TYPE
     OBJECTS   { atmfM4HwInstalledSwSwIndex,
                hrSWInstalledIndex,
                hrSWInstalledName
                }
     STATUS    current
     DESCRIPTION
          "Indicates that the specified software package has been
          removed."
     ::= { atmfM4MIBTrapPrefix 69 }


--  Configuration change notification traps

atmfM4IfChanged NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the configuration of the interface has
          been changed."
     ::= { atmfM4MIBTrapPrefix 70 }

atmfM4VplTpChanged NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVplOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the VPL termination point configuration
          has been changed."
     ::= { atmfM4MIBTrapPrefix 71 }

atmfM4VclTpChanged NOTIFICATION-TYPE
     OBJECTS   { ifOperStatus, atmVclOperStatus }
     STATUS    current
     DESCRIPTION
          "Indicates that the VCL termination point configuration
          has been changed."
     ::= { atmfM4MIBTrapPrefix 72 }

atmfM4VplXConnChanged NOTIFICATION-TYPE
     OBJECTS   { atmVpCrossConnectL2HOperStatus,
                atmVpCrossConnectH2LOperStatus
                }
     STATUS    current
     DESCRIPTION
```

```
          "Indicates that the VPL cross-connection configuration
          has been changed."
     ::= { atmfM4MIBTrapPrefix 73 }

atmfM4VclXConnChanged NOTIFICATION-TYPE
     OBJECTS   { atmVcCrossConnectL2HOperStatus,
                 atmVcCrossConnectH2LOperStatus
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the VCL cross-connection configuration
          has been changed."
     ::= { atmfM4MIBTrapPrefix 74 }

atmfM4HwUnitChanged NOTIFICATION-TYPE
     OBJECTS   { entPhysicalContainedIn,
                 entPhysicalParentRelPos,
                 entPhysicalClass
                 }
     STATUS    current
     DESCRIPTION
          "Indicates that the specified hardware unit configuration
          has changed."
     ::= { atmfM4MIBTrapPrefix 75 }

atmfM4InstalledSwChanged NOTIFICATION-TYPE
     OBJECTS   { hrSWInstalledIndex }
     STATUS    current
     DESCRIPTION
          "Indicates that the specified software package configuration
          has changed."
     ::= { atmfM4MIBTrapPrefix 76 }


-- Conformance statements


atmfM4Groups      OBJECT IDENTIFIER ::= { atmfM4MIBConformance 1 }
atmfM4Compliances OBJECT IDENTIFIER ::= { atmfM4MIBConformance 2 }

-- compliance statements

atmfM4Compliance MODULE-COMPLIANCE
     STATUS    current
     DESCRIPTION
          "The compliance statements are listed as a set up conformance
          units that correspond to each table.  Support for all tables
          is mandatory."
     MODULE  -- this module
     MANDATORY-GROUPS {
          atmfM4General,
          atmfM4PhysPathTpGroup,
          atmfM4TcAdapterGroup,
          atmfM4AtmLayerGroup,
          atmfM4VplGroup,
          atmfM4VclGroup,
          atmfM4VpXConnGroup,
          atmfM4VcXConnGroup,
          atmfM4VpNextVpiGroup,
          atmfM4VcNextVciGroup,
          atmfM4CellProtoCurrGroup,
          atmfM4CellProtoHistGroup,
          atmfM4CellProtoErrorGroup,
          atmfM4TcProtoCurrGroup,
```

```
        atmfM4TcProtoHistGroup,
        atmfM4VpUpcNpcCurrGroup,
        atmfM4VpUpcNpcHistGroup,
        atmfM4VcUpcNpcCurrGroup,
        atmfM4VcUpcNpcHistGroup,
        atmfM4VpTestGroup,
        atmfM4VcTestGroup,
        atmfM4EquipGroup,
        atmfM4EquipHolderGroup,
        atmfM4PlugInUnitGroup,
        atmfM4HwRunningSwGroup,
        atmfM4HwInstalledSwGroup,
        atmfM4AlarmSevGroup,
        atmfM4TrapForwardingGroup,
        atmfM4TrapLogGroup,
        atmfM4LoggedTrapGroup,
        atmfM4LoggedAlarmGroup,
        atmfM4NotificationsGroup
        }

    OBJECT atmfM4TcACellScrambling
    MIN-ACCESS     not-accessible
    DESCRIPTION
        "Support for this object is required only for a TC Adapter
        which allows deactivation of cell scrambling."

    OBJECT atmfM4IfLoopbackLocationCode
    MIN-ACCESS     not-accessible
    DESCRIPTION
        "Support for this object is only required for an ATM cell
        layer interface whose atmfM4IfType is not none(0)."

    OBJECT atmfM4IfSubscriberAddress
    MIN-ACCESS     not-accessible
    DESCRIPTION
        "Support for this object is required only for an ATM cell
        layer interface whose atmfM4IfType is uni(1)."

    OBJECT atmfM4IfPreferredCarrier
    MIN-ACCESS     not-accessible
    DESCRIPTION
        "Support for this object is only required for an ATM cell
        layer interface whose atmfM4IfType is uni(1) and which
        supports SVC services."

    OBJECT atmfM4IfFarEndCarrierNetwork
    MIN-ACCESS     not-accessible
    DESCRIPTION
        "Support for this object is only required for an ATM cell
        layer interface whose atmfM4IfType is bici(2) and which
        supports SVC services."

    OBJECT atmfM4VpNextVpiValue
    MIN-ACCESS     not-accessible
    DESCRIPTION
        "Support for this object to supply unused VPI values for
        use in creating entries in the atmVplTable is optional."

    OBJECT atmfM4VcNextVciValue
    MIN-ACCESS     not-accessible
    DESCRIPTION
        "Support for this object to supply unused VCI values for
        use in creating entries in the atmVclTable is optional."
```

```
OBJECT atmfM4VpUpcNpcCurrDiscardedClp0
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only if CLP=0 traffic
     is separately policed."

OBJECT atmfM4VpUpcNpcCurrPassedClp0
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only if CLP=0 traffic
     is separately policed."

OBJECT atmfM4VpUpcNpcHistDiscardedClp0
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only if CLP=0 traffic
     is separately policed."

OBJECT atmfM4VpUpcNpcHistPassedClp0
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only if CLP=0 traffic
     is separately policed."

OBJECT atmfM4VcUpcNpcCurrDiscardedClp0
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only if CLP=0 traffic
     is separately policed."

OBJECT atmfM4VcUpcNpcCurrPassedClp0
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only if CLP=0 traffic
     is separately policed."

OBJECT atmfM4VcUpcNpcHistDiscardedClp0
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only if CLP=0 traffic
     is separately policed."

OBJECT atmfM4VcUpcNpcHistPassedClp0
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only if CLP=0 traffic
     is separately policed."

OBJECT atmfM4EquipHolderAcceptableTypes
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only for an Equipment
     Holder that represents a slot."

OBJECT atmfM4EquipHolderSlotStatus
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only for an Equipment
     Holder that represents a slot."

OBJECT atmfM4EquipHolderSwLoad
MIN-ACCESS     not-accessible
DESCRIPTION
     "Support for this object is required only for an Equipment
```

```
          Holder that represents a slot."

     OBJECT atmfM4LoggedAlarmBackedUp
     MIN-ACCESS     not-accessible
     DESCRIPTION
          "Support for this object is required only for a logged alarm
          trap table entry whose corresponding alarm trap included the
          atmfM4TrapAlarmBackup object."

     OBJECT atmfM4LoggedAlarmBUObject
     MIN-ACCESS     not-accessible
     DESCRIPTION
          "Support for this object is required only for a logged alarm
          trap table entry whose corresponding alarm trap included the
          atmfM4TrapAlarmBUObject object."

     OBJECT atmfM4LoggedAlarmSpecificProb
     MIN-ACCESS     not-accessible
     DESCRIPTION
          "Support for this object is required only for a logged alarm
          trap table entry whose corresponding alarm trap included the
          atmfM4TrapAlarmSpecificProb object."

     OBJECT atmfM4LoggedAlarmRepairAct
     MIN-ACCESS     not-accessible
     DESCRIPTION
          "Support for this object is required only for a logged alarm
          trap table entry whose corresponding alarm trap included the
          atmfM4TrapAlarmRepairAct object."

     ::= { atmfM4Compliances 1 }

-- units of conformance

atmfM4General OBJECT-GROUP
     OBJECTS {
          atmfM4NeVendor,
          atmfM4NeVersion,
          atmfM4NeStartTime,
          atmfM4NeAlarmSeverityIndex,
          atmfM4NeSuppressZeroStats
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 ATM NE high-level objects."
     ::= { atmfM4Groups 1}

atmfM4PhysPathTpGroup OBJECT-GROUP
     OBJECTS {
          atmfM4PhysPathTpHwUnitIndex,
          atmfM4PhysPathTpPortID,
          atmfM4PhysPathTpAlarmSeverityIndex
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 interface Configuration table extensions
          for the physical path termination point."
     ::= { atmfM4Groups 2 }

atmfM4TcAdapterGroup OBJECT-GROUP
     OBJECTS {
          atmfM4TcACellScrambling,
          atmfM4TcAlarmSeverityIndex
          }
```

```
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 interface Configuration table extensions
          for the TC Adapter."
     ::= { atmfM4Groups 3 }

atmfM4AtmLayerGroup OBJECT-GROUP
     OBJECTS {
          atmfM4IfType,
          atmfM4IfLoopbackLocationCode,
          atmfM4IfSubscriberAddress,
          atmfM4IfPreferredCarrier,
          atmfM4IfFarEndCarrierNetwork
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 interface Configuration table extensions
          for the ATM cell layer."
     ::= { atmfM4Groups 4 }

atmfM4VplGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VplSegEndPt
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VPL Termination Point Configuration
          table extensions. "
     ::= { atmfM4Groups 5 }

atmfM4VclGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VclSegEndPt
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VCL Termination Point Configuration
          table extensions."
     ::= { atmfM4Groups 6 }

atmfM4VpXConnGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VpXConnRecover
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VP Cross-Connect Configuration table
          extensions."
     ::= { atmfM4Groups 7 }

atmfM4VcXConnGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VcXConnRecover
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VC Cross-Connect Configuration table
          extensions."
     ::= { atmfM4Groups 8 }

atmfM4VpNextVpiGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VpNextVpiValue
          }
```

```
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VP Next VPI value table."
     ::= { atmfM4Groups 9 }

atmfM4VcNextVciGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VcNextVciValue
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VC Next VCI value table."
     ::= { atmfM4Groups 10 }

atmfM4CellProtoCurrGroup OBJECT-GROUP
     OBJECTS {
          atmfM4CellProtoCurrSuspect,
          atmfM4CellProtoCurrElapsedTime,
          atmfM4CellProtoCurrSupprIntvls,
          atmfM4CellProtoCurrProtoErrors,
          atmfM4CellProtoCurrInOAMCells
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Cell Protocol Monitoring Current Data
          table."
     ::= { atmfM4Groups 11 }

atmfM4CellProtoHistGroup OBJECT-GROUP
     OBJECTS {
          atmfM4CellProtoHistSuspect,
          atmfM4CellProtoHistElapsedTime,
          atmfM4CellProtoHistSupprIntvls,
          atmfM4CellProtoHistProtoErrors,
          atmfM4CellProtoHistInOAMCells
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Cell Protocol Monitoring History Data
          table."
     ::= { atmfM4Groups 12 }

atmfM4CellProtoErrorGroup OBJECT-GROUP
     OBJECTS {
          atmfM4CellProtoErrorTime,
          atmfM4CellProtoErrorReason,
          atmfM4CellProtoErrorVpi,
          atmfM4CellProtoErrorVci
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Cell Protocol Monitoring Error Log table."
     ::= { atmfM4Groups 13 }

atmfM4TcProtoCurrGroup OBJECT-GROUP
     OBJECTS {
          atmfM4TcProtoCurrSuspect,
          atmfM4TcProtoCurrElapsedTime,
          atmfM4TcProtoCurrSupprIntvls,
          atmfM4TcProtoCurrDiscardHECViol
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 TC Adapter Protocol Monitoring Current
```

```
          Data table."
     ::= { atmfM4Groups 14 }

atmfM4TcProtoHistGroup OBJECT-GROUP
     OBJECTS {
          atmfM4TcProtoHistSuspect,
          atmfM4TcProtoHistElapsedTime,
          atmfM4TcProtoHistSupprIntvls,
          atmfM4TcProtoHistDiscardHECViol
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 TC Adapter Protocol Monitoring History
          Data table."
     ::= { atmfM4Groups 15 }

atmfM4VpUpcNpcCurrGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VpUpcNpcCurrSuspect,
          atmfM4VpUpcNpcCurrElapsedTime,
          atmfM4VpUpcNpcCurrSupprIntvls,
          atmfM4VpUpcNpcCurrDiscardedCells,
          atmfM4VpUpcNpcCurrDiscardedClp0,
          atmfM4VpUpcNpcCurrPassedCells,
          atmfM4VpUpcNpcCurrPassedClp0
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 UPC/NPC Disagreement Monitoring Current
          Data table for VPL termination points."
     ::= { atmfM4Groups 16 }

atmfM4VpUpcNpcHistGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VpUpcNpcHistSuspect,
          atmfM4VpUpcNpcHistElapsedTime,
          atmfM4VpUpcNpcHistSupprIntvls,
          atmfM4VpUpcNpcHistDiscardedCells,
          atmfM4VpUpcNpcHistDiscardedClp0,
          atmfM4VpUpcNpcHistPassedCells,
          atmfM4VpUpcNpcHistPassedClp0
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 UPC/NPC Disagreement Monitoring History
          Data table for VPL termination points."
     ::= { atmfM4Groups 17 }

atmfM4VcUpcNpcCurrGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VcUpcNpcCurrSuspect,
          atmfM4VcUpcNpcCurrElapsedTime,
          atmfM4VcUpcNpcCurrSupprIntvls,
          atmfM4VcUpcNpcCurrDiscardedCells,
          atmfM4VcUpcNpcCurrDiscardedClp0,
          atmfM4VcUpcNpcCurrPassedCells,
          atmfM4VcUpcNpcCurrPassedClp0
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 UPC/NPC Disagreement Monitoring Current
          Data table for VCL termination points."
     ::= { atmfM4Groups 18 }
```

```
atmfM4VcUpcNpcHistGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VcUpcNpcHistSuspect,
          atmfM4VcUpcNpcHistElapsedTime,
          atmfM4VcUpcNpcHistSupprIntvls,
          atmfM4VcUpcNpcHistDiscardedCells,
          atmfM4VcUpcNpcHistDiscardedClp0,
          atmfM4VcUpcNpcHistPassedCells,
          atmfM4VcUpcNpcHistPassedClp0
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 UPC/NPC Disagreement Monitoring History
          Data table for VCL termination points."
     ::= { atmfM4Groups 19 }

atmfM4VpTestGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VpTestId,
          atmfM4VpTestStatus,
          atmfM4VpTestType,
          atmfM4VpTestResult,
          atmfM4VpTestCode,
          atmfM4VpTestOwner
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VP Termination Point Test table."
     ::= { atmfM4Groups 20 }

atmfM4VcTestGroup OBJECT-GROUP
     OBJECTS {
          atmfM4VcTestId,
          atmfM4VcTestStatus,
          atmfM4VcTestType,
          atmfM4VcTestResult,
          atmfM4VcTestCode,
          atmfM4VcTestOwner
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 VC Termination Point Test table."
     ::= { atmfM4Groups 21 }

atmfM4EquipGroup OBJECT-GROUP
     OBJECTS {
          atmfM4EquipAdminStatus,
          atmfM4EquipLocation,
          atmfM4EquipOperStatus,
          atmfM4EquipVendor,
          atmfM4EquipVersion,
          atmfM4EquipUserLabel,
          atmfM4EquipAlarmSeverityIndex
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Equipment table."
     ::= { atmfM4Groups 22 }

atmfM4EquipHolderGroup OBJECT-GROUP
     OBJECTS {
          atmfM4EquipHolderType,
          atmfM4EquipHolderAcceptableTypes,
          atmfM4EquipHolderSlotStatus,
```

```
          atmfM4EquipHolderSwLoad
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Equipment Holder table."
     ::= { atmfM4Groups 23 }

atmfM4PlugInUnitGroup OBJECT-GROUP
     OBJECTS {
          atmfM4PlugInUnitAdminStatus,
          atmfM4PlugInUnitAvailStatus,
          atmfM4PlugInUnitOperStatus,
          atmfM4PlugInUnitVendor,
          atmfM4PlugInUnitVersion,
          atmfM4PlugInUnitAlarmSeverityIndex
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Plug-In Unit table."
     ::= { atmfM4Groups 24 }

atmfM4HwRunningSwGroup OBJECT-GROUP
     OBJECTS {
          atmfM4HwRunningSwSwIndex
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Hardware Unit/Running Software table."
     ::= { atmfM4Groups 25 }

atmfM4HwInstalledSwGroup OBJECT-GROUP
     OBJECTS {
          atmfM4HwInstalledSwSwIndex,
          atmfM4HwSwAlarmSeverityIndex
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Hardware Unit/Installed Software table."
     ::= { atmfM4Groups 26 }

atmfM4AlarmSevGroup OBJECT-GROUP
     OBJECTS {
          atmfM4AlarmSevProfileRowStatus,
          atmfM4AlarmSeverity,
          atmfM4AlarmSevDefault,
          atmfM4AlarmSevProfileIndexNext
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Alarm handling objects."
     ::= { atmfM4Groups 27 }

atmfM4TrapForwardingGroup OBJECT-GROUP
     OBJECTS {
          atmfM4TrapForwardingDest,
          atmfM4ForwardedTrapId,
          atmfM4ForwardedTrapObject,
          atmfM4TrapForwardingPort,
          atmfM4LowestForwardedSeverity,
          atmfM4ForwardedIndeterminate,
          atmfM4TrapForwardingRowStatus
          }
     STATUS    current
     DESCRIPTION
```

```
          "The ATM Forum M4 Trap forwarding table."
     ::= { atmfM4Groups 28 }

atmfM4TrapLogGroup OBJECT-GROUP
     OBJECTS {
          atmfM4TrapLogAdminStatus,
          atmfM4TrapLogOperStatus,
          atmfM4TrapLogFullAction,
          atmfM4TrapLogRowStatus
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Trap Agent log table."
     ::= { atmfM4Groups 29 }

atmfM4LoggedTrapGroup OBJECT-GROUP
     OBJECTS {
          atmfM4LoggedTrapTime,
          atmfM4LoggedTrapID,
          atmfM4LoggedTrapObject,
          atmfM4LoggedTrapRowStatus
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Trap Agent logged trap table."
     ::= { atmfM4Groups 30 }

atmfM4LoggedAlarmGroup OBJECT-GROUP
     OBJECTS {
          atmfM4LoggedAlarmSeverity,
          atmfM4LoggedAlarmBackedUp,
          atmfM4LoggedAlarmBUObject,
          atmfM4LoggedAlarmSpecificProb,
          atmfM4LoggedAlarmRepairAct,
          atmfM4TrapAlarmSeverity,
          atmfM4TrapAlarmBackedUp,
          atmfM4TrapAlarmBUObject,
          atmfM4TrapAlarmSpecificProb,
          atmfM4TrapAlarmRepairAct
          }
     STATUS    current
     DESCRIPTION
          "The ATM Forum M4 Trap Agent logged alarm trap table."
     ::= { atmfM4Groups 31 }

atmfM4NotificationsGroup NOTIFICATION-GROUP
     NOTIFICATIONS {
          atmfM4IfAisAlarm,
          atmfM4IfLcdAlarm,
          atmfM4IfLofAlarm,
          atmfM4IfLopAlarm,
          atmfM4IfLosAlarm,
          atmfM4IfPayloadMismatchAlarm,
          atmfM4IfXmissionErrAlarm,
          atmfM4IfPathTraceMismatchAlarm,
          atmfM4IfRdiAlarm,
          atmfM4IfSignalLabelMismatchAlarm,
          atmfM4VplTpAisAlarm,
          atmfM4VplTpRdiAlarm,
          atmfM4VpcTpAisAlarm,
          atmfM4VpcTpRdiAlarm,
          atmfM4VclTpAisAlarm,
          atmfM4VclTpRdiAlarm,
          atmfM4VccTpAisAlarm,
```

```
        atmfM4VccTpRdiAlarm,
        atmfM4HwBackPlaneAlarm,
        atmfM4HwCallEstErrAlarm,
        atmfM4HwCongestionAlarm,
        atmfM4HwExtIfDevProbAlarm,
        atmfM4HwLineCardAlarm,
        atmfM4HwMultiplexerAlarm,
        atmfM4HwPowerAlarm,
        atmfM4HwProcessorAlarm,
        atmfM4HwProtectionPathAlarm,
        atmfM4HwReceiverFailAlarm,
        atmfM4HwPIUnitMissingAlarm,
        atmfM4HwPIUnitProbAlarm,
        atmfM4HwPIUnitMismatchAlarm,
        atmfM4HwTimingProbAlarm,
        atmfM4HwXmitterFailAlarm,
        atmfM4HwTrunkCardAlarm,
        atmfM4HwStorageCapacityAlarm,
        atmfM4HwMemoryMismatchAlarm,
        atmfM4HwCorruptDataAlarm,
        atmfM4HwSwEnvironAlarm,
        atmfM4HwSwDownloadFailAlarm,
        atmfM4HwVersionMismatchAlarm,
        atmfM4HwFanFailAlarm,
        atmfM4HwDoorOpenAlarm,
        atmfM4HwFuseFailAlarm,
        atmfM4HwHighTempAlarm,
        atmfM4SwVersionMismatchAlarm,
        atmfM4VplTpUp,
        atmfM4VplTpDown,
        atmfM4VclTpUp,
        atmfM4VclTpDown,
        atmfM4VplXConnUp,
        atmfM4VplXConnDown,
        atmfM4VclXConnUp,
        atmfM4VclXConnDown,
        atmfM4HwUnitUp,
        atmfM4HwUnitDown,
        atmfM4AtmCellIfCreated,
        atmfM4AtmCellIfDeleted,
        atmfM4VpcTpCreated,
        atmfM4VpcTpDeleted,
        atmfM4VccTpCreated,
        atmfM4VccTpDeleted,
        atmfM4VplXConnCreated,
        atmfM4VplXConnDeleted,
        atmfM4VclXConnCreated,
        atmfM4VclXConnDeleted,
        atmfM4HwUnitCreated,
        atmfM4HwUnitDeleted,
        atmfM4InstalledSwCreated,
        atmfM4InstalledSwDeleted,
        atmfM4IfChanged,
        atmfM4VplTpChanged,
        atmfM4VclTpChanged,
        atmfM4VplXConnChanged,
        atmfM4VclXConnChanged,
        atmfM4HwUnitChanged,
        atmfM4InstalledSwChanged
        }
    STATUS    current
    DESCRIPTION
        "The ATM Forum M4 notification list."
    ::= { atmfM4Groups 32 }
```

```
END
```

4. M4 Cross-Reference

This section contains a cross-reference between the M4 Network Element View Protocol Independent MIB and the SNMP MIB.

Managed Entity	Attribute	SNMP Object
Alarm Record		
	Managed Entity ID	atmfM4LoggedTrapIndex
	Logging Time	atmfM4LoggedTrapTime
	Managed Entity	atmfM4LoggedTrapObject
	Generic Trouble Description	atmfM4LoggedTrapID
	Specific Problems	atmfM4LoggedAlarmSpecificProb
	Severity	atmfM4LoggedAlarmSeverity
	Back-up Status	atmfM4LoggedAlarmBackedUp
	Back-up Entity	atmfM4LoggedAlarmBUObject
	Additional Text	Not Supported
	Proposed Repair Actions	atmfM4LoggedAlarmRepairAct
Alarm Severity Assignment Profile		
	Managed Entity ID	atmfM4AlarmSevProfileIndex
	Alarm Severity Assignment List	atmfM4AlarmSevTrapId, atmfM4AlarmSeverity
ATM Cell Protocol Monitoring Current Data		
	Managed Entity ID	ifIndex
	Administrative State	ifAdminStatus
	Suspect Flag	atmfM4CellProtoCurrSuspect
	Elapsed Time	atmfM4CellProtoCurrElapsedTime
	Threshold Data ID	see RFC 1451[3]
	Number Of Suppressed Intervals	atmfM4CellProtoCurrSupprIntvls
	Discarded Cells due to protocol errors	atmfM4CellProtoCurrProtoErrors
	Received OAM Cells	atmfM4CellProtoCurrInOAMCells
ATM Cell Protocol Monitoring History Data		
	Managed Entity ID	ifIndex
	Period End Time	atmfM4CellProtoHistIndex
	Suspect Flag	atmfM4CellProtoHistSuspect
	Number Of Suppressed Intervals	atmfM4CellProtoHistSupprIntvls
	Discarded Cells due to protocol errors	atmfM4CellProtoHistProtoErrors
	Received OAM Cells	atmfM4CellProtoHistInOAMCells

[3] See the discussion in Footnote 1 on page 2.

Managed Entity	Attribute	SNMP Object
ATM Cell Protocol Monitoring Log Record		
	Managed Entity ID	**ifIndex, atmfM4CellProtoErrorCode**
	Logging Time	**atmfM4CellProtoErrorTime**
	Cell Header Abnormality Type	**atmfM4CellProtoErrorReason**
	Interface ID	**ifIndex**
	VPI Value	**atmfM4CellProtoErrorVpi**
	VCI Value	**atmfM4CellProtoErrorVci**
ATM Cross Connection		
	Managed Entity ID	**atmVpCrossConnectIndex or atmVcCrossConnectIndex**
	Termination Point A	**atmVpCrossConnectLowIfIndex, atmVpCrossConnectLowVpi or atmVcCrossConnectLowIfIndex, atmVcCrossConnectLowVpi, atmVcCrossConnectLowVci**
	Termination Point Z	**atmVpCrossConnectHighIfIndex, atmVpCrossConnectHighVpi or atmVcCrossConnectHighIfIndex, atmVcCrossConnectHighVpi, atmVcCrossConnectHighVci**
	Administrative State	**atmVpCrossConnectAdminStatus or atmVcCrossConnectAdminStatus**
	Operational State	**atmVpCrossConnectL2HOperStatus , atmVpCrossConnectH2LOperStatus or atmVcCrossConnectL2HOperStatus , atmVcCrossConnectH2LOperStatus or**
	Recovery Type	**atmfM4VpXConnRecover or atmfM4VcXConnRecover**
ATM Cross Connection Control		These objects are supported via the cross connect tables in RFC 1695.
	Managed Entity ID	
	Operational State	
ATM NE		
	Managed Entity ID	**IP address of SNMP agent or sysName**
	External Time	**atmfM4NeStartTime,sysUpTime or hrSystemDate**
	Location Name	**sysLocation**
	Operational State	**SNMP agent is unreachable if down**
	Vendor Name	**atmfM4NeVendor**

Managed Entity	Attribute	SNMP Object
	Version	**atmfM4NeVersion**
	Alarm Severity Assignment Profile Pointer	**atmfM4NeAlarmSeverityIndex**
Attribute Change Record		
	Managed Entity ID	(See below *)
	Logging Time	
	Managed Entity	
	Attribute Type	
	Old Attribute Value	
	New Attribute Value	
BICI		
	Managed Entity ID	**ifIndex**
	TC Adapter ID	**ifIndex,ifStackTable**
	Maximum Number of Simultaneously Active VPCs Supported	**atmInterfaceMaxVpcs**
	Maximum Number of Simultaneously Active VCCs Supported	**atmInterfaceMaxVccs**
	Number of Allocated VPI bits	**atmInterfaceMaxActiveVpiBits**
	Number of Allocated VCI bits	**atmInterfaceMaxActiveVciBits**
	Far-End Carrier Network	**atmfM4IfFarEndCarrierNetwork**
	Loopback Location Code	**atmfM4IfLoopbackLocationCode**
BISSI		
	Managed Entity ID	**ifIndex**
	TC Adapter ID	**ifIndex,ifStackTable**
	Maximum Number of Simultaneously Active VPCs Supported	**atmInterfaceMaxVpcs**
	Maximum Number of Simultaneously Active VCCs Supported	**atmInterfaceMaxVccs**
	Number of Allocated VPI bits	**atmInterfaceMaxActiveVpiBits**
	Number of Allocated VCI bits	**atmInterfaceMaxActiveVciBits**
	Loopback Location Code	**atmfM4IfLoopbackLocationCode**
Equipment		
	Managed Entity ID	**entPhysicalIndex**
	Administrative State	**atmfM4EquipAdminStatus**
	Location Name	**atmfM4EquipLocation**
	Operational State	**atmfM4EquipOperStatus**
	Vendor Name	**atmfM4EquipVendor**
	Version	**atmfM4EquipVersion**

Managed Entity	Attribute	SNMP Object
	User Label	**atmfM4EquipUserLabel**
	Alarm Severity Assignment Profile Pointer	**atmfM4EquipAlarmSeverityIndex**
Equipment Holder		
	Managed Entity ID	**entPhysicalIndex**
	Equipment Holder Type	**atmfM4EquipHolderType**
	Equipment Holder Address	
	Acceptable Plug-in Unit Types	**atmfM4EquipHolderAcceptableTypes**
	Slot Status	**atmfM4EquipHolderSlotStatus**
	Software Load	**atmfM4EquipHolderSwLoad**
Event Forwarding Discriminator		
	Managed Entity ID	**atmfM4TrapForwardingIndex**
	Discriminator Construct	**atmfM4ForwardedTrapId** **atmfM4ForwardedTrapObject** **atmfM4LowestForwardedSeverity** **atmfM4ForwardedIndeterminate**
	Destination	**atmfM4TrapForwardingDest, atmfM4TrapForwardingPort**
	Administrative State	
	Operational State	
Latest Occurrence Log		
	Managed Entity ID	(See below *)
	Administrative State	
	Log Record Types	
	Key Attribute List	
	Operational State	
Log		
	Managed Entity ID	**atmfM4TrapLogSrc**
	Administrative State	**atmfM4TrapLogAdminStatus**
	Log Record Types	**atmfM4TrapLogType**
	Log Full Action	**atmfM4TrapLogFullAction**
	Operational State	**atmfM4TrapLogOperStatus**
Managed Entity Creation Log Record		
	Managed Entity ID	**atmfM4LoggedTrapIndex**
	Logging Time	**atmfM4LoggedTrapTime**
	Managed Entity	**atmfM4LoggedTrapObject**
Managed Entity Deletion Log Record		
	Managed Entity ID	**atmfM4LoggedTrapIndex**
	Logging Time	**atmfM4LoggedTrapTime**
	Managed Entity	**atmfM4LoggedTrapObject**

Managed Entity	Attribute	SNMP Object
Multipoint Bridge		
	Managed Entity ID	**atmVpCrossConnectIndex or atmVcCrossConnectIndex**
	Administrative State	**atmVpCrossConnectAdminStatus or atmVcCrossConnectAdminStatus**
	Multipoint Connection Type	**implied in crossconnect tables**
	Primary VP/VC Link Termination Point	**atmVpCrossConnectLowIfIndex, atmVpCrossConnectLowVpi or atmVpCrossConnectHighIfIndex, atmVpCrossConnectHighVpi or atmVcCrossConnectLowIfIndex, atmVcCrossConnectLowVpi, atmVcCrossConnectLowVci or atmVcCrossConnectHighIfIndex, atmVcCrossConnectHighVpi, atmVcCrossConnectHighVci**
	Common VP/VC Link Termination Point	**atmVpCrossConnectLowIfIndex, atmVpCrossConnectLowVpi or atmVpCrossConnectHighIfIndex, atmVpCrossConnectHighVpi or atmVcCrossConnectLowIfIndex, atmVcCrossConnectLowVpi, atmVcCrossConnectLowVci or atmVcCrossConnectHighIfIndex, atmVcCrossConnectHighVpi, atmVcCrossConnectHighVci**
	Operational State	**atmVpCrossConnectL2HOperStatus, atmVpCrossConnectH2LOperStatus or atmVcCrossConnectL2HOperStatus, atmVcCrossConnectH2LOperStatus**
Physical Path		

Managed Entity	Attribute	SNMP Object
Termination Point		
	Managed Entity ID	**ifIndex**
	Administrative State	**ifAdminStatus**
	Physical Path Type	**ifType**
	Port ID	**atmfM4PhysPathTpPortID**
	Framing Format	**For Future Study**
	Operational State	**ifOperStatus**
	Alarm Severity Assignment Profile Pointer	**atmfM4PhysPathTpAlarmSeverityIndex**
Plug-in Units		
	Managed Entity ID	**entPhysicalIndex**
	Administrative State	**atmfM4PlugInUnitAdminStatus**
	Availability Status	**atmfM4PlugInUnitAvailStatus**
	Operational State	**atmfM4PlugInUnitOperStatus**
	Plug-in Unit Type	**entPhysicalDescr**
	Vendor Name	**atmfM4PlugInUnitVendor**
	Version	**atmfM4PlugInUnitVersion**
	Alarm Severity Assignment Profile Pointer	**atmfM4PlugInUnitAlarmSeverityIndex**
Software		
	Managed Entity ID	**hrSWRunIndex or hrSWInstalledIndex**
	Administrative State	**hrSWRunStatus**
	Operational State	**hrSWRunStatus**
	Vendor Name	**hrSWInstalledName**
	Version	**hrSWInstalledID**
	Alarm Severity Assignment Profile Pointer	**atmfM4HwSwAlarmSeverityIndex**
State Change Record		
	Managed Entity ID	(see below *)
	Logging Time	
	Managed Entity	
	State Attribute Type	
	Old State Attribute Value	
	New State Attribute Value	
TC Adapter		
	Managed Entity ID	**ifIndex**
	Administrative State	**ifAdminStatus**
	Operational State	**ifOperStatus**
	Physical Path Termination	**ifIndex,ifStackTable**

Managed Entity	Attribute	SNMP Object
	Point	
	Alarm Severity Assignment Profile Pointer	**atmfM4TcAlarmSeverityIndex**
	Cell Scrambling Code	**atmfM4TcACellScrambling**
TC Adapter Protocol Monitoring Current Data		
	Managed Entity ID	**ifIndex**
	Administrative State	**ifAdminStatus**
	Suspect Flag	**atmfM4TcProtoCurrSuspect**
	Elapsed Time	**atmfM4TcProtoCurrElapsedTime**
	Threshold Data ID	**see RFC 1451[4]**
	Number Of Suppressed Intervals	**atmfM4TcProtoCurrSupprIntvls**
	Discarded Cells due to HEC Violations	**atmfM4TcProtoDiscardHECViol**
TC Adapter Protocol Monitoring History Data		
	Managed Entity ID	**ifIndex**
	Period End time	**atmfM4TcProtoHistIndex**
	Suspect Flag	**atmfM4TcProtoHistSuspect**
	Number Of Suppressed Intervals	**atmfM4TcProtoHistSupprIntervals**
	Discarded Cells due to HEC Violations	**atmfM4TcProtoHistDiscardHECViol**
Threshold Data		
	Managed Entity ID	This is supported through RFC1451[5]
	Performance Parameter and Threshold Value	
UNI		
	Managed Entity ID	**ifIndex**
	TC Adapter ID	**ifIndex,ifStackTable**
	Maximum Number of Simultaneously Active VPCs Supported	**atmInterfaceMaxVpcs**
	Maximum Number of Simultaneously Active VCCs Supported	**atmInterfaceMaxVccs**
	Number of Allocated VPI bits	**atmInterfaceMaxActiveVpiBits**
	Number of Allocated VCI bits	**atmInterfaceMaxActiveVciBits**

[4] See the discussion in Footnote 1 on page 2.
[5] See the discussion in Footnote 1 on page 2.

Managed Entity	Attribute	SNMP Object
	ATM Subscriber Address	**atmfM4IfSubscriberAddress**
	Preferred Carrier	**atmfM4IfPreferredCarrier**
	ILMI Channel Identifier	**atmInterfaceIlmiVpi, atmInterfaceIlmiVci**
	Loopback Location Code	**atmfM4IfLoopbackLocationCode**
UPC/NPC Disagreement Monitoring Current Data		
	Managed Entity ID	**ifIndex,atmVplVpi or ifIndex,atmVclVpi,atmVclVci**
	Administrative State	**atmVplAdminStatus or atmVclAdminStatus**
	Suspect Flag	**atmfM4VpUpcNpcCurrSuspect or atmfM4VcUpcNpcCurrSuspect**
	Elapsed Time	**atmfM4VpUpcNpcCurrElapsedTime or atmfM4VcUpcNpcCurrElapsedTime**
	Threshold Data ID	**see RFC 1451[6]**
	Number Of Suppressed Intervals	**atmfM4VpUpcNpcCurrSupprIntvls or atmfM4VcUpcNpcCurrSupprIntvls**
	Discarded Cells due to UPC/NPC	**atmfM4VpUpcNpcCurrDiscardedCells or atmfM4VcUpcNpcCurrDiscardedCells**
	Discarded CLP=0 Cells to UPC/NPC	**atmfM4VpUpcNpcCurrDiscardedClp0 or atmfM4VcUpcNpcCurrDiscardedClp0**
	Successfully Passed Cells	**atmfM4VpUpcNpcCurrPassedCells or**

[6] See the discussion in Footnote 1 on page 2.

Managed Entity	Attribute	SNMP Object
UPC/NPC Disagreement Monitoring History Data	Successfully Passed CLP=0 Cells	atmfM4VcUpcNpcCurrPassedCells atmfM4VpUpcNpcCurrPassedClp0 or atmfM4VcUpcNpcCurrPassedClp0
	Managed Entity ID	ifIndex,atmVplVpi or ifIndex,atmVclVpi,atmVclVci
	Period End time	atmM4VpUpcNpcHistIndex or atmM4VcUpcNpcHistIndex
	Suspect Flag	atmM4VpUpcNpcHistSuspect or atmM4VcUpcNpcHistSuspect
	Number Of Suppressed Intervals	atmM4VpUpcNpcHistSupprIntvls or atmM4VcUpcNpcHistSupprIntvls
	Discarded Cells due to UPC/NPC	atmM4VpUpcNpcHistDiscardedCells or atmM4VcUpcNpcHistDiscardedCells
	Discarded CLP=0 Cells to UPC/NPC	atmM4VpUpcNpcHistDiscardedClp0 or atmM4VcUpcNpcHistDiscardedClp0
	Successfully Passed Cells	atmM4VpUpcNpcHistPassedCells or atmM4VcUpcNpcHistPassedCells
	Successfully Passed CLP=0 Cells	atmM4VpUpcNpcHistPassedClp0 or atmM4VcUpcNpcHistPassedClp0
VCC Termination Point		These objects are represented by VCL termination points that are NOT cross-connected elsewhere.
	Managed Entity ID	
	Operational State	
	Connectivity Pointer	
VCL Termination Point		
	Managed Entity ID	ifIndex
	VCI Value	atmVclVci
	Traffic Descriptors	atmVclReceiveTrafficDescrIndex, atmVclTransmitTrafficDecrIndex
	QOS Class	atmTrafficQoSClass[7]

[7] atmfTrafficQoSClass has been deprecated in the most recent ATM-MIB draft. This object is likely to be no longer supported, and is likely to be replaced by atmServiceCategory.

Managed Entity	Attribute	SNMP Object
VPC Termination Point	**Operational State**	**atmVclOperStatus**
	Segment End Point	**atmfM4VclSegEndPt**
	Connectivity Pointer	**atmVclCrossConnectIdentifier**
		These objects are represented by VPL termination points that are NOT cross-connected elsewhere.
VPL Termination Point	**Managed Entity ID**	
	Operational State	
	Connectivity Pointer	
	Managed Entity ID	**ifIndex**
	VPI Value	**atmVplVpi**
	Traffic Descriptors	**atmVplReceiveTrafficDescrIndex, atmVplTransmitTrafficDecrIndex**
	QOS Class	**atmTrafficQoSClass**[8]
	Operational State	**atmVplOperState**
	Segment End Point	**atmfM4VplSegEndPt**
	Connectivity Pointer	**atmVplCrossConnectIdentifier**

* Much of the data required for the various log objects is supported through the notifications specified in the MIBs. It is assumed that the log objects can be supported through a combination of the standard features of the typical SNMP managers and the atmfM4LoggedTrapTable.

The table atmfM4LoggedTrapTable will show what trap types have occurred for each type of log object. It is expected that the SNMP manager trap log will then be used to look at the details of the traps.

5. References

[1] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, Structure of Management Information for Version 2 of the Simple Network Management Protocol (SNMPv2), RFC1902, SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.

[2] McCloghrie, K., and M. Rose, Editors, Management Information Base for Network Management of TCP/IP-based internets: MIB-II, STD 17, RFC 1213, Hughes LAN Systems, Performance Systems International, March 1991.

[3] Case, J., Fedor, M., Schoffstall, M., and J. Davin, Simple Network Management Protocol, RFC 1157, SNMP Research, Performance Systems International, Performance Systems International, MIT Laboratory for Computer Science, May 1990.

[4] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2), RFC1905, SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.

[8] atmfTrafficQoSClass has been deprecated in the most recent ATM-MIB draft. This object is likely to be no longer supported, and is likely to be replaced by atmServiceCategory.

[5] McCloghrie, K., and F. Kastenholz, The Interfaces Group MIB using SMIv2, RFC 2233, Cisco Systems, FTP Software, November 1997.

[6] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, Conformance Statements for SNMPv2, RFC 1904, SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.

[7] ATM Forum, UNI Specification, Version 3.1, September 1994.

[8] Ahmed, M., and K. Tesink, editors, Definitions of Managed Objects for ATM Management Version 8.0 using SNMPv2, RFC 1695, Bell Communications Research, August 1994.

[9] Brown, T., and K. Tesink, editors, Definitions of Managed Objects for the SONET/SDH Interface Type, RFC 1595, Bell Communications Research, March 1994.

[10] ATM Forum, "M4 Interface Requirements and Logical MIB", af-nm-0020.000, October 1994.

[11] Cox, T., and K. Tesink, Definitions of Managed Objects for the DS3/E3 Interface Type, RFC 1407, Bell Communications Research, January 1993.

[12] Baker, F., and J. Watt, Definitions of Managed Objects for the DS1 and E1 Interface Types, RFC 1406, Advanced Computer Communications, Newbridge Networks Corporation, January 1993.

[13] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, Manager-to-Manager Management Information Base, RFC 1451, SNMP Research, Inc., Hughes LAN Systems, Dover Beach Consulting, Inc., Carnegie Mellon University, April 1993.[9]

[14] Grilla, P., and S. Waldbusser, Host Resources MIB, RFC 1514, Network Innovations, Intel Corporation, Carnegie Mellon University, September 1993.

[15] SNMPv2 Working Group, Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, Textual Conventions for version 2 of the Simple Network Management Protocol (SNMPv2), RFC 1903, SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.

[16] McCloghrie, K., and A. Bierman, Entity MIB using SMIv2, RFC 2037, Cisco Systems, October 1996.

[17] McCloghrie, K., and F. Kastenholz, Evolution of the Interfaces Group of MIB-II, RFC 1573, Hughes LAN Systems, FTP Software, January 1994.

[9] See the discussion in Footnote 1 on page 2.