

Ethernet Interfaces and Hub MIB Working Group  
INTERNET DRAFT

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Definitions of Managed Objects for  
IEEE 802.3 Medium Attachment Units (MAUs)

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## Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. This memo obsoletes [RFC 2668](#), 'Definitions of Managed Objects for IEEE 802.3 Medium Attachment Units (MAUs)'. This memo extends that specification by including management information useful for the management of 10 gigabit per second (Gb/s) MAUs.

Ethernet technology, as defined by the 802.3 Working Group of the IEEE, continues to evolve, with scalable increases in speed, new types of cabling and interfaces, and new features. This evolution may require changes in the managed objects in order to reflect this new functionality. This document, as with other documents issued by this working group, reflects a certain stage in the evolution of Ethernet technology. In the future, this document might be revised, or new documents might be issued by the Ethernet Interfaces and Hub MIB Working Group, in order to reflect the evolution of Ethernet technology.

Distribution of this memo is unlimited. Please forward comments to [hubmib@ietf.org](mailto:hubmib@ietf.org).

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## [1.](#) Introduction

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it defines objects for managing IEEE 802.3 Medium Attachment Units (MAUs).

This memo also includes a MIB module. This MIB module extends the list of managed objects specified in the earlier version of this MIB: [RFC 2668](#) [23].

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [22].

## [2.](#) The SNMP Management Framework

The SNMP Management Framework presently consists of five major components:

- o An overall architecture, described in [RFC 2571](#) [1].
- o Mechanisms for describing and naming objects and events for the purpose of management. The first version of this Structure of Management Information (SMI) is called SMIV1 and described in STD 16, [RFC 1155](#) [2], STD 16, [RFC 1212](#) [3] and [RFC 1215](#) [4]. The second version, called SMIV2, is described in STD 58, [RFC 2578](#) [5], STD 58, [RFC 2579](#) [6] and STD 58, [RFC 2580](#) [7].
- o Message protocols for transferring management information. The

first version of the SNMP message protocol is called SNMPv1 and described in STD 15, [RFC 1157](#) [8]. A second version of the SNMP message protocol, which is not an Internet standards track protocol, is called SNMPv2c and described in [RFC 1901](#) [9] and [RFC 1906](#) [10]. The third version of the message protocol is called SNMPv3 and described in [RFC 1906](#) [10], [RFC 2572](#) [11] and [RFC 2574](#) [12].

- o Protocol operations for accessing management information. The first set of protocol operations and associated PDU formats is described in STD 15, [RFC 1157](#) [8]. A second set of protocol operations and associated PDU formats is described in [RFC 1905](#)

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[13].

- o A set of fundamental applications described in [RFC 2573](#) [14] and the view-based access control mechanism described in [RFC 2575](#) [15].

A more detailed introduction to the current SNMP Management Framework can be found in [RFC 2570](#) [16].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the mechanisms defined in the SMI.

This memo specifies a MIB module that is compliant to the SMIV2. A MIB conforming to the SMIV1 can be produced through the appropriate translations. The resulting translated MIB must be semantically equivalent, except where objects or events are omitted because no translation is possible (use of Counter64). Some machine readable information in SMIV2 will be converted into textual descriptions in SMIV1 during the translation process. However, this loss of machine readable information is not considered to change the semantics of the MIB.

### [3.](#) Overview

#### [3.1.](#) Relationship to [RFC 2668](#)

This MIB is intended to be a superset of that defined by [RFC 2668](#)

[23], which will go to historic status. This MIB includes all of the objects contained in that MIB, with new and updated definitions which provide support for additional capabilities. Implementors are encouraged to support all applicable conformance groups in order to make the best use of the new functionality provided by this MIB. The new and updated definitions provide management support for 10 Gb/s devices.

### 3.2. Relationship to [RFC 2239](#)

[RFC 2668](#) was a replacement for [RFC 2239](#) [24], which is now historic. [RFC 2668](#) defined a superset of that defined by [RFC 2239](#) [24], which contained all of the objects defined in [RFC 2239](#), plus several new ones which provide additional capabilities. The new objects provided management support for:

- o management of 1000 Mb/s devices
- o management of PAUSE negotiation

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- o management of remote fault status

### 3.3. Relationship to [RFC 1515](#)

[RFC 2239](#) was a replacement for [RFC 1515](#) [25], which is now historic. [RFC 2239](#) defined a superset of [RFC 1515](#) which contained all of the objects defined in [RFC 1515](#), plus several new ones which provided additional capabilities. The new objects in [RFC 2239](#) provided management support for:

- o management of 100 Mb/s devices
- o auto-negotiation on interface MAUs
- o jack management

### 3.4. MAU Management

Instances of these object types represent attributes of an IEEE 802.3 MAU. Several types of MAUs are defined in the IEEE 802.3 CSMA/CD standard [17]. These MAUs may be connected to IEEE 802.3 repeaters or to 802.3 (Ethernet-like) interfaces. For convenience this document

refers to these devices as "repeater MAUs" and "interface MAUs."

The definitions presented here are based on [Section 30.5](#), "Layer Management for 10 Mb/s, 100 Mb/s, 1000 Mb/s and 10 Gb/s Medium Attachment Units (MAUs)", and Annex 30A, "GDMO Specifications for 802.3 managed object classes" of IEEE Std. 802.3, 2000 edition [[17](#)], as ammended by IEEE Draft P802.3ae/D3.0 [[18](#)]. That specification includes definitions for 10 Mb/s, 100 Mb/s, 1000 Mb/s and 10 Gb/s devices. This specification is intended to serve the same purpose: to provide for management of all types of Ethernet/802.3 MAUs.

### [3.5.](#) Relationship to Other MIBs

It is assumed that an agent implementing this MIB will also implement (at least) the 'system' group defined in MIB-II [[20](#)]. The following sections identify other MIBs that such an agent should implement.

#### [3.5.1.](#) Relationship to the Interfaces MIB.

The sections of this document that define interface MAU-related objects specify an extension to the Interfaces MIB [[21](#)]. An agent implementing these interface-MAU related objects MUST also implement the relevant groups of Interface MIB. The value of the object ifMauIfIndex is the same as the value of 'ifIndex' used to instantiate the interface to which the given MAU is connected.

It is REQUIRED that an agent implementing the interface-MAU related objects in this MIB will also implement the Ethernet-like Interfaces MIB, [[26](#)].

(Note that repeater ports are not represented as interfaces in the Interface MIB.)

#### [3.5.2.](#) Relationship to the 802.3 Repeater MIB

The section of this document that defines repeater MAU-related objects specifies an extension to the 802.3 Repeater MIB defined in [[19](#)]. An agent implementing these repeater-MAU related objects MUST also implement the 802.3 Repeater MIB.

The values of 'rpMauGroupIndex' and 'rpMauPortIndex' used to

instantiate a repeater MAU variable SHALL be the same as the values of 'rpTrPortGroupIndex' and 'rpTrPortIndex' used to instantiate the port to which the given MAU is connected.

### 3.6. Management of Internal MAUs

In some situations, a MAU can be "internal" -- i.e., its functionality is implemented entirely within a device. For example, a managed repeater may contain an internal repeater-MAU and/or an internal interface-MAU through which management communications originating on one of the repeater's external ports pass in order to reach the management agent associated with the repeater. Such internal MAUs may or may not be managed. If they are managed, objects describing their attributes should appear in the appropriate MIB subtree: dot3RpMauBasicGroup for internal repeater-MAUs and dot3IfMauBasicGroup for internal interface-MAUs.

## 4. Definitions

MAU-MIB DEFINITIONS ::= BEGIN

### IMPORTS

Counter32, Integer32,  
OBJECT-TYPE, MODULE-IDENTITY, NOTIFICATION-TYPE,  
OBJECT-IDENTITY, mib-2  
FROM SNMPv2-SMI  
TruthValue, TEXTUAL-CONVENTION  
FROM SNMPv2-TC  
OBJECT-GROUP, MODULE-COMPLIANCE, NOTIFICATION-GROUP  
FROM SNMPv2-CONF  
InterfaceIndex  
FROM IF-MIB;

mauMod MODULE-IDENTITY

LAST-UPDATED "200106260024Z" -- June 26, 2001

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DESCRIPTION "Management information for 802.3 MAUs.

The following reference is used throughout  
this MIB module:

[IEEE 802.3 Std] refers to  
IEEE Std 802.3, 2000 Edition: 'IEEE Standard  
for Information technology -  
Telecommunications and information exchange  
between systems - Local and metropolitan  
area networks - Specific requirements -  
Part 3: Carrier sense multiple access with  
collision detection (CSMA/CD) access method  
and physical layer specifications', as  
ammended by IEEE Draft P802.3ae/D3.0:  
'Supplement to Carrier Sense Multiple Access  
with Collision Detection (CSMA/CD) Access  
Method & Physica Layer Specifications -  
Media Access Control (MAC) Parameters,  
Physical Layer, and Management Parameters  
for 10 Gb/s Operation', March 2001.

Of particular interest is Clause 30, '10Mb/s,  
100Mb/s, 1000Mb/s and 10 Gb/s Management'."



DESCRIPTION "This version published as RFC XXXX. Updated to include support for 10 Gb/s MAUs."

REVISION "9908240400Z" -- August 24, 1999

DESCRIPTION "This version published as [RFC 2668](#). Updated to include support for 1000 Mb/sec MAUs and flow control negotiation."

REVISION "9710310000Z" -- October 31, 1997

DESCRIPTION "Version published as [RFC 2239](#)."

REVISION "9309300000Z" -- September 30, 1993

DESCRIPTION "Initial version, published as [RFC 1515](#)."

::= { snmpDot3MauMgt 6 }

snmpDot3MauMgt OBJECT IDENTIFIER ::= { mib-2 26 }

-- textual conventions

JackType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION "Common enumeration values for repeater and interface MAU jack types."

SYNTAX INTEGER {  
    other(1),  
    rj45(2),  
    rj45S(3), -- rj45 shielded  
    db9(4),  
    bnc(5),  
    fAUI(6), -- female aui  
    mAUI(7), -- male aui  
    fiberSC(8),  
    fiberMIC(9),  
    fiberST(10),  
    telco(11),  
    mtrj(12), -- fiber MT-RJ  
    hssdc(13) -- fiber channel style-2  
}

dot3RpMauBasicGroup

OBJECT IDENTIFIER ::= { snmpDot3MauMgt 1 }

dot3IfMauBasicGroup

OBJECT IDENTIFIER ::= { snmpDot3MauMgt 2 }

dot3BroadMauBasicGroup

---

```
OBJECT IDENTIFIER ::= { snmpDot3MauMgt 3 }

dot3IfMauAutoNegGroup
  OBJECT IDENTIFIER ::= { snmpDot3MauMgt 5 }

-- object identities for MAU types
-- (see rpMauType and ifMauType for usage)

dot3MauType
  OBJECT IDENTIFIER ::= { snmpDot3MauMgt 4 }

dot3MauTypeAUI OBJECT-IDENTITY
  STATUS      current
  DESCRIPTION "no internal MAU, view from AUI"
  ::= { dot3MauType 1 }

dot3MauType10Base5 OBJECT-IDENTITY
  STATUS      current
  DESCRIPTION "thick coax MAU (per 802.3 section 8)"
  ::= { dot3MauType 2 }

dot3MauTypeFoil OBJECT-IDENTITY
  STATUS      current
  DESCRIPTION "FOIRL MAU (per 802.3 section 9.9)"
  ::= { dot3MauType 3 }

dot3MauType10Base2 OBJECT-IDENTITY
  STATUS      current
  DESCRIPTION "thin coax MAU (per 802.3 section 10)"
  ::= { dot3MauType 4 }

dot3MauType10BaseT OBJECT-IDENTITY
  STATUS      current
  DESCRIPTION "UTP MAU (per 802.3 section 14).
    Note that it is strongly recommended that
    agents return either dot3MauType10BaseTHD or
    dot3MauType10BaseTFD if the duplex mode is
    known. However, management applications should
    be prepared to receive this MAU type value from
    older agent implementations."
  ::= { dot3MauType 5 }

dot3MauType10BaseFP OBJECT-IDENTITY
  STATUS      current
```

DESCRIPTION "passive fiber MAU (per 802.3 [section 16](#))"  
 ::= { dot3MauType 6 }

dot3MauType10BaseFB OBJECT-IDENTITY

STATUS current

DESCRIPTION "sync fiber MAU (per 802.3 [section 17](#))"

::= { dot3MauType 7 }

dot3MauType10BaseFL OBJECT-IDENTITY

STATUS current

DESCRIPTION "async fiber MAU (per 802.3 [section 18](#))

Note that it is strongly recommended that agents return either dot3MauType10BaseFLHD or dot3MauType10BaseFLFD if the duplex mode is known. However, management applications should be prepared to receive this MAU type value from older agent implementations."

::= { dot3MauType 8 }

dot3MauType10Broad36 OBJECT-IDENTITY

STATUS current

DESCRIPTION "broadband DTE MAU (per 802.3 [section 11](#)).

Note that 10BROAD36 MAUs can be attached to interfaces but not to repeaters."

::= { dot3MauType 9 }

----- new since [RFC 1515](#):

dot3MauType10BaseTHD OBJECT-IDENTITY

STATUS current

DESCRIPTION "UTP MAU (per 802.3 [section 14](#)), half duplex mode"

::= { dot3MauType 10 }

dot3MauType10BaseTFD OBJECT-IDENTITY

STATUS current

DESCRIPTION "UTP MAU (per 802.3 [section 14](#)), full duplex mode"

::= { dot3MauType 11 }

dot3MauType10BaseFLHD OBJECT-IDENTITY

STATUS current

DESCRIPTION "async fiber MAU (per 802.3 [section 18](#)), half duplex mode"  
 ::= { dot3MauType 12 }

dot3MauType10BaseFLFD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "async fiber MAU (per 802.3 [section 18](#)), full duplex mode"  
 ::= { dot3MauType 13 }

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dot3MauType100BaseT4 OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "4 pair categ. 3 UTP (per 802.3 [section 23](#))"  
 ::= { dot3MauType 14 }

dot3MauType100BaseTXHD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "2 pair categ. 5 UTP (per 802.3 [section 25](#)), half duplex mode"  
 ::= { dot3MauType 15 }

dot3MauType100BaseTXFD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "2 pair categ. 5 UTP (per 802.3 [section 25](#)), full duplex mode"  
 ::= { dot3MauType 16 }

dot3MauType100BaseFXHD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "X fiber over PMT (per 802.3 [section 26](#)), half duplex mode"  
 ::= { dot3MauType 17 }

dot3MauType100BaseFXFD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "X fiber over PMT (per 802.3 [section 26](#)), full duplex mode"  
 ::= { dot3MauType 18 }

dot3MauType100BaseT2HD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "2 pair categ. 3 UTP (per 802.3 [section 32](#)),

```

        half duplex mode"
 ::= { dot3MauType 19 }

dot3MauType100BaseT2FD OBJECT-IDENTITY
    STATUS      current
    DESCRIPTION "2 pair categ. 3 UTP (per 802.3 section 32),
        full duplex mode"
 ::= { dot3MauType 20 }

----- new since RFC 2239:

dot3MauType1000BaseXHD OBJECT-IDENTITY
    STATUS      current
    DESCRIPTION "PCS/PMA (per 802.3 section 36), unknown PMD,
        half duplex mode"
 ::= { dot3MauType 21 }

```

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```

dot3MauType1000BaseXFD OBJECT-IDENTITY
    STATUS      current
    DESCRIPTION "PCS/PMA (per 802.3 section 36), unknown PMD,
        full duplex mode"
 ::= { dot3MauType 22 }

dot3MauType1000BaseLXHD OBJECT-IDENTITY
    STATUS      current
    DESCRIPTION "Fiber over long-wavelength laser (per 802.3
        section 38), half duplex mode"
 ::= { dot3MauType 23 }

dot3MauType1000BaseLXFD OBJECT-IDENTITY
    STATUS      current
    DESCRIPTION "Fiber over long-wavelength laser (per 802.3
        section 38), full duplex mode"
 ::= { dot3MauType 24 }

dot3MauType1000BaseSXHD OBJECT-IDENTITY
    STATUS      current
    DESCRIPTION "Fiber over short-wavelength laser (per 802.3
        section 38), half duplex mode"
 ::= { dot3MauType 25 }

dot3MauType1000BaseSXFD OBJECT-IDENTITY

```

STATUS current  
DESCRIPTION "Fiber over short-wavelength laser (per 802.3 [section 38](#)), full duplex mode"  
::= { dot3MauType 26 }

dot3MauType1000BaseCXHD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "Copper over 150-Ohm balanced cable (per 802.3 [section 39](#)), half duplex mode"  
::= { dot3MauType 27 }

dot3MauType1000BaseCXFD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "Copper over 150-Ohm balanced cable (per 802.3 [section 39](#)), full duplex mode"  
::= { dot3MauType 28 }

dot3MauType1000BaseTHD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "Four-pair Category 5 UTP (per 802.3 [section 40](#)), half duplex mode"  
::= { dot3MauType 29 }

dot3MauType1000BaseTFD OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "Four-pair Category 5 UTP (per 802.3 [section 40](#)), full duplex mode"  
::= { dot3MauType 30 }

----- new since [RFC 2668](#):

dot3MauType10GigBaseX OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "X PCS/PMA (per 802.3 [section 48](#)), unknown PMD."  
::= { dot3MauType 31 }

dot3MauType10GigBaseLX4 OBJECT-IDENTITY  
STATUS current  
DESCRIPTION "X fiber over WDM optics (per 802.3 [section 53](#))"  
::= { dot3MauType 32 }

```

dot3MauType10GigBaseR OBJECT-IDENTITY
    STATUS          current
    DESCRIPTION "R PCS/PMA (per 802.3 section 49), unknown PMD."
    ::= { dot3MauType 33 }

dot3MauType10GigBaseER OBJECT-IDENTITY
    STATUS          current
    DESCRIPTION "R fiber over 1550 nm optics (per 802.3 section 52)"
    ::= { dot3MauType 34 }

dot3MauType10GigBaseLR OBJECT-IDENTITY
    STATUS          current
    DESCRIPTION "R fiber over 1310 nm optics (per 802.3 section 52)"
    ::= { dot3MauType 35 }

dot3MauType10GigBaseSR OBJECT-IDENTITY
    STATUS          current
    DESCRIPTION "R fiber over 850 nm optics (per 802.3 section 52)"
    ::= { dot3MauType 36 }

dot3MauType10GigBaseW OBJECT-IDENTITY
    STATUS          current
    DESCRIPTION "W PCS/PMA (per 802.3 section 49 and 50),
                unknown PMD."
    ::= { dot3MauType 37 }

```

```

dot3MauType10GigBaseEW OBJECT-IDENTITY
    STATUS          current
    DESCRIPTION "W fiber over 1550 nm optics (per 802.3 section 52)"
    ::= { dot3MauType 38 }

dot3MauType10GigBaseLW OBJECT-IDENTITY
    STATUS          current
    DESCRIPTION "W fiber over 1310 nm optics (per 802.3 section 52)"
    ::= { dot3MauType 39 }

```

```
dot3MauType10GigBaseSW OBJECT-IDENTITY
    STATUS          current
    DESCRIPTION "W fiber over 850 nm optics (per 802.3 section 52)"
    ::= { dot3MauType 40 }
```

```
--
-- The Basic Repeater MAU Table
--
```

```
rpMauTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF RpMauEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION "Table of descriptive and status information
                about the MAU(s) attached to the ports of a
                repeater."
    ::= { dot3RpMauBasicGroup 1 }
```

```
rpMauEntry OBJECT-TYPE
    SYNTAX          RpMauEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION "An entry in the table, containing information
                about a single MAU."
    INDEX           { rpMauGroupIndex,
                    rpMauPortIndex,
                    rpMauIndex
                    }
    ::= { rpMauTable 1 }
```

```
RpMauEntry ::=
    SEQUENCE {
        rpMauGroupIndex          Integer32,
        rpMauPortIndex           Integer32,
```

```
rpMauIndex          Integer32,
rpMauType           OBJECT IDENTIFIER,
rpMauStatus         INTEGER,
rpMauMediaAvailable INTEGER,
```



```

rpMauMediaAvailableStateExits      Counter32,
rpMauJabberState                    INTEGER,
rpMauJabberingStateEnters           Counter32,
rpMauFalseCarriers                  Counter32
}

rpMauGroupIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION "This variable uniquely identifies the group
                containing the port to which the MAU described
                by this entry is connected.

                Note: In practice, a group will generally be
                a field-replaceable unit (i.e., module, card,
                or board) that can fit in the physical system
                enclosure, and the group number will correspond
                to a number marked on the physical enclosure.

                The group denoted by a particular value of this
                object is the same as the group denoted by the
                same value of rpPtrGroupIndex."
    REFERENCE   "Reference RFC 2108, rpPtrGroupIndex."
    ::= { rpMauEntry 1 }

rpMauPortIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION "This variable uniquely identifies the repeater
                port within group rpMauGroupIndex to which the
                MAU described by this entry is connected."
    REFERENCE   "Reference RFC 2108, rpPtrPortIndex."
    ::= { rpMauEntry 2 }

rpMauIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION "This variable uniquely identifies the MAU
                described by this entry from among other
                MAUs connected to the same port
                (rpMauPortIndex)."
```

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.1, aMAUID."  
::= { rpMauEntry 3 }

rpMauType OBJECT-TYPE

SYNTAX OBJECT IDENTIFIER

MAX-ACCESS read-only

STATUS current

DESCRIPTION "This object identifies the MAU type. An initial set of MAU types are defined above. The assignment of OBJECT IDENTIFIERS to new types of MAUs is managed by the IANA. If the MAU type is unknown, the object identifier

unknownMauType OBJECT IDENTIFIER ::= { 0 0 }

is returned. Note that unknownMauType is a syntactically valid object identifier, and any conformant implementation of ASN.1 and the BER must be able to generate and recognize this value."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.2, aMAUType."  
::= { rpMauEntry 4 }

rpMauStatus OBJECT-TYPE

SYNTAX INTEGER {  
    other(1),  
    unknown(2),  
    operational(3),  
    standby(4),  
    shutdown(5),  
    reset(6)  
}

MAX-ACCESS read-write

STATUS current

DESCRIPTION "The current state of the MAU. This object MAY be implemented as a read-only object by those agents and MAUs that do not implement software control of the MAU state. Some agents may not support setting the value of this object to some of the enumerated values.

The value other(1) is returned if the MAU is in a state other than one of the states 2 through 6.

The value unknown(2) is returned when the MAU's true state is unknown; for example, when it is

being initialized.

A MAU in the operational(3) state is fully functional, operates, and passes signals to its attached DTE or repeater port in accordance to its specification.

A MAU in standby(4) state forces DI and CI to idle and the media transmitter to idle or fault, if supported. Standby(4) mode only applies to link type MAUs. The state of rpMauMediaAvailable is unaffected.

A MAU in shutdown(5) state assumes the same condition on DI, CI, and the media transmitter as though it were powered down or not connected. The MAU MAY return other(1) value for the rpMauJabberState and rpMauMediaAvailable objects when it is in this state. For an AUI, this state will remove power from the AUI.

Setting this variable to the value reset(6) resets the MAU in the same manner as a power-off, power-on cycle of at least one-half second would. The agent is not required to return the value reset (6).

Setting this variable to the value operational(3), standby(4), or shutdown(5) causes the MAU to assume the respective state except that setting a mixing-type MAU or an AUI to standby(4) will cause the MAU to enter the shutdown state."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.7, aMAUAdminState, 30.5.1.2.2, acMAUAdminControl, and 30.5.1.2.1, acResetMAU."

::= { rpMauEntry 5 }

rpMauMediaAvailable OBJECT-TYPE

SYNTAX INTEGER {  
    other(1),  
    unknown(2),

```
available(3),
notAvailable(4),
remoteFault(5),
invalidSignal(6),
remoteJabber(7),
remoteLinkLoss(8),
remoteTest(9),
offline(10),
```

```
        autoNegError(11)
    }
MAX-ACCESS read-only
STATUS      current
DESCRIPTION "If the MAU is a link or fiber type (FOIRL,
10BASE-T, 10BASE-F) then this is equivalent to
the link test fail state/low light function.
For an AUI or a coax (including broadband) MAU
this indicates whether or not loopback is
detected on the DI circuit. The value of this
attribute persists between packets for MAU types
AUI, 10BASE5, 10BASE2, 10BROAD36, and 10BASE-FP.
```

The value other(1) is returned if the mediaAvailable state is not one of 2 through 11.

The value unknown(2) is returned when the MAU's true state is unknown; for example, when it is being initialized. At power-up or following a reset, the value of this attribute will be unknown for AUI, coax, and 10BASE-FP MAUs. For these MAUs loopback will be tested on each transmission during which no collision is detected. If DI is receiving input when DO returns to IDL after a transmission and there has been no collision during the transmission then loopback will be detected. The value of this attribute will only change during non-collided transmissions for AUI, coax, and 10BASE-FP MAUs.

For 100Mbps and 1000Mbps MAUs, the enumerations match the states within the respective link

integrity state diagrams, fig 32-16, 23-12 and 24-15 of sections [32](#), [23](#) and [24](#) of [[16](#)]. Any MAU which implements management of auto-negotiation will map remote fault indication to remote fault.

The value available(3) indicates that the link, light, or loopback is normal. The value notAvailable(4) indicates link loss, low light, or no loopback.

The value remoteFault(5) indicates that a fault has been detected at the remote end of the link. This value applies to 10BASE-FB, 100BASE-T4 Far End Fault Indication and non-specified remote

faults from a system running auto-negotiation. The values remoteJabber(7), remoteLinkLoss(8), and remoteTest(9) SHOULD be used instead of remoteFault(5) where the reason for remote fault is identified in the remote signaling protocol.

The value invalidSignal(6) indicates that an invalid signal has been received from the other end of the link. InvalidSignal(6) applies only to MAUs of type 10BASE-FB.

Where an IEEE Std 802.3u-1995 clause 22 MII is present, a logic one in the remote fault bit (reference [section 22.2.4.2.8](#) of that document) maps to the value remoteFault(5), and a logic zero in the link status bit (reference [section 22.2.4.2.10](#) of that document) maps to the value notAvailable(4). The value notAvailable(4) takes precedence over the value remoteFault(5).

Any MAU that implements management of clause 37 Auto-Negotiation will map the received Remote Fault (RF1 and RF2) bit values for Offline to offline(10), Link Failure to remoteFault(5) and Auto-Negotiation Error to autoNegError(11)."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.4, aMediaAvailable."  
 ::= { rpMauEntry 6 }

rpMauMediaAvailableStateExits OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION "A count of the number of times that  
rpMauMediaAvailable for this MAU instance leaves  
the state available(3).

Discontinuities in the value of this counter can  
occur at re-initialization of the management  
system, and at other times as indicated by the  
value of rpPtrMonitorPortLastChange."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.5,  
aLoseMediaCounter.

[RFC 2108](#), rpPtrMonitorPortLastChange"

::= { rpMauEntry 7 }

rpMauJabberState OBJECT-TYPE

SYNTAX INTEGER {

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other(1),  
unknown(2),  
noJabber(3),  
jabbering(4)  
}  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION "The value other(1) is returned if the jabber  
state is not 2, 3, or 4. The agent MUST always  
return other(1) for MAU type dot3MauTypeAUI.

The value unknown(2) is returned when the MAU's  
true state is unknown; for example, when it is  
being initialized.

If the MAU is not jabbering the agent returns  
noJabber(3). This is the 'normal' state.

If the MAU is in jabber state the agent returns

the jabbering(4) value."  
REFERENCE "[IEEE 802.3 Std], 30.5.1.1.6,  
aJabber.jabberFlag."  
::= { rpMauEntry 8 }

rpMauJabberingStateEnters OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION "A count of the number of times that  
mauJabberState for this MAU instance enters the  
state jabbering(4). For MAUs of type  
dot3MauTypeAUI, dot3MauType100BaseT4,  
dot3MauType100BaseTX, dot3MauType100BaseFX and  
all 1000Mbps types, this counter will always  
indicate zero.

Discontinuities in the value of this counter can  
occur at re-initialization of the management  
system, and at other times as indicated by the  
value of rpPtrMonitorPortLastChange."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.6,  
aJabber.jabberCounter.  
[RFC 2108](#), rpPtrMonitorPortLastChange"  
::= { rpMauEntry 9 }

rpMauFalseCarriers OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only

STATUS current  
DESCRIPTION "A count of the number of false carrier events  
during IDLE in 100BASE-X links. This counter  
does not increment at the symbol rate. It can  
increment after a valid carrier completion at a  
maximum rate of once per 100 ms until the next  
carrier event.

This counter increments only for MAUs of type  
dot3MauType100BaseT4, dot3MauType100BaseTX, and  
dot3MauType100BaseFX and all 1000Mbps types.  
For all other MAU types, this counter will

always indicate zero.

The approximate minimum time for rollover of this counter is 7.4 hours.

Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of rpPtrMonitorPortLastChange."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.10, aFalseCarriers.  
[RFC 2108](#), rpPtrMonitorPortLastChange"  
::= { rpMauEntry 10 }

-- The rpJackTable applies to MAUs attached to repeaters  
-- which have one or more external jacks (connectors).

rpJackTable OBJECT-TYPE

SYNTAX SEQUENCE OF RpJackEntry  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION "Information about the external jacks attached  
to MAUs attached to the ports of a repeater."  
::= { dot3RpMauBasicGroup 2 }

rpJackEntry OBJECT-TYPE

SYNTAX RpJackEntry  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION "An entry in the table, containing information  
about a particular jack."  
INDEX { rpMauGroupIndex,  
rpMauPortIndex,  
rpMauIndex,  
rpJackIndex  
}

::= { rpJackTable 1 }

RpJackEntry ::=

SEQUENCE {  
rpJackIndex Integer32,



```

        rpJackType                               JackType
    }

rpJackIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION "This variable uniquely identifies the jack
                described by this entry from among other jacks
                attached to the same MAU (rpMauIndex)."
    ::= { rpJackEntry 1 }

rpJackType OBJECT-TYPE
    SYNTAX      JackType
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION "The jack connector type, as it appears on the
                outside of the system."
    ::= { rpJackEntry 2 }

--
-- The Basic Interface MAU Table
--

ifMauTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF IfMauEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION "Table of descriptive and status information
                about MAU(s) attached to an interface."
    ::= { dot3IfMauBasicGroup 1 }

ifMauEntry OBJECT-TYPE
    SYNTAX      IfMauEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION "An entry in the table, containing information
                about a single MAU."
    INDEX       { ifMauIfIndex,
                ifMauIndex
                }
    ::= { ifMauTable 1 }

```

```

IfMauEntry ::=
    SEQUENCE {
        ifMauIfIndex          InterfaceIndex,
        ifMauIndex            Integer32,
        ifMauType             OBJECT IDENTIFIER,
        ifMauStatus           INTEGER,
        ifMauMediaAvailable   INTEGER,
        ifMauMediaAvailableStateExits Counter32,
        ifMauJabberState      INTEGER,
        ifMauJabberingStateEnters Counter32,
        ifMauFalseCarriers    Counter32,
        ifMauTypeList         Integer32,
        ifMauDefaultType      OBJECT IDENTIFIER,
        ifMauAutoNegSupported TruthValue,
        ifMauTypeListBits     BITS
    }

```

```

ifMauIfIndex OBJECT-TYPE
    SYNTAX      InterfaceIndex
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION "This variable uniquely identifies the interface
                to which the MAU described by this entry is
                connected."
    REFERENCE   "RFC 1213, ifIndex"
    ::= { ifMauEntry 1 }

```

```

ifMauIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION "This variable uniquely identifies the MAU
                described by this entry from among other MAUs
                connected to the same interface (ifMauIfIndex)."
    REFERENCE   "[IEEE 802.3 Std], 30.5.1.1.1, aMAUID."
    ::= { ifMauEntry 2 }

```

```

ifMauType OBJECT-TYPE
    SYNTAX      OBJECT IDENTIFIER
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION "This object identifies the MAU type.  An
                initial set of MAU types are defined above.  The
                assignment of OBJECT IDENTIFIERS to new types of
                MAUs is managed by the IANA.  If the MAU type is
                unknown, the object identifier

```

```

unknownMauType OBJECT IDENTIFIER ::= { 0 0 }

```

is returned. Note that unknownMauType is a syntactically valid object identifier, and any conformant implementation of ASN.1 and the BER must be able to generate and recognize this value.

This object represents the operational type of the MAU, as determined by either (1) the result of the auto-negotiation function or (2) if auto-negotiation is not enabled or is not implemented for this MAU, by the value of the object ifMauDefaultType. In case (2), a set to the object ifMauDefaultType will force the MAU into the new operating mode."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.2, aMAUType."

::= { ifMauEntry 3 }

ifMauStatus OBJECT-TYPE

SYNTAX INTEGER {  
    other(1),  
    unknown(2),  
    operational(3),  
    standby(4),  
    shutdown(5),  
    reset(6)  
}

MAX-ACCESS read-write

STATUS current

DESCRIPTION "The current state of the MAU. This object MAY be implemented as a read-only object by those agents and MAUs that do not implement software control of the MAU state. Some agents may not support setting the value of this object to some of the enumerated values.

The value other(1) is returned if the MAU is in a state other than one of the states 2 through 6.

The value unknown(2) is returned when the MAU's true state is unknown; for example, when it is

being initialized.

A MAU in the operational(3) state is fully functional, operates, and passes signals to its attached DTE or repeater port in accordance to its specification.

A MAU in standby(4) state forces DI and CI to idle and the media transmitter to idle or fault, if supported. Standby(4) mode only applies to link type MAUs. The state of ifMauMediaAvailable is unaffected.

A MAU in shutdown(5) state assumes the same condition on DI, CI, and the media transmitter as though it were powered down or not connected. The MAU MAY return other(1) value for the ifMauJabberState and ifMauMediaAvailable objects when it is in this state. For an AUI, this state will remove power from the AUI.

Setting this variable to the value reset(6) resets the MAU in the same manner as a power-off, power-on cycle of at least one-half second would. The agent is not required to return the value reset (6).

Setting this variable to the value operational(3), standby(4), or shutdown(5) causes the MAU to assume the respective state except that setting a mixing-type MAU or an AUI to standby(4) will cause the MAU to enter the shutdown state."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.7, aMAUAdminState, 30.5.1.2.2, acMAUAdminControl, and 30.5.1.2.1, acResetMAU."

::= { ifMauEntry 4 }

ifMauMediaAvailable OBJECT-TYPE

SYNTAX INTEGER {  
other(1),  
unknown(2),

```

available(3),
notAvailable(4),
remoteFault(5),
invalidSignal(6),
remoteJabber(7),
remoteLinkLoss(8),
remoteTest(9),
offline(10),
autoNegError(11),
pmdLinkFault(12),
wisFrameLoss(13),
wisSignalLoss(14),
pcsLinkFault(15),

```

```

excessiveBER(16),
dxsLinkFault(17),
pxsLinkFault(18)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION "If the MAU is a link or fiber type (FOIRL,
10BASE-T, 10BASE-F) then this is equivalent to
the link test fail state/low light function.
For an AUI or a coax (including broadband) MAU
this indicates whether or not loopback is
detected on the DI circuit. The value of this
attribute persists between packets for MAU types
AUI, 10BASE5, 10BASE2, 10BROAD36, and 10BASE-FP.

```

The value other(1) is returned if the mediaAvailable state is not one of 2 through 11.

The value unknown(2) is returned when the MAU's true state is unknown; for example, when it is being initialized. At power-up or following a reset, the value of this attribute will be unknown for AUI, coax, and 10BASE-FP MAUs. For these MAUs loopback will be tested on each transmission during which no collision is detected. If DI is receiving input when DO returns to IDL after a transmission and there has been no collision during the transmission

then loopback will be detected. The value of this attribute will only change during non-collided transmissions for AUI, coax, and 10BASE-FP MAUs.

For 100Mbps and 1000Mbps MAUs, the enumerations match the states within the respective link integrity state diagrams, fig 32-16, 23-12 and 24-15 of sections [32](#), [23](#) and [24](#) of [[16](#)]. Any MAU which implements management of auto-negotiation will map remote fault indication to remote fault.

The value available(3) indicates that the link, light, or loopback is normal. The value notAvailable(4) indicates link loss, low light, or no loopback.

The value remoteFault(5) indicates that a fault has been detected at the remote end of the link.

This value applies to 10BASE-FB, 100BASE-T4 Far End Fault Indication and non-specified remote faults from a system running auto-negotiation. The values remoteJabber(7), remoteLinkLoss(8), and remoteTest(9) SHOULD be used instead of remoteFault(5) where the reason for remote fault is identified in the remote signaling protocol.

The value invalidSignal(6) indicates that an invalid signal has been received from the other end of the link. InvalidSignal(6) applies only to MAUs of type 10BASE-FB.

Where an IEEE Std 802.3u-1995 clause 22 MII is present, a logic one in the remote fault bit (reference [section 22.2.4.2.8](#) of that document) maps to the value remoteFault(5), and a logic zero in the link status bit (reference [section 22.2.4.2.10](#) of that document) maps to the value notAvailable(4). The value notAvailable(4) takes precedence over the value remoteFault(5).

Any MAU that implements management of clause 37 Auto-Negotiation will map the received RF1 and RF2 bit values for Offline to offline(10), Link Failure to remoteFault(5) and Auto-Negotiation Error to autoNegError(11).

For 10 Gb/s, the enumerations map to the states within the Reconciliation Sublayer state diagram as follows:

NoFault maps to the enumeration 'available(3)'

LocalFault maps to the enumeration

'notAvailable(4)'

RemoteFault maps to the enumeration

'remoteFault(5)'

The enumerations 'pmdLinkFault(12)', 'wisFrameLoss(13)', 'wisSignalLoss(14)', 'pcsLinkFault(15)', 'excessiveBER(16)', and 'dxsLinkFault(17)' and 'pxsLinkFault(18)' should be used instead of the enumeration 'notAvailable(4)' where the reason for the local fault can be identified through the use of the MDIO Interface. Where multiple reasons for the local fault state can be identified only the highest precedence error should be reported. The precedence in descending order is as follows:

pxsLinkFault  
pmdLinkFault  
wisFrameLoss  
wisSignalLoss  
pcsLinkFault  
excessiveBER  
dxsLinkFault"

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.4, aMediaAvailable."  
::= { ifMauEntry 5 }

ifMauMediaAvailableStateExits OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION "A count of the number of times that  
ifMauMediaAvailable for this MAU instance leaves  
the state available(3).

Discontinuities in the value of this counter can  
occur at re-initialization of the management  
system, and at other times as indicated by the  
value of ifCounterDiscontinuityTime."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.5,  
aLoseMediaCounter.  
[RFC 2233](#), ifCounterDiscontinuityTime."

::= { ifMauEntry 6 }

ifMauJabberState OBJECT-TYPE

SYNTAX INTEGER {  
    other(1),  
    unknown(2),  
    noJabber(3),  
    jabbering(4)  
}

MAX-ACCESS read-only

STATUS current

DESCRIPTION "The value other(1) is returned if the jabber  
state is not 2, 3, or 4. The agent MUST always  
return other(1) for MAU type dot3MauTypeAUI.

The value unknown(2) is returned when the MAU's  
true state is unknown; for example, when it is  
being initialized.

If the MAU is not jabbering the agent returns  
noJabber(3). This is the 'normal' state.

If the MAU is in jabber state the agent returns

the jabbering(4) value."  
REFERENCE "[IEEE 802.3 Std], 30.5.1.1.6,  
aJabber.jabberFlag."

::= { ifMauEntry 7 }

ifMauJabberingStateEnters OBJECT-TYPE

SYNTAX Counter32



MAX-ACCESS read-only  
STATUS current  
DESCRIPTION "A count of the number of times that  
mauJabberState for this MAU instance enters the  
state jabbering(4). This counter will always  
indicate zero for MAUs of type dot1MauTypeAUI  
and those of speeds above 10Mbps.

Discontinuities in the value of this counter can  
occur at re-initialization of the management  
system, and at other times as indicated by the  
value of ifCounterDiscontinuityTime."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.6,  
aJabber.jabberCounter.  
[RFC 2233](#), ifCounterDiscontinuityTime."  
 ::= { ifMauEntry 8 }

#### ifMauFalseCarriers OBJECT-TYPE

SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION "A count of the number of false carrier events  
during IDLE in 100BASE-X and 1000BASE-X links.

For all other MAU types, this counter will  
always indicate zero. This counter does not  
increment at the symbol rate.

It can increment after a valid carrier  
completion at a maximum rate of once per 100 ms  
for 100BASE-X and once per 10us for 1000BASE-X  
until the next CarrierEvent.

Discontinuities in the value of this counter can  
occur at re-initialization of the management  
system, and at other times as indicated by the  
value of ifCounterDiscontinuityTime."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.10, aFalseCarriers.  
[RFC 2233](#), ifCounterDiscontinuityTime."  
 ::= { ifMauEntry 9 }

ifMauTypeList OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*"

A value that uniquely identifies the set of possible IEEE 802.3 types that the MAU could be. The value is a sum which initially takes the value zero. Then, for each type capability of this MAU, 2 raised to the power noted below is added to the sum. For example, a MAU which has the capability to be only 10BASE-T would have a value of 512 ( $2^9$ ). In contrast, a MAU which supports both 10Base-T (full duplex) and 100BASE-TX (full duplex) would have a value of  $((2^{11}) + (2^{16}))$  or 67584.

The powers of 2 assigned to the capabilities are these:

Power	Capability
-------	------------

0	other or unknown
---	------------------

1	AUI
---	-----

2	10BASE-5
---	----------

3	FOIRL
---	-------

4	10BASE-2
---	----------

5	10BASE-T duplex mode unknown
---	------------------------------

6	10BASE-FP
---	-----------

7	10BASE-FB
---	-----------

8	10BASE-FL duplex mode unknown
---	-------------------------------

9	10BROAD36
---	-----------

10	10BASE-T half duplex mode
----	---------------------------

11	10BASE-T full duplex mode
----	---------------------------

12	10BASE-FL half duplex mode
----	----------------------------

13	10BASE-FL full duplex mode
----	----------------------------

14	100BASE-T4
----	------------

15	100BASE-TX half duplex mode
----	-----------------------------

16	100BASE-TX full duplex mode
----	-----------------------------

17	100BASE-FX half duplex mode
----	-----------------------------

18	100BASE-FX full duplex mode
----	-----------------------------

19	100BASE-T2 half duplex mode
----	-----------------------------

20	100BASE-T2 full duplex mode
----	-----------------------------

If auto-negotiation is present on this MAU, this object will map to ifMauAutoNegCapability.

This object has been deprecated in favour of

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```
        ifMauTypeListBits."  
 ::= { ifMauEntry 10 }
```

ifMauDefaultType OBJECT-TYPE

SYNTAX OBJECT IDENTIFIER

MAX-ACCESS read-write

STATUS current

DESCRIPTION "This object identifies the default  
administrative baseband MAU type, to be used in  
conjunction with the operational MAU type  
denoted by ifMauType.

The set of possible values for this object is  
the same as the set defined for the ifMauType  
object.

This object represents the  
administratively-configured type of the MAU. If  
auto-negotiation is not enabled or is not  
implemented for this MAU, the value of this  
object determines the operational type of the  
MAU. In this case, a set to this object will  
force the MAU into the specified operating mode.

If auto-negotiation is implemented and enabled  
for this MAU, the operational type of the MAU  
is determined by auto-negotiation, and the value  
of this object denotes the type to which the MAU  
will automatically revert if/when  
auto-negotiation is later disabled.

NOTE TO IMPLEMENTORS: It may be necessary to  
provide for underlying hardware implementations  
which do not follow the exact behavior specified  
above. In particular, when  
ifMauAutoNegAdminStatus transitions from enabled  
to disabled, the agent implementation MUST  
ensure that the operational type of the MAU (as  
reported by ifMauType) correctly transitions to  
the value specified by this object, rather than  
continuing to operate at the value earlier  
determined by the auto-negotiation function."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.1, aMAUID, and

```
22.2.4.1.4."
 ::= { ifMauEntry 11 }
```

```
ifMauAutoNegSupported OBJECT-TYPE
    SYNTAX      TruthValue
```

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```
MAX-ACCESS    read-only
STATUS         current
DESCRIPTION    "This object indicates whether or not
                auto-negotiation is supported on this MAU."
 ::= { ifMauEntry 12 }
```

```
ifMauTypeListBits OBJECT-TYPE
```

```
SYNTAX      BITS {
    bOther(0),          -- other or unknown
    bAUI(1),            -- AUI
    b10base5(2),        -- 10BASE-5
    bFoirl(3),          -- FOIRL

    b10base2(4),        -- 10BASE-2
    b10baseT(5),        -- 10BASE-T duplex mode unknown
    b10baseFP(6),       -- 10BASE-FP
    b10baseFB(7),       -- 10BASE-FB
    b10baseFL(8),       -- 10BASE-FL duplex mode unknown
    b10broad36(9),      -- 10BROAD36
    b10baseTHD(10),     -- 10BASE-T half duplex mode
    b10baseTFD(11),     -- 10BASE-T full duplex mode
    b10baseFLHD(12),    -- 10BASE-FL half duplex mode
    b10baseFLFD(13),    -- 10BASE-FL full duplex mode

    b100baseT4(14),     -- 100BASE-T4
    b100baseTXHD(15),   -- 100BASE-TX half duplex mode
    b100baseTXFD(16),   -- 100BASE-TX full duplex mode
    b100baseFXHD(17),   -- 100BASE-FX half duplex mode
    b100baseFXFD(18),   -- 100BASE-FX full duplex mode
    b100baseT2HD(19),   -- 100BASE-T2 half duplex mode
    b100baseT2FD(20),   -- 100BASE-T2 full duplex mode

    b1000baseXHD(21),   -- 1000BASE-X half duplex mode
    b1000baseXFD(22),   -- 1000BASE-X full duplex mode
    b1000baseLXHD(23),  -- 1000BASE-LX half duplex mode
    b1000baseLXFD(24),  -- 1000BASE-LX full duplex mode
```

```

b1000baseSXHD(25), -- 1000BASE-SX half duplex mode
b1000baseSXFD(26), -- 1000BASE-SX full duplex mode
b1000baseCXHD(27), -- 1000BASE-CX half duplex mode
b1000baseCXFD(28), -- 1000BASE-CX full duplex mode
b1000baseTHD(29),  -- 1000BASE-T half duplex mode
b1000baseTFD(30),  -- 1000BASE-T full duplex mode

b10GbaseX(31),      -- 10GBASE-X
b10GbaseLX4(32),    -- 10GBASE-LX4
b10GbaseR(33),      -- 10GBASE-R
b10GbaseER(34),     -- 10GBASE-ER
b10GbaseLR(35),     -- 10GBASE-LR

```

```

b10GbaseSR(36),      -- 10GBASE-SR
b10GbaseW(37),       -- 10GBASE-W
b10GbaseEW(38),      -- 10GBASE-EW
b10GbaseLW(39),      -- 10GBASE-LW
b10GbaseSW(40)       -- 10GBASE-SW
}
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "A value that uniquely identifies the set of
               possible IEEE 802.3 types that the MAU could be.
               If auto-negotiation is present on this MAU, this
               object will map to ifMauAutoNegCapability.

               Note that this MAU may be capable of operating
               as a MAU type that is beyond the scope of this
               MIB. This is indicated by returning the
               bit value bOther in addition to any bit values
               for capabilities that are listed above."
 ::= { ifMauEntry 13 }

```

```

-- The ifJackTable applies to MAUs attached to interfaces
-- which have one or more external jacks (connectors).

```

ifJackTable OBJECT-TYPE

SYNTAX SEQUENCE OF IfJackEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION "Information about the external jacks attached

```

        to MAUs attached to an interface."
 ::= { dot3IfMauBasicGroup 2 }

ifJackEntry OBJECT-TYPE
    SYNTAX      IfJackEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION "An entry in the table, containing information
                about a particular jack."
    INDEX       { ifMauIfIndex,
                  ifMauIndex,
                  ifJackIndex
                }
 ::= { ifJackTable 1 }

IfJackEntry ::=
    SEQUENCE {
        ifJackIndex      Integer32,
        ifJackType        JackType
    }

```

```

    }

```

```

ifJackIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION "This variable uniquely identifies the jack
                described by this entry from among other jacks
                attached to the same MAU."
 ::= { ifJackEntry 1 }

ifJackType OBJECT-TYPE
    SYNTAX      JackType
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION "The jack connector type, as it appears on the
                outside of the system."
 ::= { ifJackEntry 2 }

```

-- The ifMauAutoNegTable applies to systems in which

```
-- auto-negotiation is supported on one or more MAUs
-- attached to interfaces. Note that if auto-negotiation
-- is present and enabled, the ifMauType object reflects
-- the result of the auto-negotiation function.
```

```
ifMauAutoNegTable OBJECT-TYPE
```

```
    SYNTAX          SEQUENCE OF IfMauAutoNegEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION     "Configuration and status objects for the
                    auto-negotiation function of MAUs attached to
                    interfaces."
    ::= { dot3IfMauAutoNegGroup 1 }
```

```
ifMauAutoNegEntry OBJECT-TYPE
```

```
    SYNTAX          IfMauAutoNegEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION     "An entry in the table, containing configuration
                    and status information for the auto-negotiation
                    function of a particular MAU."
    INDEX           { ifMauIfIndex,
                    ifMauIndex
                    }
    ::= { ifMauAutoNegTable 1 }
```

```
IfMauAutoNegEntry ::=
```

```
    SEQUENCE {
        ifMauAutoNegAdminStatus          INTEGER,
        ifMauAutoNegRemoteSignaling      INTEGER,
        ifMauAutoNegConfig                INTEGER,
        ifMauAutoNegCapability            Integer32,
        ifMauAutoNegCapAdvertised         Integer32,
        ifMauAutoNegCapReceived           Integer32,
        ifMauAutoNegRestart               INTEGER,
        ifMauAutoNegCapabilityBits        BITS,
        ifMauAutoNegCapAdvertisedBits     BITS,
        ifMauAutoNegCapReceivedBits       BITS,
        ifMauAutoNegRemoteFaultAdvertised INTEGER,
        ifMauAutoNegRemoteFaultReceived  INTEGER
    }
```

ifMauAutoNegAdminStatus OBJECT-TYPE

SYNTAX INTEGER {  
enabled(1),  
disabled(2)  
}

MAX-ACCESS read-write

STATUS current

DESCRIPTION "Setting this object to enabled(1) will cause the interface which has the auto-negotiation signaling ability to be enabled.

If the value of this object is disabled(2) then the interface will act as it would if it had no auto-negotiation signaling. Under these conditions, an IEEE 802.3 MAU will immediately be forced to the state indicated by the value of the object ifMauDefaultType.

NOTE TO IMPLEMENTORS: When ifMauAutoNegAdminStatus transitions from enabled to disabled, the agent implementation MUST ensure that the operational type of the MAU (as reported by ifMauType) correctly transitions to the value specified by the ifMauDefaultType object, rather than continuing to operate at the value earlier determined by the auto-negotiation function."

REFERENCE "[IEEE 802.3 Std], 30.6.1.1.2, aAutoNegAdminState and 30.6.1.2.2, acAutoNegAdminControl."

::= { ifMauAutoNegEntry 1 }

ifMauAutoNegRemoteSignaling OBJECT-TYPE

SYNTAX INTEGER {  
detected(1),  
notdetected(2)  
}

MAX-ACCESS read-only

STATUS current

DESCRIPTION "A value indicating whether the remote end of



the link is using auto-negotiation signaling. It takes the value detected(1) if and only if, during the previous link negotiation, FLP Bursts were received."

REFERENCE "[IEEE 802.3 Std], 30.6.1.1.3,  
aAutoNegRemoteSignaling."  
::= { ifMauAutoNegEntry 2 }

ifMauAutoNegConfig OBJECT-TYPE

SYNTAX INTEGER {  
other(1),  
configuring(2),  
complete(3),  
disabled(4),  
parallelDetectFail(5)  
}

MAX-ACCESS read-only

STATUS current

DESCRIPTION "A value indicating the current status of the auto-negotiation process. The enumeration parallelDetectFail(5) maps to a failure in parallel detection as defined in 28.2.3.1 of [IEEE 802.3 Std]."

REFERENCE "[IEEE 802.3 Std], 30.6.1.1.4,  
aAutoNegAutoConfig."  
::= { ifMauAutoNegEntry 4 }

ifMauAutoNegCapability OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*"

A value that uniquely identifies the set of capabilities of the local auto-negotiation entity. The value is a sum which initially takes the value zero. Then, for each capability of this interface, 2 raised to the power noted below is added to the sum. For example, an interface which has the capability to support

of 32768 ( $2^{15}$ ). In contrast, an interface which supports both 100Base-TX half duplex and 100Base-TX full duplex would have a value of 98304 ( $(2^{15}) + (2^{16})$ ).

The powers of 2 assigned to the capabilities are these:

Power	Capability
0	other or unknown
(1-9)	(reserved)
10	10BASE-T half duplex mode
11	10BASE-T full duplex mode
12	(reserved)
13	(reserved)
14	100BASE-T4
15	100BASE-TX half duplex mode
16	100BASE-TX full duplex mode
17	(reserved)
18	(reserved)
19	100BASE-T2 half duplex mode
20	100BASE-T2 full duplex mode

Note that interfaces that support this MIB may have capabilities that extend beyond the scope of this MIB.

This object has been deprecated in favour of ifMauAutoNegCapabilityBits"

REFERENCE "[IEEE 802.3 Std], 30.6.1.1.5,  
aAutoNegLocalTechnologyAbility."  
::= { ifMauAutoNegEntry 5 }

ifMauAutoNegCapAdvertised OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-write

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*"

A value that uniquely identifies the set of capabilities advertised by the local auto-negotiation entity. Refer to ifMauAutoNegCapability for a description of the possible values of this object.

Capabilities in this object that are not available in ifMauAutoNegCapability cannot be

enabled.

This object has been deprecated in favour of  
ifMauAutoNegCapAdvertisedBits"

REFERENCE "[IEEE 802.3 Std], 30.6.1.1.6,  
aAutoNegAdvertisedTechnologyAbility."  
::= { ifMauAutoNegEntry 6 }

ifMauAutoNegCapReceived OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*

A value that uniquely identifies the set of  
capabilities received from the remote  
auto-negotiation entity. Refer to  
ifMauAutoNegCapability for a description of the  
possible values of this object.

Note that interfaces that support this MIB may  
be attached to remote auto-negotiation entities  
which have capabilities beyond the scope of this  
MIB.

This object has been deprecated in favour of  
ifMauAutoNegCapReceivedBits"

REFERENCE "[IEEE 802.3 Std], 30.6.1.1.7,  
aAutoNegReceivedTechnologyAbility."  
::= { ifMauAutoNegEntry 7 }

ifMauAutoNegRestart OBJECT-TYPE

SYNTAX INTEGER {  
    restart(1),  
    norestart(2)  
}

MAX-ACCESS read-write

STATUS current

DESCRIPTION "If the value of this object is set to  
restart(1) then this will force auto-negotiation  
to begin link renegotiation. If auto-negotiation  
signaling is disabled, a write to this object  
has no effect.

Setting the value of this object to norestart(2)  
has no effect."

REFERENCE "[IEEE 802.3 Std], 30.6.1.2.1,  
acAutoNegRestartAutoConfig."

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::= { ifMauAutoNegEntry 8 }

ifMauAutoNegCapabilityBits OBJECT-TYPE

SYNTAX BITS {

bOther(0), -- other or unknown  
b10baseT(1), -- 10BASE-T half duplex mode  
b10baseTFD(2), -- 10BASE-T full duplex mode  
b100baseT4(3), -- 100BASE-T4  
b100baseTX(4), -- 100BASE-TX half duplex mode  
b100baseTXFD(5), -- 100BASE-TX full duplex mode  
b100baseT2(6), -- 100BASE-T2 half duplex mode  
b100baseT2FD(7), -- 100BASE-T2 full duplex mode  
bfdxPause(8), -- PAUSE for full-duplex links  
bfdxAPause(9), -- Asymmetric PAUSE for full-duplex  
-- links  
bfdxSPause(10), -- Symmetric PAUSE for full-duplex  
-- links  
bfdxBPause(11), -- Asymmetric and Symmetric PAUSE for  
-- full-duplex links  
b1000baseX(12), -- 1000BASE-X, -LX, -SX, -CX half  
-- duplex mode  
b1000baseXFD(13), -- 1000BASE-X, -LX, -SX, -CX full  
-- duplex mode  
b1000baseT(14), -- 1000BASE-T half duplex mode  
b1000baseTFD(15) -- 1000BASE-T full duplex mode

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION "A value that uniquely identifies the set of capabilities of the local auto-negotiation entity. Note that interfaces that support this MIB may have capabilities that extend beyond the scope of this MIB.

Note that the local auto-negotiation entity may support some capabilities beyond the scope of this MIB. This is indicated by returning the bit value bOther in addition to any bit values for capabilities that are listed above."

```

REFERENCE    "[IEEE 802.3 Std], 30.6.1.1.5,
              aAutoNegLocalTechnologyAbility."
::= { ifMauAutoNegEntry 9 }

```

ifMauAutoNegCapAdvertisedBits OBJECT-TYPE

```

SYNTAX      BITS {
    bOther(0),          -- other or unknown
    b10baseT(1),        -- 10BASE-T half duplex mode
    b10baseTFD(2),      -- 10BASE-T full duplex mode

```

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```

    b100baseT4(3),      -- 100BASE-T4
    b100baseTX(4),      -- 100BASE-TX half duplex mode
    b100baseTXFD(5),    -- 100BASE-TX full duplex mode
    b100baseT2(6),      -- 100BASE-T2 half duplex mode
    b100baseT2FD(7),    -- 100BASE-T2 full duplex mode
    bFdxPause(8),       -- PAUSE for full-duplex links
    bFdxAPause(9),      -- Asymmetric PAUSE for full-duplex
                        -- links
    bFdxSPause(10),     -- Symmetric PAUSE for full-duplex
                        -- links
    bFdxBPAuse(11),     -- Asymmetric and Symmetric PAUSE for
                        -- full-duplex links
    b1000baseX(12),     -- 1000BASE-X, -LX, -SX, -CX half
                        -- duplex mode
    b1000baseXFD(13),   -- 1000BASE-X, -LX, -SX, -CX full
                        -- duplex mode
    b1000baseT(14),     -- 1000BASE-T half duplex mode
    b1000baseTFD(15)    -- 1000BASE-T full duplex mode
}
MAX-ACCESS   read-write
STATUS       current
DESCRIPTION  "A value that uniquely identifies the set of
              capabilities advertised by the local
              auto-negotiation entity.

```

Capabilities in this object that are not available in ifMauAutoNegCapabilityBits cannot be enabled.

Note that the local auto-negotiation entity may advertise some capabilities beyond the scope of this MIB. This is indicated by returning the

bit value bOther in addition to any bit values for capabilities that are listed above."

REFERENCE "[IEEE 802.3 Std], 30.6.1.1.6, aAutoNegAdvertisedTechnologyAbility."

::= { ifMauAutoNegEntry 10 }

ifMauAutoNegCapReceivedBits OBJECT-TYPE

```
SYNTAX      BITS {
    bOther(0),          -- other or unknown
    b10baseT(1),        -- 10BASE-T half duplex mode
    b10baseTFD(2),      -- 10BASE-T full duplex mode
    b100baseT4(3),      -- 100BASE-T4
    b100baseTX(4),      -- 100BASE-TX half duplex mode
    b100baseTXFD(5),    -- 100BASE-TX full duplex mode
    b100baseT2(6),      -- 100BASE-T2 half duplex mode
    b100baseT2FD(7),    -- 100BASE-T2 full duplex mode
```

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```
    bFdxPause(8),      -- PAUSE for full-duplex links
    bFdxAPause(9),     -- Asymmetric PAUSE for full-duplex
                        -- links
    bFdxSPause(10),    -- Symmetric PAUSE for full-duplex
                        -- links
    bFdxBPAuse(11),    -- Asymmetric and Symmetric PAUSE for
                        -- full-duplex links
    b1000baseX(12),    -- 1000BASE-X, -LX, -SX, -CX half
                        -- duplex mode
    b1000baseXFD(13),  -- 1000BASE-X, -LX, -SX, -CX full
                        -- duplex mode
    b1000baseT(14),    -- 1000BASE-T half duplex mode
    b1000baseTFD(15)   -- 1000BASE-T full duplex mode
}
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION   "A value that uniquely identifies the set of
capabilities received from the remote
auto-negotiation entity.
```

Note that interfaces that support this MIB may be attached to remote auto-negotiation entities which have capabilities beyond the scope of this MIB. This is indicated by returning the bit value bOther in addition to any bit values for

capabilities that are listed above."  
 REFERENCE "[IEEE 802.3 Std], 30.6.1.1.7,  
 aAutoNegReceivedTechnologyAbility."  
 ::= { ifMauAutoNegEntry 11 }

#### ifMauAutoNegRemoteFaultAdvertised OBJECT-TYPE

SYNTAX INTEGER {  
     noError(1),  
     offline(2),  
     linkFailure(3),  
     autoNegError(4)  
 }  
 MAX-ACCESS read-write  
 STATUS current  
 DESCRIPTION "A value that identifies any local fault  
 indications that this MAU has detected and will  
 advertise at the next auto-negotiation  
 interaction for 1000Mbps MAUs."  
 REFERENCE "[IEEE 802.3 Std], 30.6.1.1.6,  
 aAutoNegAdvertisedTechnologyAbility."  
 ::= { ifMauAutoNegEntry 12 }

#### ifMauAutoNegRemoteFaultReceived OBJECT-TYPE

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SYNTAX INTEGER {  
     noError(1),  
     offline(2),  
     linkFailure(3),  
     autoNegError(4)  
 }  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION "A value that identifies any fault indications  
 received from the far end of a link by the  
 local auto-negotiation entity for 1000Mbps  
 MAUs."  
 REFERENCE "[IEEE 802.3 Std], 30.6.1.1.7,  
 aAutoNegReceivedTechnologyAbility."  
 ::= { ifMauAutoNegEntry 13 }

-- The Basic Broadband MAU Table  
--

broadMauBasicTable OBJECT-TYPE

SYNTAX SEQUENCE OF BroadMauBasicEntry

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*

Table of descriptive and status information  
about the broadband MAUs connected to  
interfaces."

::= { dot3BroadMauBasicGroup 1 }

broadMauBasicEntry OBJECT-TYPE

SYNTAX BroadMauBasicEntry

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*

An entry in the table, containing information  
about a single broadband MAU."

INDEX { broadMauIfIndex,  
broadMauIndex  
}

::= { broadMauBasicTable 1 }

BroadMauBasicEntry ::=

SEQUENCE {

broadMauIfIndex

InterfaceIndex,

broadMauIndex Integer32,  
broadMauXmtRcvSplitType INTEGER,  
broadMauXmtCarrierFreq Integer32,  
broadMauTranslationFreq Integer32  
}

broadMauIfIndex OBJECT-TYPE

SYNTAX InterfaceIndex

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*



This variable uniquely identifies the interface to which the MAU described by this entry is connected."

REFERENCE "Reference [RFC 1213](#), ifIndex."  
 ::= { broadMauBasicEntry 1 }

broadMauIndex OBJECT-TYPE

SYNTAX Integer32 (1..2147483647)

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*

This variable uniquely identifies the MAU connected to interface broadMauIfIndex that is described by this entry."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.1, aMAUID."  
 ::= { broadMauBasicEntry 2 }

broadMauXmtRcvSplitType OBJECT-TYPE

SYNTAX INTEGER {  
 other(1),  
 single(2),  
 dual(3)  
 }

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS OBJECT IS DEPRECATED \*\*\*\*\*

This object indicates the type of frequency multiplexing/cabling system used to separate the transmit and receive paths for the 10BROAD36 MAU.

The value other(1) is returned if the split type is not either single or dual.

The value single(2) indicates a single cable system. The value dual(3) indicates a dual cable system, offset normally zero."

REFERENCE "[IEEE 802.3 Std], 30.5.1.1.8,

```

        aBbMAUXmitRcvSplitType."
 ::= { broadMauBasicEntry 3 }

broadMauXmtCarrierFreq OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      deprecated
    DESCRIPTION "***** THIS OBJECT IS DEPRECATED *****

                This variable indicates the transmit carrier
                frequency of the 10BROAD36 MAU in MHz/4; that
                is, in units of 250 kHz."
    REFERENCE   "[IEEE 802.3 Std], 30.5.1.1.9,
                aBroadbandFrequencies.xmitCarrierFrequency."
 ::= { broadMauBasicEntry 4 }

broadMauTranslationFreq OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      deprecated
    DESCRIPTION "***** THIS OBJECT IS DEPRECATED *****

                This variable indicates the translation offset
                frequency of the 10BROAD36 MAU in MHz/4; that
                is, in units of 250 kHz."
    REFERENCE   "[IEEE 802.3 Std], 30.5.1.1.9,
                aBroadbandFrequencies.translationFrequency."
 ::= { broadMauBasicEntry 5 }

-- Notifications for use by 802.3 MAUs

snmpDot3MauTraps OBJECT IDENTIFIER ::= { snmpDot3MauMgt 0 }

rpMauJabberTrap NOTIFICATION-TYPE
    OBJECTS      { rpMauJabberState }
    STATUS      current
    DESCRIPTION "This trap is sent whenever a managed repeater
                MAU enters the jabber state.

                The agent MUST throttle the generation of
                consecutive rpMauJabberTraps so that there is at
                least a five-second gap between them."

```

```
REFERENCE    "[IEEE 802.3 Mgt], 30.5.1.3.1, nJabber
              notification."
 ::= { snmpDot3MauTraps 1 }
```

```
ifMauJabberTrap NOTIFICATION-TYPE
OBJECTS        { ifMauJabberState }
STATUS         current
DESCRIPTION    "This trap is sent whenever a managed interface
               MAU enters the jabber state.
```

The agent MUST throttle the generation of consecutive ifMauJabberTraps so that there is at least a five-second gap between them."

```
REFERENCE    "[IEEE 802.3 Mgt], 30.5.1.3.1, nJabber
              notification."
 ::= { snmpDot3MauTraps 2 }
```

-- Conformance information

```
mauModConf
    OBJECT IDENTIFIER ::= { mauMod 1 }
mauModCompls
    OBJECT IDENTIFIER ::= { mauModConf 1 }
mauModObjGrps
    OBJECT IDENTIFIER ::= { mauModConf 2 }
mauModNotGrps
    OBJECT IDENTIFIER ::= { mauModConf 3 }
```

-- Object groups

```
mauRpGrpBasic OBJECT-GROUP
OBJECTS        { rpMauGroupIndex,
                  rpMauPortIndex,
                  rpMauIndex,
                  rpMauType,
                  rpMauStatus,
                  rpMauMediaAvailable,
                  rpMauMediaAvailableStateExits,
                  rpMauJabberState,
                  rpMauJabberingStateEnters
                }
STATUS         current
DESCRIPTION    "Basic conformance group for MAUs attached to
               repeater ports. This group is also the
               conformance specification for RFC 1515
```

```
::= { mauModObjGrps 1 }
```

```
mauRpGrp100Mbs OBJECT-GROUP
```

```
    OBJECTS      { rpMauFalseCarriers }
```

```
    STATUS       current
```

```
    DESCRIPTION  "Conformance group for MAUs attached to  
                  repeater ports with 100 Mb/s or greater  
                  capability."
```

```
    ::= { mauModObjGrps 2 }
```

```
mauRpGrpJack OBJECT-GROUP
```

```
    OBJECTS      { rpJackType }
```

```
    STATUS       current
```

```
    DESCRIPTION  "Conformance group for MAUs attached to  
                  repeater ports with managed jacks."
```

```
    ::= { mauModObjGrps 3 }
```

```
mauIfGrpBasic OBJECT-GROUP
```

```
    OBJECTS      { ifMauIfIndex,  
                  ifMauIndex,  
                  ifMauType,  
                  ifMauStatus,  
                  ifMauMediaAvailable,  
                  ifMauMediaAvailableStateExits,  
                  ifMauJabberState,  
                  ifMauJabberingStateEnters  
                }
```

```
    STATUS       current
```

```
    DESCRIPTION  "Basic conformance group for MAUs attached to  
                  interfaces. This group also provides a  
                  conformance specification for RFC 1515  
                  implementations."
```

```
    ::= { mauModObjGrps 4 }
```

```
mauIfGrp100Mbs OBJECT-GROUP
```

```
    OBJECTS      { ifMauFalseCarriers,  
                  ifMauTypeList,  
                  ifMauDefaultType,  
                  ifMauAutoNegSupported  
                }
```

STATUS deprecated  
DESCRIPTION "\*\*\*\*\* THIS GROUP IS DEPRECATED \*\*\*\*\*  
  
Conformance group for MAUs attached to  
interfaces with 100 Mb/s capability.  
  
This object group has been deprecated in favor  
of mauIfGrpHighCapacity."

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::= { mauModObjGrps 5 }

mauIfGrpJack OBJECT-GROUP

OBJECTS { ifJackType }

STATUS current

DESCRIPTION "Conformance group for MAUs attached to  
interfaces with managed jacks."

::= { mauModObjGrps 6 }

mauIfGrpAutoNeg OBJECT-GROUP

OBJECTS { ifMauAutoNegAdminStatus,  
ifMauAutoNegRemoteSignaling,  
ifMauAutoNegConfig,  
ifMauAutoNegCapability,  
ifMauAutoNegCapAdvertised,  
ifMauAutoNegCapReceived,  
ifMauAutoNegRestart  
}

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS GROUP IS DEPRECATED \*\*\*\*\*

Conformance group for MAUs attached to  
interfaces with managed auto-negotiation.

This object group has been deprecated in favor  
of mauIfGrpAutoNeg2."

::= { mauModObjGrps 7 }

mauBroadBasic OBJECT-GROUP

OBJECTS { broadMauIfIndex,  
broadMauIndex,  
broadMauXmtRcvSplitType,  
broadMauXmtCarrierFreq,

```

        broadMauTranslationFreq
    }
STATUS      deprecated
DESCRIPTION "***** THIS GROUP IS DEPRECATED *****

Conformance group for broadband MAUs attached
to interfaces.

This object group is deprecated. There have
been no reported implementations of this group,
and it was felt to be unlikely that there will
be any future implementations."
::= { mauModObjGrps 8 }

```

mauIfGrpHighCapacity OBJECT-GROUP

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```

OBJECTS      { ifMauFalseCarriers,
                ifMauTypeListBits,
                ifMauDefaultType,
                ifMauAutoNegSupported
            }
STATUS      current
DESCRIPTION "Conformance group for MAUs attached to
            interfaces with 100 Mb/s or greater capability."
::= { mauModObjGrps 9 }

```

mauIfGrpAutoNeg2 OBJECT-GROUP

```

OBJECTS      { ifMauAutoNegAdminStatus,
                ifMauAutoNegRemoteSignaling,
                ifMauAutoNegConfig,
                ifMauAutoNegCapabilityBits,
                ifMauAutoNegCapAdvertisedBits,
                ifMauAutoNegCapReceivedBits,
                ifMauAutoNegRestart
            }
STATUS      current
DESCRIPTION "Conformance group for MAUs attached to
            interfaces with managed auto-negotiation."
::= { mauModObjGrps 10 }

```

mauIfGrpAutoNeg1000Mbps OBJECT-GROUP

```

OBJECTS      { ifMauAutoNegRemoteFaultAdvertised,

```

```

        ifMauAutoNegRemoteFaultReceived
    }
    STATUS      current
    DESCRIPTION "Conformance group for 1000Mbps MAUs attached to
        interfaces with managed auto-negotiation."
    ::= { mauModObjGrps 11 }

```

-- Notification groups

```

rpMauNotifications NOTIFICATION-GROUP
    NOTIFICATIONS { rpMauJabberTrap }
    STATUS      current
    DESCRIPTION "Notifications for repeater MAUs."
    ::= { mauModNotGrps 1 }

```

```

ifMauNotifications NOTIFICATION-GROUP
    NOTIFICATIONS { ifMauJabberTrap }
    STATUS      current
    DESCRIPTION "Notifications for interface MAUs."
    ::= { mauModNotGrps 2 }

```

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-- Compliances

```

mauModRpCompl MODULE-COMPLIANCE
    STATUS      deprecated
    DESCRIPTION "***** THIS COMPLIANCE IS DEPRECATED *****"

```

Compliance for MAUs attached to repeater ports.

This compliance is deprecated and replaced by mauModRpCompl2, which corrects an oversight by allowing rpMauStatus to be implemented read-only."

```

MODULE -- this module
    MANDATORY-GROUPS { mauRpGrpBasic }

    GROUP      mauRpGrp100Mbs
    DESCRIPTION "Implementation of this optional group is

```

recommended for MAUs which have 100Mb/s or greater capability."

GROUP mauRpGrpJack

DESCRIPTION "Implementation of this optional group is recommended for MAUs which have one or more external jacks."

GROUP rpMauNotifications

DESCRIPTION "Implementation of this group is recommended for MAUs attached to repeater ports."

::= { mauModCompls 1 }

mauModIfCompl MODULE-COMPLIANCE

STATUS deprecated

DESCRIPTION "\*\*\*\*\* THIS COMPLIANCE IS DEPRECATED \*\*\*\*\*

Compliance for MAUs attached to interfaces.

This compliance is deprecated and replaced by mauModIfCompl2."

MODULE -- this module

MANDATORY-GROUPS { mauIfGrpBasic }

GROUP mauIfGrp100Mbs

DESCRIPTION "Implementation of this optional group is recommended for MAUs which have 100Mb/s

capability."

GROUP mauIfGrpJack

DESCRIPTION "Implementation of this optional group is recommended for MAUs which have one or more external jacks."

GROUP mauIfGrpAutoNeg

DESCRIPTION "Implementation of this group is mandatory for MAUs which support managed auto-negotiation."



GROUP mauBroadBasic  
DESCRIPTION "Implementation of this group is mandatory  
for broadband MAUs."

GROUP ifMauNotifications  
DESCRIPTION "Implementation of this group is recommended  
for MAUs attached to interfaces."

::= { mauModCompls 2 }

mauModIfCompl2 MODULE-COMPLIANCE

STATUS current

DESCRIPTION "Compliance for MAUs attached to interfaces."

MODULE -- this module

MANDATORY-GROUPS { mauIfGrpBasic }

GROUP mauIfGrpHighCapacity  
DESCRIPTION "Implementation of this optional group is  
recommended for MAUs which have 100Mb/s  
or greater capability."

GROUP mauIfGrpJack  
DESCRIPTION "Implementation of this optional group is  
recommended for MAUs which have one or more  
external jacks."

GROUP mauIfGrpAutoNeg2  
DESCRIPTION "Implementation of this group is mandatory  
for MAUs which support managed  
auto-negotiation."

GROUP mauIfGrpAutoNeg1000Mbps  
DESCRIPTION "Implementation of this group is mandatory  
for MAUs which have 1000Mb/s or greater  
capability and support managed  
auto-negotiation."

GROUP ifMauNotifications  
DESCRIPTION "Implementation of this group is recommended  
for MAUs attached to interfaces."

OBJECT ifMauStatus

```

        MIN-ACCESS    read-only
        DESCRIPTION    "Write access is not required."
 ::= { mauModCompls 3 }

mauModRpCompl2 MODULE-COMPLIANCE
    STATUS            current
    DESCRIPTION        "Compliance for MAUs attached to repeater
                        ports."

    MODULE -- this module
        MANDATORY-GROUPS { mauRpGrpBasic }

        GROUP          mauRpGrp100Mbps
        DESCRIPTION     "Implementation of this optional group is
                        recommended for MAUs which have 100Mb/s or
                        greater capability."

        GROUP          mauRpGrpJack
        DESCRIPTION     "Implementation of this optional group is
                        recommended for MAUs which have one or more
                        external jacks."

        GROUP          rpMauNotifications
        DESCRIPTION     "Implementation of this group is recommended
                        for MAUs attached to repeater ports."

        OBJECT          rpMauStatus
        MIN-ACCESS      read-only
        DESCRIPTION     "Write access is not required."
 ::= { mauModCompls 4 }

END

```

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## [6.](#) Acknowledgements

This document was produced by the IETF Ethernet Interfaces and Hub MIB Working Group, whose efforts were greatly advanced by the contributions of the following people:

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## 8. Security Considerations

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There are a number of management objects defined in this MIB that have a MAX-ACCESS clause of read-write. Setting these objects can have a serious effect on the operation of the network, including:

- enabling or disabling a MAU
- changing a MAU's default type
- enabling, disabling or restarting autonegotiation
- modifying the capabilities that a MAU advertizes during autonegotiation.

Such objects may be considered sensitive or vulnerable in some network environments. The support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations.

SNMPv1 by itself is such an insecure environment. Even if the network itself is secure (for example by using IPsec), even then, there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) the objects in this MIB.

It is recommended that the implementers consider the security features as provided by the SNMPv3 framework. Specifically, the use of the User-based Security Model [RFC 2574](#) [12] and the View-based Access Control Model [RFC 2575](#) [15] is recommended.

It is then a customer/user responsibility to ensure that the SNMP entity giving access to an instance of this MIB, is properly

configured to give access to those objects only to those principals (users) that have legitimate rights to access them.

## [9.](#) Authors' Addresses

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## [A.](#) Change Log

### [A.1.](#) Changes since [RFC 2668](#)

This section enumerates changes made to [RFC 2668](#) to produce this document.

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- (1) Updated references to the IEEE 802.3 standard to refer to the 2000 edition.
- (2) Added reference to 802.3ae.
- (3) Updated WG e-mail address.
- (4) The following DESCRIPTION clauses have been updated to reflect behaviour on 10 Gb/s interfaces:  
ifMauMediaAvailable.
- (5) OBJECT-IDENTITY definitions have been added for 10 gigabit MAU types.
- (6) Enumerations for 'pmdLinkFault', 'wisFrameLoss', 'wisSignalLoss', 'pcsLinkFault', 'excessiveBER', 'dxsLinkFault' and 'pxsLinkFault' have been added for the ifMauMediaAvailable object.
- (7) ifMauTypeListBits has been extended with bits for the 10 Gb/s MAU types.

- (8) The MODULE-IDENTITY clause has been updated to reflect the changes in the MIB module.
- (9) MIB boilerplate in [section 2](#) has been updated to the latest approved text.

#### [A.2.](#) Changes between [RFC 2239](#) and [RFC 2668](#)

This section enumerates the changes made to [RFC 2239](#) to produce [RFC 2668](#).

- (1) The MODULE-IDENTITY has been updated to reflect the changes in the MIB.
- (2) OBJECT-IDENTITY definitions have been added for gigabit MAU types.
- (3) The ifMauTypeList, ifMauAutoNegCapability, ifMauAutoNegCapAdvertised and ifMauAutoNegCapReceived objects have been deprecated and replaced by ifMauTypeListBits, ifMauAutoNegCapabilityBits, ifMauAutoNegCapAdvertisedBits and ifMauAutoNegCapReceivedBits.

- (4) Two new objects, ifMauAutoNegRemoteFaultAdvertised and ifMauAutoNegRemoteFaultReceived have been added.
- (5) Enumerations for 'offline' and 'autoNegError' have been added for the rpMauMediaAvailable and ifMauMediaAvailable objects.
- (6) The broadMauBasicTable and mauBroadBasic object group have been deprecated.
- (7) The mauIfGrp100Mbs and mauIfGrpAutoNeg object groups have been deprecated and replaced by mauIfGrpHighCapacity and mauIfGrpAutoNeg2.



- (8) A new object group, mauIfGrpAutoNeg1000Mbps, has been added.
- (9) The mauModIfCompl and mauModRpCompl compliances have been deprecated and replaced by mauModIfCompl2 and mauModRpCompl2.
- (10) Added section on relationship to [RFC 2239](#).
- (11) Updated the SNMP Network Management Framework boilerplate.
- (12) Refer to the Interfaces MIB, rather than the interfaces group of MIB-II.
- (13) Updated references to refer to latest edition of IEEE 802.3.
- (14) An intellectual property notice was added, as required by [RFC 2026](#).

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