                     IEEE 802.5 Token Ring MIB

Status of this Memo

   This memo defines a MIB for 805.5 networks for use with the SNMP
   protocol. This memo is a product of the Transmission Working Group
   of the Internet Engineering Task Force (IETF). This RFC specifies an
   IAB standards track protocol for the Internet community, and requests
   discussion and suggestions for improvements. Please refer to the
   current edition of the "IAB Official Protocol Standards" for the
   standardization state and status of this protocol. Distribution of
   this memo is unlimited.

Table of Contents

1. Abstract

   This memo defines an experimental portion of the Management
   Information Base (MIB) for use with network management protocols in
   TCP/IP-based internets. In particular, this memo defines managed
   objects used for managing subnetworks which use the IEEE 802.5 Token
   Ring technology described in 802.5 Token Ring Access Method and
   Physical Layer Specifications, IEEE Standard 802.5-1989.

2. The Network Management Framework

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

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

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

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

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

3. Objects

   Managed objects are accessed via a virtual information store, termed
   the Management Information Base or MIB. Objects in the MIB are
   defined using the subset of Abstract Syntax Notation One (ASN.1) [7]
   defined in the SMI. In particular, each object has a name, a syntax,
   and an encoding. The name is an object identifier, an
   administratively assigned name, which specifies an object type. The
   object type together with an object instance serves to uniquely
   identify a specific instantiation of the object. For human
   convenience, we often use a textual string, termed the OBJECT
   DESCRIPTOR, to also refer to the object type.

   The syntax of an object type defines the abstract data structure
   corresponding to that object type. The ASN.1 language is used for
   this purpose. However, the SMI [3] purposely restricts the ASN.1
   constructs which may be used. These restrictions are explicitly made
   for simplicity.

   The encoding of an object type is simply how that object type is
   represented using the object type's syntax. Implicitly tied to the
   notion of an object type's syntax and encoding is how the object type
   is represented when being transmitted on the network.

   The SMI specifies the use of the basic encoding rules of ASN.1 [8],
   subject to the additional requirements imposed by the SNMP.

3.1. Format of Definitions

    Section 5 contains contains the specification of all object types
    contained in this MIB module. The object types are defined using the
    conventions defined in the SMI, as amended by the extensions
    specified in [9,10].

4. Overview

    This memo defines three tables: the 802.5 Interface Table, which
    contains state and parameter information which is specific to 802.5
    interfaces, the 802.5 Statistics Table, which contains 802.5
    interface statistics, and the 802.5 Timer Table, which contains the
    values of 802.5-defined timers. A managed system will have one entry
    in the 802.5 Interface Table and one entry in the 802.5 Statistics
    Table for each of its 802.5 interfaces. Implementation of the 802.5
    Timer Table is optional.

    This memo also defines OBJECT IDENTIFIERs, some to identify 802.5
    tests, for use with the ifExtnsTestTable defined in [11], and some to
    identify Token Ring interface Chip Sets, for use with the
    ifExtnsChipSet object defined in [11].

4.1. Scope of Definitions

    All objects defined in this memo are registered in a single subtree
    within the experimental namespace [3], and are for use with every
    interface which conforms to the IEEE 802.5 Token Ring Access Method
    and Physical Layer Specifications [10]. At present, this applies to
    interfaces for which the ifType variable in the Internet-standard MIB
    [4,6] has the value:

            iso88025-tokenRing(9)

    For these interfaces, the value of the ifSpecific variable in the
    MIB-II [6] has the OBJECT IDENTIFIER value:

            dot5   OBJECT IDENTIFIER ::= { experimental 4 }

    as defined below.

4.2. Textual Conventions

    A new datatype, MacAddress, is introduced as a textual convention in
    this document. This textual convention has NO effect on either the
    syntax nor the semantics of any managed object. Objects defined using
    this convention are always encoded by means of the rules that define
    their primitive type. Hence, no changes to the SMI or the SNMP are

necessary to accommodate this textual convention which is adopted
merely for the convenience of readers.

5. Definitions

        RFC1231-MIB DEFINITIONS ::= BEGIN

        --   IEEE 802.5 Token Ring MIB

        IMPORTS
                experimental
                        FROM RFC1155-SMI
                OBJECT-TYPE
                        FROM RFC-1212;

        -- This MIB Module uses the extended OBJECT-TYPE macro as
        -- defined in [9].

        dot5   OBJECT IDENTIFIER ::= { experimental 4 }

        -- All representations of MAC addresses in this MIB Module
        -- use, as a textual convention (i.e. this convention does
        -- not affect their encoding), the data type:

        MacAddress ::= OCTET STRING (SIZE (6))   -- a 6 octet
                                                  -- address in the
                                                  -- "canonical" order
        -- defined by IEEE 802.1a, i.e., as if it were transmitted
        -- least significant bit first, even though 802.5 (in
        -- contrast to other 802.x protocols) requires MAC addresses
        -- to be transmitted most significant bit first.
        --
        -- 16-bit addresses, if needed, are represented by setting
        -- their upper 4 octets to all 0's, i.e., AAFF would be
        -- represented as 00000000AAFF.

        -- The Interface Table

        -- This table contains state and parameter information which
        -- is specific to 802.5 interfaces. It is mandatory that
        -- systems having 802.5 interfaces implement this table in
        -- addition to the generic interfaces table [4,6] and its
        -- generic extensions [11].

```
        dot5Table  OBJECT-TYPE
                SYNTAX   SEQUENCE OF Dot5Entry
                ACCESS   not-accessible
                STATUS   mandatory
                DESCRIPTION
                        "This table contains Token Ring interface
                        parameters and state variables, one entry
                        per 802.5 interface."
                ::= { dot5 1 }

        dot5Entry  OBJECT-TYPE
                SYNTAX  Dot5Entry
                ACCESS  not-accessible
                STATUS  mandatory
                DESCRIPTION
                        "A list of Token Ring status and parameter
                         values for an 802.5 interface."
                INDEX   { dot5IfIndex }
                ::= { dot5Table 1 }

        Dot5Entry
            ::= SEQUENCE {
                    dot5IfIndex
                        INTEGER,
                    dot5Commands
                        INTEGER,
                    dot5RingStatus
                        INTEGER,
                    dot5RingState
                        INTEGER,
                    dot5RingOpenStatus
                        INTEGER,
                    dot5RingSpeed
                        INTEGER,
                    dot5UpStream
                        MacAddress,
                    dot5ActMonParticipate
                        INTEGER,
                    dot5Functional
                        MacAddress
                }

        dot5IfIndex  OBJECT-TYPE
                SYNTAX   INTEGER
                ACCESS   read-only
                STATUS   mandatory
                DESCRIPTION
                        "The value of this object identifies the
```

                            802.5 interface for which this entry
                            contains management information. The
                            value of this object for a particular
                            interface has the same value as the
                            ifIndex object, defined in [4,6],
                            for the same interface."
                    ::= { dot5Entry 1 }

        dot5Commands OBJECT-TYPE
                    SYNTAX   INTEGER {
                                no-op(1),
                                open(2),
                                reset(3),
                                close(4)
                            }
                    ACCESS   read-write
                    STATUS   mandatory
                    DESCRIPTION
                            "When this object is set to the value of
                            open(2), the station should go into the
                            open state. The progress and success of
                            the open is given by the values of the
                            objects dot5RingState and
                            dot5RingOpenStatus.
                                When this object is set to the value
                            of reset(3), then the station should do
                            a reset. On a reset, all MIB counters
                            should retain their values, if possible.
                            Other side affects are dependent on the
                            hardware chip set.
                                When this object is set to the value
                            of close(4), the station should go into
                            the stopped state by removing itself
                            from the ring.
                                Setting this object to a value of
                            no-op(1) has no effect.
                                When read, this object always has a
                            value of no-op(1)."
                    ::= { dot5Entry 2 }

        dot5RingStatus OBJECT-TYPE
                    SYNTAX   INTEGER
                    ACCESS   read-only
                    STATUS   mandatory
                    DESCRIPTION
                            "The current interface status which can
                            be used to diagnose fluctuating problems
                            that can occur on token rings, after a

                        station has successfully been added to
                        the ring.
                           Before an open is completed, this
                        object has the value for the 'no status'
                        condition. The dot5RingState and
                        dot5RingOpenStatus objects provide for
                        debugging problems when the station
                        can not even enter the ring.
                            The object's value is a sum of
                        values, one for each currently applicable
                        condition. The following values are
                        defined for various conditions:

                                 0 = No Problems detected
                                32 = Ring Recovery
                                64 = Single Station
                               256 = Remove Received
                               512 = reserved
                              1024 = Auto-Removal Error
                              2048 = Lobe Wire Fault
                              4096 = Transmit Beacon
                              8192 = Soft Error
                             16384 = Hard Error
                             32768 = Signal Loss
                            131072 = no status, open not completed."
                    ::= { dot5Entry 3 }

            dot5RingState OBJECT-TYPE
                    SYNTAX INTEGER {
                            opened(1),
                            closed(2),
                            opening(3),
                            closing(4),
                            openFailure(5),
                            ringFailure(6)
                    }
                    ACCESS read-only
                    STATUS mandatory
                    DESCRIPTION
                            "The current interface state with respect
                            to entering or leaving the ring."
                    ::= { dot5Entry 4 }

            dot5RingOpenStatus OBJECT-TYPE
                    SYNTAX INTEGER {
                            noOpen(1),   -- no open attempted
                            badParam(2),
                            lobeFailed(3),

```
                              signalLoss(4),
                              insertionTimeout(5),
                              ringFailed(6),
                              beaconing(7),
                              duplicateMAC(8),
                              requestFailed(9),
                              removeReceived(10),
                              open(11)       -- last open successful
                      }
              ACCESS  read-only
              STATUS  mandatory
              DESCRIPTION
                      "This object indicates the success, or the
                      reason for failure, of the station's most
                      recent attempt to enter the ring."
              ::= { dot5Entry 5 }

      dot5RingSpeed  OBJECT-TYPE
              SYNTAX  INTEGER {
                              unknown(1),
                              oneMegabit(2),
                              fourMegabit(3),
                              sixteenMegabit(4)
                      }
              ACCESS  read-write
              STATUS  mandatory
              DESCRIPTION
                      "The ring's bandwidth."
              ::= { dot5Entry 6 }

      dot5UpStream  OBJECT-TYPE
              SYNTAX  MacAddress
              ACCESS  read-only
              STATUS  mandatory
              DESCRIPTION
                      "The MAC-address of the up stream neighbor
                       station in the ring."
              ::= { dot5Entry 7 }

      dot5ActMonParticipate OBJECT-TYPE
              SYNTAX  INTEGER {
                              true(1),
                              false(2)
                      }
              ACCESS  read-write
              STATUS  mandatory
              DESCRIPTION
                      "If this object has a value of true(1) then
```

                             this interface will participate in the
                             active monitor selection process. If the
                             value is false(2) then it will not.
                             Setting this object might not have an
                             effect until the next time the interface
                             is opened."
                   ::= { dot5Entry 8 }

          dot5Functional OBJECT-TYPE
                   SYNTAX MacAddress
                   ACCESS read-write
                   STATUS mandatory
                   DESCRIPTION
                             "The bit mask of all Token Ring functional
                             addresses for which this interface will
                             accept frames."
                   ::= { dot5Entry 9 }

          --   The Statistics Table

          -- This table contains statistics and error counter which are
          -- specific to 802.5 interfaces. It is mandatory that systems
          -- having 802.5 interfaces implement this table.

          dot5StatsTable OBJECT-TYPE
                   SYNTAX SEQUENCE OF Dot5StatsEntry
                   ACCESS not-accessible
                   STATUS mandatory
                   DESCRIPTION
                             "A table containing Token Ring statistics,
                             one entry per 802.5 interface.
                                 All the statistics are defined using
                             the syntax Counter as 32-bit wrap around
                             counters. Thus, if an interface's
                             hardware maintains these statistics in
                             16-bit counters, then the agent must read
                             the hardware's counters frequently enough
                             to prevent loss of significance, in order
                             to maintain 32-bit counters in software."
                   ::= { dot5 2 }

          dot5StatsEntry OBJECT-TYPE
                   SYNTAX Dot5StatsEntry
                   ACCESS not-accessible
                   STATUS mandatory
                   DESCRIPTION

```
                                "An entry contains the 802.5 statistics
                                 for a particular interface."
                        INDEX   { dot5StatsIfIndex }
                        ::= { dot5StatsTable 1 }

        Dot5StatsEntry
            ::= SEQUENCE {
                    dot5StatsIfIndex
                        INTEGER,
                    dot5StatsLineErrors
                        Counter,
                    dot5StatsBurstErrors
                        Counter,
                    dot5StatsACErrors
                        Counter,
                    dot5StatsAbortTransErrors
                        Counter,
                    dot5StatsInternalErrors
                        Counter,
                    dot5StatsLostFrameErrors
                        Counter,
                    dot5StatsReceiveCongestions
                        Counter,
                    dot5StatsFrameCopiedErrors
                        Counter,
                    dot5StatsTokenErrors
                        Counter,
                    dot5StatsSoftErrors
                        Counter,
                    dot5StatsHardErrors
                        Counter,
                    dot5StatsSignalLoss
                        Counter,
                    dot5StatsTransmitBeacons
                        Counter,
                    dot5StatsRecoverys
                        Counter,
                    dot5StatsLobeWires
                        Counter,
                    dot5StatsRemoves
                        Counter,
                    dot5StatsSingles
                        Counter,
                    dot5StatsFreqErrors
                        Counter
                }
```

```
        dot5StatsIfIndex  OBJECT-TYPE
                SYNTAX   INTEGER
                ACCESS   read-only
                STATUS   mandatory
                DESCRIPTION
                        "The value of this object identifies the
                        802.5 interface for which this entry
                        contains management information.  The
                        value of this object for a particular
                        interface has the same value as the
                        ifIndex object, defined in [4,6], for
                        the same interface."
                ::= { dot5StatsEntry 1 }

        dot5StatsLineErrors OBJECT-TYPE
                SYNTAX   Counter
                ACCESS   read-only
                STATUS   mandatory
                DESCRIPTION
                        "This counter is incremented when a frame
                        or token is copied or repeated by a
                        station, the E bit is zero in the frame
                        or token and one of the following
                        conditions exists: 1) there is a
                        non-data bit (J or K bit) between the SD
                        and the ED of the frame or token, or
                        2) there is an FCS error in the frame."
                ::= { dot5StatsEntry 2 }

        dot5StatsBurstErrors OBJECT-TYPE
                SYNTAX   Counter
                ACCESS   read-only
                STATUS   mandatory
                DESCRIPTION
                        "This counter is incremented when a station
                        detects the absence of transitions for five
                        half-bit timers (burst-five error)."
                ::= { dot5StatsEntry 3 }

        dot5StatsACErrors OBJECT-TYPE
                SYNTAX   Counter
                ACCESS   read-only
                STATUS   mandatory
                DESCRIPTION
                        "This counter is incremented when a station
                        receives an AMP or SMP frame in which A is
                        equal to C is equal to 0, and then receives
                        another SMP frame with A is equal to C is
```

                                equal to 0 without first receiving an AMP
                                frame. It denotes a station that cannot set
                                the AC bits properly."
                        ::= { dot5StatsEntry 4 }

                dot5StatsAbortTransErrors OBJECT-TYPE
                        SYNTAX Counter
                        ACCESS read-only
                        STATUS mandatory
                        DESCRIPTION
                                "This counter is incremented when a station
                                transmits an abort delimiter while
                                transmitting."
                        ::= { dot5StatsEntry 5 }

                dot5StatsInternalErrors OBJECT-TYPE
                        SYNTAX Counter
                        ACCESS read-only
                        STATUS mandatory
                        DESCRIPTION
                                "This counter is incremented when a station
                                recognizes an internal error."
                        ::= { dot5StatsEntry 6 }

                dot5StatsLostFrameErrors OBJECT-TYPE
                        SYNTAX Counter
                        ACCESS read-only
                        STATUS mandatory
                        DESCRIPTION
                                "This counter is incremented when a station
                                is transmitting and its TRR timer expires.
                                This condition denotes a condition where a
                                transmitting station in strip mode does not
                                receive the trailer of the frame before the
                                TRR timer goes off."
                        ::= { dot5StatsEntry 7 }

        dot5StatsReceiveCongestions OBJECT-TYPE
                        SYNTAX Counter
                        ACCESS read-only
                        STATUS mandatory
                        DESCRIPTION
                                "This counter is incremented when a station
                                recognizes a frame addressed to its
                                specific address, but has no available
                                buffer space indicating that the station
                                is congested."
                        ::= { dot5StatsEntry 8 }

```
        dot5StatsFrameCopiedErrors OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "This counter is incremented when a station
                        recognizes a frame addressed to its
                        specific address and detects that the FS
                        field A bits are set to 1 indicating a
                        possible line hit or duplicate address."
                ::= { dot5StatsEntry 9 }

        dot5StatsTokenErrors OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "This counter is incremented when a station
                        acting as the active monitor recognizes an
                        error condition that needs a token
                        transmitted."
                ::= { dot5StatsEntry 10 }

        dot5StatsSoftErrors OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The number of Soft Errors the interface
                        has detected. It directly corresponds to
                        the number of Report Error MAC frames
                        that this interface has transmitted.
                        Soft Errors are those which are
                        recoverable by the MAC layer protocols."
                ::= { dot5StatsEntry 11 }

        dot5StatsHardErrors OBJECT-TYPE
                SYNTAX  Counter
                ACCESS  read-only
                STATUS  mandatory
                DESCRIPTION
                        "The number of times this interface has
                        detected an immediately recoverable
                        fatal error.  It denotes the number of
                        times this interface is either
                        transmitting or receiving beacon MAC
                        frames."
                ::= { dot5StatsEntry 12 }
```

        dot5StatsSignalLoss OBJECT-TYPE
                SYNTAX Counter
                ACCESS read-only
                STATUS mandatory
                DESCRIPTION
                        "The number of times this interface has
                        detected the loss of signal condition from
                        the ring."
                ::= { dot5StatsEntry 13 }

        dot5StatsTransmitBeacons OBJECT-TYPE
                SYNTAX Counter
                ACCESS read-only
                STATUS mandatory
                DESCRIPTION
                        "The number of times this interface has
                        transmitted a beacon frame."
                ::= { dot5StatsEntry 14 }

        dot5StatsRecoverys OBJECT-TYPE
                SYNTAX Counter
                ACCESS read-only
                STATUS mandatory
                DESCRIPTION
                        "The number of Claim Token MAC frames
                        received or transmitted after the interface
                        has received a Ring Purge MAC frame. This
                        counter signifies the number of times the
                        ring has been purged and is being recovered
                        back into a normal operating state."
                ::= { dot5StatsEntry 15 }

        dot5StatsLobeWires OBJECT-TYPE
                SYNTAX Counter
                ACCESS read-only
                STATUS mandatory
                DESCRIPTION
                        "The number of times the interface has
                        detected an open or short circuit in the
                        lobe data path. The adapter will be closed
                        and dot5RingState will signify this
                        condition."
                ::= { dot5StatsEntry 16 }

        dot5StatsRemoves OBJECT-TYPE
                SYNTAX Counter
                ACCESS read-only
                STATUS mandatory

                        DESCRIPTION
                                "The number of times the interface has
                                received a Remove Ring Station MAC frame
                                request. When this frame is received
                                the interface will enter the close state
                                and dot5RingState will signify this
                                condition."
                        ::= { dot5StatsEntry 17 }

                dot5StatsSingles OBJECT-TYPE
                        SYNTAX Counter
                        ACCESS read-only
                        STATUS mandatory
                        DESCRIPTION
                                "The number of times the interface has
                                sensed that it is the only station on the
                                ring. This will happen if the interface
                                is the first one up on a ring, or if
                                there is a hardware problem."
                        ::= { dot5StatsEntry 18 }

                dot5StatsFreqErrors OBJECT-TYPE
                        SYNTAX Counter
                        ACCESS read-only
                        STATUS optional
                        DESCRIPTION
                                "The number of times the interface has
                                detected that the frequency of the
                                incoming signal differs from the expected
                                frequency by more than that specified by
                                the IEEE 802.5 standard, see chapter 7
                                in [10]."
                        ::= { dot5StatsEntry 19 }

                -- The Timer Table

                -- This group contains the values of the timers defined in
                -- [10] for 802.5 interfaces. It is optional that systems
                -- having 802.5 interfaces implement this group.

                dot5TimerTable OBJECT-TYPE
                        SYNTAX SEQUENCE OF Dot5TimerEntry
                        ACCESS not-accessible
                        STATUS mandatory
                        DESCRIPTION
                                "This table contains Token Ring interface
                                timer values, one entry per 802.5

                                    interface."
                        ::= { dot5 5 }

            dot5TimerEntry OBJECT-TYPE
                    SYNTAX Dot5TimerEntry
                    ACCESS not-accessible
                    STATUS mandatory
                    DESCRIPTION
                            "A list of Token Ring timer values for an
                            802.5 interface."
                    INDEX   { dot5TimerIfIndex }
                    ::= { dot5TimerTable 1 }

            Dot5TimerEntry
                ::= SEQUENCE {
                        dot5TimerIfIndex
                            INTEGER,
                        dot5TimerReturnRepeat
                            INTEGER,
                        dot5TimerHolding
                            INTEGER,
                        dot5TimerQueuePDU
                            INTEGER,
                        dot5TimerValidTransmit
                            INTEGER,
                        dot5TimerNoToken
                            INTEGER,
                        dot5TimerActiveMon
                            INTEGER,
                        dot5TimerStandbyMon
                            INTEGER,
                        dot5TimerErrorReport
                            INTEGER,
                        dot5TimerBeaconTransmit
                            INTEGER,
                        dot5TimerBeaconReceive
                            INTEGER
                    }

            dot5TimerIfIndex OBJECT-TYPE
                    SYNTAX INTEGER
                    ACCESS read-only
                    STATUS mandatory
                    DESCRIPTION
                            "The value of this object identifies the
                             802.5 interface for which this entry
                             contains timer values. The value of
                             this object for a particular interface

                                has the same value as the ifIndex
                                object, defined in [4,6], for the same
                                interface."
                        ::= { dot5TimerEntry 1 }

                dot5TimerReturnRepeat OBJECT-TYPE
                        SYNTAX INTEGER
                        ACCESS read-only
                        STATUS mandatory
                        DESCRIPTION
                                "The time-out value used to ensure the
                                interface will return to Repeat State, in
                                units of 100 micro-seconds. The value
                                should be greater than the maximum ring
                                latency.
                                    Implementors are encouraged to provide
                                read-write access to this object if that is
                                possible/useful in their system, but giving
                                due consideration to the dangers of
                                write-able timers."
                        ::= { dot5TimerEntry 2 }

                dot5TimerHolding OBJECT-TYPE
                        SYNTAX INTEGER
                        ACCESS read-only
                        STATUS mandatory
                        DESCRIPTION
                                "Maximum period of time a station is
                                permitted to transmit frames after capturing
                                a token, in units of 100 micro-seconds.
                                    Implementors are encouraged to provide
                                read-write access to this object if that is
                                possible/useful in their system, but giving
                                due consideration to the dangers of
                                write-able timers."
                        ::= { dot5TimerEntry 3 }

                dot5TimerQueuePDU OBJECT-TYPE
                        SYNTAX INTEGER
                        ACCESS read-only
                        STATUS mandatory
                        DESCRIPTION
                                "The time-out value for enqueuing of an SMP
                                PDU after reception of an AMP or SMP
                                frame in which the A and C bits were
                                equal to 0, in units of 100
                                micro-seconds.
                                    Implementors are encouraged to provide

                                    read-write access to this object if that is
                                    possible/useful in their system, but giving
                                    due consideration to the dangers of
                                    write-able timers."
                            ::= { dot5TimerEntry 4 }

          dot5TimerValidTransmit OBJECT-TYPE
                    SYNTAX INTEGER
                    ACCESS read-only
                    STATUS mandatory
                    DESCRIPTION
                            "The time-out value used by the active
                            monitor to detect the absence of valid
                            transmissions, in units of 100
                            micro-seconds.
                                Implementors are encouraged to provide
                            read-write access to this object if that is
                            possible/useful in their system, but giving
                            due consideration to the dangers of
                            write-able timers."
                            ::= { dot5TimerEntry 5 }

          dot5TimerNoToken OBJECT-TYPE
                    SYNTAX INTEGER
                    ACCESS read-only
                    STATUS mandatory
                    DESCRIPTION
                            "The time-out value used to recover from
                            various-related error situations [9].
                            If N is the maximum number of stations on
                            the ring, the value of this timer is
                            normally:
                            dot5TimerReturnRepeat + N*dot5TimerHolding.
                                Implementors are encouraged to provide
                            read-write access to this object if that is
                            possible/useful in their system, but giving
                            due consideration to the dangers of
                            write-able timers."
                            ::= { dot5TimerEntry 6 }

          dot5TimerActiveMon OBJECT-TYPE
                    SYNTAX INTEGER
                    ACCESS read-only
                    STATUS mandatory
                    DESCRIPTION
                            "The time-out value used by the active
                            monitor to stimulate the enqueuing of an
                            AMP PDU for transmission, in units of

100 micro-seconds.
                    Implementors are encouraged to provide
            read-write access to this object if that is
            possible/useful in their system, but giving
            due consideration to the dangers of
            write-able timers."
        ::= { dot5TimerEntry 7 }

dot5TimerStandbyMon OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The time-out value used by the stand-by
            monitors to ensure that there is an active
            monitor on the ring and to detect a
            continuous stream of tokens, in units of
            100 micro-seconds.
                    Implementors are encouraged to provide
            read-write access to this object if that is
            possible/useful in their system, but giving
            due consideration to the dangers of
            write-able timers."
        ::= { dot5TimerEntry 8 }

dot5TimerErrorReport OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The time-out value which determines how
            often a station shall send a Report Error
            MAC frame to report its error counters,
            in units of 100 micro-seconds.
                    Implementors are encouraged to provide
            read-write access to this object if that is
            possible/useful in their system, but giving
            due consideration to the dangers of
            write-able timers."
        ::= { dot5TimerEntry 9 }

dot5TimerBeaconTransmit OBJECT-TYPE
        SYNTAX INTEGER
        ACCESS read-only
        STATUS mandatory
        DESCRIPTION
            "The time-out value which determines how
            long a station shall remain in the state

                                of transmitting Beacon frames before
                                entering the Bypass state, in units of
                                100 micro-seconds.
                                    Implementors are encouraged to provide
                                read-write access to this object if that is
                                possible/useful in their system, but giving
                                due consideration to the dangers of
                                write-able timers."
                        ::= { dot5TimerEntry 10 }

             dot5TimerBeaconReceive OBJECT-TYPE
                        SYNTAX   INTEGER
                        ACCESS   read-only
                        STATUS   mandatory
                        DESCRIPTION
                                "The time-out value which determines how
                                long a station shall receive Beacon
                                frames from its downstream neighbor
                                before entering the Bypass state, in
                                units of 100 micro-seconds.
                                    Implementors are encouraged to provide
                                read-write access to this object if that is
                                possible/useful in their system, but giving
                                due consideration to the dangers of
                                write-able timers."
                        ::= { dot5TimerEntry 11 }

             --   802.5 Interface Tests

             dot5Tests   OBJECT IDENTIFIER ::= { dot5 3 }

             -- The extensions to the interfaces table proposed in [11]
             -- define a table object, ifExtnsTestTable, through which a
             -- network manager can instruct an agent to test an interface
             -- for various faults. A test to be performed is identified
             -- (as the value of ifExtnsTestType) via an OBJECT IDENTIFIER.
             --
             -- The Full-Duplex Loop Back Test is a common test, defined
             -- in [11] as:
             --
             --   testFullDuplexLoopBack
             --
             -- Invoking this test on a 802.5 interface causes the
             -- interface to check the path from memory through the
             -- chip set's internal logic and back to memory, thus
             -- checking the proper functioning of the systems's
             -- interface to the chip set.

```
         -- The Insert Function test is defined by:

         testInsertFunc    OBJECT IDENTIFIER ::= { dot5Tests 1 }

         -- Invoking this test causes the station to test the insert
         -- ring logic of the hardware if the station's lobe media
         -- cable is connected to a wiring concentrator.  Note that
         -- this command inserts the station into the network, and
         -- thus, could cause problems if the station is connected
         -- to a operational network.

         --                   802.5 Hardware Chip Sets

         dot5ChipSets   OBJECT IDENTIFIER ::= { dot5 4 }

         -- The extensions to the interfaces table proposed in [11]
         -- define an object, ifExtnsChipSet, with the syntax of
         -- OBJECT IDENTIFIER, to identify the hardware chip set in
         -- use by an interface.  That definition specifies just
         -- one applicable object identifier:
         --
         --    unknownChipSet
         --
         -- for use as the value of ifExtnsChipSet when the specific
         -- chip set is unknown.
         --
         -- This MIB defines the following for use as values of
         -- ifExtnsChipSet:

            -- IBM 16/4 Mb/s
         chipSetIBM16        OBJECT IDENTIFIER ::= { dot5ChipSets 1 }

            -- TI 4Mb/s
         chipSetTItms380     OBJECT IDENTIFIER ::= { dot5ChipSets 2 }

            -- TI 16/4 Mb/s
         chipSetTItms380c16 OBJECT IDENTIFIER ::= { dot5ChipSets 3 }

         END
```

6. Acknowledgements

   This document was produced under the auspices of the IETF's
   Transmission Working Group. The comments of the following
   individuals are acknowledged:

Tom Benkart, Advanced Computer Communications
Stan Froyd, Advanced Computer Communications
Marshall T. Rose, Performance Systems International, Inc.

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8. Security Considerations

    Security issues are not discussed in this memo.

9. Authors' Addresses

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