```
-- extracted from rfc1213.txt
-- at Mon Nov 15 17:12:00 1999


RFC1213-MIB DEFINITIONS ::= BEGIN


IMPORTS
        mgmt,
        NetworkAddress,
        IpAddress,
        Counter,
        Gauge,
        TimeTicks
                FROM RFC1155-SMI
        OBJECT-TYPE
                FROM RFC-1212;
--  This MIB module uses the extended OBJECT-TYPE macro as
--  defined in [14];
--  MIB-II (same prefix as MIB-I)

mib-2 OBJECT IDENTIFIER
 -- 1.3.6.1.2.1 --  ::= { mgmt 1 }
-- textual conventions

DisplayString ::= OCTET STRING
-- This data type is used to model textual information taken
-- from the NVT ASCII character set.  By convention, objects
-- with this syntax are declared as having
--
--      SIZE (0..255)

PhysAddress ::= OCTET STRING
-- This data type is used to model media addresses.  For many
-- types of media, this will be in a binary representation.
-- For example, an ethernet address would be represented as
-- a string of 6 octets.
-- groups in MIB-II

system OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.1 --  ::= { mib-2 1 }

interfaces OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.2 --  ::= { mib-2 2 }

at OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.3 --  ::= { mib-2 3 }

ip OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.4 --  ::= { mib-2 4 }

icmp OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.5 --  ::= { mib-2 5 }

tcp OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.6 --  ::= { mib-2 6 }

udp OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.7 --  ::= { mib-2 7 }

egp OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.8 --  ::= { mib-2 8 }
-- historical (some say hysterical)
-- cmot      OBJECT IDENTIFIER ::= { mib-2 9 }

transmission OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.10 --  ::= { mib-2 10 }

snmp OBJECT IDENTIFIER
 -- 1.3.6.1.2.1.11 --  ::= { mib-2 11 }
```

```
-- the System group
-- Implementation of the System group is mandatory for all
-- systems.  If an agent is not configured to have a value
-- for any of these variables, a string of length 0 is
-- returned.

sysDescr OBJECT-TYPE
        SYNTAX      DisplayString (SIZE (0..255))
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "A textual description of the entity.  This value
                should include the full name and version
                identification of the system's hardware type,
                software operating-system, and networking
                software.  It is mandatory that this only contain
                printable ASCII characters."
 -- 1.3.6.1.2.1.1.1 --  ::= { system 1 }

sysObjectID OBJECT-TYPE
        SYNTAX      OBJECT IDENTIFIER
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The vendor's authoritative identification of the
                network management subsystem contained in the
                entity.  This value is allocated within the SMI
                enterprises subtree (1.3.6.1.4.1) and provides an
                easy and unambiguous means for determining `what
                kind of box' is being managed.  For example, if
                vendor `Flintstones, Inc.' was assigned the
                subtree 1.3.6.1.4.1.4242, it could assign the
                identifier 1.3.6.1.4.1.4242.1.1 to its `Fred
                Router'."
 -- 1.3.6.1.2.1.1.2 --  ::= { system 2 }

sysUpTime OBJECT-TYPE
        SYNTAX      TimeTicks
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The time (in hundredths of a second) since the
                network management portion of the system was last
                re-initialized."
 -- 1.3.6.1.2.1.1.3 --  ::= { system 3 }

sysContact OBJECT-TYPE
        SYNTAX      DisplayString (SIZE (0..255))
        ACCESS      read-write
        STATUS      mandatory
        DESCRIPTION
                "The textual identification of the contact person
                for this managed node, together with information
                on how to contact this person."
 -- 1.3.6.1.2.1.1.4 --  ::= { system 4 }

sysName OBJECT-TYPE
        SYNTAX      DisplayString (SIZE (0..255))
        ACCESS      read-write
        STATUS      mandatory
        DESCRIPTION
                "An administratively-assigned name for this
                managed node.  By convention, this is the node's
                fully-qualified domain name."
 -- 1.3.6.1.2.1.1.5 --  ::= { system 5 }

sysLocation OBJECT-TYPE
        SYNTAX      DisplayString (SIZE (0..255))
        ACCESS      read-write
```

```
          STATUS       mandatory
          DESCRIPTION
                  "The physical location of this node (e.g.,
                  `telephone closet, 3rd floor')."
 -- 1.3.6.1.2.1.1.6 --  ::= { system 6 }

sysServices OBJECT-TYPE
          SYNTAX       INTEGER (0..127)
          ACCESS       read-only
          STATUS       mandatory
          DESCRIPTION
                  "A value which indicates the set of services that
                  this entity primarily offers.

                  The value is a sum.  This sum initially takes the
                  value zero, Then, for each layer, L, in the range
                  1 through 7, that this node performs transactions
                  for, 2 raised to (L - 1) is added to the sum.  For
                  example, a node which performs primarily routing
                  functions would have a value of 4 (2^(3-1)).  In
                  contrast, a node which is a host offering
                  application services would have a value of 72
                  (2^(4-1) + 2^(7-1)).  Note that in the context of
                  the Internet suite of protocols, values should be
                  calculated accordingly:

                          layer  functionality
                             1  physical (e.g., repeaters)
                             2  datalink/subnetwork (e.g., bridges)
                             3  internet (e.g., IP gateways)
                             4  end-to-end  (e.g., IP hosts)
                             7  applications (e.g., mail relays)

                  For systems including OSI protocols, layers 5 and
                  6 may also be counted."
 -- 1.3.6.1.2.1.1.7 --  ::= { system 7 }
-- the Interfaces group
-- Implementation of the Interfaces group is mandatory for
-- all systems.

ifNumber OBJECT-TYPE
        SYNTAX       INTEGER
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The number of network interfaces (regardless of
                their current state) present on this system."
 -- 1.3.6.1.2.1.2.1 --  ::= { interfaces 1 }
-- the Interfaces table
-- The Interfaces table contains information on the entity's
-- interfaces.  Each interface is thought of as being
-- attached to a `subnetwork'.  Note that this term should
-- not be confused with `subnet' which refers to an
-- addressing partitioning scheme used in the Internet suite
-- of protocols.

ifTable OBJECT-TYPE
        SYNTAX       SEQUENCE OF IfEntry
        ACCESS       not-accessible
        STATUS       mandatory
        DESCRIPTION
                "A list of interface entries.  The number of
                entries is given by the value of ifNumber."
 -- 1.3.6.1.2.1.2.2 --  ::= { interfaces 2 }

ifEntry OBJECT-TYPE
        SYNTAX       IfEntry
        ACCESS       not-accessible
        STATUS       mandatory
```

```
        DESCRIPTION
                "An interface entry containing objects at the
                subnetwork layer and below for a particular
                interface."
        INDEX {
                ifIndex
                }
 -- 1.3.6.1.2.1.2.2.1 --  ::= { ifTable 1 }

 IfEntry ::= SEQUENCE {
                ifIndex           INTEGER,
                ifDescr           DisplayString,
                ifType            INTEGER,
                ifMtu             INTEGER,
                ifSpeed           Gauge,
                ifPhysAddress     PhysAddress,
                ifAdminStatus     INTEGER,
                ifOperStatus      INTEGER,
                ifLastChange      TimeTicks,
                ifInOctets        Counter,
                ifInUcastPkts     Counter,
                ifInNUcastPkts    Counter,
                ifInDiscards      Counter,
                ifInErrors        Counter,
                ifInUnknownProtos Counter,
                ifOutOctets       Counter,
                ifOutUcastPkts    Counter,
                ifOutNUcastPkts   Counter,
                ifOutDiscards     Counter,
                ifOutErrors       Counter,
                ifOutQLen         Gauge,
                ifSpecific        OBJECT IDENTIFIER
                }


 ifIndex OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "A unique value for each interface.  Its value
                ranges between 1 and the value of ifNumber.  The
                value for each interface must remain constant at
                least from one re-initialization of the entity's
                network management system to the next re-
                initialization."
 -- 1.3.6.1.2.1.2.2.1.1 --  ::= { ifEntry 1 }

 ifDescr OBJECT-TYPE
        SYNTAX      DisplayString (SIZE (0..255))
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "A textual string containing information about the
                interface.  This string should include the name of
                the manufacturer, the product name and the version
                of the hardware interface."
 -- 1.3.6.1.2.1.2.2.1.2 --  ::= { ifEntry 2 }

 ifType OBJECT-TYPE
        SYNTAX          INTEGER {
                    other(1),                       -- none of the following
                    regular1822(2),
                    hdh1822(3),
                    ddn-x25(4),
                    rfc877-x25(5),
                    ethernet-csmacd(6),
                    iso88023-csmacd(7),
                    iso88024-tokenBus(8),
```

```
                    iso88025-tokenRing(9),
                    iso88026-man(10),
                    starLan(11),
                    proteon-10Mbit(12),
                    proteon-80Mbit(13),
                    hyperchannel(14),
                    fddi(15),
                    lapb(16),
                    sdlc(17),
                    ds1(18),                          -- T-1
                    e1(19),                           -- european equiv. of T-1
                    basicISDN(20),
                    primaryISDN(21),                  -- proprietary serial
                    propPointToPointSerial(22),
                    ppp(23),
                    softwareLoopback(24),
                    eon(25),                          -- CLNP over IP [11]
                    ethernet-3Mbit(26),
                    nsip(27),                         -- XNS over IP
                    slip(28),                         -- generic SLIP
                    ultra(29),                        -- ULTRA technologies
                    ds3(30),                          -- T-3
                    sip(31),                          -- SMDS
                    frame-relay(32) }
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The type of interface, distinguished according to
                the physical/link protocol(s) immediately `below'
                the network layer in the protocol stack."
 -- 1.3.6.1.2.1.2.2.1.3 --  ::= { ifEntry 3 }

ifMtu OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The size of the largest datagram which can be
                sent/received on the interface, specified in
                octets.  For interfaces that are used for
                transmitting network datagrams, this is the size
                of the largest network datagram that can be sent
                on the interface."
 -- 1.3.6.1.2.1.2.2.1.4 --  ::= { ifEntry 4 }

ifSpeed OBJECT-TYPE
        SYNTAX      Gauge
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "An estimate of the interface's current bandwidth
                in bits per second.  For interfaces which do not
                vary in bandwidth or for those where no accurate
                estimation can be made, this object should contain
                the nominal bandwidth."
 -- 1.3.6.1.2.1.2.2.1.5 --  ::= { ifEntry 5 }

ifPhysAddress OBJECT-TYPE
        SYNTAX      PhysAddress
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The interface's address at the protocol layer
                immediately `below' the network layer in the
                protocol stack.  For interfaces which do not have
                such an address (e.g., a serial line), this object
                should contain an octet string of zero length."
 -- 1.3.6.1.2.1.2.2.1.6 --  ::= { ifEntry 6 }
```

```
ifAdminStatus OBJECT-TYPE
        SYNTAX        INTEGER {
                          up(1),                  -- ready to pass packets
                          down(2),
                          testing(3)            -- in some test mode
                          }
        ACCESS        read-write
        STATUS        mandatory
        DESCRIPTION
                "The desired state of the interface.  The
                testing(3) state indicates that no operational
                packets can be passed."
 -- 1.3.6.1.2.1.2.2.1.7 --  ::= { ifEntry 7 }

ifOperStatus OBJECT-TYPE
        SYNTAX        INTEGER {
                          up(1),                  -- ready to pass packets
                          down(2),
                          testing(3)            -- in some test mode
                          }
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                "The current operational state of the interface.
                The testing(3) state indicates that no operational
                packets can be passed."
 -- 1.3.6.1.2.1.2.2.1.8 --  ::= { ifEntry 8 }

ifLastChange OBJECT-TYPE
        SYNTAX        TimeTicks
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                "The value of sysUpTime at the time the interface
                entered its current operational state.  If the
                current state was entered prior to the last re-
                initialization of the local network management
                subsystem, then this object contains a zero
                value."
 -- 1.3.6.1.2.1.2.2.1.9 --  ::= { ifEntry 9 }

ifInOctets OBJECT-TYPE
        SYNTAX        Counter
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                "The total number of octets received on the
                interface, including framing characters."
 -- 1.3.6.1.2.1.2.2.1.10 --  ::= { ifEntry 10 }

ifInUcastPkts OBJECT-TYPE
        SYNTAX        Counter
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                "The number of subnetwork-unicast packets
                delivered to a higher-layer protocol."
 -- 1.3.6.1.2.1.2.2.1.11 --  ::= { ifEntry 11 }

ifInNUcastPkts OBJECT-TYPE
        SYNTAX        Counter
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                "The number of non-unicast (i.e., subnetwork-
                broadcast or subnetwork-multicast) packets
                delivered to a higher-layer protocol."
 -- 1.3.6.1.2.1.2.2.1.12 --  ::= { ifEntry 12 }
```

```
ifInDiscards OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of inbound packets which were chosen
                to be discarded even though no errors had been
                detected to prevent their being deliverable to a
                higher-layer protocol.  One possible reason for
                discarding such a packet could be to free up
                buffer space."
 -- 1.3.6.1.2.1.2.2.1.13 --  ::= { ifEntry 13 }

ifInErrors OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of inbound packets that contained
                errors preventing them from being deliverable to a
                higher-layer protocol."
 -- 1.3.6.1.2.1.2.2.1.14 --  ::= { ifEntry 14 }

ifInUnknownProtos OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of packets received via the interface
                which were discarded because of an unknown or
                unsupported protocol."
 -- 1.3.6.1.2.1.2.2.1.15 --  ::= { ifEntry 15 }

ifOutOctets OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of octets transmitted out of the
                interface, including framing characters."
 -- 1.3.6.1.2.1.2.2.1.16 --  ::= { ifEntry 16 }

ifOutUcastPkts OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of packets that higher-level
                protocols requested be transmitted to a
                subnetwork-unicast address, including those that
                were discarded or not sent."
 -- 1.3.6.1.2.1.2.2.1.17 --  ::= { ifEntry 17 }

ifOutNUcastPkts OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of packets that higher-level
                protocols requested be transmitted to a non-
                unicast (i.e., a subnetwork-broadcast or
                subnetwork-multicast) address, including those
                that were discarded or not sent."
 -- 1.3.6.1.2.1.2.2.1.18 --  ::= { ifEntry 18 }

ifOutDiscards OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
```

```
        STATUS      mandatory
        DESCRIPTION
                "The number of outbound packets which were chosen
                to be discarded even though no errors had been
                detected to prevent their being transmitted.  One
                possible reason for discarding such a packet could
                be to free up buffer space."
  -- 1.3.6.1.2.1.2.2.1.19 --  ::= { ifEntry 19 }

 ifOutErrors OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of outbound packets that could not be
                transmitted because of errors."
  -- 1.3.6.1.2.1.2.2.1.20 --  ::= { ifEntry 20 }

 ifOutQLen OBJECT-TYPE
        SYNTAX      Gauge
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The length of the output packet queue (in
                packets)."
  -- 1.3.6.1.2.1.2.2.1.21 --  ::= { ifEntry 21 }

 ifSpecific OBJECT-TYPE
        SYNTAX      OBJECT IDENTIFIER
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "A reference to MIB definitions specific to the
                particular media being used to realize the
                interface.  For example, if the interface is
                realized by an ethernet, then the value of this
                object refers to a document defining objects
                specific to ethernet.  If this information is not
                present, its value should be set to the OBJECT
                IDENTIFIER { 0 0 }, which is a syntatically valid
                object identifier, and any conformant
                implementation of ASN.1 and BER must be able to
                generate and recognize this value."
  -- 1.3.6.1.2.1.2.2.1.22 --  ::= { ifEntry 22 }
-- the Address Translation group
-- Implementation of the Address Translation group is
-- mandatory for all systems.  Note however that this group
-- is deprecated by MIB-II. That is, it is being included
-- solely for compatibility with MIB-I nodes, and will most
-- likely be excluded from MIB-III nodes.  From MIB-II and
-- onwards, each network protocol group contains its own
-- address translation tables.
-- The Address Translation group contains one table which is
-- the union across all interfaces of the translation tables
-- for converting a NetworkAddress (e.g., an IP address) into
-- a subnetwork-specific address.  For lack of a better term,
-- this document refers to such a subnetwork-specific address
-- as a `physical' address.
-- Examples of such translation tables are: for broadcast
-- media where ARP is in use, the translation table is
-- equivalent to the ARP cache; or, on an X.25 network where
-- non-algorithmic translation to X.121 addresses is
-- required, the translation table contains the
-- NetworkAddress to X.121 address equivalences.

 atTable OBJECT-TYPE
        SYNTAX          SEQUENCE OF AtEntry
        ACCESS          not-accessible
        STATUS          deprecated
```

```
        DESCRIPTION
                "The Address Translation tables contain the
                NetworkAddress to `physical' address equivalences.
                Some interfaces do not use translation tables for
                determining address equivalences (e.g., DDN-X.25
                has an algorithmic method); if all interfaces are
                of this type, then the Address Translation table
                is empty, i.e., has zero entries."
  -- 1.3.6.1.2.1.3.1 --  ::= { at 1 }

 atEntry OBJECT-TYPE
        SYNTAX      AtEntry
        ACCESS      not-accessible
        STATUS      deprecated
        DESCRIPTION
                "Each entry contains one NetworkAddress to
                `physical' address equivalence."
        INDEX {
                atIfIndex,
                atNetAddress
        }
  -- 1.3.6.1.2.1.3.1.1 --  ::= { atTable 1 }

 AtEntry ::= SEQUENCE {
                atIfIndex     INTEGER,
                atPhysAddress PhysAddress,
                atNetAddress  NetworkAddress
        }


 atIfIndex OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-write
        STATUS      deprecated
        DESCRIPTION
                "The interface on which this entry's equivalence
                is effective.  The interface identified by a
                particular value of this index is the same
                interface as identified by the same value of
                ifIndex."
  -- 1.3.6.1.2.1.3.1.1.1 --  ::= { atEntry 1 }

 atPhysAddress OBJECT-TYPE
        SYNTAX      PhysAddress
        ACCESS      read-write
        STATUS      deprecated
        DESCRIPTION
                "The media-dependent `physical' address.

                Setting this object to a null string (one of zero
                length) has the effect of invaliding the
                corresponding entry in the atTable object.  That
                is, it effectively dissasociates the interface
                identified with said entry from the mapping
                identified with said entry.  It is an
                implementation-specific matter as to whether the
                agent removes an invalidated entry from the table.
                Accordingly, management stations must be prepared
                to receive tabular information from agents that
                corresponds to entries not currently in use.
                Proper interpretation of such entries requires
                examination of the relevant atPhysAddress object."
  -- 1.3.6.1.2.1.3.1.1.2 --  ::= { atEntry 2 }

 atNetAddress OBJECT-TYPE
        SYNTAX      NetworkAddress
        ACCESS      read-write
        STATUS      deprecated
        DESCRIPTION
```

```
                    "The NetworkAddress (e.g., the IP address)
                    corresponding to the media-dependent `physical'
                    address."
 -- 1.3.6.1.2.1.3.1.1.3 --  ::= { atEntry 3 }
-- the IP group
-- Implementation of the IP group is mandatory for all
-- systems.

ipForwarding OBJECT-TYPE
        SYNTAX        INTEGER {
                          forwarding(1),               -- acting as a gateway
                          not-forwarding(2)            -- NOT acting as a gateway
                          }
        ACCESS        read-write
        STATUS        mandatory
        DESCRIPTION
                    "The indication of whether this entity is acting
                    as an IP gateway in respect to the forwarding of
                    datagrams received by, but not addressed to, this
                    entity.  IP gateways forward datagrams.  IP hosts
                    do not (except those source-routed via the host).

                    Note that for some managed nodes, this object may
                    take on only a subset of the values possible.
                    Accordingly, it is appropriate for an agent to
                    return a `badValue' response if a management
                    station attempts to change this object to an
                    inappropriate value."
 -- 1.3.6.1.2.1.4.1 --  ::= { ip 1 }

ipDefaultTTL OBJECT-TYPE
        SYNTAX        INTEGER
        ACCESS        read-write
        STATUS        mandatory
        DESCRIPTION
                    "The default value inserted into the Time-To-Live
                    field of the IP header of datagrams originated at
                    this entity, whenever a TTL value is not supplied
                    by the transport layer protocol."
 -- 1.3.6.1.2.1.4.2 --  ::= { ip 2 }

ipInReceives OBJECT-TYPE
        SYNTAX        Counter
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                    "The total number of input datagrams received from
                    interfaces, including those received in error."
 -- 1.3.6.1.2.1.4.3 --  ::= { ip 3 }

ipInHdrErrors OBJECT-TYPE
        SYNTAX        Counter
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                    "The number of input datagrams discarded due to
                    errors in their IP headers, including bad
                    checksums, version number mismatch, other format
                    errors, time-to-live exceeded, errors discovered
                    in processing their IP options, etc."
 -- 1.3.6.1.2.1.4.4 --  ::= { ip 4 }

ipInAddrErrors OBJECT-TYPE
        SYNTAX        Counter
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                    "The number of input datagrams discarded because
                    the IP address in their IP header's destination
```

```
                    field was not a valid address to be received at
                    this entity.  This count includes invalid
                    addresses (e.g., 0.0.0.0) and addresses of
                    unsupported Classes (e.g., Class E).  For entities
                    which are not IP Gateways and therefore do not
                    forward datagrams, this counter includes datagrams
                    discarded because the destination address was not
                    a local address."
    -- 1.3.6.1.2.1.4.5 --  ::= { ip 5 }

 ipForwDatagrams OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                    "The number of input datagrams for which this
                    entity was not their final IP destination, as a
                    result of which an attempt was made to find a
                    route to forward them to that final destination.
                    In entities which do not act as IP Gateways, this
                    counter will include only those packets which were
                    Source-Routed via this entity, and the Source-
                    Route option processing was successful."
    -- 1.3.6.1.2.1.4.6 --  ::= { ip 6 }

 ipInUnknownProtos OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                    "The number of locally-addressed datagrams
                    received successfully but discarded because of an
                    unknown or unsupported protocol."
    -- 1.3.6.1.2.1.4.7 --  ::= { ip 7 }

 ipInDiscards OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                    "The number of input IP datagrams for which no
                    problems were encountered to prevent their
                    continued processing, but which were discarded
                    (e.g., for lack of buffer space).  Note that this
                    counter does not include any datagrams discarded
                    while awaiting re-assembly."
    -- 1.3.6.1.2.1.4.8 --  ::= { ip 8 }

 ipInDelivers OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                    "The total number of input datagrams successfully
                    delivered to IP user-protocols (including ICMP)."
    -- 1.3.6.1.2.1.4.9 --  ::= { ip 9 }

 ipOutRequests OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                    "The total number of IP datagrams which local IP
                    user-protocols (including ICMP) supplied to IP in
                    requests for transmission.  Note that this counter
                    does not include any datagrams counted in
                    ipForwDatagrams."
    -- 1.3.6.1.2.1.4.10 --  ::= { ip 10 }
```

ipOutDiscards **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                "The number of output IP datagrams for which no
                problem was encountered to prevent their
                transmission to their destination, but which were
                discarded (e.g., for lack of buffer space). Note
                that this counter would include datagrams counted
                in ipForwDatagrams if any such packets met this
                (discretionary) discard criterion."
 -- 1.3.6.1.2.1.4.11 -- **::=** { ip 11 }

ipOutNoRoutes **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                "The number of IP datagrams discarded because no
                route could be found to transmit them to their
                destination. Note that this counter includes any
                packets counted in ipForwDatagrams which meet this
                `no-route' criterion. Note that this includes any
                datagarms which a host cannot route because all of
                its default gateways are down."
 -- 1.3.6.1.2.1.4.12 -- **::=** { ip 12 }

ipReasmTimeout **OBJECT-TYPE**
        SYNTAX   INTEGER
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                "The maximum number of seconds which received
                fragments are held while they are awaiting
                reassembly at this entity."
 -- 1.3.6.1.2.1.4.13 -- **::=** { ip 13 }

ipReasmReqds **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                "The number of IP fragments received which needed
                to be reassembled at this entity."
 -- 1.3.6.1.2.1.4.14 -- **::=** { ip 14 }

ipReasmOKs **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                "The number of IP datagrams successfully re-
                assembled."
 -- 1.3.6.1.2.1.4.15 -- **::=** { ip 15 }

ipReasmFails **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                "The number of failures detected by the IP re-
                assembly algorithm (for whatever reason: timed
                out, errors, etc). Note that this is not
                necessarily a count of discarded IP fragments
                since some algorithms (notably the algorithm in
                RFC 815) can lose track of the number of fragments
                by combining them as they are received."

```
 -- 1.3.6.1.2.1.4.16 --  ::= { ip 16 }

 ipFragOKs OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
               "The number of IP datagrams that have been
               successfully fragmented at this entity."
 -- 1.3.6.1.2.1.4.17 --  ::= { ip 17 }

 ipFragFails OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
               "The number of IP datagrams that have been
               discarded because they needed to be fragmented at
               this entity but could not be, e.g., because their
               Don't Fragment flag was set."
 -- 1.3.6.1.2.1.4.18 --  ::= { ip 18 }

 ipFragCreates OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
               "The number of IP datagram fragments that have
               been generated as a result of fragmentation at
               this entity."
 -- 1.3.6.1.2.1.4.19 --  ::= { ip 19 }
-- the IP address table
-- The IP address table contains this entity's IP addressing
-- information.

 ipAddrTable OBJECT-TYPE
        SYNTAX       SEQUENCE OF IpAddrEntry
        ACCESS       not-accessible
        STATUS       mandatory
        DESCRIPTION
               "The table of addressing information relevant to
               this entity's IP addresses."
 -- 1.3.6.1.2.1.4.20 --  ::= { ip 20 }

 ipAddrEntry OBJECT-TYPE
        SYNTAX       IpAddrEntry
        ACCESS       not-accessible
        STATUS       mandatory
        DESCRIPTION
               "The addressing information for one of this
               entity's IP addresses."
        INDEX {
               ipAdEntAddr
        }
 -- 1.3.6.1.2.1.4.20.1 --  ::= { ipAddrTable 1 }

 IpAddrEntry ::= SEQUENCE {
               ipAdEntAddr        IpAddress,
               ipAdEntIfIndex     INTEGER,
               ipAdEntNetMask     IpAddress,
               ipAdEntBcastAddr   INTEGER,
               ipAdEntReasmMaxSize INTEGER
        }


 ipAdEntAddr OBJECT-TYPE
        SYNTAX       IpAddress
        ACCESS       read-only
        STATUS       mandatory
```

```
        DESCRIPTION
                "The IP address to which this entry's addressing
                information pertains."
 -- 1.3.6.1.2.1.4.20.1.1 --  ::= { ipAddrEntry 1 }


ipAdEntIfIndex OBJECT-TYPE
        SYNTAX       INTEGER
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The index value which uniquely identifies the
                interface to which this entry is applicable.  The
                interface identified by a particular value of this
                index is the same interface as identified by the
                same value of ifIndex."
 -- 1.3.6.1.2.1.4.20.1.2 --  ::= { ipAddrEntry 2 }


ipAdEntNetMask OBJECT-TYPE
        SYNTAX       IpAddress
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The subnet mask associated with the IP address of
                this entry.  The value of the mask is an IP
                address with all the network bits set to 1 and all
                the hosts bits set to 0."
 -- 1.3.6.1.2.1.4.20.1.3 --  ::= { ipAddrEntry 3 }


ipAdEntBcastAddr OBJECT-TYPE
        SYNTAX       INTEGER
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The value of the least-significant bit in the IP
                broadcast address used for sending datagrams on
                the (logical) interface associated with the IP
                address of this entry.  For example, when the
                Internet standard all-ones broadcast address is
                used, the value will be 1.  This value applies to
                both the subnet and network broadcasts addresses
                used by the entity on this (logical) interface."
 -- 1.3.6.1.2.1.4.20.1.4 --  ::= { ipAddrEntry 4 }

ipAdEntReasmMaxSize OBJECT-TYPE
        SYNTAX       INTEGER (0..65535)
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The size of the largest IP datagram which this
                entity can re-assemble from incoming IP fragmented
                datagrams received on this interface."
 -- 1.3.6.1.2.1.4.20.1.5 --  ::= { ipAddrEntry 5 }
-- the IP routing table
-- The IP routing table contains an entry for each route
-- presently known to this entity.


ipRouteTable OBJECT-TYPE
        SYNTAX        SEQUENCE OF IpRouteEntry
        ACCESS        not-accessible
        STATUS        mandatory
        DESCRIPTION
                "This entity's IP Routing table."
 -- 1.3.6.1.2.1.4.21 --  ::= { ip 21 }


ipRouteEntry OBJECT-TYPE
        SYNTAX       IpRouteEntry
        ACCESS       not-accessible
        STATUS       mandatory
        DESCRIPTION
```

```
                "A route to a particular destination."
        INDEX {
                ipRouteDest
        }
 -- 1.3.6.1.2.1.4.21.1 --  ::= { ipRouteTable 1 }

 IpRouteEntry ::= SEQUENCE {
                ipRouteDest    IpAddress,
                ipRouteIfIndex INTEGER,
                ipRouteMetric1 INTEGER,
                ipRouteMetric2 INTEGER,
                ipRouteMetric3 INTEGER,
                ipRouteMetric4 INTEGER,
                ipRouteNextHop IpAddress,
                ipRouteType    INTEGER,
                ipRouteProto   INTEGER,
                ipRouteAge     INTEGER,
                ipRouteMask    IpAddress,
                ipRouteMetric5 INTEGER,
                ipRouteInfo    OBJECT IDENTIFIER
        }


ipRouteDest OBJECT-TYPE
        SYNTAX      IpAddress
        ACCESS      read-write
        STATUS      mandatory
        DESCRIPTION
                "The destination IP address of this route.  An
                entry with a value of 0.0.0.0 is considered a
                default route.  Multiple routes to a single
                destination can appear in the table, but access to
                such multiple entries is dependent on the table-
                access mechanisms defined by the network
                management protocol in use."
 -- 1.3.6.1.2.1.4.21.1.1 --  ::= { ipRouteEntry 1 }

ipRouteIfIndex OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-write
        STATUS      mandatory
        DESCRIPTION
                "The index value which uniquely identifies the
                local interface through which the next hop of this
                route should be reached.  The interface identified
                by a particular value of this index is the same
                interface as identified by the same value of
                ifIndex."
 -- 1.3.6.1.2.1.4.21.1.2 --  ::= { ipRouteEntry 2 }

ipRouteMetric1 OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-write
        STATUS      mandatory
        DESCRIPTION
                "The primary routing metric for this route.  The
                semantics of this metric are determined by the
                routing-protocol specified in the route's
                ipRouteProto value.  If this metric is not used,
                its value should be set to -1."
 -- 1.3.6.1.2.1.4.21.1.3 --  ::= { ipRouteEntry 3 }

ipRouteMetric2 OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-write
        STATUS      mandatory
        DESCRIPTION
                "An alternate routing metric for this route.  The
                semantics of this metric are determined by the
```

```
                      routing-protocol specified in the route's
                      ipRouteProto value.  If this metric is not used,
                      its value should be set to -1."
      -- 1.3.6.1.2.1.4.21.1.4 --  ::= { ipRouteEntry 4 }

         ipRouteMetric3 OBJECT-TYPE
                 SYNTAX     INTEGER
                 ACCESS     read-write
                 STATUS     mandatory
                 DESCRIPTION
                      "An alternate routing metric for this route.  The
                      semantics of this metric are determined by the
                      routing-protocol specified in the route's
                      ipRouteProto value.  If this metric is not used,
                      its value should be set to -1."
      -- 1.3.6.1.2.1.4.21.1.5 --  ::= { ipRouteEntry 5 }

         ipRouteMetric4 OBJECT-TYPE
                 SYNTAX     INTEGER
                 ACCESS     read-write
                 STATUS     mandatory
                 DESCRIPTION
                      "An alternate routing metric for this route.  The
                      semantics of this metric are determined by the
                      routing-protocol specified in the route's
                      ipRouteProto value.  If this metric is not used,
                      its value should be set to -1."
      -- 1.3.6.1.2.1.4.21.1.6 --  ::= { ipRouteEntry 6 }

         ipRouteNextHop OBJECT-TYPE
                 SYNTAX     IpAddress
                 ACCESS     read-write
                 STATUS     mandatory
                 DESCRIPTION
                      "The IP address of the next hop of this route.
                      (In the case of a route bound to an interface
                      which is realized via a broadcast media, the value
                      of this field is the agent's IP address on that
                      interface.)"
      -- 1.3.6.1.2.1.4.21.1.7 --  ::= { ipRouteEntry 7 }

         ipRouteType OBJECT-TYPE
                 SYNTAX         INTEGER {
                                  other(1),          -- none of the following
                                  invalid(2),        -- an invalidated route
                                                   -- route to directly
                                  direct(3),         -- connected (sub-)network
                                                   -- route to a non-local
                                  indirect(4)        -- host/network/sub-network
                                  }
                 ACCESS     read-write
                 STATUS     mandatory
                 DESCRIPTION
                      "The type of route.  Note that the values
                      direct(3) and indirect(4) refer to the notion of
                      direct and indirect routing in the IP
                      architecture.

                      Setting this object to the value invalid(2) has
                      the effect of invalidating the corresponding entry
                      in the ipRouteTable object.  That is, it
                      effectively dissasociates the destination
                      identified with said entry from the route
                      identified with said entry.  It is an
                      implementation-specific matter as to whether the
                      agent removes an invalidated entry from the table.
                      Accordingly, management stations must be prepared
                      to receive tabular information from agents that
                      corresponds to entries not currently in use.
```

```
                    Proper interpretation of such entries requires
                    examination of the relevant ipRouteType object."
   -- 1.3.6.1.2.1.4.21.1.8 --  ::= { ipRouteEntry 8 }

   ipRouteProto OBJECT-TYPE
          SYNTAX       INTEGER {
                          other(1),              -- none of the following
                                                 -- non-protocol information,
                                                 -- e.g., manually configured
                          local(2),                -- entries
                                                 -- set via a network
                          netmgmt(3),             -- management protocol
                                                 -- obtained via ICMP,
                          icmp(4),                 -- e.g., Redirect
                                                 -- the remaining values are
                                                 -- all gateway routing
                                                 -- protocols
                          egp(5),
                          ggp(6),
                          hello(7),
                          rip(8),
                          is-is(9),
                          es-is(10),
                          ciscoIgrp(11),
                          bbnSpfIgp(12),
                          ospf(13),
                          bgp(14) }
          ACCESS       read-only
          STATUS       mandatory
          DESCRIPTION
                  "The routing mechanism via which this route was
                  learned.  Inclusion of values for gateway routing
                  protocols is not intended to imply that hosts
                  should support those protocols."
   -- 1.3.6.1.2.1.4.21.1.9 --  ::= { ipRouteEntry 9 }

   ipRouteAge OBJECT-TYPE
          SYNTAX       INTEGER
          ACCESS       read-write
          STATUS       mandatory
          DESCRIPTION
                  "The number of seconds since this route was last
                  updated or otherwise determined to be correct.
                  Note that no semantics of `too old' can be implied
                  except through knowledge of the routing protocol
                  by which the route was learned."
   -- 1.3.6.1.2.1.4.21.1.10 --  ::= { ipRouteEntry 10 }

   ipRouteMask OBJECT-TYPE
          SYNTAX       IpAddress
          ACCESS       read-write
          STATUS       mandatory
          DESCRIPTION
                  "Indicate the mask to be logical-ANDed with the
                  destination address before being compared to the
                  value in the ipRouteDest field.  For those systems
                  that do not support arbitrary subnet masks, an
                  agent constructs the value of the ipRouteMask by
                  determining whether the value of the correspondent
                  ipRouteDest field belong to a class-A, B, or C
                  network, and then using one of:

                      mask            network
                      255.0.0.0       class-A
                      255.255.0.0     class-B
                      255.255.255.0   class-C

                  If the value of the ipRouteDest is 0.0.0.0 (a
                  default route), then the mask value is also
```

```
                     0.0.0.0.  It should be noted that all IP routing
                     subsystems implicitly use this mechanism."
  -- 1.3.6.1.2.1.4.21.1.11 --  ::= { ipRouteEntry 11 }

  ipRouteMetric5 OBJECT-TYPE
          SYNTAX      INTEGER
          ACCESS      read-write
          STATUS      mandatory
          DESCRIPTION
                     "An alternate routing metric for this route.  The
                     semantics of this metric are determined by the
                     routing-protocol specified in the route's
                     ipRouteProto value.  If this metric is not used,
                     its value should be set to -1."
  -- 1.3.6.1.2.1.4.21.1.12 --  ::= { ipRouteEntry 12 }

  ipRouteInfo OBJECT-TYPE
          SYNTAX      OBJECT IDENTIFIER
          ACCESS      read-only
          STATUS      mandatory
          DESCRIPTION
                     "A reference to MIB definitions specific to the
                     particular routing protocol which is responsible
                     for this route, as determined by the value
                     specified in the route's ipRouteProto value.  If
                     this information is not present, its value should
                     be set to the OBJECT IDENTIFIER { 0 0 }, which is
                     a syntatically valid object identifier, and any
                     conformant implementation of ASN.1 and BER must be
                     able to generate and recognize this value."
  -- 1.3.6.1.2.1.4.21.1.13 --  ::= { ipRouteEntry 13 }
-- the IP Address Translation table
-- The IP address translation table contain the IpAddress to
-- `physical' address equivalences.  Some interfaces do not
-- use translation tables for determining address
-- equivalences (e.g., DDN-X.25 has an algorithmic method);
-- if all interfaces are of this type, then the Address
-- Translation table is empty, i.e., has zero entries.

  ipNetToMediaTable OBJECT-TYPE
          SYNTAX      SEQUENCE OF IpNetToMediaEntry
          ACCESS      not-accessible
          STATUS      mandatory
          DESCRIPTION
                     "The IP Address Translation table used for mapping
                     from IP addresses to physical addresses."
  -- 1.3.6.1.2.1.4.22 --  ::= { ip 22 }

  ipNetToMediaEntry OBJECT-TYPE
          SYNTAX      IpNetToMediaEntry
          ACCESS      not-accessible
          STATUS      mandatory
          DESCRIPTION
                     "Each entry contains one IpAddress to `physical'
                     address equivalence."
          INDEX {
                  ipNetToMediaIfIndex,
                  ipNetToMediaNetAddress
          }
  -- 1.3.6.1.2.1.4.22.1 --  ::= { ipNetToMediaTable 1 }

  IpNetToMediaEntry ::= SEQUENCE {
                  ipNetToMediaIfIndex     INTEGER,
                  ipNetToMediaPhysAddress PhysAddress,
                  ipNetToMediaNetAddress  IpAddress,
                  ipNetToMediaType        INTEGER
          }
```

```
ipNetToMediaIfIndex OBJECT-TYPE
        SYNTAX        INTEGER
        ACCESS        read-write
        STATUS        mandatory
        DESCRIPTION
                "The interface on which this entry's equivalence
                is effective.  The interface identified by a
                particular value of this index is the same
                interface as identified by the same value of
                ifIndex."
 -- 1.3.6.1.2.1.4.22.1.1 --  ::= { ipNetToMediaEntry 1 }

ipNetToMediaPhysAddress OBJECT-TYPE
        SYNTAX        PhysAddress
        ACCESS        read-write
        STATUS        mandatory
        DESCRIPTION
                "The media-dependent `physical' address."
 -- 1.3.6.1.2.1.4.22.1.2 --  ::= { ipNetToMediaEntry 2 }

ipNetToMediaNetAddress OBJECT-TYPE
        SYNTAX        IpAddress
        ACCESS        read-write
        STATUS        mandatory
        DESCRIPTION
                "The IpAddress corresponding to the media-
                dependent `physical' address."
 -- 1.3.6.1.2.1.4.22.1.3 --  ::= { ipNetToMediaEntry 3 }

ipNetToMediaType OBJECT-TYPE
        SYNTAX        INTEGER {
                        other(1),        -- none of the following
                        invalid(2),      -- an invalidated mapping
                        dynamic(3),
                        static(4) }
        ACCESS        read-write
        STATUS        mandatory
        DESCRIPTION
                "The type of mapping.

                Setting this object to the value invalid(2) has
                the effect of invalidating the corresponding entry
                in the ipNetToMediaTable.  That is, it effectively
                dissasociates the interface identified with said
                entry from the mapping identified with said entry.
                It is an implementation-specific matter as to
                whether the agent removes an invalidated entry
                from the table.  Accordingly, management stations
                must be prepared to receive tabular information
                from agents that corresponds to entries not
                currently in use.  Proper interpretation of such
                entries requires examination of the relevant
                ipNetToMediaType object."
 -- 1.3.6.1.2.1.4.22.1.4 --  ::= { ipNetToMediaEntry 4 }
-- additional IP objects

ipRoutingDiscards OBJECT-TYPE
        SYNTAX        Counter
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                "The number of routing entries which were chosen
                to be discarded even though they are valid.  One
                possible reason for discarding such an entry could
                be to free-up buffer space for other routing
                entries."
 -- 1.3.6.1.2.1.4.23 --  ::= { ip 23 }
```

```
-- the ICMP group
-- Implementation of the ICMP group is mandatory for all
-- systems.

icmpInMsgs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of ICMP messages which the
                entity received.  Note that this counter includes
                all those counted by icmpInErrors."
 -- 1.3.6.1.2.1.5.1 --  ::= { icmp 1 }

icmpInErrors OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP messages which the entity
                received but determined as having ICMP-specific
                errors (bad ICMP checksums, bad length, etc.)."
 -- 1.3.6.1.2.1.5.2 --  ::= { icmp 2 }

icmpInDestUnreachs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Destination Unreachable
                messages received."
 -- 1.3.6.1.2.1.5.3 --  ::= { icmp 3 }

icmpInTimeExcds OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Time Exceeded messages
                received."
 -- 1.3.6.1.2.1.5.4 --  ::= { icmp 4 }

icmpInParmProbs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Parameter Problem messages
                received."
 -- 1.3.6.1.2.1.5.5 --  ::= { icmp 5 }

icmpInSrcQuenchs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Source Quench messages
                received."
 -- 1.3.6.1.2.1.5.6 --  ::= { icmp 6 }

icmpInRedirects OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Redirect messages received."
 -- 1.3.6.1.2.1.5.7 --  ::= { icmp 7 }

icmpInEchos OBJECT-TYPE
```

```
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The number of ICMP Echo (request) messages
                received."
 -- 1.3.6.1.2.1.5.8 --  ::= { icmp 8 }

 icmpInEchoReps OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The number of ICMP Echo Reply messages received."
 -- 1.3.6.1.2.1.5.9 --  ::= { icmp 9 }

 icmpInTimestamps OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The number of ICMP Timestamp (request) messages
                received."
 -- 1.3.6.1.2.1.5.10 --  ::= { icmp 10 }

 icmpInTimestampReps OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The number of ICMP Timestamp Reply messages
                received."
 -- 1.3.6.1.2.1.5.11 --  ::= { icmp 11 }

 icmpInAddrMasks OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The number of ICMP Address Mask Request messages
                received."
 -- 1.3.6.1.2.1.5.12 --  ::= { icmp 12 }

 icmpInAddrMaskReps OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The number of ICMP Address Mask Reply messages
                received."
 -- 1.3.6.1.2.1.5.13 --  ::= { icmp 13 }

 icmpOutMsgs OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The total number of ICMP messages which this
                entity attempted to send.  Note that this counter
                includes all those counted by icmpOutErrors."
 -- 1.3.6.1.2.1.5.14 --  ::= { icmp 14 }

 icmpOutErrors OBJECT-TYPE
        SYNTAX       Counter
        ACCESS       read-only
        STATUS       mandatory
        DESCRIPTION
                "The number of ICMP messages which this entity did
                not send due to problems discovered within ICMP
```

such as a lack of buffers. This value should not
                    include errors discovered outside the ICMP layer
                    such as the inability of IP to route the resultant
                    datagram. In some implementations there may be no
                    types of error which contribute to this counter's
                    value."
      -- 1.3.6.1.2.1.5.15 -- **::=** { icmp 15 }

 icmpOutDestUnreachs **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                    "The number of ICMP Destination Unreachable
                    messages sent."
      -- 1.3.6.1.2.1.5.16 -- **::=** { icmp 16 }

 icmpOutTimeExcds **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                    "The number of ICMP Time Exceeded messages sent."
      -- 1.3.6.1.2.1.5.17 -- **::=** { icmp 17 }

 icmpOutParmProbs **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                    "The number of ICMP Parameter Problem messages
                    sent."
      -- 1.3.6.1.2.1.5.18 -- **::=** { icmp 18 }

 icmpOutSrcQuenchs **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                    "The number of ICMP Source Quench messages sent."
      -- 1.3.6.1.2.1.5.19 -- **::=** { icmp 19 }

 icmpOutRedirects **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                    "The number of ICMP Redirect messages sent. For a
                    host, this object will always be zero, since hosts
                    do not send redirects."
      -- 1.3.6.1.2.1.5.20 -- **::=** { icmp 20 }

 icmpOutEchos **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                    "The number of ICMP Echo (request) messages sent."
      -- 1.3.6.1.2.1.5.21 -- **::=** { icmp 21 }

 icmpOutEchoReps **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                    "The number of ICMP Echo Reply messages sent."
      -- 1.3.6.1.2.1.5.22 -- **::=** { icmp 22 }

 icmpOutTimestamps **OBJECT-TYPE**

```
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Timestamp (request) messages
                sent."
 -- 1.3.6.1.2.1.5.23 --  ::= { icmp 23 }

 icmpOutTimestampReps OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Timestamp Reply messages
                sent."
 -- 1.3.6.1.2.1.5.24 --  ::= { icmp 24 }

 icmpOutAddrMasks OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Address Mask Request messages
                sent."
 -- 1.3.6.1.2.1.5.25 --  ::= { icmp 25 }

 icmpOutAddrMaskReps OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of ICMP Address Mask Reply messages
                sent."
 -- 1.3.6.1.2.1.5.26 --  ::= { icmp 26 }
-- the TCP group
-- Implementation of the TCP group is mandatory for all
-- systems that implement the TCP.
-- Note that instances of object types that represent
-- information about a particular TCP connection are
-- transient; they persist only as long as the connection
-- in question.

tcpRtoAlgorithm OBJECT-TYPE
        SYNTAX      INTEGER {
                    other(1),            -- none of the following
                    constant(2),         -- a constant rto
                    rsre(3),             -- MIL-STD-1778, Appendix B
                    vanj(4)              -- Van Jacobson's algorithm [10]
                    }
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The algorithm used to determine the timeout value
                used for retransmitting unacknowledged octets."
 -- 1.3.6.1.2.1.6.1 --  ::= { tcp 1 }

 tcpRtoMin OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The minimum value permitted by a TCP
                implementation for the retransmission timeout,
                measured in milliseconds.  More refined semantics
                for objects of this type depend upon the algorithm
                used to determine the retransmission timeout.  In
                particular, when the timeout algorithm is rsre(3),
                an object of this type has the semantics of the
                LBOUND quantity described in RFC 793."
```

```
           -- 1.3.6.1.2.1.6.2 --   ::= { tcp 2 }

   tcpRtoMax OBJECT-TYPE
           SYNTAX      INTEGER
           ACCESS      read-only
           STATUS      mandatory
           DESCRIPTION
                   "The maximum value permitted by a TCP
                   implementation for the retransmission timeout,
                   measured in milliseconds.  More refined semantics
                   for objects of this type depend upon the algorithm
                   used to determine the retransmission timeout.  In
                   particular, when the timeout algorithm is rsre(3),
                   an object of this type has the semantics of the
                   UBOUND quantity described in RFC 793."
           -- 1.3.6.1.2.1.6.3 --   ::= { tcp 3 }

   tcpMaxConn OBJECT-TYPE
           SYNTAX      INTEGER
           ACCESS      read-only
           STATUS      mandatory
           DESCRIPTION
                   "The limit on the total number of TCP connections
                   the entity can support.  In entities where the
                   maximum number of connections is dynamic, this
                   object should contain the value -1."
           -- 1.3.6.1.2.1.6.4 --   ::= { tcp 4 }

   tcpActiveOpens OBJECT-TYPE
           SYNTAX      Counter
           ACCESS      read-only
           STATUS      mandatory
           DESCRIPTION
                   "The number of times TCP connections have made a
                   direct transition to the SYN-SENT state from the
                   CLOSED state."
           -- 1.3.6.1.2.1.6.5 --   ::= { tcp 5 }

   tcpPassiveOpens OBJECT-TYPE
           SYNTAX      Counter
           ACCESS      read-only
           STATUS      mandatory
           DESCRIPTION
                   "The number of times TCP connections have made a
                   direct transition to the SYN-RCVD state from the
                   LISTEN state."
           -- 1.3.6.1.2.1.6.6 --   ::= { tcp 6 }

   tcpAttemptFails OBJECT-TYPE
           SYNTAX      Counter
           ACCESS      read-only
           STATUS      mandatory
           DESCRIPTION
                   "The number of times TCP connections have made a
                   direct transition to the CLOSED state from either
                   the SYN-SENT state or the SYN-RCVD state, plus the
                   number of times TCP connections have made a direct
                   transition to the LISTEN state from the SYN-RCVD
                   state."
           -- 1.3.6.1.2.1.6.7 --   ::= { tcp 7 }

   tcpEstabResets OBJECT-TYPE
           SYNTAX      Counter
           ACCESS      read-only
           STATUS      mandatory
           DESCRIPTION
                   "The number of times TCP connections have made a
                   direct transition to the CLOSED state from either
                   the ESTABLISHED state or the CLOSE-WAIT state."
```

```
        -- 1.3.6.1.2.1.6.8 --  ::= { tcp 8 }

   tcpCurrEstab OBJECT-TYPE
           SYNTAX       Gauge
           ACCESS       read-only
           STATUS       mandatory
           DESCRIPTION
                   "The number of TCP connections for which the
                   current state is either ESTABLISHED or CLOSE-
                   WAIT."
        -- 1.3.6.1.2.1.6.9 --  ::= { tcp 9 }

   tcpInSegs OBJECT-TYPE
           SYNTAX       Counter
           ACCESS       read-only
           STATUS       mandatory
           DESCRIPTION
                   "The total number of segments received, including
                   those received in error.  This count includes
                   segments received on currently established
                   connections."
        -- 1.3.6.1.2.1.6.10 --  ::= { tcp 10 }

   tcpOutSegs OBJECT-TYPE
           SYNTAX       Counter
           ACCESS       read-only
           STATUS       mandatory
           DESCRIPTION
                   "The total number of segments sent, including
                   those on current connections but excluding those
                   containing only retransmitted octets."
        -- 1.3.6.1.2.1.6.11 --  ::= { tcp 11 }

   tcpRetransSegs OBJECT-TYPE
           SYNTAX       Counter
           ACCESS       read-only
           STATUS       mandatory
           DESCRIPTION
                   "The total number of segments retransmitted - that
                   is, the number of TCP segments transmitted
                   containing one or more previously transmitted
                   octets."
        -- 1.3.6.1.2.1.6.12 --  ::= { tcp 12 }
   -- the TCP Connection table
   -- The TCP connection table contains information about this
   -- entity's existing TCP connections.

   tcpConnTable OBJECT-TYPE
           SYNTAX       SEQUENCE OF TcpConnEntry
           ACCESS       not-accessible
           STATUS       mandatory
           DESCRIPTION
                   "A table containing TCP connection-specific
                   information."
        -- 1.3.6.1.2.1.6.13 --  ::= { tcp 13 }

   tcpConnEntry OBJECT-TYPE
           SYNTAX       TcpConnEntry
           ACCESS       not-accessible
           STATUS       mandatory
           DESCRIPTION
                   "Information about a particular current TCP
                   connection.  An object of this type is transient,
                   in that it ceases to exist when (or soon after)
                   the connection makes the transition to the CLOSED
                   state."
           INDEX {
                   tcpConnLocalAddress,
                   tcpConnLocalPort,
```

```
                    tcpConnRemAddress,
                    tcpConnRemPort
            }
 -- 1.3.6.1.2.1.6.13.1 --  ::= { tcpConnTable 1 }

 TcpConnEntry ::= SEQUENCE {
                tcpConnState        INTEGER,
                tcpConnLocalAddress IpAddress,
                tcpConnLocalPort    INTEGER,
                tcpConnRemAddress   IpAddress,
                tcpConnRemPort      INTEGER
            }


 tcpConnState OBJECT-TYPE
        SYNTAX        INTEGER {
                        closed(1),
                        listen(2),
                        synSent(3),
                        synReceived(4),
                        established(5),
                        finWait1(6),
                        finWait2(7),
                        closeWait(8),
                        lastAck(9),
                        closing(10),
                        timeWait(11),
                        deleteTCB(12) }
        ACCESS        read-write
        STATUS        mandatory
        DESCRIPTION
                "The state of this TCP connection.

                The only value which may be set by a management
                station is deleteTCB(12).  Accordingly, it is
                appropriate for an agent to return a `badValue'
                response if a management station attempts to set
                this object to any other value.

                If a management station sets this object to the
                value deleteTCB(12), then this has the effect of
                deleting the TCB (as defined in RFC 793) of the
                corresponding connection on the managed node,
                resulting in immediate termination of the
                connection.

                As an implementation-specific option, a RST
                segment may be sent from the managed node to the
                other TCP endpoint (note however that RST segments
                are not sent reliably)."
 -- 1.3.6.1.2.1.6.13.1.1 --  ::= { tcpConnEntry 1 }

 tcpConnLocalAddress OBJECT-TYPE
        SYNTAX        IpAddress
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
                "The local IP address for this TCP connection.  In
                the case of a connection in the listen state which
                is willing to accept connections for any IP
                interface associated with the node, the value
                0.0.0.0 is used."
 -- 1.3.6.1.2.1.6.13.1.2 --  ::= { tcpConnEntry 2 }

 tcpConnLocalPort OBJECT-TYPE
        SYNTAX        INTEGER (0..65535)
        ACCESS        read-only
        STATUS        mandatory
        DESCRIPTION
```

```
              "The local port number for this TCP connection."
-- 1.3.6.1.2.1.6.13.1.3 --  ::= { tcpConnEntry 3 }

tcpConnRemAddress OBJECT-TYPE
        SYNTAX      IpAddress
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The remote IP address for this TCP connection."
-- 1.3.6.1.2.1.6.13.1.4 --  ::= { tcpConnEntry 4 }

tcpConnRemPort OBJECT-TYPE
        SYNTAX      INTEGER (0..65535)
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The remote port number for this TCP connection."
-- 1.3.6.1.2.1.6.13.1.5 --  ::= { tcpConnEntry 5 }
-- additional TCP objects

tcpInErrs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The total number of segments received in error
              (e.g., bad TCP checksums)."
-- 1.3.6.1.2.1.6.14 --  ::= { tcp 14 }

tcpOutRsts OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The number of TCP segments sent containing the
              RST flag."
-- 1.3.6.1.2.1.6.15 --  ::= { tcp 15 }
-- the UDP group
-- Implementation of the UDP group is mandatory for all
-- systems which implement the UDP.

udpInDatagrams OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The total number of UDP datagrams delivered to
              UDP users."
-- 1.3.6.1.2.1.7.1 --  ::= { udp 1 }

udpNoPorts OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The total number of received UDP datagrams for
              which there was no application at the destination
              port."
-- 1.3.6.1.2.1.7.2 --  ::= { udp 2 }

udpInErrors OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The number of received UDP datagrams that could
              not be delivered for reasons other than the lack
              of an application at the destination port."
-- 1.3.6.1.2.1.7.3 --  ::= { udp 3 }
```

```
udpOutDatagrams OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of UDP datagrams sent from this
                entity."
 -- 1.3.6.1.2.1.7.4 --  ::= { udp 4 }
-- the UDP Listener table
-- The UDP listener table contains information about this
-- entity's UDP end-points on which a local application is
-- currently accepting datagrams.

udpTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF UdpEntry
        ACCESS      not-accessible
        STATUS      mandatory
        DESCRIPTION
                "A table containing UDP listener information."
 -- 1.3.6.1.2.1.7.5 --  ::= { udp 5 }

udpEntry OBJECT-TYPE
        SYNTAX      UdpEntry
        ACCESS      not-accessible
        STATUS      mandatory
        DESCRIPTION
                "Information about a particular current UDP
                listener."
        INDEX {
                udpLocalAddress,
                udpLocalPort
        }
 -- 1.3.6.1.2.1.7.5.1 --  ::= { udpTable 1 }

UdpEntry ::= SEQUENCE {
                udpLocalAddress IpAddress,
                udpLocalPort    INTEGER
        }


udpLocalAddress OBJECT-TYPE
        SYNTAX      IpAddress
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The local IP address for this UDP listener.  In
                the case of a UDP listener which is willing to
                accept datagrams for any IP interface associated
                with the node, the value 0.0.0.0 is used."
 -- 1.3.6.1.2.1.7.5.1.1 --  ::= { udpEntry 1 }

udpLocalPort OBJECT-TYPE
        SYNTAX      INTEGER (0..65535)
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The local port number for this UDP listener."
 -- 1.3.6.1.2.1.7.5.1.2 --  ::= { udpEntry 2 }
-- the EGP group
-- Implementation of the EGP group is mandatory for all
-- systems which implement the EGP.

egpInMsgs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of EGP messages received without
```

```
                        error."
  -- 1.3.6.1.2.1.8.1 --  ::= { egp 1 }

     egpInErrors OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The number of EGP messages received that proved
                    to be in error."
  -- 1.3.6.1.2.1.8.2 --  ::= { egp 2 }

     egpOutMsgs OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The total number of locally generated EGP
                    messages."
  -- 1.3.6.1.2.1.8.3 --  ::= { egp 3 }

     egpOutErrors OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The number of locally generated EGP messages not
                    sent due to resource limitations within an EGP
                    entity."
  -- 1.3.6.1.2.1.8.4 --  ::= { egp 4 }
-- the EGP Neighbor table
-- The EGP neighbor table contains information about this
-- entity's EGP neighbors.

     egpNeighTable OBJECT-TYPE
            SYNTAX      SEQUENCE OF EgpNeighEntry
            ACCESS      not-accessible
            STATUS      mandatory
            DESCRIPTION
                    "The EGP neighbor table."
  -- 1.3.6.1.2.1.8.5 --  ::= { egp 5 }

     egpNeighEntry OBJECT-TYPE
            SYNTAX      EgpNeighEntry
            ACCESS      not-accessible
            STATUS      mandatory
            DESCRIPTION
                    "Information about this entity's relationship with
                    a particular EGP neighbor."
            INDEX {
                    egpNeighAddr
            }
  -- 1.3.6.1.2.1.8.5.1 --  ::= { egpNeighTable 1 }

     EgpNeighEntry ::= SEQUENCE {
                    egpNeighState         INTEGER,
                    egpNeighAddr          IpAddress,
                    egpNeighAs            INTEGER,
                    egpNeighInMsgs        Counter,
                    egpNeighInErrs        Counter,
                    egpNeighOutMsgs       Counter,
                    egpNeighOutErrs       Counter,
                    egpNeighInErrMsgs     Counter,
                    egpNeighOutErrMsgs    Counter,
                    egpNeighStateUps      Counter,
                    egpNeighStateDowns    Counter,
                    egpNeighIntervalHello INTEGER,
                    egpNeighIntervalPoll  INTEGER,
                    egpNeighMode          INTEGER,
```

```
                egpNeighEventTrigger  INTEGER
        }


egpNeighState OBJECT-TYPE
        SYNTAX          INTEGER {
                        idle(1),
                        acquisition(2),
                        down(3),
                        up(4),
                        cease(5) }
        ACCESS          read-only
        STATUS          mandatory
        DESCRIPTION
                "The EGP state of the local system with respect to
                this entry's EGP neighbor.  Each EGP state is
                represented by a value that is one greater than
                the numerical value associated with said state in
                RFC 904."
 -- 1.3.6.1.2.1.8.5.1.1 --  ::= { egpNeighEntry 1 }


egpNeighAddr OBJECT-TYPE
        SYNTAX          IpAddress
        ACCESS          read-only
        STATUS          mandatory
        DESCRIPTION
                "The IP address of this entry's EGP neighbor."
 -- 1.3.6.1.2.1.8.5.1.2 --  ::= { egpNeighEntry 2 }


egpNeighAs OBJECT-TYPE
        SYNTAX          INTEGER
        ACCESS          read-only
        STATUS          mandatory
        DESCRIPTION
                "The autonomous system of this EGP peer.  Zero
                should be specified if the autonomous system
                number of the neighbor is not yet known."
 -- 1.3.6.1.2.1.8.5.1.3 --  ::= { egpNeighEntry 3 }


egpNeighInMsgs OBJECT-TYPE
        SYNTAX          Counter
        ACCESS          read-only
        STATUS          mandatory
        DESCRIPTION
                "The number of EGP messages received without error
                from this EGP peer."
 -- 1.3.6.1.2.1.8.5.1.4 --  ::= { egpNeighEntry 4 }


egpNeighInErrs OBJECT-TYPE
        SYNTAX          Counter
        ACCESS          read-only
        STATUS          mandatory
        DESCRIPTION
                "The number of EGP messages received from this EGP
                peer that proved to be in error (e.g., bad EGP
                checksum)."
 -- 1.3.6.1.2.1.8.5.1.5 --  ::= { egpNeighEntry 5 }

egpNeighOutMsgs OBJECT-TYPE
        SYNTAX          Counter
        ACCESS          read-only
        STATUS          mandatory
        DESCRIPTION
                "The number of locally generated EGP messages to
                this EGP peer."
 -- 1.3.6.1.2.1.8.5.1.6 --  ::= { egpNeighEntry 6 }


egpNeighOutErrs OBJECT-TYPE
        SYNTAX          Counter
```

```
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of locally generated EGP messages not
                sent to this EGP peer due to resource limitations
                within an EGP entity."
 -- 1.3.6.1.2.1.8.5.1.7 --  ::= { egpNeighEntry 7 }


 egpNeighInErrMsgs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of EGP-defined error messages received
                from this EGP peer."
 -- 1.3.6.1.2.1.8.5.1.8 --  ::= { egpNeighEntry 8 }


 egpNeighOutErrMsgs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of EGP-defined error messages sent to
                this EGP peer."
 -- 1.3.6.1.2.1.8.5.1.9 --  ::= { egpNeighEntry 9 }


 egpNeighStateUps OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of EGP state transitions to the UP
                state with this EGP peer."
 -- 1.3.6.1.2.1.8.5.1.10 --  ::= { egpNeighEntry 10 }


 egpNeighStateDowns OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The number of EGP state transitions from the UP
                state to any other state with this EGP peer."
 -- 1.3.6.1.2.1.8.5.1.11 --  ::= { egpNeighEntry 11 }


 egpNeighIntervalHello OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The interval between EGP Hello command
                retransmissions (in hundredths of a second).  This
                represents the t1 timer as defined in RFC 904."
 -- 1.3.6.1.2.1.8.5.1.12 --  ::= { egpNeighEntry 12 }


 egpNeighIntervalPoll OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The interval between EGP poll command
                retransmissions (in hundredths of a second).  This
                represents the t3 timer as defined in RFC 904."
 -- 1.3.6.1.2.1.8.5.1.13 --  ::= { egpNeighEntry 13 }


 egpNeighMode OBJECT-TYPE
        SYNTAX      INTEGER {
                        active(1),
                        passive(2) }
        ACCESS      read-only
```

```
        STATUS      mandatory
        DESCRIPTION
                "The polling mode of this EGP entity, either
                passive or active."
 -- 1.3.6.1.2.1.8.5.1.14 --  ::= { egpNeighEntry 14 }

 egpNeighEventTrigger OBJECT-TYPE
        SYNTAX      INTEGER {
                        start(1),
                        stop(2) }
        ACCESS      read-write
        STATUS      mandatory
        DESCRIPTION
                "A control variable used to trigger operator-
                initiated Start and Stop events.  When read, this
                variable always returns the most recent value that
                egpNeighEventTrigger was set to.  If it has not
                been set since the last initialization of the
                network management subsystem on the node, it
                returns a value of `stop'.

                When set, this variable causes a Start or Stop
                event on the specified neighbor, as specified on
                pages 8-10 of RFC 904.  Briefly, a Start event
                causes an Idle peer to begin neighbor acquisition
                and a non-Idle peer to reinitiate neighbor
                acquisition.  A stop event causes a non-Idle peer
                to return to the Idle state until a Start event
                occurs, either via egpNeighEventTrigger or
                otherwise."
 -- 1.3.6.1.2.1.8.5.1.15 --  ::= { egpNeighEntry 15 }
-- additional EGP objects

 egpAs OBJECT-TYPE
        SYNTAX      INTEGER
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The autonomous system number of this EGP entity."
 -- 1.3.6.1.2.1.8.6 --  ::= { egp 6 }
-- the Transmission group
-- Based on the transmission media underlying each interface
-- on a system, the corresponding portion of the Transmission
-- group is mandatory for that system.
-- When Internet-standard definitions for managing
-- transmission media are defined, the transmission group is
-- used to provide a prefix for the names of those objects.
-- Typically, such definitions reside in the experimental
-- portion of the MIB until they are "proven", then as a
-- part of the Internet standardization process, the
-- definitions are accordingly elevated and a new object
-- identifier, under the transmission group is defined. By
-- convention, the name assigned is:
--
--    type OBJECT IDENTIFIER   ::= { transmission number }
--
-- where "type" is the symbolic value used for the media in
-- the ifType column of the ifTable object, and "number" is
-- the actual integer value corresponding to the symbol.
-- the SNMP group
-- Implementation of the SNMP group is mandatory for all
-- systems which support an SNMP protocol entity.  Some of
-- the objects defined below will be zero-valued in those
-- SNMP implementations that are optimized to support only
-- those functions specific to either a management agent or
-- a management station.  In particular, it should be
-- observed that the objects below refer to an SNMP entity,
-- and there may be several SNMP entities residing on a
-- managed node (e.g., if the node is hosting acting as
```

```
    -- a management station).

    snmpInPkts OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The total number of Messages delivered to the
                    SNMP entity from the transport service."
     -- 1.3.6.1.2.1.11.1 --  ::= { snmp 1 }

    snmpOutPkts OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The total number of SNMP Messages which were
                    passed from the SNMP protocol entity to the
                    transport service."
     -- 1.3.6.1.2.1.11.2 --  ::= { snmp 2 }

    snmpInBadVersions OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The total number of SNMP Messages which were
                    delivered to the SNMP protocol entity and were for
                    an unsupported SNMP version."
     -- 1.3.6.1.2.1.11.3 --  ::= { snmp 3 }

    snmpInBadCommunityNames OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The total number of SNMP Messages delivered to
                    the SNMP protocol entity which used a SNMP
                    community name not known to said entity."
     -- 1.3.6.1.2.1.11.4 --  ::= { snmp 4 }

    snmpInBadCommunityUses OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The total number of SNMP Messages delivered to
                    the SNMP protocol entity which represented an SNMP
                    operation which was not allowed by the SNMP
                    community named in the Message."
     -- 1.3.6.1.2.1.11.5 --  ::= { snmp 5 }

    snmpInASNParseErrs OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The total number of ASN.1 or BER errors
                    encountered by the SNMP protocol entity when
                    decoding received SNMP Messages."
     -- 1.3.6.1.2.1.11.6 --  ::= { snmp 6 }
    -- { snmp 7 } is not used

    snmpInTooBigs OBJECT-TYPE
            SYNTAX      Counter
            ACCESS      read-only
            STATUS      mandatory
            DESCRIPTION
                    "The total number of SNMP PDUs which were
```

```
              delivered to the SNMP protocol entity and for
              which the value of the error-status field is
              `tooBig'."
  -- 1.3.6.1.2.1.11.8 --  ::= { snmp 8 }


snmpInNoSuchNames OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The total number of SNMP PDUs which were
              delivered to the SNMP protocol entity and for
              which the value of the error-status field is
              `noSuchName'."
  -- 1.3.6.1.2.1.11.9 --  ::= { snmp 9 }


snmpInBadValues OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The total number of SNMP PDUs which were
              delivered to the SNMP protocol entity and for
              which the value of the error-status field is
              `badValue'."
  -- 1.3.6.1.2.1.11.10 --  ::= { snmp 10 }


snmpInReadOnlys OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The total number valid SNMP PDUs which were
              delivered to the SNMP protocol entity and for
              which the value of the error-status field is
              `readOnly'.  It should be noted that it is a
              protocol error to generate an SNMP PDU which
              contains the value `readOnly' in the error-status
              field, as such this object is provided as a means
              of detecting incorrect implementations of the
              SNMP."
  -- 1.3.6.1.2.1.11.11 --  ::= { snmp 11 }


snmpInGenErrs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The total number of SNMP PDUs which were
              delivered to the SNMP protocol entity and for
              which the value of the error-status field is
              `genErr'."
  -- 1.3.6.1.2.1.11.12 --  ::= { snmp 12 }


snmpInTotalReqVars OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
              "The total number of MIB objects which have been
              retrieved successfully by the SNMP protocol entity
              as the result of receiving valid SNMP Get-Request
              and Get-Next PDUs."
  -- 1.3.6.1.2.1.11.13 --  ::= { snmp 13 }


snmpInTotalSetVars OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
```

```
        DESCRIPTION
                "The total number of MIB objects which have been
                altered successfully by the SNMP protocol entity
                as the result of receiving valid SNMP Set-Request
                PDUs."
 -- 1.3.6.1.2.1.11.14 --  ::= { snmp 14 }


 snmpInGetRequests OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Get-Request PDUs which
                have been accepted and processed by the SNMP
                protocol entity."
 -- 1.3.6.1.2.1.11.15 --  ::= { snmp 15 }


 snmpInGetNexts OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Get-Next PDUs which have
                been accepted and processed by the SNMP protocol
                entity."
 -- 1.3.6.1.2.1.11.16 --  ::= { snmp 16 }


 snmpInSetRequests OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Set-Request PDUs which
                have been accepted and processed by the SNMP
                protocol entity."
 -- 1.3.6.1.2.1.11.17 --  ::= { snmp 17 }


 snmpInGetResponses OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Get-Response PDUs which
                have been accepted and processed by the SNMP
                protocol entity."
 -- 1.3.6.1.2.1.11.18 --  ::= { snmp 18 }


 snmpInTraps OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Trap PDUs which have
                been accepted and processed by the SNMP protocol
                entity."
 -- 1.3.6.1.2.1.11.19 --  ::= { snmp 19 }


 snmpOutTooBigs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP PDUs which were
                generated by the SNMP protocol entity and for
                which the value of the error-status field is
                `tooBig.'"
 -- 1.3.6.1.2.1.11.20 --  ::= { snmp 20 }


 snmpOutNoSuchNames OBJECT-TYPE
```

```
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP PDUs which were
                generated by the SNMP protocol entity and for
                which the value of the error-status is
                `noSuchName'."
 -- 1.3.6.1.2.1.11.21 --  ::= { snmp 21 }

snmpOutBadValues OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP PDUs which were
                generated by the SNMP protocol entity and for
                which the value of the error-status field is
                `badValue'."
 -- 1.3.6.1.2.1.11.22 --  ::= { snmp 22 }
-- { snmp 23 } is not used

snmpOutGenErrs OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP PDUs which were
                generated by the SNMP protocol entity and for
                which the value of the error-status field is
                `genErr'."
 -- 1.3.6.1.2.1.11.24 --  ::= { snmp 24 }

snmpOutGetRequests OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Get-Request PDUs which
                have been generated by the SNMP protocol entity."
 -- 1.3.6.1.2.1.11.25 --  ::= { snmp 25 }

snmpOutGetNexts OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Get-Next PDUs which have
                been generated by the SNMP protocol entity."
 -- 1.3.6.1.2.1.11.26 --  ::= { snmp 26 }

snmpOutSetRequests OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Set-Request PDUs which
                have been generated by the SNMP protocol entity."
 -- 1.3.6.1.2.1.11.27 --  ::= { snmp 27 }

snmpOutGetResponses OBJECT-TYPE
        SYNTAX      Counter
        ACCESS      read-only
        STATUS      mandatory
        DESCRIPTION
                "The total number of SNMP Get-Response PDUs which
                have been generated by the SNMP protocol entity."
 -- 1.3.6.1.2.1.11.28 --  ::= { snmp 28 }
```

snmpOutTraps **OBJECT-TYPE**
        SYNTAX   Counter
        ACCESS   read-only
        STATUS   mandatory
        DESCRIPTION
                "The total number of SNMP Trap PDUs which have
                been generated by the SNMP protocol entity."
 -- 1.3.6.1.2.1.11.29 -- **::=** { snmp 29 }

snmpEnableAuthenTraps **OBJECT-TYPE**
        SYNTAX   INTEGER {
                        enabled(1),
                        disabled(2) }
        ACCESS   read-write
        STATUS   mandatory
        DESCRIPTION
                "Indicates whether the SNMP agent process is
                permitted to generate authentication-failure
                traps. The value of this object overrides any
                configuration information; as such, it provides a
                means whereby all authentication-failure traps may
                be disabled.

                Note that it is strongly recommended that this
                object be stored in non-volatile memory so that it
                remains constant between re-initializations of the
                network management system."
 -- 1.3.6.1.2.1.11.30 -- **::=** { snmp 30 }

END