SNMPv2 Management Information Base
for the Internet Protocol using SMIv2

Status of this Memo

This document specifies an Internet standards track protocol for the
Internet community, and requests discussion and suggestions for
improvements. Please refer to the current edition of the "Internet
Official Protocol Standards" (STD 1) for the standardization state
and status of this protocol. Distribution of this memo is unlimited.

IESG Note:

The IP, UDP, and TCP MIB modules currently support only IPv4. These
three modules use the IpAddress type defined as an OCTET STRING of
length 4 to represent the IPv4 32-bit internet addresses. (See RFC
1902, SMI for SNMPv2.) They do not support the new 128-bit IPv6
internet addresses.

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1. Introduction

A management system contains: several (potentially many) nodes, each
with a processing entity, termed an agent, which has access to
management instrumentation; at least one management station; and, a
management protocol, used to convey management information between
the agents and management stations. Operations of the protocol are
carried out under an administrative framework which defines
authentication, authorization, access control, and privacy policies.
Management stations execute management applications which monitor and control managed elements. Managed elements are devices such as hosts, routers, terminal servers, etc., which are monitored and controlled via access to their management information.

Management information is viewed as a collection of managed objects, residing in a virtual information store, termed the Management Information Base (MIB). Collections of related objects are defined in MIB modules. These modules are written using a subset of OSI’s Abstract Syntax Notation One (ASN.1) [1], termed the Structure of Management Information (SMI) [2].

This document is the MIB module which defines managed objects for managing implementations of the Internet Protocol (IP) [3] and its associated Internet Control Message Protocol (ICMP) [4].

The managed objects in this MIB module were originally defined using the SNMPv1 framework as a part of MIB-II [5]. Since then, the managed objects related to managing routes in an IP internet were updated by RFC 1354 [6]. This document takes the remaining MIB-II objects for these protocols, and defines them using the SNMPv2 framework.

2. Definitions

IP-MIB DEFINITIONS ::= BEGIN

IMPORTS
  MODULE-IDENTITY, OBJECT-TYPE, Integer32,
  Counter32, IpAddress, mib-2 FROM SNMPv2-SMI
  PhysAddress FROM SNMPv2-TC
  MODULE-COMPLIANCE, OBJECT-GROUP FROM SNMPv2-CONF;

ipMIB MODULE-IDENTITY
  LAST-UPDATED "9411010000Z"
  ORGANIZATION "IETF SNMPv2 Working Group"
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DESCRIPTION
  "The MIB module for managing IP and ICMP implementations,
  but excluding their management of IP routes."
REVISION  "9103310000Z"
DESCRIPTION
  "The initial revision of this MIB module was part of MIB-
  II."
::= { mib-2 48}

-- the IP group

ip OBJECT IDENTIFIER ::= { mib-2 4 }
ipForwarding OBJECT-TYPE
  SYNTAX      INTEGER {
                      forwarding(1),    -- acting as a router
                      notForwarding(2)  -- NOT acting as a router
                  }
  MAX-ACCESS  read-write
  STATUS      current
  DESCRIPTION
    "The indication of whether this entity is acting as an IP
    router in respect to the forwarding of datagrams received
    by, but not addressed to, this entity. IP routers forward
    datagrams. IP hosts do not (except those source-routed via
    the host)."
::= { ip 1 }
ipDefaultTTL OBJECT-TYPE
  SYNTAX      INTEGER (1..255)
  MAX-ACCESS  read-write
  STATUS      current
  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."
::= { ip 2 }
ipInReceives OBJECT-TYPE
  SYNTAX      Counter32
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "The total number of input datagrams received from
    interfaces, including those received in error."
::= { ip 3 }
ipInHdrErrors OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
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."
 ::= { ip 4 }

ipInAddrErrors OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
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 routers and therefore do not forward datagrams, this
counter includes datagrams discarded because the destination
address was not a local address."
 ::= { ip 5 }

ipForwDatagrams OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
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 routers,
this counter will include only those packets which were
Source-Routed via this entity, and the Source-Route option
processing was successful."
 ::= { ip 6 }

ipInUnknownProtos OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
 "The number of locally-addressed datagrams received
successfully but discarded because of an unknown or
unsupported protocol."
 ::= { ip 7 }

ipInDiscards OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
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."
 ::= { ip 8 }

ipInDelivers OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The total number of input datagrams successfully delivered to IP user-protocols (including ICMP)."
 ::= { ip 9 }

ipOutRequests OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
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."
 ::= { ip 10 }

ipOutDiscards OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
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."
 ::= { ip 11 }

ipOutNoRoutes OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
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 datagrams which a host cannot route because all of its default routers are down."
 ::= { ip 12 }

ipReasmTimeout OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The maximum number of seconds which received fragments are held while they are awaiting reassembly at this entity."
 ::= { ip 13 }

ipReasmReqds OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of IP fragments received which needed to be reassembled at this entity."
 ::= { ip 14 }

ipReasmOKs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of IP datagrams successfully re-assembled."
 ::= { ip 15 }

ipReasmFails OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
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."
::= { ip 16 }

ipFragOKs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of IP datagrams that have been successfully
fragmented at this entity."
::= { ip 17 }

ipFragFails OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
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."
::= { ip 18 }

ipFragCreates OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of IP datagram fragments that have been
generated as a result of fragmentation at this entity."
::= { ip 19 }

-- the IP address table

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

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

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

ipAdEntAddr OBJECT-TYPE
SYNTAX      IpAddress
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
 "The IP address to which this entry’s addressing information
 pertains."
 ::= { ipAddrEntry 1 }

ipAdEntIfIndex OBJECT-TYPE
SYNTAX      INTEGER (1..2147483647)
MAX-ACCESS  read-only
STATUS      current
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 RFC 1573’s ifIndex."
 ::= { ipAddrEntry 2 }

ipAdEntNetMask OBJECT-TYPE
SYNTAX      IpAddress
MAX-ACCESS  read-only
STATUS      current
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."
 ::= { ipAddrEntry 3 }

ipAdEntBcastAddr OBJECT-TYPE
SYNTAX      INTEGER (0..1)
MAX-ACCESS  read-only
STATUS      current
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.

\[
:\text{::=} \{ \text{ipAddrEntry } 4 \}
\]

\text{ipAdEntReasmMaxSize OBJECT-TYPE}
\text{SYNTAX} \quad \text{INTEGER (0..65535)}
\text{MAX-ACCESS} \quad \text{read-only}
\text{STATUS} \quad \text{current}
\text{DESCRIPTION}

"The size of the largest IP datagram which this entity can re-assemble from incoming IP fragmented datagrams received on this interface."

\[
:\text{::=} \{ \text{ipAddrEntry } 5 \}
\]

--- ipRouteTable ::= \{ ip 21 \} obsolete
--- the IP Address Translation table

--- The Address Translation tables 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.

\text{ipNetToMediaTable OBJECT-TYPE}
\text{SYNTAX} \quad \text{SEQUENCE OF IpNetToMediaEntry}
\text{MAX-ACCESS} \quad \text{not-accessible}
\text{STATUS} \quad \text{current}
\text{DESCRIPTION}

"The IP Address Translation table used for mapping from IP addresses to physical addresses."

\[
:\text{::=} \{ \text{ip } 22 \}
\]

\text{ipNetToMediaEntry OBJECT-TYPE}
\text{SYNTAX} \quad \text{IpNetToMediaEntry}
\text{MAX-ACCESS} \quad \text{not-accessible}
\text{STATUS} \quad \text{current}
\text{DESCRIPTION}

"Each entry contains one IpAddress to 'physical' address equivalence."
\text{INDEX}

\[
\{ \text{ipNetToMediaTypeIndex, ipNetToMediaNetAddress }\}
\]
::= { ipNetToMediaTable 1 }

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

ipNetToMediaIfIndex OBJECT-TYPE
SYNTAX INTEGER (1..2147483647)
MAX-ACCESS read-create
STATUS current
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 RFC 1573’s ifIndex."
::= { ipNetToMediaEntry 1 }

ipNetToMediaPhysAddress OBJECT-TYPE
SYNTAX PhysAddress
MAX-ACCESS read-create
STATUS current
DESCRIPTION
    "The media-dependent ‘physical’ address."
::= { ipNetToMediaEntry 2 }

ipNetToMediaNetAddress OBJECT-TYPE
SYNTAX IpAddress
MAX-ACCESS read-create
STATUS current
DESCRIPTION
    "The IpAddress corresponding to the media-dependent ‘physical’ address."
::= { ipNetToMediaEntry 3 }

ipNetToMediaType OBJECT-TYPE
SYNTAX INTEGER {
    other(1), -- none of the following
    invalid(2), -- an invalidated mapping
    dynamic(3),
    static(4)
}
MAX-ACCESS read-create
STATUS current
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 disassociates 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.

```::= { ipNetToMediaEntry 4 }
```

ipRoutingDiscards OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
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."
::= { ip 23 }

-- the ICMP group

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

icmpInMsgs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The total number of ICMP messages which the entity received. Note that this counter includes all those counted by icmpInErrors."
::= { icmp 1 }

icmpInErrors OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of ICMP messages which the entity received but determined as having ICMP-specific errors (bad ICMP checksums, bad length, etc.)."
::= { icmp 2 }
icmpInDestUnreachs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of ICMP Destination Unreachable messages received."
 ::= { icmp 3 }

icmpInTimeExcds OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of ICMP Time Exceeded messages received."
 ::= { icmp 4 }

icmpInParmProbs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of ICMP Parameter Problem messages received."
 ::= { icmp 5 }

icmpInSrcQuenchs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of ICMP Source Quench messages received."
 ::= { icmp 6 }

icmpInRedirects OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of ICMP Redirect messages received."
 ::= { icmp 7 }

icmpInEchos OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of ICMP Echo (request) messages received."
 ::= { icmp 8 }
icmpInEchoReps OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
   "The number of ICMP Echo Reply messages received."
 ::= { icmp 9 }

icmpInTimestamps OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
   "The number of ICMP Timestamp (request) messages received."
 ::= { icmp 10 }

icmpInTimestampReps OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
   "The number of ICMP Timestamp Reply messages received."
 ::= { icmp 11 }

icmpInAddrMasks OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
   "The number of ICMP Address Mask Request messages received."
 ::= { icmp 12 }

icmpInAddrMaskReps OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
   "The number of ICMP Address Mask Reply messages received."
 ::= { icmp 13 }

icmpOutMsgs OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
   "The total number of ICMP messages which this entity
    attempted to send.  Note that this counter includes all
    those counted by icmpOutErrors."
::= { icmp 14 }

icmpOutErrors OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
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."
::= { icmp 15 }

icmpOutDestUnreachs OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of ICMP Destination Unreachable messages sent."
::= { icmp 16 }

icmpOutTimeExcds OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of ICMP Time Exceeded messages sent."
::= { icmp 17 }

icmpOutParmProbs OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of ICMP Parameter Problem messages sent."
::= { icmp 18 }

icmpOutSrcQuenchs OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of ICMP Source Quench messages sent."
::= { icmp 19 }
icmpOutRedirects OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of ICMP Redirect messages sent. For a host, this object will always be zero, since hosts do not send redirects."
::= { icmp 20 }

icmpOutEchos OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of ICMP Echo (request) messages sent."
::= { icmp 21 }

icmpOutEchoReps OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of ICMP Echo Reply messages sent."
::= { icmp 22 }

icmpOutTimestamps OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of ICMP Timestamp (request) messages sent."
::= { icmp 23 }

icmpOutTimestampReps OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of ICMP Timestamp Reply messages sent."
::= { icmp 24 }

icmpOutAddrMasks OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of ICMP Address Mask Request messages sent."
::= { icmp 25 }

icmpOutAddrMaskReps OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  "The number of ICMP Address Mask Reply messages sent."
::= { icmp 26 }

-- conformance information

ipMIBConformance OBJECT IDENTIFIER ::= { ipMIB 2 }

ipMIBCompliances OBJECT IDENTIFIER ::= { ipMIBConformance 1 }
ipMIBGroups    OBJECT IDENTIFIER ::= { ipMIBConformance 2 }

-- compliance statements

ipMIBCompliance MODULE-COMPLIANCE
STATUS  current
DESCRIPTION  "The compliance statement for SNMPv2 entities which
implement IP."
MODULE  -- this module
      MANDATORY-GROUPS { ipGroup,
                         icmpGroup }
::= { ipMIBCompliances 1 }

-- units of conformance

ipGroup OBJECT-GROUP
OBJECTS   { ipForwarding, ipDefaultTTL, ipInReceives,
            ipInHdrErrors, ipInAddrErrors,
            ipForwDatagrams, ipInUnknownProtos,
            ipInDiscards, ipInDelivers, ipOutRequests,
            ipOutDiscards, ipOutNoRoutes,
            ipReasmTimeout, ipReasmReqds, ipReasmOKs,
            ipReasmFails, ipFragOKs,
            ipFragFails, ipFragCreates,
            ipAdEntAddr, ipAdEntIfIndex, ipAdEntNetMask,
            ipAdEntBcastAddr, ipAdEntReasmMaxSize,
            ipNetToMediaIfIndex, ipNetToMediaPhysAddress,
            ipNetToMediaNetAddress, ipNetToMediaType,
            ipRoutingDiscards }

STATUS  current
DESCRIPTION
"The ip group of objects providing for basic management of IP entities, exclusive of the management of IP routes."
::= { ipMIBGroups 1 }

icmpGroup OBJECT-GROUP
  OBJECTS   { icmpInMsgs, icmpInErrors,
    icmpInDestUnreachs, icmpInTimeExcds,
    icmpInParmProbs, icmpInSrcQuenchs,
    icmpInRedirects, icmpInEchos,
    icmpInEchoReps, icmpInTimestamps,
    icmpInTimestampReps, icmpInAddrMasks,
    icmpInAddrMaskReps, icmpOutMsgs,
    icmpOutErrors, icmpOutDestUnreachs,
    icmpOutTimeExcds, icmpOutParmProbs,
    icmpOutSrcQuenchs, icmpOutRedirects,
    icmpOutEchos, icmpOutEchoReps,
    icmpOutTimestamps, icmpOutTimestampReps,
    icmpOutAddrMasks, icmpOutAddrMaskReps }

  STATUS    current
  DESCRIPTION
    "The icmp group of objects providing ICMP statistics."
::= { ipMIBGroups 2 }

END
3. Acknowledgements

This document contains a modified subset of RFC 1213.

4. References

[1] Information processing systems - Open Systems Interconnection -
Specification of Abstract Syntax Notation One (ASN.1),
International Organization for Standardization. International
Standard 8824, (December, 1987).

for version 2 of the Simple Network Management Protocol
(SNMPv2)", RFC 1902, Cisco Systems, January 1996.


[4] Postel, J., "Internet Control Message Protocol - DARPA Internet
Program Protocol Specification", STD 5, RFC 792, USC/Information
Sciences Institute, September 1981.

Network Management of TCP/IP-based internets: MIB-II", STD 17,


5. Security Considerations

Security issues are not discussed in this memo.

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