Multicast Group Membership Discovery MIB

Status of this Memo

This document is an Internet-Draft and is in full conformance with all provisions of Section 10 of RFC2026.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at http://www.ietf.org/ietf/1id-abstracts.txt
The list of Internet-Draft Shadow Directories can be accessed at http://www.ietf.org/shadow.html.

Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it describes objects used for managing the Internet Group Management Protocol (IGMP) and the Multicast Listener Discovery (MLD) protocol.

Table of Contents

1. Introduction....................................................2
2. The Internet-Standard Management Framework....................2
3. Overview........................................................2
4. Definitions....................................................3
5. Security Considerations........................................24
6. Contributors...................................................25
7. Acknowledgements................................................26
8. Author’s Address................................................26
9. References.....................................................26
10. Full Copyright Statement.....................................27

1. Introduction

This memo defines a portion of the Management Information Base (MIB)
Multicast Group Membership Discovery MIB

for use with network management protocols in the Internet community. In particular, it describes objects used for managing the Internet Group Management Protocol (IGMP), version 1 [5], version 2 [6] or version 3 [7] and the Multicast Listener Discovery (MLD) protocol version 1 [8] or version 2 [9]. Both protocols provide multicast membership discovery capability, IGMP pertains to IP version 4 clients, and MLD for IP version 6 clients. This version of the MIB supercedes both rfc2933 [10] and rfc3019 [11], incorporating a generic interface for both IGMP and MLD implementations, and changes to enable "source filtering" in multicast clients. The MIB encompasses both router and host nodes with relevant management objects defined for each.

2. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to section 7 of RFC 3410 [4].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIv2, which is described in STD 58, RFC 2578 [1], STD 58, RFC 2579 [2] and STD 58, RFC 2580 [3].

3. Overview

This MIB module contains seven tables:

1. the MGMD Host Interface Table which contains one row for each interface on which MGMD is enabled on a host,

2. the MGMD Router Interface Table which contains one row for each interface on which MGMD is enabled on a router,

3. the MGMD Host Cache Table which contains one row for each IP multicast group for which there are members on a particular interface on a host,

4. the MGMD Router Cache Table which contains one row for each IP multicast group for which there are members on a particular interface on a router,

5. the reverse MGMD Host Table which contains one row for each interface for which there are active multicast groups on a host,

6. the reverse MGMD Router Table which contains one row for each interface for which there are active multicast groups on a router,

7. the MGMD Host SrcList Table which contains one row for each entry in
Multicast Group Membership Discovery MIB

the source filter record for an interface and multicast group pair on a host.

8. the MGMD Router SrcList Table which contains one row for each entry in
the source filter record for an interface and multicast group pair on a router.

All tables are intended for EITHER routers or hosts as indicated by the
name.

4. Definitions
MGMD-STD-MIB DEFINITIONS ::= BEGIN

IMPORTS
MODULE-IDENTITY, OBJECT-TYPE, mib-2, Counter32, Gauge32,
Unsigned32, Integer32, TimeTicks FROM SNMPv2-SMI
InetAddress, InetAddressType FROM INET-ADDRESS-MIB
RowStatus, TruthValue FROM SNMPv2-TC
MODULE-COMPLIANCE, OBJECT-GROUP FROM SNMPv2-CONF
InterfaceIndexOrZero, InterfaceIndex FROM IF-MIB;

mgmdStdMIB MODULE-IDENTITY
LAST-UPDATED "200302240000Z" -- October 24, 2003
ORGANIZATION "IETF MAGMA Working Group."
CONTACT-INFO
" Julian Chesterfield
University of Cambridge,
Computer Laboratory,
15 JJ Thompson Avenue,
Cambridge,
CB3 0FD
UK

EMail: julian.chesterfield@cl.cam.ac.uk"
DESCRIPTION
"The MIB module for MGMD Management."
REVISION "200310240000Z" -- October 24, 2003
DESCRIPTION
"New version of MGMD combining RFC 2933 and RFC 3019.
Includes IGMPv3 and MLDv2 source filtering changes."
::= { mib-2 85 }

mgmdMIBObjects OBJECT IDENTIFIER ::= { mgmdStdMIB 1 }

--
-- The MGMD Host Interface Table
--

mgmdHostInterfaceTable OBJECT-TYPE
SYNTAX SEQUENCE OF MgmdHostInterfaceEntry
MAX-ACCESS not-accessible

Chesterfield I-D - Expire March 2004
Multicast Group Membership Discovery MIB

STATUS current
DESCRIPTION
"The (conceptual) table listing the interfaces on which IGMP or MLD is enabled."
 ::= { mgmdMIBObjects 1 }

mgmdHostInterfaceEntry OBJECT-TYPE
SYNTAX MgdHostInterfaceEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"An entry (conceptual row) representing an interface on which IGMP or MLD is enabled."
INDEX { mgmdHostInterfaceIfIndex, mgmdHostInterfaceQuerierType }
 ::= { mgmdHostInterfaceTable 1 }

MgdHostInterfaceEntry ::= SEQUENCE {
    mgmdHostInterfaceIfIndex               InterfaceIndex,
    mgmdHostInterfaceQuerierType           InetAddressType,
    mgmdHostInterfaceQuerier               InetAddress,
    mgmdHostInterfaceStatus                RowStatus,
    mgmdHostInterfaceVersion               Unsigned32,
    mgmdHostInterfaceVersion1QuerierTimer  TimeTicks,
    mgmdHostInterfaceVersion2QuerierTimer  TimeTicks
}

mgmdHostInterfaceIfIndex OBJECT-TYPE
SYNTAX InterfaceIndex
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The ifIndex value of the interface for which IGMP or MLD is enabled. The table is indexed by the ifIndex value and the InetAddressType to allow for interfaces which may be configured in both IPv4 and IPv6 modes."
 ::= { mgmdHostInterfaceEntry 1 }

mgmdHostInterfaceQuerierType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The address type of this interface. This entry along with the ifIndex value acts as the index to the mgmdHostInterface table. A physical interface may be configured in multiple modes concurrently, e.g. in IPv4 and IPv6 modes connected to the same interface, however the traffic is considered to be logically separate."
 ::= { mgmdHostInterfaceEntry 2 }

mgmdHostInterfaceQuerier OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS read-only
Multicast Group Membership Discovery MIB

STATUS current
DESCRIPTION
"The address of the IGMP or MLD Querier on the IP subnet to which this interface is attached. The InetAddressType, e.g. IPv4 or IPv6, is identified by the mgmdHostInterfaceQuerierType variable in the mgmdHostInterface table."
 ::= { mgmdHostInterfaceEntry 3 }

mgmdHostInterfaceVersion OBJECT-TYPE
SYNTAX Unsigned32 (1..3)
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The version of MGMD which is running on this interface. Value 1 applies to IGMPv1 hosts only. Value 2 applies to IGMPv2 and MLDv1 hosts, and value 3 applies to IGMPv3 and MLDv2 hosts. This object can be used to configure a host capable of running either version. For IGMP and MLD to function correctly, all routers on a LAN must be configured to run the same version on that LAN."
DEFVAL { 3 }
 ::= { mgmdHostInterfaceEntry 4 }

mgmdHostInterfaceVersion1QuerierTimer OBJECT-TYPE
SYNTAX TimeTicks
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The time remaining until the host assumes that there are no MGMDv1 routers present on the interface. While this is non-zero, the host will reply to all queries with version 1 membership reports. This variable applies to MGMDv2 or 3 hosts that are forced to run in v1 for compatibility with v1 hosts or routers present on the interface. This object may only be present when the corresponding value of mgmdHostCacheAddressType is IPv6."
 ::= { mgmdHostInterfaceEntry 5 }

mgmdHostInterfaceVersion2QuerierTimer OBJECT-TYPE
SYNTAX TimeTicks
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The time remaining until the host assumes that there are no MGMDv2 routers present on the interface. While this is non-zero, the host will reply to all queries with version 1 or 2 membership reports. This variable applies to MGMDv3 hosts that are forced to run in v2 for compatibility with v2 hosts or routers present on the interface."
 ::= { mgmdHostInterfaceEntry 6 }

--
-- The MGMD Router Interface Table
--
Multicast Group Membership Discovery MIB

Multicast Group Membership Discovery MIB

mgmdRouterInterfaceTable OBJECT-TYPE
SYNTAX     SEQUENCE OF MgmdRouterInterfaceEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
  "The (conceptual) table listing the interfaces on which
  IGMP or MLD is enabled."
::= { mgmdMIBObjects 2 }

MgmdRouterInterfaceEntry OBJECT-TYPE
SYNTAX     MgmdRouterInterfaceEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
  "An entry (conceptual row) representing an interface on
  which IGMP or MLD is enabled."
INDEX      { mgmdRouterInterfaceIfIndex, mgmdRouterInterfaceQuerierType }
::= { mgmdRouterInterfaceTable 1 }

MgmdRouterInterfaceEntry ::= SEQUENCE {
  mgmdRouterInterfaceIfIndex               InterfaceIndex,
  mgmdRouterInterfaceQuerierType           InetAddressType,
  mgmdRouterInterfaceQuerier               InetAddress,
  mgmdRouterInterfaceQueryInterval         Unsigned32,
  mgmdRouterInterfaceStatus                RowStatus,
  mgmdRouterInterfaceVersion               Unsigned32,
  mgmdRouterInterfaceQueryMaxResponseTime  Unsigned32,
  mgmdRouterInterfaceQuerierUpTime         TimeTicks,
  mgmdRouterInterfaceQuerierExpiryTime     TimeTicks,
  mgmdRouterInterfaceWrongVersionQueries   Counter32,
  mgmdRouterInterfaceJoins                 Counter32,
  mgmdRouterInterfaceGroups                Gauge32,
  mgmdRouterInterfaceProxyIfIndex          InterfaceIndexOrZero,
  mgmdRouterInterfaceGroups                Gauge32,
  mgmdRouterInterfaceRobustness            Unsigned32,
  mgmdRouterInterfaceLastMembQueryIntvl    Unsigned32
}

mgmdRouterInterfaceIfIndex OBJECT-TYPE
SYNTAX     InterfaceIndex
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
  "The ifIndex value of the interface for which IGMP or MLD
  is enabled. The table is indexed by the ifIndex value and
  the InetAddressType to allow for interfaces which may be
  configured in both IPv4 and IPv6 modes."
::= { mgmdRouterInterfaceEntry 1 }

mgmdRouterInterfaceQuerierType OBJECT-TYPE
SYNTAX     InetAddressType
Multicast Group Membership Discovery MIB

MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The address type of this interface. This entry along with
the ifIndex value acts as the index to the mgmdRouterInterface
table. A physical interface may be configured in multiple
modes concurrently, e.g. in IPv4 and IPv6 modes connected
to the same interface, however the traffic is considered to
be logically separate."
::= { mgmdRouterInterfaceEntry 2 }

mgmdRouterInterfaceQuerier OBJECT-TYPE
SYNTAX     InetAddress
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The address of the IGMP or MLD Querier on the IP subnet to
which this interface is attached. The InetAddressType, e.g.
IPv4 or IPv6, is identified by the mgmdRouterInterfaceQuerierType
variable in the mgmdRouterInterface table."
::= { mgmdRouterInterfaceEntry 3 }

mgmdRouterInterfaceQueryInterval OBJECT-TYPE
SYNTAX     Unsigned32
UNITS      "seconds"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The frequency at which IGMP or MLD Host-Query packets are
transmitted on this interface."
DEFVAL     { 125 }
::= { mgmdRouterInterfaceEntry 4 }

mgmdRouterInterfaceStatus OBJECT-TYPE
SYNTAX     RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The activation of a row enables the router side of IGMP or MLD
on the interface. The destruction of a row disables the router
side of IGMP or MLD on the interface."
::= { mgmdRouterInterfaceEntry 5 }

mgmdRouterInterfaceVersion OBJECT-TYPE
SYNTAX     Unsigned32
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The version of MGMD which is running on this interface.
Value 1 applies to IGMPv1 routers only. Value 2 applies
to IGMPv2 and MLDv1 routers, and value 3 applies to IGMPv3
and MLDv2 hosts.
This object can be used to configure a router capable of
running either version. For IGMP and MLD to function
Multicast Group Membership Discovery MIB

correctly, all routers on a LAN must be configured to run
the same version on that LAN."

DEFVAL { 3 }
::= { mgmdRouterInterfaceEntry 6 }

mgmdRouterInterfaceQueryMaxResponseTime OBJECT-TYPE
SYNTAX      Unsigned32 (0..255)
UNITS       "tenths of seconds"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"The maximum query response time advertised in MGMDv2 or v3
queries on this interface."
DEFVAL { 100 }
::= { mgmdRouterInterfaceEntry 7 }

mgmdRouterInterfaceQuerierUpTime OBJECT-TYPE
SYNTAX      TimeTicks
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The time since mgmdRouterInterfaceQuerier was last changed."
::= { mgmdRouterInterfaceEntry 8 }

mgmdRouterInterfaceQuerierExpiryTime OBJECT-TYPE
SYNTAX      TimeTicks
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The amount of time remaining before the Other Querier
Present Timer expires. If the local system is the querier,
the value of this object is zero."
::= { mgmdRouterInterfaceEntry 9 }

mgmdRouterInterfaceWrongVersionQueries OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of queries received whose IGMP or MLD version
does not match the equivalent mgmdRouterInterfaceVersion, over
the lifetime of the row entry. Both IGMP and MLD require that all
routers on a LAN be configured to run the same version.
Thus, if any queries are received with the wrong version,
this indicates a configuration error."
::= { mgmdRouterInterfaceEntry 10 }

mgmdRouterInterfaceJoins OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of times a group membership has been added on

Multicast Group Membership Discovery MIB

this interface; that is, the number of times an entry for this interface has been added to the Cache Table. This object gives an indication of the amount of IGMP or MLD activity over the lifetime of the row entry.

::= { mgmdRouterInterfaceEntry 11 }

mgmdRouterInterfaceProxyIfIndex OBJECT-TYPE
SYNTAX     InterfaceIndexOrZero
MAX-ACCESS read-create
STATUS     current
DESCRIPTION
"Some devices implement a form of IGMP or MLD proxying whereby memberships learned on the interface represented by this row, cause Host Membership Reports to be sent on the interface whose ifIndex value is given by this object. Such a device would implement the mgmdV2RouterMIBGroup only on its router interfaces (those interfaces with non-zero mgmdRouterInterfaceProxyIfIndex). Typically, the value of this object is 0, indicating that no proxying is being done."
DEFVAL     { 0 }
::= { mgmdRouterInterfaceEntry 12 }

mgmdRouterInterfaceGroups OBJECT-TYPE
SYNTAX     Gauge32
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"The current number of entries for this interface in the RouterCache Table."
::= { mgmdRouterInterfaceEntry 13 }

mgmdRouterInterfaceRobustness OBJECT-TYPE
SYNTAX     Unsigned32 (1..255)
MAX-ACCESS read-create
STATUS     current
DESCRIPTION
"The Robustness Variable allows tuning for the expected packet loss on a subnet. If a subnet is expected to be lossy, the Robustness Variable may be increased. IGMP and MLD is robust to (Robustness Variable-1) packet losses."
DEFVAL     { 2 }
::= { mgmdRouterInterfaceEntry 14 }

mgmdRouterInterfaceLastMembQueryIntvl OBJECT-TYPE
SYNTAX     Unsigned32 (0..255)
UNITS      "tenths of seconds"
MAX-ACCESS read-create
STATUS     current
DESCRIPTION
"The Last Member Query Interval is the Max Response Time inserted into Group-Specific Queries sent in response to Leave Group messages, and is also the amount of time Between Group-Specific Query messages. This value may be
Multicast Group Membership Discovery MIB

tuned to modify the leave latency of the network. A
reduced value results in reduced time to detect the loss of
the last member of a group. The value of this object is
irrelevant if mgmdRouterInterfaceVersion is 1."
DEFVAL { 10 }
::= { mgmdRouterInterfaceEntry 15 }

--
-- The MGMD Host Cache Table
--

mgmdHostCacheTable OBJECT-TYPE
SYNTAX     SEQUENCE OF MgmdHostCacheEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"The (conceptual) table listing the IP multicast groups for
which there are members on a particular interface."
::= { mgmdMIBObjects 3 }

mgmdHostCacheEntry OBJECT-TYPE
SYNTAX     MgmdHostCacheEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"An entry (conceptual row) in the mgmdHostCacheTable."
INDEX      { mgmdHostCacheAddressType, mgmdHostCacheAddress,
                   mgmdHostCacheIfIndex }
::= { mgmdHostCacheTable 1 }

MgmdHostCacheEntry ::= SEQUENCE {
      mgmdHostCacheAddressType        InetAddressType,
      mgmdHostCacheAddress            InetAddress,
      mgmdHostCacheIfIndex            InterfaceIndex,
      mgmdHostCacheLastReporter       InetAddress,
      mgmdHostCacheStatus             RowStatus,
      mgmdHostCacheSourceFilterMode   Integer32
}

mgmdHostCacheAddressType OBJECT-TYPE
SYNTAX     InetAddressType
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"The address type of the mgmdHostCacheTable entry. This value
applies to both the mgmdHostCacheAddress and the
mgmdHostCacheLastReporter entries."
::= { mgmdHostCacheEntry 1 }

mgmdHostCacheAddress OBJECT-TYPE
Multicast Group Membership Discovery MIB

SYNTAX     InetAddress
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
   "The IP multicast group address for which this entry
   contains information. The InetAddressType, e.g.
   IPv4 or IPv6, is identified by the mgmdHostCacheAddrType
   variable in the mgmdHostCache table."
::= { mgmdHostCacheEntry 2 }

mgmdHostCacheIfIndex OBJECT-TYPE
SYNTAX     InterfaceIndex
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
   "The interface for which this entry contains information
   for an IP multicast group address."
::= { mgmdHostCacheEntry 3 }

mgmdHostCacheLastReporter OBJECT-TYPE
SYNTAX     InetAddress
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
   "The IP address of the source of the last membership report
   received for this IP Multicast group address on this
   interface. If no membership report has been received, this
   object has the value 0:0:0. The InetAddressType, e.g.
   IPv4 or IPv6, is identified by the mgmdHostCacheAddrType
   variable in the mgmdHostCache table."
::= { mgmdHostCacheEntry 4 }

mgmdHostCacheStatus OBJECT-TYPE
SYNTAX     RowStatus
MAX-ACCESS read-create
STATUS     current
DESCRIPTION
   "The status of this entry."
::= { mgmdHostCacheEntry 5 }

mgmdHostCacheSourceFilterMode OBJECT-TYPE
SYNTAX     Integer32 {include (1),
             exclude (2) }
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
   "The state in which the interface is currently set. The
   value indicates the relevance of the corresponding source
   list entries in the HostSrcList Table for MGMDv3 interfaces."
::= { mgmdHostCacheEntry 6 }

--
-- The MGMD Router Cache Table
--
Multicast Group Membership Discovery MIB

mgmdRouterCacheTable OBJECT-TYPE
SYNTAX  SEQUENCE OF MgmdRouterCacheEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
 "The (conceptual) table listing the IP multicast groups for
 which there are members on a particular router interface."
 ::= { mgmdMIBObjects 4 }

mgmdRouterCacheEntry OBJECT-TYPE
SYNTAX     MgmdRouterCacheEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
 "An entry (conceptual row) in the mgmdRouterCacheTable."
INDEX      { mgmdRouterCacheAddressType, mgmdRouterCacheAddress, mgmdRouterCacheIfIndex }
 ::= { mgmdRouterCacheTable 1 }

MgmdRouterCacheEntry ::= SEQUENCE {
  mgmdRouterCacheAddressType        InetAddressType,
  mgmdRouterCacheAddress            InetAddress,
  mgmdRouterCacheIfIndex            InterfaceIndex,
  mgmdRouterCacheLastReporter       InetAddress,
  mgmdRouterCacheUpTime             TimeTicks,
  mgmdRouterCacheExpiryTime         TimeTicks,
  mgmdRouterCacheStatus             RowStatus,
  mgmdRouterCacheVersion1HostTimer  TimeTicks,
  mgmdRouterCacheVersion2HostTimer  TimeTicks,
  mgmdRouterCacheSourceFilterMode   Integer32
}

mgmdRouterCacheAddressType OBJECT-TYPE
SYNTAX     InetAddressType
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
 "The address type of the mgmdRouterCacheTable entry. This value
 applies to both the mgmdRouterCacheAddress and the
 mgmdRouterCacheLastReporter entries."
 ::= { mgmdRouterCacheEntry 1 }

mgmdRouterCacheAddress OBJECT-TYPE
SYNTAX     InetAddress
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
 "The IP multicast group address for which this entry
 contains information. The InetAddressType, e.g.
 IPv4 or IPv6, is identified by the mgmdRouterCacheAddressType

Chesterfield     I-D - Expire March 2004      [Page 12]
Multicast Group Membership Discovery MIB

variable in the mgmdRouterCache table."
::= { mgmdRouterCacheEntry 2 }

mgmdRouterCacheIfIndex OBJECT-TYPE
SYNTAX InterfaceIndex
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The interface for which this entry contains information
for an IP multicast group address."
::= { mgmdRouterCacheEntry 3 }

mgmdRouterCacheLastReporter OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The IP address of the source of the last membership report
received for this IP Multicast group address on this
interface. If no membership report has been received, this
object has the value 0::0. The InetAddressType, e.g.
IPv4 or IPv6, is identified by the mgmdRouterCacheAddrType
variable in the mgmdRouterCache table."
::= { mgmdRouterCacheEntry 4 }

mgmdRouterCacheUpTime OBJECT-TYPE
SYNTAX TimeTicks
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The time elapsed since this entry was created."
::= { mgmdRouterCacheEntry 5 }

mgmdRouterCacheExpiryTime OBJECT-TYPE
SYNTAX TimeTicks
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The minimum amount of time remaining before this entry
will be aged out. A value of 0 indicates that the entry is
only present because mgmdRouterCacheSelf is true and that if the
router left the group, this entry would be aged out
immediately. Note that some implementations may process
membership reports from the local system in the same way as
reports from other hosts, so a value of 0 is not required."
::= { mgmdRouterCacheEntry 6 }

mgmdRouterCacheStatus OBJECT-TYPE
SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The status of this entry."
::= { mgmdRouterCacheEntry 7 }
Multicast Group Membership Discovery MIB

mgmdRouterCacheVersion1HostTimer OBJECT-TYPE
  SYNTAX     TimeTicks
  MAX-ACCESS read-only
  STATUS     current
  DESCRIPTION
             "The time remaining until the local router will assume that
             there are no longer any MGMD version 1 members on the IP
             subnet attached to this interface. This entry only applies
             to IGMPv1 hosts, and is not implemented for MLD. Upon
             hearing any MGMDv1 Membership Report (IGMPv1 only), this
             value is reset to the group membership timer. While this
             time remaining is non-zero, the local router ignores any
             MGMDv2 Leave messages (IGMPv2 only) for this group that it
             receives on this interface."
  ::= { mgmdRouterCacheEntry 8 }

mgmdRouterCacheVersion2HostTimer OBJECT-TYPE
  SYNTAX     TimeTicks
  MAX-ACCESS read-only
  STATUS     current
  DESCRIPTION
             "The time remaining until the local router will assume that
             there are no longer any MGMD version 2 members on the IP
             subnet attached to this interface. This entry applies to
             both IGMP and MLD hosts. Upon hearing any MGMDv2
             Membership Report, this value is reset to the group
             membership timer. Assuming no MGMDv1 hosts have been
detected, the local router does not ignore any MGMDv2 Leave
messages for this group that it receives on this
interface."
  ::= { mgmdRouterCacheEntry 9 }

mgmdRouterCacheSourceFilterMode OBJECT-TYPE
  SYNTAX     Integer32 {include (1),
                         exclude (2) }
  MAX-ACCESS read-only
  STATUS     current
  DESCRIPTION
             "The state in which the interface is currently set. The
             value indicates the relevance of the corresponding source
             list entries in the RouterSrcList Table for MGMDv3 interfaces."
  ::= { mgmdRouterCacheEntry 10 }

--
--  The MGMD Reverse Host interface/cache lookup Table
--

mgmdInverseHostCacheTable OBJECT-TYPE
  SYNTAX     SEQUENCE OF MgmdInverseHostCacheEntry
  MAX-ACCESS not-accessible
  STATUS     current
  DESCRIPTION
             "The (conceptual) table listing the interfaces which
Multicast Group Membership Discovery MIB

are members of a particular group. This is a reverse lookup table for entries in the mgmdHostCacheTable.

::= { mgmdMIBObjects 5 }

mgmdInverseHostCacheEntry OBJECT-TYPE
SYNTAX     MgmdInverseHostCacheEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
   "An entry (conceptual row) in the mgmdInverseHostCacheTable."
INDEX      { mgmdInverseHostCacheIfIndex, mgmdInverseHostCacheAddressType,
               mgmdInverseHostCacheAddress,
               mgmdInverseHostCacheIfAddress,
               mgmdInverseHostCacheIfIndex,
               mgmdInverseHostCacheAddressType,
               mgmdInverseHostCacheAddress, status }
::= { mgmdInverseHostCacheTable 1 }

MgmdInverseHostCacheEntry ::= SEQUENCE {
    mgmdInverseHostCacheIfIndex            InterfaceIndex,
    mgmdInverseHostCacheAddressType        InetAddressType,
    mgmdInverseHostCacheAddress            InetAddress
}

mgmdInverseHostCacheIfIndex OBJECT-TYPE
SYNTAX     InterfaceIndex
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
   "The interface for which this entry contains information."
::= { mgmdInverseHostCacheEntry 1 }

mgmdInverseHostCacheAddressType OBJECT-TYPE
SYNTAX     InetAddressType
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
   "The address type of the mgmdInverseHostCacheTable entry."
::= { mgmdInverseHostCacheEntry 2 }

mgmdInverseHostCacheAddress OBJECT-TYPE
SYNTAX     InetAddress
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
   "The IP multicast group address for which this entry contains information about an interface. The InetAddressType, e.g. IPv4 or IPv6, is identified by the mgmdInverseHostCacheAddressType variable in the mgmdInverseHostCache table."
::= { mgmdInverseHostCacheEntry 3 }
Multicast Group Membership Discovery MIB

--
-- The MGMD Reverse Router interface/cache lookup Table
--

mgmdInverseRouterCacheTable OBJECT-TYPE
SYNTAX     SEQUENCE OF MgmdInverseRouterCacheEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"The (conceptual) table listing the interfaces which are members of a particular group. This is a reverse lookup table for entries in the mgmdRouterCacheTable."
::= { mgmdMIBObjects 6 }

mgmdInverseRouterCacheEntry OBJECT-TYPE
SYNTAX     MgmdInverseRouterCacheEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"An entry (conceptual row) in the mgmdInverseRouterCacheTable."
INDEX      { mgmdInverseRouterCacheIfIndex, mgmdInverseRouterCacheAddressType, mgmdInverseRouterCacheAddress }
::= { mgmdInverseRouterCacheTable 1 }

MgmdInverseRouterCacheEntry ::= SEQUENCE {
  mgmdInverseRouterCacheIfIndex            InterfaceIndex,
  mgmdInverseRouterCacheAddressType        InetAddressType,
  mgmdInverseRouterCacheAddress            InetAddress
}

mgmdInverseRouterCacheIfIndex OBJECT-TYPE
SYNTAX     InterfaceIndex
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"The interface for which this entry contains information."
::= { mgmdInverseRouterCacheEntry 1 }

mgmdInverseRouterCacheAddressType OBJECT-TYPE
SYNTAX     InetAddressType
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"The address type of the mgmdInverseRouterCacheTable entry."
::= { mgmdInverseRouterCacheEntry 2 }

mgmdInverseRouterCacheAddress OBJECT-TYPE
SYNTAX     InetAddress
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION

Chesterfield I-D - Expire March 2004 [Page 16]
Multicast Group Membership Discovery MIB

"The IP multicast group address for which this entry contains information about an interface. The InetAddressType, e.g. IPv4 or IPv6, is identified by the mgmdInverseRouterCacheAddressType variable in the mgmdInverseRouterCache table."

::= { mgmdInverseRouterCacheEntry 3 }

--
-- The MGMD Host Source list Table
--

mgmdHostSrcListTable OBJECT-TYPE
SYNTAX SEQUENCE OF MgmdHostSrcListEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The (conceptual) table listing the Source List entries corresponding to each Interface filter mode record on a host."
::= { mgmdMIBObjects 7 }

mgmdHostSrcListEntry OBJECT-TYPE
SYNTAX MgmdHostSrcListEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "An entry (conceptual row) in the mgmdHostSrcListTable."
INDEX { mgmdHostSrcListAddressType, mgmdHostSrcListAddress, mgmdHostSrcListIfIndex, mgmdHostSrcListHostAddress }
::= { mgmdHostSrcListTable 1 }

MgmdHostSrcListEntry ::= SEQUENCE {
  mgmdHostSrcListAddressType      InetAddressType,
  mgmdHostSrcListAddress          InetAddress,
  mgmdHostSrcListIfIndex          InterfaceIndex,
  mgmdHostSrcListHostAddress      InetAddress
}

mgmdHostSrcListAddressType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The address type of the InetAddress variables in this table. This value applies to the mgmdHostSrcListAddress and mgmdHostSrcListHostAddress entries."
::= { mgmdHostSrcListEntry 1 }

mgmdHostSrcListAddress OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

Chesterfield          I-D - Expire March 2004              [Page 17]
Multicast Group Membership Discovery MIB

"The IP multicast group address for which this entry contains information."
::= { mgmdHostSrcListEntry 2 }

mgmdHostSrcListIfIndex OBJECT-TYPE
SYNTAX     InterfaceIndex
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"The interface for which this entry contains information for an IP multicast group address."
::= { mgmdHostSrcListEntry 3 }

mgmdHostSrcListHostAddress OBJECT-TYPE
SYNTAX     InetAddress
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"The host address to which this entry corresponds. The HostCacheSourceFilterMode value for this Group address and interface indicates whether this Host address is included or excluded."
::= { mgmdHostSrcListEntry 4 }

--
-- The MEMD Router Source list Table
--

mgmdRouterSrcListTable OBJECT-TYPE
SYNTAX     SEQUENCE OF MgmdRouterSrcListEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"The (conceptual) table listing the Source List entries corresponding to each Interface filter mode record on a Router."
::= { mgmdMIBObjects 8 }

MgmdRouterSrcListEntry OBJECT-TYPE
SYNTAX     MgmdRouterSrcListEntry
MAX-ACCESS not-accessible
STATUS     current
DESCRIPTION
"An entry (conceptual row) in the mgmdRouterSrcListTable."
INDEX      { mgmdRouterSrcListAddressType, mgmdRouterSrcListAddress, mgmdRouterSrcListIfIndex, mgmdRouterSrcListHostAddress }
::= { mgmdRouterSrcListTable 1 }

MgmdRouterSrcListEntry ::= SEQUENCE |
  mgmdRouterSrcListAddressType   InetAddressType,
  mgmdRouterSrcListAddress     InetAddress,
  mgmdRouterSrcListIfIndex     InterfaceIndex,
  mgmdRouterSrcListHostAddress InetAddress
|

Chesterfield I-D - Expire March 2004 [Page 18]
Multicast Group Membership Discovery MIB

**mgmdRouterSrcListAddressType** OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The address type of the InetAddress variables in this table. This value applies to the mgmdRouterSrcListHostAddress and mgmdRouterSrcListAddress entries."
::= { mgmdRouterSrcListEntry 1 }

**mgmdRouterSrcListAddress** OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The IP multicast group address for which this entry contains information."
::= { mgmdRouterSrcListEntry 2 }

**mgmdRouterSrcListIfIndex** OBJECT-TYPE
SYNTAX InterfaceIndex
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The interface for which this entry contains information for an IP multicast group address."
::= { mgmdRouterSrcListEntry 3 }

**mgmdRouterSrcListHostAddress** OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "The host address to which this entry corresponds. The RouterCacheSourceFilterMode value for this Group address and interface indicates whether this Host address is included or excluded."
::= { mgmdRouterSrcListEntry 4 }

-- conformance information

**mgmdMIBConformance**
OBJECT IDENTIFIER ::= { mgmdStdMIB 2 }

**mgmdMIBVersions** OBJECT IDENTIFIER ::= { mgmdMIBConformance 1 }

**mgmdMIBCompliances**
OBJECT IDENTIFIER ::= { mgmdMIBConformance 2 }

**mgmdMIBGroups** OBJECT IDENTIFIER ::= { mgmdMIBConformance 3 }

-- Protocol Version Conformance
Multicast Group Membership Discovery MIB

mgmdIgmpV1HostMIBCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION "The version statement for hosts running IGMPv1, RFC 1112 [5], and implementing the MGMD MIB. MGMDv1 applies to hosts and routers running IGMPv1 only. IGMPv1 hosts must support the IPv4 address type."
  MODULE -- this module
  MANDATORY-GROUPS { mgmdHostBaseMIBGroup }
  ::= { mgmdMIBVersions 1 }

mgmdIgmpV1RouterMIBCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION "The version statement for routers running IGMPv1, RFC 1112 [5], and implementing the MGMD MIB. MGMDv1 applies to hosts and routers running IGMPv1 only. IGMPv1 routers must support the IPv4 address type."
  MODULE -- this module
  MANDATORY-GROUPS { mgmdRouterBaseMIBGroup }
  ::= { mgmdMIBVersions 2 }

mgmdIgmpV2HostMIBCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION "The version statement for hosts running IGMPv2, RFC 2236 [6], and implementing the MGMD MIB. MGMDv2 applies to hosts and routers running IGMPv2 or MLDv1. IGMPv2 hosts must support the IPv4 address type."
  MODULE -- this module
  MANDATORY-GROUPS { mgmdHostBaseMIBGroup, mgmdV2HostMIBGroup }
  ::= { mgmdMIBVersions 3 }

mgmdIgmpV2RouterMIBCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION "The version statement for routers running IGMPv2, RFC 2236 [6], and implementing the MGMD MIB. MGMDv2 applies to hosts and routers running IGMPv2 or MLDv1. IGMPv2 routers must support the IPv4 address type."
  MODULE -- this module
  MANDATORY-GROUPS { mgmdRouterBaseMIBGroup, mgmdV2RouterMIBGroup, mgmdV2IgmpRouterMIBGroup }
  ::= { mgmdMIBVersions 4 }

mgmdMldV1HostMIBCompliance MODULE-COMPLIANCE
  STATUS current

Chesterfield  I-D - Expire March 2004  [Page 20]
Multicast Group Membership Discovery MIB

DESCRIPTION
"The version statement for hosts running MLDv1, RFC 2710 [8], and implementing the MGMD MIB. MGMDv2 applies to hosts and routers running IGMPv2 or MLDv1. MLDv1 hosts must support the IPv6 address type."

MODULE  -- this module
MANDATORY-GROUPS { mgmdHostBaseMIBGroup }
::= { mgmdMIBVersions 5 }

mgmdMldV1RouterMIBCompliance MODULE-COMPLIANCE
STATUS  current
DESCRIPTION
"The version statement for routers running MLDv1, RFC 2710 [8], and implementing the MGMD MIB. MGMDv2 applies to hosts and routers running IGMPv2 or MLDv1. MLDv1 routers must support the IPv6 address type."

MODULE  -- this module
MANDATORY-GROUPS { mgmdRouterBaseMIBGroup, mgmdV2RouterMIBGroup }
::= { mgmdMIBVersions 6 }

mgmdIgmpV3HostMIBCompliance MODULE-COMPLIANCE
STATUS  current
DESCRIPTION
"The version statement for hosts running IGMPv3, RFC 3376 [7], and implementing the MGMD MIB. MGMDv3 applies to hosts and routers running IGMPv3 or MLDv2. IGMPv3 hosts must support the IPv4 address type."

MODULE  -- this module
MANDATORY-GROUPS { mgmdHostBaseMIBGroup, mgmdV2HostMIBGroup, mgmdV3HostMIBGroup }
::= { mgmdMIBVersions 7 }

mgmdIgmpV3RouterMIBCompliance MODULE-COMPLIANCE
STATUS  current
DESCRIPTION
"The version statement for routers running IGMPv3, RFC 3376 [7], and implementing the MGMD MIB. MGMDv3 applies to hosts and routers running IGMPv3 or MLDv2. IGMPv3 routers must support the IPv4 address type."

MODULE  -- this module
MANDATORY-GROUPS { mgmdRouterBaseMIBGroup, mgmdV2RouterMIBGroup, mgmdV2IgmpRouterMIBGroup, mgmdV3RouterMIBGroup }
::= { mgmdMIBVersions 8 }

Chesterfield  I-D - Expire March 2004

[Page 21]
Multicast Group Membership Discovery MIB

mgmdMldV2HostMIBCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
"The version statement for hosts running MLDv2 [9] and implementing the MGMD MIB. MGMDv3 applies to hosts and routers running IGMPv3 or MLDv2. MLDv2 hosts must support the IPv4 address type."
MODULE -- this module
MANDATORY-GROUPS { mgmdHostBaseMIBGroup, mgmdV3HostMIBGroup }
::= { mgmdMIBVersions 9 }

mgmdMldV2RouterMIBCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
"The version statement for routers running MLDv2 [9] and implementing the MGMD MIB. MGMDv3 applies to hosts and routers running IGMPv3 or MLDv2. MLDv2 routers must support the IPv4 address type."
MODULE -- this module
MANDATORY-GROUPS { mgmdRouterBaseMIBGroup, mgmdV2RouterMIBGroup, mgmdV3RouterMIBGroup }
::= { mgmdMIBVersions 10 }

-- compliance statements

mgmdV1HostMIBCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
"The compliance statement for hosts running MGMDv1 and implementing the MGMD MIB."
MODULE -- this module
MANDATORY-GROUPS { mgmdHostBaseMIBGroup }
OBJECT mgmdHostInterfaceStatus
MIN-ACCESS read-only
DESCRIPTION "Write access is not required."
OBJECT mgmdHostCacheStatus
MIN-ACCESS read-only
DESCRIPTION "Write access is not required."
::= { mgmdMIBCompliances 1 }

mgmdV1RouterMIBCompliance MODULE-COMPLIANCE
Multicast Group Membership Discovery MIB

STATUS current
DESCRIPTION "The compliance statement for routers running MGMDv1 and implementing the MGMD MIB."

MODULE -- this module
MANDATORY-GROUPS { mgmdRouterBaseMIBGroup }

OBJECT mgmdRouterInterfaceStatus
MIN-ACCESS read-only
DESCRIPTION "Write access is not required."

OBJECT mgmdRouterCacheStatus
MIN-ACCESS read-only
DESCRIPTION "Write access is not required."

::= { mgmdMIBCompliances 2 }

mgmdV2IgmpHostMIBCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION "The compliance statement for IGMPv2 hosts implementing the MGMD MIB."

MODULE -- this module
MANDATORY-GROUPS { mgmdHostBaseMIBGroup, mgmdV2IgmpHostMIBGroup }

OBJECT mgmdHostCacheStatus
MIN-ACCESS read-only
DESCRIPTION "Write access is not required."

::= { mgmdMIBCompliances 3 }

mgmdV2MldHostMIBCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION "The compliance statement for MLDv1 hosts implementing the MGMD MIB."

MODULE -- this module
MANDATORY-GROUPS { mgmdHostBaseMIBGroup }

OBJECT mgmdHostCacheStatus
MIN-ACCESS read-only
DESCRIPTION "Write access is not required."

::= { mgmdMIBCompliances 4 }

mgmdV2IgmpRouterMIBCompliance MODULE-COMPLIANCE
Multicast Group Membership Discovery MIB

STATUS   current
DESCRIPTION
    "The compliance statement for IGMPv2 routers
implementing the MGMD MIB."
MODULE   -- this module
MANDATORY-GROUPS { mgmdRouterBaseMIBGroup,
                   mgmdV2RouterMIBGroup,
                   mgmdV2IgmpRouterMIBGroup
}

OBJECT     mgmdRouterInterfaceStatus
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."
OBJECT     mgmdRouterCacheStatus
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."
::= { mgmdMIBCompliances 5 }

mgmdV2MldRouterMIBCompliance MODULE-COMPLIANCE
STATUS   current
DESCRIPTION
    "The compliance statement for MLDv1 routers
implementing the MGMD MIB."
MODULE   -- this module
MANDATORY-GROUPS { mgmdRouterBaseMIBGroup,
                   mgmdV2RouterMIBGroup
}

OBJECT     mgmdRouterInterfaceStatus
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."
OBJECT     mgmdRouterCacheStatus
MIN-ACCESS read-only
DESCRIPTION
    "Write access is not required."
::= { mgmdMIBCompliances 6 }

mgmdV3IgmpHostMIBCompliance MODULE-COMPLIANCE
STATUS   current
DESCRIPTION
    "The compliance statement for hosts running MGMDv3 and
implementing the MGMD MIB."
MODULE   -- this module
MANDATORY-GROUPS { mgmdHostBaseMIBGroup,
                   mgmdV2HostMIBGroup,
                   mgmdV3HostMIBGroup
}

OBJECT     mgmdHostInterfaceStatus
Multicast Group Membership Discovery MIB

MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT mgmdHostCacheStatus

MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

::= { mgmdMIBCompliances 7 }

mgmdV3IgmpRouterMIBCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
"The compliance statement for routers running MGMDv3 and implementing the MGMD MIB."
MODULE -- this module
MANDATORY-GROUPS { mgmdRouterBaseMIBGroup,
mgmdV2RouterMIBGroup,
mgmdV2IgmpRouterMIBGroup,
mgmdV3RouterMIBGroup
}

OBJECT mgmdRouterInterfaceStatus
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT mgmdRouterCacheStatus
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

::= { mgmdMIBCompliances 8 }

mgmdV3MldHostMIBCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
"The compliance statement for hosts running MGMDv3 and implementing the MGMD MIB."
MODULE -- this module
MANDATORY-GROUPS { mgmdHostBaseMIBGroup,
mgmdV3HostMIBGroup
}

OBJECT mgmdHostInterfaceStatus
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT mgmdHostCacheStatus
MIN-ACCESS read-only
DESCRIPTION

Chesterfield           I-D - Expire March 2004               [Page 25]
Multicast Group Membership Discovery MIB

"Write access is not required."

::= { mgmdMIBCompliances 9 }

mgmdV3MldRouterMIBCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
"The compliance statement for routers running MGMDv3 and implementing the MGMD MIB."
MODULE -- this module
MANDATORY-GROUPS { mgmdRouterBaseMIBGroup,
                     mgmdV2RouterMIBGroup,
                     mgmdV3RouterMIBGroup
                 }

OBJECT mgmdRouterInterfaceStatus
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

OBJECT mgmdRouterCacheStatus
MIN-ACCESS read-only
DESCRIPTION
"Write access is not required."

::= { mgmdMIBCompliances 10 }

-- units of conformance

mgmdHostBaseMIBGroup OBJECT-GROUP
OBJECTS { mgmdHostCacheStatus, mgmdHostInterfaceStatus,
          mgmdHostCacheAddressType
        }
STATUS current
DESCRIPTION
"The basic collection of objects providing management of MGMD version 1, 2 or 3 for Hosts."
::= { mgmdMIBGroups 1 }

mgmdRouterBaseMIBGroup OBJECT-GROUP
OBJECTS { mgmdRouterCacheStatus, mgmdRouterInterfaceStatus,
          mgmdRouterCacheAddressType,
          mgmdRouterCacheUpTime, mgmdRouterCacheExpiryTime,
          mgmdRouterInterfaceJoins, mgmdRouterInterfaceGroups,
          mgmdRouterCacheLastReporter, mgmdRouterInterfaceQuerierUpTime,
          mgmdRouterInterfaceQuerierExpiryTime,
          mgmdRouterInterfaceQueryInterval
        }
STATUS current
DESCRIPTION
"The basic collection of objects providing management of MGMD version 1, 2 or 3 for Routers."
::= { mgmdMIBGroups 2 }

mgmdV2IgmpHostMIBGroup OBJECT-GROUP

Chesterfield I-D - Expire March 2004 [Page 26]
Objects { mgmdHostInterfaceVersion1QuerierTimer }

Status current

Description

A collection of additional objects for management of IGMP version 2 in hosts for MGMD version 2 compliance.

::= { mgmdMIBGroups 3 }

mgmdHostOptMIBGroup OBJECT-GROUP

Objects { mgmdHostCacheLastReporter, mgmdHostInterfaceQuerier }

Status current

Description

A collection of optional objects for MGMD hosts. Supporting this group can be especially useful in an environment with a router which does not support the MGMD MIB.

::= { mgmdMIBGroups 4 }

mgmdV2RouterBaseMIBGroup OBJECT-GROUP

Objects { mgmdRouterInterfaceVersion, mgmdRouterInterfaceQuerier, mgmdRouterInterfaceQueryMaxResponseTime, mgmdRouterInterfaceRobustness, mgmdRouterInterfaceWrongVersionQueries, mgmdRouterInterfaceLastMembQueryIntvl }

Status current

Description

A collection of additional objects for management of MGMD version 2 in routers.

::= { mgmdMIBGroups 5 }

mgmdV2IgmpRouterMIBGroup OBJECT-GROUP

Objects { mgmdRouterCacheVersion1HostTimer }

Status current

Description

A collection of further objects required by IGMPv2 routers for MGMD version 2 compliance.

::= { mgmdMIBGroups 6 }

mgmdV2ProxyMIBGroup OBJECT-GROUP

Objects { mgmdRouterInterfaceProxyIfIndex }

Status current

Description

A collection of additional objects for management of MGMD proxy devices.

::= { mgmdMIBGroups 7 }

mgmdV3HostMIBGroup OBJECT-GROUP

Objects { mgmdHostInterfaceVersion2QuerierTimer, mgmdHostCacheSourceFilterMode, mgmdHostSrcListAddress, mgmdHostSrcListIfIndex, mgmdHostSrcListAddressType, mgmdHostSrcListHostAddress }

Chesterfield           I-D - Expire March 2004               [Page 27]
Multicast Group Membership Discovery MIB

STATUS current
DESCRIPTION
   "A collection of additional objects for management of MGMD version 3 in hosts."
::= { mgmdMIBGroups 8 }

mgmdV3RouterMIBGroup OBJECT-GROUP
OBJECTS { mgmdRouterCacheSourceFilterMode, mgmdRouterCacheVersion2HostTimer, mgmdRouterSrcListAddress, mgmdRouterSrcListIfIndex, mgmdRouterSrcListAddressType, mgmdRouterSrcListHostAddress }
STATUS current
DESCRIPTION
   "A collection of additional objects for management of MGMD version 3 in routers."
::= { mgmdMIBGroups 9 }

END

5. Security Considerations

This MIB contains readable objects whose values provide information related to multicast sessions. Some of these objects could contain sensitive information. In particular, the mgmdCacheSelf and mgmdCacheLastReporter can be used to identify machines which are listening to a given group address. There are also a number of objects that have a MAX-ACCESS clause of read-write and/or read-create, which allow an administrator to configure the MGMD in the router.

While unauthorized access to the readable objects is relatively innocuous, unauthorized access to the write-able objects could cause a denial of service. Hence, the support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations.

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

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

It is then a customer/user responsibility to ensure that the SNMP entity giving access to this MIB, is properly configured to give access to those objects only to those principals (users) that have legitimate rights to access them.
Multicast Group Membership Discovery MIB

6. Contributors

The authors of RFC 2933 and RFC 3019 from which this document is derived are:

Keith McCloghrie
cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA  95134-1706

Phone:  408 526 5260
EMail: kzm@cisco.com

Dino Farinacci
Procket Networks
3850 North First Street
San Jose, CA 95134

Phone:  408-954-7909
Email: dino@procket.com

Dave Thaler
Microsoft Corporation
One Microsoft Way
Redmond, WA  48105-6399

Phone:  425 703 8835
EMail: dthaler@microsoft.com

Brian Haberman
Nortel Networks
4309 Emperor Blvd.
Suite 200
Durham, NC 27703
USA

Phone:  919-992-4439
EMail: haberman@nortelnetworks.com

Randy Worzella
IBM Corporation
800 Park Office Drive
Research Triangle Park,
NC 27709
USA

Phone:  919-254-2202
EMail: worzella@us.ibm.com

7. Acknowledgements
Thanks to Bill Fenner, Brian Haberman and Dave Thaler for feedback and suggestions regarding the MIB.

8. Author’s Address

Julian Chesterfield
University of Cambridge,
Computer Laboratory,
15 JJ Thompson Avenue,
Cambridge,
CB3 0FD
UK

9. References


10. Full Copyright Statement

Copyright (C) The Internet Society (2000). All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet languages other than English.

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE."