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Mobile IPv6 Management Information Base
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Status of this Memo

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Abstract

   This memo defines a portion of the Management Information Base (MIB),
   the Mobile-IPv6 MIB , for use with network management protocols
   in the Internet community. In particular, the Mobile-IPv6 MIB will be
   used to monitor and control the mobile node, home agent and
   correspondent node functions of a Mobile IPv6 (MIPv6) entity.

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1. 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 [RFC3410].

   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 [RFC2578], STD 58, RFC 2579 [RFC2579] and STD 58, RFC 2580
   [RFC2580].

2. Overview

2.1 The Mobile IPv6 Protocol entities.

   Mobile IPv6 (MIPv6) [RFC3775] specifies a protocol which allows nodes
   to remain reachable while moving around in the IPv6 Internet. An
   entity which implements the MIPv6 protocol is a MIPv6 entity. There
   are three types of entities envisaged by the MIPv6 protocol.

      mobile node (MN): A node that can change its point of attachment
      from one link to another, while still being reachable via its home
      address.

      correspondent node (CN): A peer node with which a mobile node is
      communicating. The correspondent node may be either mobile or
      stationary. [Note that a correspondent node does not necessarily
      require MIPv6 support.]

      home agent (HA): A router on a mobile node's home link with which
      the mobile node has registered its current care-of address. While
      the mobile node is away from home, the home agent intercepts
      packets on the home link destined to the mobile node's home
      address, encapsulates them, and routes them to the mobile node's
      registered care-of address.

   This document defines a set of managed objects (MOs) that can be used
   to monitor and control MIPv6 entities.

2.2 **Terminology.**
The terminology used in this document is consistent with the
definitions used in Mobile IPv6 protocol specification[RFC3775].

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
"SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and
"OPTIONAL" in this document are to be interpreted as described in
BCP 14, RFC 2119 [RFC2119].

3. **Mobile IPv6 Monitoring and Control Requirements**

For managing a MIPv6 entity it is necessary to monitor
the following:
    o capabilities of MIPv6 entities
    o traffic due to MIPv6
    o binding related statistics (at home agent, correspondent
      node and mobile node)
    o binding details (at home agent and correspondent node)
    o history of Binding Updates (at home agent, correspondent
      node and mobile node)

The MIPv6 protocol document stipulates that several MIPv6 related
parameters should be manually configurable. The MIPv6 MIB should
define managed objects that can be used to configure the related
parameters e.g.:
    o the preference value the home agent will use in Router
      Advertisements;
    o the lifetime value the home agent will use in Router
      Advertisements;
    o whether a home agent will send ICMP Mobile Prefix
      Advertisements to mobile nodes;
    o whether a home agent will respond to ICMP Mobile Prefix
      Solicitation messages from mobile nodes; and
    o whether a home agent will process multicast group membership
      control messages from mobile nodes.

4. **MIB Design**.

   The basic principle has been to keep the MIB as simple as possible
   and at the same time to make it effective enough so that the
   essential needs of monitoring and control are met. It is envisaged
   that wherever possible existing MIBS will be used (e.g. IPSec MIB,
   Neighbor Discovery MIB, Tunnel MIB.) for monitor and control of MIPv6
   entities.

   It is assumed that the Mobile IPv6 Management Information Base
   (MOBILEIPV6-MIB) will always be implemented in conjunction with the
   IPv6-capable version of the IP-MIB [RFC2011bis]. The MOBILEIPV6-MIB
   uses the textual conventions defined in the INET-ADDRESS-MIB
   [RFC3291bis].

   The Mobile-IPv6 MIB comprises of following groups of definitions:
       - mip6Core: a generic group containing objects that are
         common to all the Mobile IPv6 entities.
       - mip6Ha: this group models the home agent service. It
         comprises of objects specific to the services and associated
         advertisement parameters offered by the home agent on each
         of its links. It also contains objects pertaining to the
         maintenance of the home agent list on each of the links on
         which the service is offered.
       - mip6Mn: this group models the mobile node service. It
         comprises of objects specific to the Dynamic Home Agent
         discovery function and related parameters. It also contains
         objects that record the movement of the mobile node.
       - mip6Cn: models the correspondent node and is primarily
         scoped to its participation in the Return Routability
         procedure for achieving Route Optimization triggered by
         the mobile node.
       - mip6Notifications: defines the set of notifications that
         will be used to asynchronously monitor the Mobile IPv6
         entities.

   The tables contained in the above groups are as follows-
       mip6BindingCacheTable   : models the binding cache on the home
                                 agent and correspondent node. It
                                 contains details of the Binding Update
                                 requests that have been received and
                                 accepted.
       mip6BindingHistoryTable : tracks the history of the binding
                                 cache.
       mip6NodeTrafficTable   : the mobile node-wise traffic counters.
       mip6MnHomeAddressTable : contains all the home addresses
                                 pertaining to the mobile node and
                                 the corresponding registration status.

    mip6MnBLTable   : models the Binding Update List on the
                               mobile node. It contains information
                               about the registration requests sent
                               by the mobile node and the
                               corresponding results.
    mip6CnCounterTable   : contains the mobile node-wise
                               registration statistics.
    mip6HaConfTable   : contains the configurable
                               advertisement parameters for all the
                               interfaces on which the home agent
                               service is advertised.
    mip6HaCounterTable   : contains registration statistics
                               for all mobile nodes registered
                               with the home agent.
    mip6HaListTable   : contains the list of all routers
                               that are acting as home agents on
                               each of the interfaces on which
                               the home agent service is offered
                               by this router.
    mip6HaGlAddrTable   : contains the global addresses of
                               the home agents.

[5]. The Mobile-IPv6 MIB.

```
   MOBILEIPV6-MIB DEFINITIONS ::= BEGIN
    IMPORTS
      MODULE-IDENTITY,  mib-2, Unsigned32, Integer32, Counter32,
      Gauge32, Counter64,
      OBJECT-TYPE, NOTIFICATION-TYPE
                 FROM SNMPv2-SMI
      TEXTUAL-CONVENTION,
      TruthValue, DateAndTime, TimeStamp
                 FROM SNMPv2-TC
      MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
                 FROM SNMPv2-CONF
      InetAddressType, InetAddress
                 FROM INET-ADDRESS-MIB
      ipv6InterfaceIfIndex
                 FROM IP-MIB
      ;

   mip6MIB MODULE-IDENTITY
        LAST-UPDATED "200410160000Z"         --  16th October, 2004
        ORGANIZATION "IETF mip6 Working Group"
        CONTACT-INFO
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          DESCRIPTION
                 "The MIB module for monitoring Mobile-IPv6
                  entities.

                  Copyright (C) The Internet Society 2004. This
                  version of this MIB module is part of RFC XXXX;
                  see the RFC itself for full legal notices.
                 "
     -- RFC Ed.: replace XXXX with actual RFC number & remove this note

          REVISION   "200410160000Z"   -- 16th October 2004
          DESCRIPTION "Initial version, published as RFC XXXX."

     -- RFC Ed.: replace XXXX with actual RFC number & remove this note

               ::= { mib-2 XXX } -- will be assigned by IANA

     -- IANA Reg.: Please assign a value for "XXX" under the 'mib-2'
     -- subtree and record the assignment in the SMI Numbers registry.

     -- RFC Ed.: When the above assignment has been made, please
     --   remove the above note
     --   replace "XXX" here with the assigned value and
     --   remove this note.

      -- The major groups

     mip6Notifications   OBJECT IDENTIFIER ::= { mip6MIB 0 }
     mip6Objects   OBJECT IDENTIFIER ::= { mip6MIB 1 }
     mip6Conformance   OBJECT IDENTIFIER ::= { mip6MIB 2 }
     mip6Core   OBJECT IDENTIFIER ::= { mip6Objects 1 }
     mip6Mn   OBJECT IDENTIFIER ::= { mip6Objects 2 }
     mip6Cn   OBJECT IDENTIFIER ::= { mip6Objects 3 }
     mip6Ha   OBJECT IDENTIFIER ::= { mip6Objects 4 }

     -- The sub groups

     mip6System   OBJECT IDENTIFIER ::= { mip6Core 1 }
     mip6Bindings   OBJECT IDENTIFIER ::= { mip6Core 2 }
     mip6Stats   OBJECT IDENTIFIER ::= { mip6Core 3 }

     mip6MnSystem   OBJECT IDENTIFIER ::= { mip6Mn 1 }
     mip6MnConf   OBJECT IDENTIFIER ::= { mip6Mn 2 }
     mip6MnRegistration   OBJECT IDENTIFIER ::= { mip6Mn 3 }

     mip6CnSystem   OBJECT IDENTIFIER ::= { mip6Cn 1 }
     mip6CnStats   OBJECT IDENTIFIER ::= { mip6Cn 2 }

     mip6HaAdvertisement   OBJECT IDENTIFIER ::= { mip6Ha 1 }
     mip6HaStats   OBJECT IDENTIFIER ::= { mip6Ha 2 }

    -- Textual Conventions
    Mip6BURequestRejectionCode ::= TEXTUAL-CONVENTION
          STATUS   current
          DESCRIPTION
                "The value of the status field in the Binding
                 Acknowledgment message when the Binding Update
                 was rejected.
                "
          REFERENCE
                "RFC3775 : Section 6.1.8"
          SYNTAX   INTEGER {
                reasonUnspecified   (1), --(Code 128)
                admProhibited   (2), --(Code 129)
                insufficientResource   (3), --(Code 130)
                homeRegistrationNotSupported   (4), --(Code 131)
                notHomeSubnet   (5), --(Code 132)
                notHomeAgentForThisMobileNode (6), --(Code 133)
                duplicateAddressDetectionFailed (7), --(Code 134)
                sequenceNumberOutOfWindow   (8), --(Code 135)
                expiredHomeNonceIndex   (9), --(Code 136)
                expiredCareofNonceIndex   (10), --(Code 137)
                expiredNonces   (11), --(Code 138)
                registrationTypeChangeDisallowed(12) --(Code 139)
              }

```
mip6Capabilities OBJECT-TYPE
    SYNTAX      BITS {
                    mobileNode          (0),
                    homeAgent           (1),
                    correspondentNode   (2)
                }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "This object indicates the Mobile IPv6 functions that
             are supported by this managed entity. Multiple
             Mobile IPv6 functions may be supported by a single
             entity.
            "
    REFERENCE
            "RFC3775 : Section 3.2, 4.1"
    ::= { mip6System 1 }

mip6Status OBJECT-TYPE
    SYNTAX      INTEGER { enabled(1), disabled(2) }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
            "This object indicates whether the Mobile IPv6
             function is enabled for the managed entity. If it
             is enabled, the agent discovery and registration
             functions will be operational.
             Changing the status from enabled(1) to disabled(2)
             will terminate the agent discovery and registration
             functions. On the other hand, changing the status
             from disabled(2) to enabled(1) will start the agent
             discovery and registration functions.

             The value of this object SHOULD remain unchanged
             across reboots of the managed entity.
            "
     ::= { mip6System 2 }


-- mip6BindingCache
```

```
mip6BindingCacheTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Mip6BindingCacheEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "This table models the Binding Cache on the
             managed entity. The cache is maintained by home
             agents and correspondent nodes. It contains
             both correspondent registration entries and home
             registration entries.

             Entries in this table are not required to survive
             a reboot of the managed entity.
            "
    REFERENCE
            "RFC3775 : Section 4.5, 9.1, 10.1"
    ::= { mip6Bindings 1 }

mip6BindingCacheEntry OBJECT-TYPE
    SYNTAX      Mip6BindingCacheEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "This entry represents a conceptual row in the
             binding cache table. It represents a single Binding
             Update.

             Implementors need to be aware that if the total
             number of octets in mip6BindingHomeAddress
             exceeds 113 then OIDs of column
             instances in this row will have more than 128
             sub-identifiers and cannot be accessed using
             SNMPv1, SNMPv2c, or SNMPv3.
            "
    INDEX  { mip6BindingHomeAddressType, mip6BindingHomeAddress }
    ::= { mip6BindingCacheTable 1 }
```

          Mip6BindingCacheEntry ::=
            SEQUENCE {
             mip6BindingHomeAddressType   InetAddressType,
             mip6BindingHomeAddress   InetAddress,
             mip6BindingCOAType   InetAddressType,
             mip6BindingCOA   InetAddress,
             mip6BindingTimeRegistered   DateAndTime,
             mip6BindingTimeGranted   Gauge32,
             mip6BindingTimeRemaining   Gauge32,
             mip6BindingHomeRegn   TruthValue,
             mip6BindingMaxSeq   Unsigned32,
             mip6BindingUsageTS   DateAndTime,
             mip6BindingUsageCount   Gauge32,
             mip6BindingAdminStatus   INTEGER
            }

        mip6BindingHomeAddressType OBJECT-TYPE
            SYNTAX   InetAddressType
            MAX-ACCESS not-accessible
            STATUS   current
            DESCRIPTION
                    "The InetAddressType of the mip6BindingHomeAddress
                     that follows.
                    "
            ::= { mip6BindingCacheEntry 1 }

        mip6BindingHomeAddress OBJECT-TYPE
            SYNTAX   InetAddress
            MAX-ACCESS not-accessible
            STATUS   current
            DESCRIPTION
                    "The home address of the mobile node corresponding
                     to the Binding Cache entry. This field is used as
                     the key for searching the mobile node's current
                     care-of address in the Binding Cache.

                     The type of the address represented by this object
                     is specified by the corresponding
                     mip6BindingHomeAddressType object.
                    "
            REFERENCE
                    "RFC3775 : Section 9.1"
            ::= { mip6BindingCacheEntry 2 }

        mip6BindingCOAType   OBJECT-TYPE
            SYNTAX   InetAddressType
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                    "The InetAddressType of the mip6BindingCOA that
                     follows.
                    "
            ::= { mip6BindingCacheEntry 3 }

        mip6BindingCOA   OBJECT-TYPE
            SYNTAX   InetAddress
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                    "The care-of address of the mobile node indicated by
                     the home address field (mip6BindingHomeAddress) in
                     this Binding Cache entry.

                     The type of the address represented by this object
                     is specified by the corresponding mip6BindingCOAType
                     object.
                    "
            REFERENCE
                    "RFC3775 : Section 9.1"
            ::= { mip6BindingCacheEntry 4 }

         mip6BindingTimeRegistered OBJECT-TYPE
            SYNTAX   DateAndTime
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                    "The timestamp when this Binding Cache entry was
                     created.
                    "
            ::= { mip6BindingCacheEntry 5 }

         mip6BindingTimeGranted OBJECT-TYPE
            SYNTAX   Gauge32
            UNITS   "seconds"
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                    "The lifetime in seconds granted to the mobile node
                     for this registration.
                    "
            ::= { mip6BindingCacheEntry 6 }

```
mip6BindingTimeRemaining OBJECT-TYPE
    SYNTAX       Gauge32
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "The lifetime in seconds remaining for this
             registration.
            "
    REFERENCE
            "RFC3775 : Section 9.1"
    ::= { mip6BindingCacheEntry 7 }

mip6BindingHomeRegn OBJECT-TYPE
    SYNTAX       TruthValue
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "This object indicates whether or not this Binding
             Cache entry is a home registration entry (applicable
             only on nodes which support home agent
             functionality).
            "
    REFERENCE
            "RFC3775 : Section 9.1"
    ::= { mip6BindingCacheEntry 8 }

mip6BindingMaxSeq OBJECT-TYPE
    SYNTAX       Unsigned32 (0..65536)
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "The maximum value of the Sequence Number field
             received in previous Binding Updates for this home
             address (mip6BindingHomeAddress).
            "
    REFERENCE
            "RFC3775 : Section 9.1, 9.5.1"
    ::= { mip6BindingCacheEntry 9 }
```

```
        mip6BindingUsageTS OBJECT-TYPE
            SYNTAX      DateAndTime
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "The timestamp when this entry was last looked up.
                    "
            REFERENCE
                    "RFC3775 : Section 9.1"
            ::= { mip6BindingCacheEntry 10 }

        mip6BindingUsageCount OBJECT-TYPE
            SYNTAX      Gauge32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "The number of times this entry was looked up.
                    "
            REFERENCE
                    "RFC3775 : Section 9.1"
            ::= { mip6BindingCacheEntry 11 }

        mip6BindingAdminStatus OBJECT-TYPE
            SYNTAX      INTEGER {
                            active     (1),
                            inactive   (2)
                        }
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                    "This is an administrative object used to control
                     the status of a binding cache entry. By default
                     the value will be 'active'(1).
                     A value of 'inactive'(2) will indicate that the
                     validity of the entry is suspended. It does not
                     exist in the binding cache for all practical
                     purposes.
                     The state can be changed from 'active' to
                     'inactive' by operator intervention.
                     Causing the state to change to 'inactive' results
                     in the entry being deleted from the cache.
                     Attempts to change the status from 'inactive'
                     to 'active' will be rejected.
                    "
            REFERENCE
                    "RFC3775 : Section 9.1"
            ::= { mip6BindingCacheEntry 12 }
```

```
       -- mip6BindingHistory
       -- Once the lifetime expires an entry will be removed from the
       -- Binding Cache.
       -- For monitoring purposes it will be useful to have access to
       -- the history of the Binding Cache. BindingHistoryTable serves
       -- this purpose. It records the history of the Bindings.
       -- The size of the table will be left to implementers.

        mip6BindingHistoryTable OBJECT-TYPE
           SYNTAX       SEQUENCE OF Mip6BindingHistoryEntry
           MAX-ACCESS  not-accessible
           STATUS       current
           DESCRIPTION
                   "A table containing a record of the bindings.
                   "
           ::= { mip6Bindings 2 }

        mip6BindingHistoryEntry OBJECT-TYPE
           SYNTAX       Mip6BindingHistoryEntry
           MAX-ACCESS  not-accessible
           STATUS       current
           DESCRIPTION
                   "The record of a binding.

                    Implementors need to be aware that if the total
                    number of octets in mip6BindingHstHomeAddress
                    exceeds 112 then OIDs of column
                    instances in this row will have more than 128
                    sub-identifiers and cannot be accessed using
                    SNMPv1, SNMPv2c, or SNMPv3.
                   "
           INDEX   { mip6BindingHstHomeAddressType,
                     mip6BindingHstHomeAddress ,
                     mip6BindingHstIndex}
           ::= { mip6BindingHistoryTable 1 }
```

```
   Mip6BindingHistoryEntry ::=
      SEQUENCE {
       mip6BindingHstHomeAddressType   InetAddressType,
       mip6BindingHstHomeAddress       InetAddress,
       mip6BindingHstIndex             Unsigned32,
       mip6BindingHstCOAType           InetAddressType,
       mip6BindingHstCOA               InetAddress,
       mip6BindingHstTimeRegistered    DateAndTime,
       mip6BindingHstTimeExpired       DateAndTime,
       mip6BindingHstHomeRegn          TruthValue,
       mip6BindingHstUsageTS           DateAndTime,
       mip6BindingHstUsageCount        Gauge32
      }

  mip6BindingHstHomeAddressType OBJECT-TYPE
      SYNTAX      InetAddressType
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
              "The InetAddressType of the
               mip6BindingHstHomeAddress that follows.
              "
      ::= { mip6BindingHistoryEntry 1 }

  mip6BindingHstHomeAddress OBJECT-TYPE
      SYNTAX      InetAddress
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
              "Mobile node's home address.

               The type of the address represented by this object
               is specified by the corresponding
               mip6BindingHstHomeAddressType object.
              "
      ::= { mip6BindingHistoryEntry 2 }

  mip6BindingHstIndex OBJECT-TYPE
      SYNTAX      Unsigned32 (1..4294967295)
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
              "The index to uniquely identify this record along
               with the mobile node's HomeAddress type and
               HomeAddress. It should be monotonically increasing.
               It may wrap after reaching its max value."
      ::= { mip6BindingHistoryEntry 3 }
```

```
mip6BindingHstCOAType   OBJECT-TYPE
    SYNTAX       InetAddressType
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
            "The InetAddressType of the mip6BindingHstCOA that
             follows.
            "
    ::= { mip6BindingHistoryEntry 4 }

mip6BindingHstCOA   OBJECT-TYPE
    SYNTAX       InetAddress
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
            "Mobile node's care-of address.  One mobile node can
             have multiple bindings with different
             care-of addresses.
             The type of the address represented by this object
             is specified by the corresponding
             mip6BindingHstCOAType object.
            "
    ::= { mip6BindingHistoryEntry 5 }

mip6BindingHstTimeRegistered OBJECT-TYPE
    SYNTAX       DateAndTime
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
            "The timestamp when this Binding Cache entry was
             created.
            "
    ::= { mip6BindingHistoryEntry 6 }

mip6BindingHstTimeExpired OBJECT-TYPE
    SYNTAX       DateAndTime
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
            "The timestamp when this Binding Cache entry expired.
            "
    ::= { mip6BindingHistoryEntry 7 }
```

```
       mip6BindingHstHomeRegn OBJECT-TYPE
          SYNTAX       TruthValue
          MAX-ACCESS   read-only
          STATUS       current
          DESCRIPTION
                  "This object indicates whether or not this Binding
                   Cache entry is a home registration entry (applicable
                   only on nodes which support home agent
                   functionality).
                  "
          ::= { mip6BindingHistoryEntry 8 }

       mip6BindingHstUsageTS OBJECT-TYPE
          SYNTAX       DateAndTime
          MAX-ACCESS   read-only
          STATUS       current
          DESCRIPTION
                  "The timestamp when this entry was last looked up.
                  "
          ::= { mip6BindingHistoryEntry 9 }

       mip6BindingHstUsageCount OBJECT-TYPE
          SYNTAX       Gauge32
          MAX-ACCESS   read-only
          STATUS       current
          DESCRIPTION
                  "The number of times this entry was looked up.
                  "
          ::= { mip6BindingHistoryEntry 10 }

    -- mip6TrafficCounters

    -- MIPv6 Traffic will be characterized by
    -- IPv6 datagrams which satisfy at least one of the following
    -- conditions
    --    - the datagrams are tunneled to the mobile node by the HA
    --    - the datagrams are reverse tunneled by the MN to the HA
    --    - the datagrams have the Routing header type 2 set.
    --    - the datagrams have the Home Address option set in the
    --      Destination Option extension header
    --    - the datagrams have the mobility header

     mip6TotalTraffic OBJECT IDENTIFIER ::= { mip6Stats 1 }
    --   REFERENCE
    --               "RFC3775 : Section 4.1, 6.3, 6.4"
```

          mip6InOctets   OBJECT-TYPE
             SYNTAX   Counter32
             MAX-ACCESS read-only
             STATUS   current
             DESCRIPTION
                     "The total number of octets in the MIPv6 datagrams
                      received by the MIPv6 entity. This will include
                      datagrams with the Mobility Header, the Home Address
                      option in the Destination Option extension header
                     (Next Header value = 60) or the type 2 Routing
                      Header. It will also include the IPv6 datagrams that
                      are reverse tunneled to a home agent from a mobile
                      node's home address.
                      Discontinuities in the value of this counter can
                      occur at re-initialization of the management system,
                      and at other times as indicated by the value of
                      mip6CounterDiscontinuityTime.
                     "
             REFERENCE
                     "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
             ::= { mip6TotalTraffic 1 }

          mip6HCInOctets   OBJECT-TYPE
             SYNTAX   Counter64
             MAX-ACCESS read-only
             STATUS   current
             DESCRIPTION
                     "The total number of octets in the MIPv6 datagrams
                      received by the MIPv6 entity. This will include
                      datagrams with the Mobility Header, the Home Address
                      option in the Destination Option extension header
                      (Next Header value = 60) or the type 2 Routing
                      Header. It will also include the IPv6 datagrams that
                      are reverse tunneled to a home agent from a mobile
                      node's home address.
                      This object is a 64-bit version of mip6InOctets.
                      Discontinuities in the value of this counter can
                      occur at re-initialization of the management system,
                      and at other times as indicated by the value of
                      mip6CounterDiscontinuityTime.
                     "
             REFERENCE
                     "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
             ::= { mip6TotalTraffic 2 }

```
mip6InPkts    OBJECT-TYPE
   SYNTAX       Counter32
   MAX-ACCESS   read-only
   STATUS       current
   DESCRIPTION
           "The number of MIPv6 datagrams received by the MIPv6
            entity. This will include datagrams with the
            Mobility Header, the Home Address option in the
            Destination Option extension header (Next Header
            value = 60) or the type 2 Routing Header.
            It will also include the IPv6 datagrams that are
            reverse tunneled to a home agent from a mobile
            node's home address.
            Discontinuities in the value of this counter can
            occur at re-initialization of the management system,
            and at other times as indicated by the value of
            mip6CounterDiscontinuityTime.
           "
   REFERENCE
           "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
   ::= { mip6TotalTraffic 3 }

mip6HCInPkts    OBJECT-TYPE
   SYNTAX       Counter64
   MAX-ACCESS   read-only
   STATUS       current
   DESCRIPTION
           "The number of MIPv6 datagrams received by the MIPv6
            entity. This will include datagrams with the
            Mobility Header, the Home Address option in the
            Destination Option extension header (Next Header
            value = 60) or the type 2 Routing Header. It will
            also include the IPv6 datagrams that are reverse
            tunneled to a home agent from a mobile node's home
            address.
            This object is a 64-bit version of mip6InPkts.
            Discontinuities in the value of this counter can
            occur at re-initialization of the management system,
            and at other times as indicated by the value of
            mip6CounterDiscontinuityTime.
           "
   REFERENCE
           "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
   ::= { mip6TotalTraffic 4 }
```

```
   mip6OutOctets  OBJECT-TYPE
      SYNTAX      Counter32
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
              "The total number of octets in the MIPv6 datagrams
               sent by the MIPv6 entity. This will include
               datagrams with the Mobility Header, the Home Address
               option in the Destination Option extension header
               (Next Header value = 60) or the type 2 Routing
               Header. It will also include the IPv6 datagrams that
               are reverse tunneled to a home agent from a mobile
               node's home address.
               Discontinuities in the value of this counter can
               occur at re-initialization of the management system,
               and at other times as indicated by the value of
               mip6CounterDiscontinuityTime.
              "
      REFERENCE
               "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
      ::= { mip6TotalTraffic 5 }

   mip6HCOutOctets  OBJECT-TYPE
      SYNTAX      Counter64
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
              "The total number of octets in the MIPv6 datagrams
               sent by the MIPv6 entity. This will include
               datagrams with the Mobility Header, the Home Address
               option in the Destination Option extension header
               (Next Header value = 60) or the type 2 Routing
               Header. It will also include the IPv6 datagrams that
               are reverse tunneled to a home agent from a mobile
               node's home address.
               This object is a 64-bit version of mip6OutOctets.
               Discontinuities in the value of this counter can
               occur at re-initialization of the management system,
               and at other times as indicated by the value of
               mip6CounterDiscontinuityTime.
              "
      REFERENCE
               "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
      ::= { mip6TotalTraffic 6 }
```

```
mip6OutPkts    OBJECT-TYPE
   SYNTAX      Counter32
   MAX-ACCESS  read-only
   STATUS      current
   DESCRIPTION
           "The number of MIPv6 datagrams sent by the MIPv6
            entity. This will include the datagrams with
            Mobility Header, the Home Address option in the
            Destination Option extension header (Next Header
            value = 60) or the type 2 Routing Header. It will
            also include the IPv6 datagrams that are reverse
            tunneled to a home agent from a mobile node's home
            address.
            Discontinuities in the value of this counter can
            occur at re-initialization of the management system,
            and at other times as indicated by the value of
            mip6CounterDiscontinuityTime.
            "
   REFERENCE
            "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
   ::= { mip6TotalTraffic 7 }

mip6HCOutPkts    OBJECT-TYPE
   SYNTAX      Counter64
   MAX-ACCESS  read-only
   STATUS      current
   DESCRIPTION
           "The number of MIPv6 datagrams sent by the MIPv6
            entity. This will include datagrams with the
            Mobility Header, the Home Address option in the
            Destination Option extension header (Next Header
            value = 60) or the type 2 Routing Header. It will
            also include the IPv6 datagrams that are reverse
            tunneled to a home agent from a mobile node's home
            address.
            This object is a 64-bit version of mip6OutPkts.
            Discontinuities in the value of this counter can
            occur at re-initialization of the management system,
            and at other times as indicated by the value of
            mip6CounterDiscontinuityTime.
            "
   REFERENCE
            "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
   ::= { mip6TotalTraffic 8 }
```

```
mip6CounterDiscontinuityTime OBJECT-TYPE
    SYNTAX      TimeStamp
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The value of sysUpTime on the most recent occasion
             at which any one or more of this MIPv6 entities
             global counters viz, counters with OID prefix
             'mip6TotalTraffic' or 'mip6CnGlobalStats' or
             'mip6HaGlobalStats' suffered a discontinuity.
             If no such discontinuities have occurred since the
             last re-initialization of the local management
             subsystem, then this object will have a zero value.
            "
    ::= { mip6TotalTraffic 9 }


-- mip6NodeTrafficCounters

 mip6NodeTrafficTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Mip6NodeTrafficEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "A table containing MIPv6 traffic counters per mobile
             node.
            "
    ::= { mip6Stats 2 }

 mip6NodeTrafficEntry OBJECT-TYPE
    SYNTAX      Mip6NodeTrafficEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "The MIPv6 traffic statistics for a mobile node.

             Implementors need to be aware that if the total
             number of octets in mip6BindingHomeAddress
             exceeds 113 then OIDs of column
             instances in this row will have more than 128
             sub-identifiers and cannot be accessed using
             SNMPv1, SNMPv2c, or SNMPv3.
            "
    INDEX  { mip6BindingHomeAddressType, mip6BindingHomeAddress }
    ::= { mip6NodeTrafficTable 1 }
```

```
        Mip6NodeTrafficEntry ::=
          SEQUENCE {
                mip6NodeInOctets              Counter32,
                mip6HCNodeInOctets           Counter64,
                mip6NodeInPkts               Counter32,
                mip6HCNodeInPkts             Counter64,
                mip6NodeOutOctets            Counter32,
                mip6HCNodeOutOctets          Counter64,
                mip6NodeOutPkts              Counter32,
                mip6HCNodeOutPkts            Counter64,
                mip6NodeCtrDiscontinuityTime TimeStamp
          }

        mip6NodeInOctets  OBJECT-TYPE
           SYNTAX       Counter32
           MAX-ACCESS   read-only
           STATUS       current
           DESCRIPTION
                   "The total number of octets in the MIPv6 datagrams
                    received from the mobile node by the MIPv6 entity.
                    This will include datagrams with the Mobility
                    Header or the Home Address option in the Destination
                    Option extension header (Next Header value = 60).
                    It will also include the IPv6 datagrams that are
                    reverse tunneled to a home agent from the mobile
                    node's home address.
                    Discontinuities in the value of this counter can
                    occur at re-initialization of the management system,
                    and at other times as indicated by the value of
                    mip6NodeCtrDiscontinuityTime.
                   "
           REFERENCE
                     "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
           ::= { mip6NodeTrafficEntry 1 }
```

```
        mip6HCNodeInOctets  OBJECT-TYPE
            SYNTAX       Counter64
            MAX-ACCESS   read-only
            STATUS       current
            DESCRIPTION
                    "The total number of octets in the MIPv6 datagrams
                     received from the mobile node by the MIPv6 entity.
                     This will include datagrams with the Mobility
                     Header or the Home Address option in the Destination
                     Option extension header (Next Header value = 60). It
                     will also include the IPv6 datagrams that are
                     reverse tunneled to a home agent from the mobile
                     node's home address.
                     This object is a 64-bit version of mip6NodeInOctets.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6NodeCtrDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
            ::= { mip6NodeTrafficEntry 2 }

        mip6NodeInPkts    OBJECT-TYPE
            SYNTAX       Counter32
            MAX-ACCESS   read-only
            STATUS       current
            DESCRIPTION
                    "The number of MIPv6 datagrams received from the
                     mobile node by the MIPv6 entity. This will include
                     the datagrams with the Mobility Header or
                     the Home Address option in the Destination
                     Option extension header (Next Header value = 60). It
                     will also include the IPv6 datagrams that are
                     reverse tunneled to a home agent from the mobile
                     node's home address.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6NodeCtrDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
            ::= { mip6NodeTrafficEntry 3 }
```

```
mip6HCNodeInPkts    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The number of MIPv6 datagrams received from the
             mobile node by the MIPv6 entity. This will include
             datagrams with the Mobility Header or the Home
             Address option in the Destination Option extension
             header (Next Header value = 60).  It will also
             include the IPv6 datagrams that are reverse tunneled
             to a home agent from the mobile node's home address.
             This object is a 64-bit version of mip6NodeInPkts.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6NodeCtrDiscontinuityTime.
            "
    REFERENCE
            "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
    ::= { mip6NodeTrafficEntry 4 }

mip6NodeOutOctets  OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The total number of octets in the MIPv6 datagrams
             sent to the mobile node by the MIPv6 entity. This
             will include datagrams with the Mobility Header
             or the type 2 Routing Header. It will also include
             the IPv6 datagrams that are tunneled by a home agent
             to the mobile node.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6NodeCtrDiscontinuityTime.
            "
    REFERENCE
            "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
    ::= { mip6NodeTrafficEntry 5 }
```

          mip6HCNodeOutOctets OBJECT-TYPE
             SYNTAX   Counter64
             MAX-ACCESS   read-only
             STATUS   current
             DESCRIPTION
                    "The total number of octets in the MIPv6 datagrams
                     sent to the mobile node by the MIPv6 entity. This
                     will include datagrams with the Mobility Header
                     or the type 2 Routing Header. It will also include
                     the IPv6 datagrams that are tunneled by a home agent
                     to the mobile node.
                     This object is a 64-bit version of mip6NodeOutOctets.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6NodeCtrDiscontinuityTime.
                    "
             REFERENCE
                       "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
             ::= { mip6NodeTrafficEntry 6 }

          mip6NodeOutPkts   OBJECT-TYPE
             SYNTAX   Counter32
             MAX-ACCESS   read-only
             STATUS   current
             DESCRIPTION
                    "The number of MIPv6 datagrams sent to the mobile
                     node by the MIPv6 entity. This will include
                     datagrams with the Mobility Header or the type 2
                     Routing Header. It will also include the IPv6
                     datagrams that are tunneled by a home agent to the
                     mobile node.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6NodeCtrDiscontinuityTime.
                    "
             REFERENCE
                       "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
             ::= { mip6NodeTrafficEntry 7 }

```
     mip6HCNodeOutPkts    OBJECT-TYPE
         SYNTAX        Counter64
         MAX-ACCESS   read-only
         STATUS        current
         DESCRIPTION
                "The number of MIPv6 datagrams sent to the mobile
                 node by the MIPv6 entity.  This will include
                 datagrams with the Mobility Header or the type 2
                 Routing Header. It will also include the IPv6
                 datagrams that are tunneled by a home agent to the
                 mobile node.
                 This object is a 64-bit version of mip6NodeOutOctets.
                 Discontinuities in the value of this counter can
                 occur at re-initialization of the management system,
                 and at other times as indicated by the value of
                 mip6NodeCtrDiscontinuityTime.
                "
         REFERENCE
                    "RFC3775 : Section 6.1, 6.3, 6.4, 10.4.5"
         ::= { mip6NodeTrafficEntry 8 }

    mip6NodeCtrDiscontinuityTime OBJECT-TYPE
         SYNTAX        TimeStamp
         MAX-ACCESS   read-only
         STATUS        current
         DESCRIPTION
                "The value of sysUpTime on the most recent occasion
                 at which any one or more of the counters in this row
                 suffered a discontinuity.  The relevant counters are
                 the specific instances of any Counter32 or Counter64
                 objects in this row.
                 If no such discontinuities have occurred since the
                 last re-initialization of the local management
                 subsystem, then this object contains a zero value.
                "
         ::= { mip6NodeTrafficEntry 9 }

    -- mip6MnSystem Group

    mip6MnHomeAddressTable OBJECT-TYPE
         SYNTAX        SEQUENCE OF Mip6MnHomeAddressEntry
         MAX-ACCESS   not-accessible
         STATUS        current
         DESCRIPTION
                "A table containing registration status for all the
                 home addresses pertaining to the mobile node.
                "
         ::= { mip6MnSystem 1 }
```

```
mip6MnHomeAddressEntry OBJECT-TYPE
    SYNTAX      Mip6MnHomeAddressEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "The registration status for a home address.

             Implementors need to be aware that if the total
             number of octets in mip6MnHomeAddress
             exceeds 113 then OIDs of column instances in
             this row will have more than 128 sub-identifiers and
             cannot be accessed using SNMPv1, SNMPv2c, or SNMPv3.
            "
    INDEX   { mip6MnHomeAddressType, mip6MnHomeAddress }
    ::= { mip6MnHomeAddressTable 1 }

 Mip6MnHomeAddressEntry ::=
    SEQUENCE {
         mip6MnHomeAddressType          InetAddressType,
         mip6MnHomeAddress              InetAddress,
         mip6MnHomeAddressState         INTEGER
    }

mip6MnHomeAddressType OBJECT-TYPE
    SYNTAX      InetAddressType
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "The InetAddressType of the mip6MnHomeAddress that
             follows.
            "
    ::= { mip6MnHomeAddressEntry 1 }
```

```
mip6MnHomeAddress OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "A unicast routable address assigned to the mobile
             node. This is used as the 'permanent address' of the
             mobile node in the sense that it remains unchanged
             regardless of the mobile node's current point of
             attachment. If mobile node doesn't have a home
             address assigned yet then this object will take the
             default 'unspecified' value ::0.

             The type of the address represented by this object
             is specified by the corresponding
             mip6MnHomeAddressType object.
            "
    REFERENCE
            "RFC3775 : Section 3.2"
    ::= { mip6MnHomeAddressEntry 2 }

mip6MnHomeAddressState OBJECT-TYPE
    SYNTAX      INTEGER {
                        unknown(1),
                        home(2),
                        registered(3),
                        pending(4),
                        isolated(5)
                }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "This object indicates the state of the mobile node:
             unknown        -- The state of the mobile node
                                cannot be determined
             home           -- mobile node is on the home network.
             registered     -- mobile node is on a foreign network
                                and is registered with the home
                                agent
             pending        -- mobile node has sent registration
                                request to the home agent and is
                                waiting for the reply
             isolated       -- mobile node is isolated from network
                                i.e. it is not in its home network,
                                it is not registered and no
                                registration ack is pending
            "
    ::= { mip6MnHomeAddressEntry 3 }
```

-- Mobile Node Discovery and Advertisement Group Counters

mip6MnDiscoveryRequests OBJECT-TYPE
    SYNTAX   Counter32
    MAX-ACCESS read-only
    STATUS   current
    DESCRIPTION
            "Total number of ICMP Dynamic Home Agent Address
             Discovery Requests sent by the mobile node.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
    REFERENCE
            "RFC3775 : Section 10.5, 11.4.1"
        ::= { mip6MnConf 1 }

mip6MnDiscoveryReplies OBJECT-TYPE
    SYNTAX   Counter32
    MAX-ACCESS read-only
    STATUS   current
    DESCRIPTION
            "Total number of ICMP Dynamic Home Agent Address
             Discovery Replies received by the mobile node.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
    REFERENCE
            "RFC3775 : Section 10.5, 11.4.1"
        ::= { mip6MnConf 2 }

        mip6MnDiscoveryTimeouts OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of ICMP Dynamic Home Agent Address
                     Discovery Requests that timed out.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 10.5, 11.4.1, 12"
               ::= { mip6MnConf 3 }

        mip6MnPrefixSolicitationsSent OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of ICMP Mobile Prefix Solicitations
                     sent by the mobile node.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 10.5, 11.4.2"
               ::= { mip6MnConf 4 }

```
     mip6MnPrefixAdvsRecd OBJECT-TYPE
          SYNTAX      Counter32
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "Total number of ICMP Mobile Prefix Advertisements
                   received by the mobile node. This will include the
                   ICMP Mobile Prefix Advertisements that failed the
                   validity checks.
                   Discontinuities in the value of this counter can
                   occur at re-initialization of the management system,
                   and at other times as indicated by the value of
                   mip6CounterDiscontinuityTime.
                  "
          REFERENCE
                  "RFC3775 : Section 10.6, 11.4.3"
          ::= { mip6MnConf 5 }

     mip6MnPrefixAdvsIgnored OBJECT-TYPE
          SYNTAX      Counter32
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "Total number of Mobile Prefix Advertisements
                   discarded by the validity check.
                   Discontinuities in the value of this counter can
                   occur at re-initialization of the management system,
                   and at other times as indicated by the value of
                   mip6CounterDiscontinuityTime.
                  "
          REFERENCE
                  "RFC3775 : Section 10.6, 11.4.3"
          ::= { mip6MnConf 6 }
```

```
        mip6MnMovedToFN OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "Number of times the mobile node has detected
                     movement to a foreign network from another
                     foreign network or from the home network, has
                     reconstructed its care-of address and has initiated
                     the care-of address registration process.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 11.5.1"
            ::= { mip6MnConf 7 }

        mip6MnMovedToHN OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "Number of times the mobile node has detected
                     movement from a foreign network to its home
                     network.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 11.5.4"
            ::= { mip6MnConf 8 }

    -- Mobile Node Registration Group

    -- Registration table of mobile node
```

        mip6MnBLTable OBJECT-TYPE
            SYNTAX   SEQUENCE OF Mip6MnBLEntry
            MAX-ACCESS not-accessible
            STATUS   current
            DESCRIPTION
                    "This table corresponds to the Binding Update List
                     (BL) that is maintained by the mobile node. The list
                     holds an item for every binding that the mobile node
                     has established or is trying to establish. Both
                     correspondent and home registrations are included in
                     this table. Entries from the table are deleted as
                     the lifetime of the binding expires.
                    "
            REFERENCE
                    "RFC3775 : Section 4.5, 11.1"
            ::= { mip6MnRegistration 1 }

        mip6MnBLEntry OBJECT-TYPE
            SYNTAX   Mip6MnBLEntry
            MAX-ACCESS not-accessible
            STATUS   current
            DESCRIPTION
                    "Information about a Binding Update sent by the
                     mobile node either to its home agent or to one of
                     its correspondent nodes.

                     Implementors need to be aware that if the total
                     number of octets in mip6MnHomeAddress and
                     mip6MnBLNodeAddress exceeds 111 then OIDs of column
                     instances in this row will have more than 128
                     sub-identifiers and cannot be accessed using
                     SNMPv1, SNMPv2c, or SNMPv3.
                    "
            INDEX { mip6MnHomeAddressType,
                    mip6MnHomeAddress,
                    mip6MnBLNodeAddressType,
                    mip6MnBLNodeAddress
                  }
            ::= { mip6MnBLTable 1 }

```
Mip6MnBLEntry ::= SEQUENCE {
    mip6MnBLNodeAddressType   InetAddressType,
    mip6MnBLNodeAddress       InetAddress,
    mip6MnBLCOAType           InetAddressType,
    mip6MnBLCOA               InetAddress,
    mip6MnBLLifeTimeRequested Unsigned32,
    mip6MnBLLifeTimeGranted   Unsigned32,
    mip6MnBLMaxSeq            Unsigned32,
    mip6MnBLTimeSent          DateAndTime,
    mip6MnBLAccepted          TruthValue,
    mip6MnBLAcceptedTime      DateAndTime,
    mip6MnBLRetransmissions   Gauge32,
    mip6MnBLDontSendBUFlag    TruthValue
    }

mip6MnBLNodeAddressType OBJECT-TYPE
    SYNTAX      InetAddressType
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "The InetAddressType of the mip6MnBLNodeAddress
             that follows.
            "
    ::= { mip6MnBLEntry 1 }

mip6MnBLNodeAddress OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "The address of the agent as used in the destination
             address of the Binding Update.  The agent
             may be a home agent or a correspondent node.

             The type of the address represented by this object
             is specified by the corresponding
             mip6MnBLNodeAddressType object.

            "
    REFERENCE
            "RFC3775 : Section 11.1"
    ::= { mip6MnBLEntry 2 }
```

```
mip6MnBLCOAType OBJECT-TYPE
    SYNTAX      InetAddressType
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The InetAddressType of the mip6MnBLCOA that follows.
            "
    ::= { mip6MnBLEntry 3 }

mip6MnBLCOA OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "Care-of address that the mobile node intends to
             register in the Binding Update request.

             The type of the address represented by this object
             is specified by the corresponding mip6MnBLCOAType
             object.
            "
    REFERENCE
            "RFC3775 : Section 11.1"
    ::= { mip6MnBLEntry 4 }

mip6MnBLLifeTimeRequested OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The lifetime requested by the mobile node (in
             seconds) in the Binding Update.
            "
    REFERENCE
            "RFC3775 : Section 11.1"
    ::= { mip6MnBLEntry 5 }
```

```
mip6MnBLLifeTimeGranted OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The lifetime granted to the mobile node for this
             binding. This field will be inaccessible if the
             Binding Update request has not been accepted.
             The lifetime remaining (lR) can be calculated using
             the current time (cT), mip6MnBLAcceptedTime (aT) and
             mip6MnBLLifeTimeGranted (lG) as follows
                    lR  = lG - (cT - aT).
             When lR is zero this entry will be deleted from the
             Binding Update List and consequently from this
             table.
            "
    ::= { mip6MnBLEntry 6 }

mip6MnBLMaxSeq OBJECT-TYPE
    SYNTAX      Unsigned32 (0..65536)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The maximum value of the Sequence Number field sent
             in previous Binding Updates to this destination.
            "
    REFERENCE
            "RFC3775 : Section 11.1"
    ::= { mip6MnBLEntry 7 }

mip6MnBLTimeSent OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "The time when the last (re-)transmission occurred."
    REFERENCE
            "RFC3775 : Section 11.1"
    ::= { mip6MnBLEntry 8 }
```

```
     mip6MnBLAccepted OBJECT-TYPE
         SYNTAX      TruthValue
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "true(1) if the mobile node has received a
                  binding acknowledgment indicating that service has
                  been accepted (status code 0 or 1); false(2)
                  otherwise.  false(2) implies that the registration
                  is still pending.
                 "
         ::= { mip6MnBLEntry 9 }

     mip6MnBLAcceptedTime OBJECT-TYPE
         SYNTAX      DateAndTime
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "The time at which the mobile node receives a binding
                  acknowledgment indicating that Binding Update has
                  been accepted (status code 0 or 1);
                  This object will be inaccessible if the Binding
                  Update request is still pending.
                 "
         ::= { mip6MnBLEntry 10 }


     mip6MnBLRetransmissions  OBJECT-TYPE
         SYNTAX      Gauge32
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "The number of Binding Update retransmissions.
                 "
         REFERENCE
                 "RFC3775 : Section 11.1"
         ::= { mip6MnBLEntry 11 }
```

          mip6MnBLDontSendBUFlag OBJECT-TYPE
              SYNTAX   TruthValue
              MAX-ACCESS   read-only
              STATUS   current
              DESCRIPTION
                       "true(1) indicates that future binding updates
                        will not be sent to mip6MnBLNodeAddress.
                        false(2) implies that binding updates will be
                        sent to mip6MnBLNodeAddress.
                        The mobile node sets this flag in the when it
                        receives an ICMP Parameter Problem, Code 1,
                        error message in response to a return
                        routability message or Binding Update sent to
                        mip6MnBLNodeAddress.
                       "
              REFERENCE
                       "RFC3775 : Section 11.1"
              ::= { mip6MnBLEntry 12 }

          -- Mobile Node Registration Group Counters

          mip6MnRegnCounters OBJECT IDENTIFIER ::= { mip6MnRegistration 2 }

          mip6MnMobilityMessagesSent OBJECT-TYPE
              SYNTAX   Counter32
              MAX-ACCESS   read-only
              STATUS   current
              DESCRIPTION
                       "The total number of mobility messages, i.e. IPv6
                        datagrams with Mobility Header, sent by the mobile
                        node. There are 3 types of mobility messages viz.
                        Home Test Init, Care-of Test Init, and Binding
                        Updates that are sent by mobile nodes.
                        Discontinuities in the value of this counter can
                        occur at re-initialization of the management system,
                        and at other times as indicated by the value of
                        mip6CounterDiscontinuityTime.
                       "
              REFERENCE
                       "RFC3775 : Section 4.2, 6.1"
              ::= { mip6MnRegnCounters 1 }

        mip6MnMobilityMessagesRecd OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "The total number of mobility messages, i.e. IPv6
                     datagrams with Mobility Header, received by the
                     mobile node. There are 5 types of mobility messages
                     viz. Home Test, Care-of Test, Binding
                     Acknowledgment, Binding Refresh Request and Binding
                     Error that are sent to mobile nodes.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 4.2, 6.1"
            ::= { mip6MnRegnCounters 2 }

        mip6MnBUsToHA OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Binding Updates sent to the mobile
                     node's home agent(s).
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 11.7.1"
            ::= { mip6MnRegnCounters 3 }

```
        mip6MnBUAcksFromHA  OBJECT-TYPE
            SYNTAX       Counter32
            MAX-ACCESS   read-only
            STATUS       current
            DESCRIPTION
                    "Total number of valid binding acknowledgments
                     received from the mobile nodes home agent(s).
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                     "
            REFERENCE
                    "RFC3775 : Section 11.7.3"
            ::= {  mip6MnRegnCounters 4 }


        mip6MnBUsToCN OBJECT-TYPE
            SYNTAX       Counter32
            MAX-ACCESS   read-only
            STATUS       current
            DESCRIPTION
                    "Total number of Binding Updates sent to
                     correspondent nodes by the mobile node.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                     "
            REFERENCE
                    "RFC3775 : Section 11.7.2"
            ::= {  mip6MnRegnCounters 5 }


        mip6MnBUAcksFromCN OBJECT-TYPE
            SYNTAX       Counter32
            MAX-ACCESS   read-only
            STATUS       current
            DESCRIPTION
                    "Total number of valid Binding Update acks
                     received from all the correspondent nodes.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                     "
            REFERENCE
                    "RFC3775 : Section 11.7.3"
            ::= {  mip6MnRegnCounters 6 }
```

        mip6MnBindingErrorsFromCN OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Binding Error messages received
                     by mobile node from CN.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            ::= { mip6MnRegnCounters 7 }

        mip6MnICMPErrorsRecd OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                    "Total number of ICMP Error messages of type ICMP
                     Parameter Problem, Code 1 or Code 2 received by
                     the mobile node from a correspondent node in
                     response to a return routability procedure, a
                     Binding Update or a packet with the Home Address
                     option.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 11.3.5"
            ::= { mip6MnRegnCounters 8 }

```
         mip6MnBRRequestsRecd OBJECT-TYPE
             SYNTAX       Counter32
             MAX-ACCESS   read-only
             STATUS       current
             DESCRIPTION
                     "The total number of Binding Refresh requests
                      received by the mobile node from Corresponding
                      nodes.
                      Discontinuities in the value of this counter can
                      occur at re-initialization of the management system,
                      and at other times as indicated by the value of
                      mip6CounterDiscontinuityTime.
                     "
             REFERENCE
                     "RFC3775 : Section 11.7.4"
             ::= {  mip6MnRegnCounters 9 }

         -- Registration Group counters used for Correspondent Node
         mip6CnGlobalStats OBJECT IDENTIFIER ::= { mip6CnStats 1 }


         mip6CnHomeTestInitsRecd     OBJECT-TYPE
             SYNTAX       Counter32
             MAX-ACCESS   read-only
             STATUS       current
             DESCRIPTION
                     "Total number of Home Test Init messages received.
                      Discontinuities in the value of this counter can
                      occur at re-initialization of the management system,
                      and at other times as indicated by the value of
                      mip6CounterDiscontinuityTime.
                     "
             REFERENCE
                     "RFC3775 : Section 9.4.1"
             ::= { mip6CnGlobalStats 1 }
```

```
     mip6CnHomeTestsSent      OBJECT-TYPE
         SYNTAX      Counter32
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "Total number of Home Test messages sent. If a Home
                  Test Init message is found to be valid, a Home Test
                  message will be generated and sent. Otherwise the
                  Home Test message is silently discarded.
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 9.4.3"
         ::= { mip6CnGlobalStats 2 }

     mip6CnCareOfTestInitsRecd    OBJECT-TYPE
         SYNTAX      Counter32
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "Total number of Care-of Test Init messages received.
                 "
         REFERENCE
                 "RFC3775 : Section 9.4.2"
         ::= { mip6CnGlobalStats 3 }

     mip6CnCareOfTestsSent         OBJECT-TYPE
         SYNTAX      Counter32
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "Total number of Care-of Test messages sent. If a
                  Care-of Test Init message is found to be valid, a
                  Care-of Test message will be generated and sent.
                  Otherwise the Care-of Test message is silently
                  discarded.
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 9.4.4"
         ::= { mip6CnGlobalStats 4 }
```

```
mip6CnBUsRecd      OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "Total number of Binding Updates received by the
             correspondent node from mobile nodes.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
    REFERENCE
            "RFC3775 : Section 9.5.1"
    ::= { mip6CnGlobalStats 5 }

mip6CnBUAcksSent     OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "Total number of acknowledgments sent by the
             correspondent node for the Binding Updates received.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
    REFERENCE
            "RFC3775 : Section 9.5.4"
    ::= { mip6CnGlobalStats 6 }


mip6CnBRsSent      OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
            "Total number of Binding Refresh Request messages
             sent by the correspondent node.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
    REFERENCE
            "RFC3775 : Section 9.5.5"
    ::= { mip6CnGlobalStats 7 }
```

```
     mip6CnBindingErrors OBJECT-TYPE
         SYNTAX      Counter32
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "Total number of Binding Error messages sent by the
                  correspondent node to the mobile node.
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 9.3.3"
         ::= { mip6CnGlobalStats 8 }

     mip6CnBUsAccepted   OBJECT-TYPE
         SYNTAX      Counter32
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "Total number of Binding Updates accepted by the
                  correspondent node. If a Binding Acknowledgment
                  message is sent for the Binding Update request,
                  the Status code field in the message will have
                  a value less than 128.
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 9.5.1, 9.5.4"
         ::= { mip6CnGlobalStats 9 }
```

```
     mip6CnBUsRejected    OBJECT-TYPE
         SYNTAX       Counter32
         MAX-ACCESS   read-only
         STATUS       current
         DESCRIPTION
                 "Total number of Binding Update requests rejected
                  by the correspondent node. If a Binding
                  Acknowledgment message has been sent for the Binding
                  Update request, the Status code field in the
                  message will have a value greater than or equal to
                  128. Otherwise the Binding Update request will be
                  silently discarded.
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 9.5.1, 9.5.4"
         ::= { mip6CnGlobalStats 10 }

     mip6CnReasonUnspecified OBJECT-TYPE
         SYNTAX       Counter32
         MAX-ACCESS   read-only
         STATUS       current
         DESCRIPTION
                 "Total number of Binding Update requests rejected by
                  the correspondent node with status code in the
                  Binding Acknowledgment message indicating 'reason
                  unspecified' (Code 128).
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 6.1.8"
         ::= { mip6CnGlobalStats 11 }
```

        mip6CnInsufficientResource OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Binding Update requests rejected by
                     the correspondent node with status code in the
                     Binding Acknowledgment message indicating
                     'insufficient resources' (Code 130).
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 6.1.8"
            ::= { mip6CnGlobalStats 12 }

        mip6CnHomeRegnNotSupported OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Binding Update requests rejected by
                     correspondent node with status code in the Binding
                     Acknowledgment message indicating 'home registration
                     not supported' (Code 131).
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
            REFERENCE
                    "RFC3775 : Section 10.3.1"
            ::= { mip6CnGlobalStats 13 }

```
     mip6CnSeqNumberOutOfWindow OBJECT-TYPE
         SYNTAX      Counter32
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "Total number of Binding Updates rejected by
                  correspondent node with status code in the Binding
                  Acknowledgment message indicating 'sequence number
                  out of window' (Code 135).
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 6.1.8, 9.5.1"
         ::= { mip6CnGlobalStats 14 }

     mip6CnExpiredHomeNonceIndex OBJECT-TYPE
         SYNTAX      Counter32
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
                 "The total number of Binding Updates rejected by
                  correspondent node with status code in the Binding
                  Acknowledgment message indicating 'expired home
                  nonce index' (Code 136).
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 6.1.8, 9.5.1"
         ::= { mip6CnGlobalStats 15 }
```

       mip6CnExpiredCareOfNonceIndex OBJECT-TYPE
           SYNTAX   Counter32
           MAX-ACCESS read-only
           STATUS   current
           DESCRIPTION
                   "The total number of Binding Updates rejected by
                    correspondent node with status code in the Binding
                    Acknowledgment message indicating 'expired
                    care-of nonce index' (Code 137).
                    Discontinuities in the value of this counter can
                    occur at re-initialization of the management system,
                    and at other times as indicated by the value of
                    mip6CounterDiscontinuityTime.
                   "
           REFERENCE
                   "RFC3775 : Section 6.1.8, 9.5.1"
           ::= { mip6CnGlobalStats 16 }

       mip6CnExpiredNonce OBJECT-TYPE
           SYNTAX   Counter32
           MAX-ACCESS read-only
           STATUS   current
           DESCRIPTION
                   "The total number of Binding Updates rejected by
                    correspondent node with status code in the Binding
                    Acknowledgment message indicating 'expired nonces'
                    (Code 138) i.e. the correspondent node no longer
                    recognizes the Home Nonce Index value and the
                    Care-of Nonce Index value.
                    Discontinuities in the value of this counter can
                    occur at re-initialization of the management system,
                    and at other times as indicated by the value of
                    mip6CounterDiscontinuityTime.
                   "
           REFERENCE
                   "RFC3775 : Section 6.1.8, 9.5.1"
           ::= { mip6CnGlobalStats 17 }

         mip6CnRegTypeChangeDisallowed OBJECT-TYPE
             SYNTAX   Counter32
             MAX-ACCESS read-only
             STATUS   current
             DESCRIPTION
                     "The total number of Binding Updates rejected by
                      correspondent node with status code in the Binding
                      Acknowledgment message indicating 'registration
                      type change disallowed' (Code 139, i.e., a binding
                      already exists for the given home address and the
                      home registration flag has a different value than
                      the Home Registration (H) bit in the Binding Update.
                      Discontinuities in the value of this counter can
                      occur at re-initialization of the management system,
                      and at other times as indicated by the value of
                      mip6CounterDiscontinuityTime.
                      "
             REFERENCE
                     "RFC3775 : Section 6.1.8, 9.5.1"
             ::= { mip6CnGlobalStats 18 }

         -- The Correspondent Node statistics by mobile node

         mip6CnCounterTable OBJECT-TYPE
             SYNTAX   SEQUENCE OF Mip6CnCounterEntry
             MAX-ACCESS not-accessible
             STATUS   current
             DESCRIPTION
                     "A table containing each mobile ."
             ::= { mip6CnStats 2 }

```
mip6CnCounterEntry OBJECT-TYPE
    SYNTAX       Mip6CnCounterEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
            "The set of correspondent node counters for a mobile
             node.

             Implementors need to be aware that if the total
             number of octets in mip6BindingHomeAddress
             exceeds 113 then OIDs of column instances in
             this row will have more than 128 sub-identifiers and
             cannot be accessed using SNMPv1, SNMPv2c, or SNMPv3.
            "
    INDEX   {    mip6BindingHomeAddressType,
                 mip6BindingHomeAddress
            }
    ::= { mip6CnCounterTable 1 }

Mip6CnCounterEntry ::=
    SEQUENCE {
        mip6CnBURequestsAccepted       Counter32,
        mip6CnBURequestsRejected       Counter32,
        mip6CnBCEntryCreationTime      DateAndTime,
        mip6CnBUAcceptedTime           DateAndTime,
        mip6CnBURejectionTime          DateAndTime,
        mip6CnBURejectionCode          Mip6BURequestRejectionCode,
        mip6CnCtrDiscontinuityTime     TimeStamp
    }

mip6CnBURequestsAccepted OBJECT-TYPE    --(Code 0,1)
    SYNTAX       Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "Total number of Binding Update requests from the
             mobile node accepted by the correspondent node.
             If Binding Acknowledgment messages are sent, then
             the Status code in the message will have a value
             less than 128.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CnCtrDiscontinuityTime.
            "
    ::= { mip6CnCounterEntry 1 }
```

```
      mip6CnBURequestsRejected     OBJECT-TYPE
                                       -- (Code 128 through Code 159)
          SYNTAX      Counter32
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "Total number of Binding Update requests from the
                   mobile node which have been rejected by the
                   correspondent node. This includes the Binding Update
                   requests for which a Binding Acknowledgment message
                   has been sent with Status code value greater than or
                   equal to 128 and the Binding Acknowledgment requests
                   which have been silently discarded.
                   Discontinuities in the value of this counter can
                   occur at re-initialization of the management system,
                   and at other times as indicated by the value of
                   mip6CnCtrDiscontinuityTime.
                  "
          ::= { mip6CnCounterEntry 2 }

      mip6CnBCEntryCreationTime       OBJECT-TYPE
          SYNTAX      DateAndTime
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "The time when the current Binding Cache entry was
                   created for the mobile node.
                  "
          ::= { mip6CnCounterEntry 3 }

      mip6CnBUAcceptedTime OBJECT-TYPE
          SYNTAX      DateAndTime
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "The time at which the last Binding Update was
                   accepted by the correspondent node and the
                   corresponding Binding Cache entry was updated.
                  "
          ::= { mip6CnCounterEntry 4 }
```

        mip6CnBURejectionTime   OBJECT-TYPE
            SYNTAX   DateAndTime
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "The time at which the last Binding Update message
                     was rejected by the correspondent node.
                     If there have been no rejections then this object
                     will be inaccessible.
                    "
            ::= { mip6CnCounterEntry 5 }

        mip6CnBURejectionCode OBJECT-TYPE
                SYNTAX   Mip6BURequestRejectionCode
                MAX-ACCESS read-only
                STATUS   current
                DESCRIPTION
                        "If a Binding Acknowledgment is sent to the mobile
                         node, this is the Status code (> 128) that is
                         returned in the Binding Acknowledgment.
                         In case a Binding Acknowledgment is not sent to
                         the mobile node then this will be the value that
                         of the Status code that corresponds to the reason
                         of the rejection. If there have been no rejections
                         then this object will be inaccessible.
                        "
            REFERENCE
                    "RFC3775 : Section 6.1.8"

                ::= { mip6CnCounterEntry 6 }

         mip6CnCtrDiscontinuityTime OBJECT-TYPE
            SYNTAX   TimeStamp
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "The value of sysUpTime on the most recent occasion
                     at which any one or more of counters in this row
                     viz, instances of 'mip6CnBURequestsAccepted' and
                     'mip6CnBURequestsRejected' suffered a discontinuity.
                     If no such discontinuities have occurred since the
                     last re-initialization of the local management
                     subsystem, then this object will have a zero value.
                    "
            ::= { mip6CnCounterEntry 7 }

        -- Home agent group

```
     mip6HaAdvsRecd OBJECT-TYPE
         SYNTAX       Counter32
         MAX-ACCESS   read-only
         STATUS       current
         DESCRIPTION
                 "Total number of valid Router Advertisements
                  received with the Home Agent (H) bit set, on
                  all the links on which it is serving as a Home
                  Agent.
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 7"
         ::= { mip6HaAdvertisement 1 }


     mip6HaAdvsSent OBJECT-TYPE
         SYNTAX       Counter32
         MAX-ACCESS   read-only
         STATUS       current
         DESCRIPTION
                 "Total number of unsolicited multicast Router
                  Advertisements sent with the Home Agent (H) bit set,
                  on all the links on which the router is serving as
                  a Home Agent.
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
         REFERENCE
                 "RFC3775 : Section 7"
         ::= { mip6HaAdvertisement 2 }


     mip6HaConfTable OBJECT-TYPE
         SYNTAX       SEQUENCE OF Mip6HaConfEntry
         MAX-ACCESS   not-accessible
         STATUS       current
         DESCRIPTION
                 "A table containing configurable advertisement
                  parameters for all interfaces on which the
                  home agent service is advertised.
                  It is RECOMMENDED that the last written values
                  of the objects in the conceptual rows of this
```

```
                 table will remain unchanged across reboots of
                 the managed entity provided that, the interfaces
                 have not been renumbered after the reboot.
                "
        ::= { mip6HaAdvertisement 3 }

    mip6HaConfEntry OBJECT-TYPE
        SYNTAX      Mip6HaConfEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
                "Advertisement parameters for an interface.
                 The instances of the columnar objects in this entry
                 pertain to the interface which is uniquely identified
                 by the ipv6InterfaceIfIndex of the interface. The
                 same ipv6InterfaceIfIndex object is used to uniquely
                 identify instances of the columnar objects of this
                 conceptual row.
                "
        INDEX   { ipv6InterfaceIfIndex }
        ::= { mip6HaConfTable 1 }

    Mip6HaConfEntry    ::= SEQUENCE {
        mip6HaAdvPreference             Integer32,
        mip6HaAdvLifetime               Integer32,
        mip6HaPrefixAdv                 INTEGER,
        mip6HaPrefixSolicitation        INTEGER,
        mip6HaMCastCtlMsgSupport        INTEGER
        }

    mip6HaAdvPreference OBJECT-TYPE
        SYNTAX      Integer32 (0..65536)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "The preference value for the home agent to
                 be used in the Router Advertisements. Higher
                 value denotes greater preference.
                "
        REFERENCE
                "RFC3775 : Section 7.4, 8.4"
        ::= { mip6HaConfEntry 1 }
```

     mip6HaAdvLifetime   OBJECT-TYPE
         SYNTAX   Integer32 (1..65535)
         UNITS   "seconds"
         MAX-ACCESS read-write
         STATUS   current
         DESCRIPTION
                 "The lifetime value for the home agent to be
                  used in the Router Advertisements.
                 "
         REFERENCE
                 "RFC3775 : Section 7.4"
         ::= { mip6HaConfEntry 2 }

     mip6HaPrefixAdv   OBJECT-TYPE
         SYNTAX   INTEGER { enabled(1), disabled(2) }
         MAX-ACCESS read-write
         STATUS   current
         DESCRIPTION
                 "Indicates whether the home agent should support
                  sending of the ICMP Mobile Prefix Advertisements.
                  If it is disabled(2), the home agent will not
                  send ICMP Mobile Prefix Advertisements to the
                  mobile nodes.
                  The state can be changed from enabled(1) to
                  disabled(2) and vice versa by operator
                  intervention.
                  Causing the state to change from enabled(1) to
                  disabled(2) will result in the home agent
                  disabling the Prefix advertisement function.
                  On the other hand, changing the status from
                  disabled(2) to enabled(1) will start the prefix
                  advertisement funtion.
                 "
         REFERENCE
                 "RFC3775 : Section 8.4"
         ::= { mip6HaConfEntry 3}

          mip6HaPrefixSolicitation   OBJECT-TYPE
              SYNTAX   INTEGER { enabled(1), disabled(2) }
              MAX-ACCESS read-write
              STATUS   current
              DESCRIPTION
                      "Indicates whether the home agent should respond
                       to ICMP Mobile Prefix Solicitation messages it
                       receives from the mobile nodes. By default, the
                       value will be set to enabled(1). If it is
                       disabled(2), the home agent will not respond to
                       any ICMP Mobile Prefix Solicitation messages.
                       The state can be changed from enabled(1) to
                       disabled(2), by operator intervention. Causing
                       the state to change from enabled(1) to
                       disabled(2) will result in the home agent not
                       responding to any ICMP Mobile Prefix
                       Solicitation messages it receives from the
                       mobile nodes.
                      "
              REFERENCE
                      "RFC3775 : Section 8.4"
              ::= { mip6HaConfEntry 4}

      mip6HaMCastCtlMsgSupport OBJECT-TYPE
              SYNTAX   INTEGER { enabled(1), disabled(2) }
              MAX-ACCESS read-write
              STATUS   current
              DESCRIPTION
                      "Indicates whether the home agent should enable
                       support for the processing of the multicast
                       group membership control messages it receives
                       from the mobile nodes. By default, the value
                       will be set to enabled(1). If it is
                       disabled(2), the home agent will not process
                       any multicast group control messages it receives
                       from the mobile nodes.
                       The state can be changed from enabled(1) to
                       disabled(2), by operator intervention. Causing
                       the state to change from enabled(1) to
                       disabled(2) will result in the home agent
                       disabling the processing of the multicast group
                       control messages it received from the mobile
                       nodes.
                      "
              REFERENCE
                      "RFC3775 : Section 10.4.3"
              ::= { mip6HaConfEntry 5}

        -- Registration Group counters HA

        mip6HaGlobalStats OBJECT IDENTIFIER ::= { mip6HaStats 1 }

        mip6HaHomeTestInitsRecd   OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Home Test Init messages received by
                     the home agent. This will include Home Test Init
                     messages that failed the validity checks.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
             REFERENCE
                    "RFC3775 : Section 5.2.5"
            ::= { mip6HaGlobalStats 1 }

        mip6HaHomeTestsSent   OBJECT-TYPE
            SYNTAX   Counter32
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Home Test messages sent by the
                     home agent.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
             REFERENCE
                    "RFC3775 : Section 5.2.5"
            ::= { mip6HaGlobalStats 2 }

```
mip6HaBUsRecd      OBJECT-TYPE
    SYNTAX       Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "Total number of Binding Updates received by the
             home agent.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
        REFERENCE
                "RFC3775 : Section 10.3.1"
    ::= { mip6HaGlobalStats 3 }

mip6HaBUAcksSent      OBJECT-TYPE
    SYNTAX       Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "Total number of Binding Acknowledgments sent
             by the home agent.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
        REFERENCE
                "RFC3775 : Section 10.3.1"
    ::= { mip6HaGlobalStats 4 }

mip6HaBRAdviceSent OBJECT-TYPE
    SYNTAX       Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "Total number of Binding Acknowledgments sent
             by the home agent with Binding Refresh Advice
             mobility option included.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
        REFERENCE
                "RFC3775 : Section 10.3.1"
    ::= { mip6HaGlobalStats 5 }
```

```
mip6HaBUsAccepted    OBJECT-TYPE
    SYNTAX       Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "Total number of Binding Updates accepted by this HA.
             Binding Acknowledgment with Status code of 0 or 1.
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
       REFERENCE
             "RFC3775 : Section 10.3.1"
    ::= { mip6HaGlobalStats 6 }

mip6HaPrefDiscoverReqd OBJECT-TYPE       -- (Code 1)
    SYNTAX       Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
            "The total number of Binding Acknowledgments sent by
             the home agent with Status code indicating 'accepted
             but prefix discovery necessary'  (Code 1).
             Discontinuities in the value of this counter can
             occur at re-initialization of the management system,
             and at other times as indicated by the value of
             mip6CounterDiscontinuityTime.
            "
       REFERENCE
             "RFC3775 : Section 10.3.1"
    ::= { mip6HaGlobalStats 7 }
```

     mip6HaReasonUnspecified OBJECT-TYPE   -- (Code 128)
         SYNTAX   Counter32
         MAX-ACCESS read-only
         STATUS   current
         DESCRIPTION
                "Total number of Binding Update requests rejected by
                 the home agent with status code in the Binding
                 Acknowledgment message indicating 'reason
                 unspecified' (Code 128).
                 Discontinuities in the value of this counter can
                 occur at re-initialization of the management system,
                 and at other times as indicated by the value of
                 mip6CounterDiscontinuityTime.
                "
            REFERENCE
                  "RFC3775 : Section 10.3.1"
         ::= { mip6HaGlobalStats 8 }

     mip6HaAdmProhibited OBJECT-TYPE
         SYNTAX   Counter32
         MAX-ACCESS read-only
         STATUS   current
         DESCRIPTION
                "Total number of Binding Update requests rejected by
                 the home agent with status code in the Binding
                 Acknowledgment message indicating 'administratively
                 prohibited' (Code 129).
                 Discontinuities in the value of this counter can
                 occur at re-initialization of the management system,
                 and at other times as indicated by the value of
                 mip6CounterDiscontinuityTime.
                "
            REFERENCE
                  "RFC3775 : Section 10.3.1"
         ::= { mip6HaGlobalStats 9 }

        mip6HaInsufficientResource OBJECT-TYPE   -- (Code 130)
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Binding Update requests rejected by
                     the home agent with status code in the Binding
                     Acknowledgment message indicating 'insufficient
                     resources' (Code 130).
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
               REFERENCE
                    "RFC3775 : Section 9.5.2"
            ::= { mip6HaGlobalStats 10 }

        mip6HaHomeRegnNotSupported OBJECT-TYPE   -- (Code 131)
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Binding Update requests rejected by
                     the home agent with status code in the Binding
                     Acknowledgment message indicating 'home
                     registration not supported' (Code 131).
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
               REFERENCE
                    "RFC3775 : Section 10.3.1"
            ::= { mip6HaGlobalStats 11 }

     mip6HaNotHomeSubnet OBJECT-TYPE   -- (Code 132)
         SYNTAX   Counter32
         MAX-ACCESS   read-only
         STATUS   current
         DESCRIPTION
                 "Total number of Binding Update requests rejected by
                  the home agent with status code in the Binding
                  Acknowledgment message indicating 'not home subnet'
                  (Code 132).
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
            REFERENCE
                   "RFC3775 : Section 10.3.1"
         ::= { mip6HaGlobalStats 12 }

     mip6HaNotHomeAgentForThisMN OBJECT-TYPE   -- (Code 133)
         SYNTAX   Counter32
         MAX-ACCESS   read-only
         STATUS   current
         DESCRIPTION
                 "Total number of Binding Update requests rejected by
                  the home agent with status code in the Binding
                  Acknowledgment message indicating 'not home agent
                  for this mobile node' (Code 133).
                  Discontinuities in the value of this counter can
                  occur at re-initialization of the management system,
                  and at other times as indicated by the value of
                  mip6CounterDiscontinuityTime.
                 "
            REFERENCE
                   "RFC3775 : Section 10.3.2"
         ::= { mip6HaGlobalStats 13 }

```
      mip6HaDupAddrDetectionFailed OBJECT-TYPE      -- (Code 134)
          SYNTAX      Counter32
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "Total number of Binding Update requests rejected by
                   the home agent with status code in the Binding
                   Acknowledgment message indicating 'Duplicate
                   Address Detection failed' (Code 134).
                   Discontinuities in the value of this counter can
                   occur at re-initialization of the management system,
                   and at other times as indicated by the value of
                   mip6CounterDiscontinuityTime.
                  "
             REFERENCE
                   "RFC3775 : Section 10.3.1"
          ::= { mip6HaGlobalStats 14 }

      mip6HaSeqNumberOutOfWindow OBJECT-TYPE          -- (Code 135)
          SYNTAX      Counter32
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "Total number of Binding Update requests rejected by
                   the home agent with status code in the Binding
                   Acknowledgment message indicating 'sequence number
                   out of window' (Code 135).
                   Discontinuities in the value of this counter can
                   occur at re-initialization of the management system,
                   and at other times as indicated by the value of
                   mip6CounterDiscontinuityTime.
                  "
             REFERENCE
                   "RFC3775 : Section 9.5.1"
          ::= { mip6HaGlobalStats 15 }
```

        mip6HaExpiredHomeNonceIndex OBJECT-TYPE   -- (Code 136)
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Binding Update requests rejected by
                     the home agent with status code in the Binding
                     Acknowledgment message indicating 'expired home
                     nonce index' (Code 136).
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
               REFERENCE
                       "RFC3775 : Section 9.5.1"
            ::= { mip6HaGlobalStats 16 }

        mip6HaRegTypeChangeDisallowed OBJECT-TYPE   -- (Code 139)
            SYNTAX   Counter32
            MAX-ACCESS read-only
            STATUS   current
            DESCRIPTION
                    "Total number of Binding Update requests rejected by
                     the home agent with status code in the Binding
                     Acknowledgment message indicating 'registration
                     type change disallowed' (Code 139) i.e. a binding
                     already exists for the given home address and the
                     home registration flag has a different value than
                     the Home Registration (H) bit in the Binding Update.
                     Discontinuities in the value of this counter can
                     occur at re-initialization of the management system,
                     and at other times as indicated by the value of
                     mip6CounterDiscontinuityTime.
                    "
               REFERENCE
                       "RFC3775 : Section 9.5.1"
            ::= { mip6HaGlobalStats 17 }

        -- Home agent registration Counters per node

```
mip6HaCounterTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Mip6HaCounterEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "A table containing registration statistics for all
             mobile nodes registered with the home agent.
            "
    ::= { mip6HaStats 2 }

mip6HaCounterEntry  OBJECT-TYPE
    SYNTAX      Mip6HaCounterEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Home agent registration statistics for a mobile
             node.

             Implementors need to be aware that if the total
             number of octets in mip6BindingHomeAddress
             exceeds 113 then OIDs of column instances in
             this row will have more than 128 sub-identifiers and
             cannot be accessed using SNMPv1, SNMPv2c, or SNMPv3.
            "
    INDEX   { mip6BindingHomeAddressType,
              mip6BindingHomeAddress
            }
    ::= { mip6HaCounterTable 1 }

Mip6HaCounterEntry      ::= SEQUENCE {
    mip6HaBURequestsAccepted      Counter32,
    mip6HaBURequestsDenied        Counter32,
    mip6HaBCEntryCreationTime     DateAndTime,
    mip6HaBUAcceptedTime          DateAndTime,
    mip6HaBURejectionTime         DateAndTime,
    mip6HaRecentBURejectionCode   Mip6BURequestRejectionCode,
    mip6HaCtrDiscontinuityTime    TimeStamp
    }
```

```
      mip6HaBURequestsAccepted OBJECT-TYPE
          SYNTAX       Counter32
          MAX-ACCESS   read-only
          STATUS       current
          DESCRIPTION
                  "Total number of service requests for the mobile node
                   accepted by the home agent.
                   Discontinuities in the value of this counter can
                   occur at re-initialization of the management system,
                   and at other times as indicated by the value of
                   mip6HaCtrDiscontinuityTime.
                  "
          ::= { mip6HaCounterEntry 1 }

      mip6HaBURequestsDenied   OBJECT-TYPE
          SYNTAX       Counter32
          MAX-ACCESS   read-only
          STATUS       current
          DESCRIPTION
                  "Total number of service requests for the mobile node
                   rejected by the home agent.
                   Discontinuities in the value of this counter can
                   occur at re-initialization of the management system,
                   and at other times as indicated by the value of
                   mip6HaCtrDiscontinuityTime.
                  "
          ::= { mip6HaCounterEntry 2 }

      mip6HaBCEntryCreationTime   OBJECT-TYPE
          SYNTAX       DateAndTime
          UNITS        "seconds"
          MAX-ACCESS   read-only
          STATUS       current
          DESCRIPTION
                  "The time when the current Binding Cache entry was
                   created for the mobile node.
                  "
          ::= { mip6HaCounterEntry 3 }

      mip6HaBUAcceptedTime  OBJECT-TYPE
          SYNTAX       DateAndTime
          MAX-ACCESS   read-only
          STATUS       current
          DESCRIPTION
                  "The time at which the last Binding Update was
                   accepted by the home agent for this mobile node.
                  "
          ::= { mip6HaCounterEntry 4 }
```

```
        mip6HaBURejectionTime  OBJECT-TYPE
            SYNTAX      DateAndTime
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "The time at which the last Binding Update was
                     rejected by the home agent for this mobile node.
                     If there have been no rejections then this object
                     will be inaccessible.
                    "
            ::= { mip6HaCounterEntry 5 }

        mip6HaRecentBURejectionCode  OBJECT-TYPE
            SYNTAX      Mip6BURequestRejectionCode
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "If a Binding Acknowledgment is sent to the mobile
                     node, this is the Status code (> 128) that is
                     returned in the Binding Acknowledgment.
                     In case a Binding Acknowledgment is not sent to the
                     mobile node then this will be the value of the
                     Status code that corresponds to the reason of the
                     rejection.
                     If there have been no rejections then this object
                     will be inaccessible.
                    "
            ::= { mip6HaCounterEntry 6 }

         mip6HaCtrDiscontinuityTime OBJECT-TYPE
            SYNTAX      TimeStamp
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "The value of sysUpTime on the most recent occasion
                     at which any one or more of counters in this row
                     viz, instances of 'mip6HaBURequestsAccepted' and
                     'mip6HaBURequestsRejected' suffered a discontinuity.
                     If no such discontinuities have occurred since the
                     last re-initialization of the local management
                     subsystem, then this object will have a zero value.
                    "
            ::= { mip6HaCounterEntry 7 }

        -- Home Agent List Table
```

```
mip6HaListTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Mip6HaListEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "This table models the Home Agents List that contains
             the list of all routers that are acting as home
             agents on each of the interfaces on which the home
             agent service is offered by this router.
            "
       REFERENCE
             "RFC3775 : Section 10.1"
    ::= { mip6HaAdvertisement 4 }

mip6HaListEntry  OBJECT-TYPE
    SYNTAX      Mip6HaListEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "Information about a router that is offering home
             agent service.
             The instances of the columnar objects in this entry
             pertain to an interface for a particular value of
             mip6HaLinkLocalAddressType and
             mip6HaLinkLocalAddress. The interface is uniquely
             identified by its ipv6InterfaceIfIndex. The same
             ipv6InterfaceIfIndex object is used in conjunction
             with the mip6HaLinkLocalAddressType and
             mip6HaLinkLocalAddress to uniquely identify
             instances of the columnar objects of this row.

             Implementors need to be aware that if the total
             number of octets in mip6HaLinkLocalAddress
             exceeds 112 then OIDs of column instances in
             this row will have more than 128 sub-identifiers and
             cannot be accessed using SNMPv1, SNMPv2c, or SNMPv3.
            "
    INDEX   { ipv6InterfaceIfIndex, mip6HaLinkLocalAddressType,
                                    mip6HaLinkLocalAddress }
    ::= { mip6HaListTable 1 }

Mip6HaListEntry      ::= SEQUENCE {
    mip6HaLinkLocalAddressType      InetAddressType,
    mip6HaLinkLocalAddress          InetAddress,
    mip6HaPreference                Integer32,
    mip6HaRecvLifeTime              Gauge32,
    mip6HaRecvTimeStamp             DateAndTime
    }
```

       mip6HaLinkLocalAddressType OBJECT-TYPE
           SYNTAX   InetAddressType
           MAX-ACCESS not-accessible
           STATUS   current
           DESCRIPTION
                   "The address type for the link-local address
                    of the home agent that follows.
                   "
           REFERENCE
                   "RFC3775 : Section 10.1"
           ::= { mip6HaListEntry 1 }

       mip6HaLinkLocalAddress OBJECT-TYPE
           SYNTAX   InetAddress
           MAX-ACCESS not-accessible
           STATUS   current
           DESCRIPTION
                   "The link local address of the home agent .

                    The type of the address represented by this object
                    is specified by the corresponding
                    mip6HaLinkLocalAddressType object.
                   "
           REFERENCE
                   "RFC3775 : Section 10.1"
           ::= { mip6HaListEntry 2 }

       mip6HaPreference   OBJECT-TYPE
           SYNTAX   Integer32
           MAX-ACCESS read-only
           STATUS   current
           DESCRIPTION
                   "The preference value of this home agent.
                    Higher values indicate a more preferable home
                    agent. The preference value is obtained from
                    the preference field of the received Router
                    Advertisement.
                   "
           REFERENCE
                   "RFC3775 : Section 10.1"
           ::= { mip6HaListEntry 3 }

```
      mip6HaRecvLifeTime      OBJECT-TYPE
            SYNTAX      Gauge32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "The lifetime for this home agent.
                    "
            REFERENCE
                    "RFC3775 : Section 10.1"
            ::= { mip6HaListEntry 4 }

      mip6HaRecvTimeStamp  OBJECT-TYPE
            SYNTAX      DateAndTime
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                    "The time when the home agent advertisement was
                     received.
                    "
            ::= { mip6HaListEntry 5 }

   --
   -- The list of global addresses of a  home agent in the
   -- home agent list
   --

   mip6HaGlAddrTable OBJECT-TYPE
            SYNTAX      SEQUENCE OF Mip6HaGlAddrEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                    "This table contains the global addresses of the home
                     agents in the Home Agents List.
                    "
              REFERENCE
                      "RFC3775 : Section 10.1"
            ::= { mip6HaAdvertisement 5 }
```

```
mip6HaGlAddrEntry  OBJECT-TYPE
    SYNTAX      Mip6HaGlAddrEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
            "A global address for a home agent in the Home Agents
             List.
             The instances of the columnar objects in this entry
             pertain to an interface for a particular value of
             mip6HaLinkLocalAddressType, mip6HaLinkLocalAddress
             and mip6HaGaAddrSeqNo.
             The mip6HaGaAddrSeqNo object is used to distinguish
             between multiple instances of the home agent global
             addresses on the same interface for the same set of
             mip6HaLinkLocalAddressType, mip6HaLinkLocalAddress
             values.
             There is no upper-bound on the maximum number of
             global addresses on an interface but, for practical
             purposes the upper-bound of the value
             mip6HaGaAddrSeqNo is set to 1024.
             The interface is uniquely identified by its
             ipv6InterfaceIfIndex. The same ipv6InterfaceIfIndex
             object is used in conjunction with the
             mip6HaLinkLocalAddressType, mip6HaLinkLocalAddress
             and mip6HaGaAddrSeqNo to uniquely identify instances
             of the columnar objects of this row.

             Implementors need to be aware that if the total
             number of octets in mip6HaLinkLocalAddress
             exceeds 111 then OIDs of column instances in
             this row will have more than 128 sub-identifiers and
             cannot be accessed using SNMPv1, SNMPv2c, or SNMPv3.
            "
    INDEX   { ipv6InterfaceIfIndex,   mip6HaLinkLocalAddressType,
              mip6HaLinkLocalAddress, mip6HaGaAddrSeqNo }
    ::= { mip6HaGlAddrTable 1 }

Mip6HaGlAddrEntry      ::= SEQUENCE {
    mip6HaGaAddrSeqNo             Integer32,
    mip6HaGaGlobalAddressType    InetAddressType,
    mip6HaGaGlobalAddress        InetAddress
}
```

```
      mip6HaGaAddrSeqNo  OBJECT-TYPE
          SYNTAX      Integer32 (1..1024)
          MAX-ACCESS  not-accessible
          STATUS      current
          DESCRIPTION
                  "The index that along with ipv6InterfaceIfIndex,
                   mip6HaLinkLocalAddressType and
                   mip6HaLinkLocalAddress uniquely identifies this row.
                  "
             REFERENCE
                     "RFC3775 : Section 10.1"
          ::= { mip6HaGlAddrEntry 1 }

      mip6HaGaGlobalAddressType  OBJECT-TYPE
          SYNTAX      InetAddressType
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "The address type for the global address of the
                   home agent that follows.
                  "
          ::= { mip6HaGlAddrEntry 2 }

      mip6HaGaGlobalAddress  OBJECT-TYPE
          SYNTAX      InetAddress
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
                  "A global address of the home agent.

                   The type of the address represented by this object
                   is specified by the corresponding
                   mip6HaGaGlobalAddressType object.
                  "
          ::= { mip6HaGlAddrEntry 3 }

   --
   -- Notifications
   --
```

         mip6MnRegistered NOTIFICATION-TYPE
             OBJECTS   {
                         mip6BindingTimeRegistered,
                         mip6BindingCOAType,
                         mip6BindingCOA
                       }
             STATUS   current
             DESCRIPTION
                     "This notification is sent by a home agent when
                      a mobile node registers with the home agent
                      for the first time.
                      Notifications will not be sent for subsequent
                      updates and/or refreshes.
                      The MO instances in the notifications will be
                      identified by the mip6BindingHomeAddressType
                      and mip6BindingHomeAddress for the mobile node
                      in the mip6BindingCacheTable.
                     "
                REFERENCE
                      "RFC3775 : Section 10.3.1"
             ::= { mip6Notifications 1 }

         mip6MnDeRegistered NOTIFICATION-TYPE
             OBJECTS   {
                         mip6BindingTimeRegistered,
                         mip6BindingCOAType,
                         mip6BindingCOA
                       }
             STATUS   current
             DESCRIPTION
                     "This notification is sent by a home agent every
                      time a mobile node de-registers with the home
                      agent by sending a Binding Update that requests
                      the home agent to delete a binding.
                      The MO instances in the notifications will be
                      identified by the mip6BindingHomeAddressType
                      and mip6BindingHomeAddress for the mobile node
                      in the mip6BindingCacheTable.
                     "
                REFERENCE
                      "RFC3775 : Section 10.3.2"
             ::= { mip6Notifications 2 }

         mip6MnCOAChanged NOTIFICATION-TYPE
            OBJECTS   {
                        mip6BindingTimeRegistered,
                        mip6BindingCOAType,
                        mip6BindingCOA
                      }
            STATUS   current
            DESCRIPTION
                    "This notification is sent by a home agent every
                     time a mobile node sends a Binding Update with
                     a new care-of address (for an existing Binding
                     Cache entry).
                     Notifications will not be sent for subsequent
                     updates and/or refreshes for the same Care-of
                     address.
                     The registration of a new care-of address may
                     indicate that the mobile node has moved or that
                     the primary care-of address of the mobile node
                     has become deprecated.
                     The MO instances in the notifications will be
                     identified by the mip6BindingHomeAddressType
                     and mip6BindingHomeAddress for the mobile node
                     in the mip6BindingCacheTable.
                    "
               REFERENCE
                     "RFC3775 : Section 11.5.2, 11.7.1"
            ::= { mip6Notifications 3 }

         mip6MnBindingExpiredAtHA NOTIFICATION-TYPE
            OBJECTS   {
                        mip6BindingTimeRegistered,
                        mip6BindingCOAType,
                        mip6BindingCOA
                      }
            STATUS   current
            DESCRIPTION
                    "This notification is sent by a home agent when a
                     binding for the mobile node at the home agent
                     expired (no timely Binding Updates were received).
                     The MO instances in the notifications will be
                     identified by the mip6BindingHomeAddressType
                     and mip6BindingHomeAddress for the mobile node
                     in the mip6BindingCacheTable.
                    "
               REFERENCE
                     "RFC3775 : Section 10.3.2"
            ::= { mip6Notifications 4 }

```
mip6MnBindingExpiredAtCN NOTIFICATION-TYPE
    OBJECTS   {
                  mip6BindingTimeRegistered,
                  mip6BindingCOAType,
                  mip6BindingCOA
               }
    STATUS    current
    DESCRIPTION
            "This notification is sent by a correspondent node
             when a binding for the mobile node at the
             correspondent node expired (no timely Binding
             Updates were received).
             The MO instances in the notifications will be
             identified by the mip6BindingHomeAddressType
             and mip6BindingHomeAddress for the mobile node
             in the mip6BindingCacheTable.
            "
    ::= { mip6Notifications 5 }
```

```
      -- Conformance information
     mip6Groups       OBJECT IDENTIFIER ::= { mip6Conformance 1 }
     mip6Compliances OBJECT IDENTIFIER ::= { mip6Conformance 2 }

      -- Units of conformance
     mip6SystemGroup    OBJECT-GROUP
         OBJECTS {
                  mip6Capabilities,
                  mip6Status
         }
          STATUS  current
          DESCRIPTION
                 " A collection of objects for basic MIPv6
                   monitoring."
          ::= { mip6Groups 1 }

     mip6BindingCacheGroup     OBJECT-GROUP
         OBJECTS {
                  mip6BindingCOAType,
                  mip6BindingCOA,
                  mip6BindingTimeRegistered,
                  mip6BindingTimeGranted,
                  mip6BindingTimeRemaining,
                  mip6BindingMaxSeq,
                  mip6BindingHomeRegn,
                  mip6BindingUsageTS,
                  mip6BindingUsageCount,
                  mip6BindingAdminStatus
         }
          STATUS  current
          DESCRIPTION
                 " A collection of objects for monitoring the
                   Binding cache.
                 "
          ::= { mip6Groups 2 }
```

      mip6BindingHstGroup   OBJECT-GROUP
          OBJECTS {
                   mip6BindingHstCOAType,
                   mip6BindingHstCOA,
                   mip6BindingHstTimeRegistered,
                   mip6BindingHstTimeExpired,
                   mip6BindingHstHomeRegn,
                   mip6BindingHstUsageTS,
                   mip6BindingHstUsageCount
          }
           STATUS current
           DESCRIPTION
                   " A collection of objects for monitoring the
                     binding history. This can be used to monitor
                     the movement of the mobile node.
                   "
          ::= { mip6Groups 3 }

     mip6TotalTrafficGroup   OBJECT-GROUP
          OBJECTS {
                   mip6InOctets,
                   mip6HCInOctets,
                   mip6InPkts,
                   mip6HCInPkts,
                   mip6OutOctets,
                   mip6HCOutOctets,
                   mip6OutPkts,
                   mip6HCOutPkts,
                   mip6CounterDiscontinuityTime
          }
           STATUS current
           DESCRIPTION
                   " A collection of objects for monitoring the
                     total MIPv6 traffic.
                   "
          ::= { mip6Groups 4 }

```
mip6NodeTrafficGroup    OBJECT-GROUP
    OBJECTS {
              mip6NodeInOctets,
              mip6HCNodeInOctets,
              mip6NodeInPkts,
              mip6HCNodeInPkts,
              mip6NodeOutOctets,
              mip6HCNodeOutOctets,
              mip6NodeOutPkts,
              mip6HCNodeOutPkts,
              mip6NodeCtrDiscontinuityTime
    }
     STATUS  current
     DESCRIPTION
              " A collection of objects for monitoring the
                MIPv6 traffic due to a mobile node.
              "
     ::= { mip6Groups 5 }

mip6MnSystemGroup    OBJECT-GROUP
    OBJECTS {
              mip6MnHomeAddressState
    }
     STATUS  current
     DESCRIPTION
              " A collection of objects for basic monitoring
                of the mobile node.
              "
     ::= { mip6Groups 6 }

mip6MnConfGroup   OBJECT-GROUP
    OBJECTS {
              mip6MnDiscoveryRequests,
              mip6MnDiscoveryReplies,
              mip6MnDiscoveryTimeouts,
              mip6MnPrefixSolicitationsSent,
              mip6MnPrefixAdvsRecd,
              mip6MnPrefixAdvsIgnored,
              mip6MnMovedToFN,
              mip6MnMovedToHN
    }
     STATUS  current
     DESCRIPTION
              " A collection of objects for monitoring
                the advertisement related info on the
                mobile node.
              "
     ::= { mip6Groups 7 }
```

       mip6MnRegistrationGroup OBJECT-GROUP
           OBJECTS {
                       mip6MnBLCOAType,
                       mip6MnBLCOA,
                       mip6MnBLLifeTimeRequested,
                       mip6MnBLLifeTimeGranted,
                       mip6MnBLMaxSeq,
                       mip6MnBLTimeSent,
                       mip6MnBLAccepted,
                       mip6MnBLAcceptedTime,
                       mip6MnBLRetransmissions,
                       mip6MnBLDontSendBUFlag,
                    --
                    -- Binding Update List
                    --
                       mip6MnMobilityMessagesSent,
                       mip6MnMobilityMessagesRecd,
                       mip6MnBUsToHA,
                       mip6MnBUAcksFromHA,
                       mip6MnBUsToCN,
                       mip6MnBUAcksFromCN,
                       mip6MnBindingErrorsFromCN,
                       mip6MnICMPErrorsRecd,
                       mip6MnBRRequestsRecd
           }
            STATUS current
            DESCRIPTION
                    " A collection of objects for monitoring
                      the registration statistics for the mobile node.
                    "
           ::= { mip6Groups 8 }

      mip6CnStatsGroup   OBJECT-GROUP
          OBJECTS {
                  mip6CnBURequestsAccepted,
                  mip6CnBURequestsRejected,
                  mip6CnBCEntryCreationTime,
                  mip6CnBUAcceptedTime,
                  mip6CnBURejectionTime,
                  mip6CnBURejectionCode,
                  mip6CnCtrDiscontinuityTime
          }
           STATUS current
           DESCRIPTION
                  " A collection of objects for monitoring
                    the control messages and corresponding
                    statistics for each mobile node
                    communicating with the correspondent
                    node.
                  "
          ::= { mip6Groups 9 }

      mip6HaSystemGroup   OBJECT-GROUP
          OBJECTS {
                  mip6HaAdvsRecd,
                  mip6HaAdvsSent,
                  mip6HaAdvPreference,
                  mip6HaAdvLifetime,
                  mip6HaPrefixAdv,
                  mip6HaPrefixSolicitation,
                  mip6HaMCastCtlMsgSupport
          }
           STATUS current
           DESCRIPTION
                  " A collection of objects for monitoring
                    the Advertisement related parameters and
                    statistics for the home agent.
                  "
          ::= { mip6Groups 10 }

```
mip6HaListGroup   OBJECT-GROUP
    OBJECTS {
            mip6HaPreference,
            mip6HaRecvLifeTime,
            mip6HaRecvTimeStamp,
            mip6HaGaGlobalAddressType,
            mip6HaGaGlobalAddress
    }
     STATUS  current
     DESCRIPTION
            " A collection of objects for monitoring
              Home Agent List on the home agent.
            "
     ::= { mip6Groups 11 }

mip6HaStatsGroup   OBJECT-GROUP
    OBJECTS {
            mip6HaBURequestsAccepted,
            mip6HaBURequestsDenied,
            mip6HaBCEntryCreationTime,
            mip6HaBUAcceptedTime,
            mip6HaBURejectionTime,
            mip6HaRecentBURejectionCode,
            mip6HaCtrDiscontinuityTime

    }
     STATUS  current
     DESCRIPTION
            " A collection of objects for monitoring
              registration related statistics on the home agent.
            "
     ::= { mip6Groups 12 }
```

```
mip6CnGlobalStatsGroup    OBJECT-GROUP
   OBJECTS {
               mip6CnHomeTestInitsRecd,
               mip6CnHomeTestsSent,
               mip6CnCareOfTestInitsRecd,
               mip6CnCareOfTestsSent,
               mip6CnBUsRecd,
               mip6CnBUAcksSent,
               mip6CnBRsSent,
               mip6CnBindingErrors,
               mip6CnBUsAccepted,
               mip6CnBUsRejected,
               mip6CnReasonUnspecified,
               mip6CnInsufficientResource,
               mip6CnHomeRegnNotSupported,
               mip6CnSeqNumberOutOfWindow,
               mip6CnExpiredHomeNonceIndex,
               mip6CnExpiredCareOfNonceIndex,
               mip6CnExpiredNonce,
               mip6CnRegTypeChangeDisallowed
   }
    STATUS  current
    DESCRIPTION
            " A collection of objects for monitoring
              advertisement and registration statistics on
              a correspondent node.
            "
    ::= { mip6Groups 13 }
```

```
mip6HaGlobalStatsGroup   OBJECT-GROUP
   OBJECTS {
            mip6HaHomeTestInitsRecd,
            mip6HaHomeTestsSent,
            mip6HaBUsRecd,
            mip6HaBUAcksSent,
            mip6HaBRAdviceSent,
            mip6HaBUsAccepted,
            mip6HaPrefDiscoverReqd,
            mip6HaReasonUnspecified,
            mip6HaAdmProhibited,
            mip6HaInsufficientResource,
            mip6HaHomeRegnNotSupported,
            mip6HaNotHomeSubnet,
            mip6HaNotHomeAgentForThisMN,
            mip6HaDupAddrDetectionFailed,
            mip6HaSeqNumberOutOfWindow,
            mip6HaExpiredHomeNonceIndex,
            mip6HaRegTypeChangeDisallowed

   }
    STATUS  current
    DESCRIPTION
            " A collection of objects for monitoring
              advertisement and registration statistics on
              a home agent.
            "
    ::= { mip6Groups 14 }

mip6BindingCacheCtlGroup    OBJECT-GROUP
   OBJECTS {
            mip6BindingAdminStatus
   }
    STATUS  current
    DESCRIPTION
            "A collection of objects for controlling the
             Binding cache.
            "
    ::= { mip6Groups 15 }
```

```
mip6NotificationGroup   NOTIFICATION-GROUP
   NOTIFICATIONS {
            mip6MnRegistered,
            mip6MnDeRegistered,
            mip6MnCOAChanged,
            mip6MnBindingExpiredAtHA,
            mip6MnBindingExpiredAtCN
   }
    STATUS  current
    DESCRIPTION
            "A collection of notifications from a home agent
             or correspondent node to the Manager about the
             status of a mobile node.
            "
    ::= { mip6Groups 16 }
```


```
-- Compliance statements
```

```
mip6CoreCompliance MODULE-COMPLIANCE
    STATUS  current
    DESCRIPTION
            "The compliance statement for SNMP entities
             which implement the MOBILEIPV6-MIB.
            "
    MODULE  -- this module
        MANDATORY-GROUPS { mip6SystemGroup }

    ::= { mip6Compliances 1 }

mip6Compliance2 MODULE-COMPLIANCE
    STATUS  current
    DESCRIPTION
            "The compliance statement for SNMP entities
             which implement the MOBILEIPV6-MIB and support
             monitoring of the BindingCache and the Total
             Traffic.
             There are a number of INDEX objects that cannot be
             represented in the form of OBJECT clauses in SMIv2,
             but for which there are compliance requirements,
             expressed in OBJECT clause form in this description:
             -- OBJECT      mip6BindingHomeAddressType
             -- SYNTAX      InetAddressType { ipv6(2) }
             -- DESCRIPTION
             --     This MIB module requires support for global
             --     ipv6 addresses for the mip6BindingHomeAddress
             --     object.
             --
             -- OBJECT      mip6BindingHomeAddress
             -- SYNTAX      InetAddress (SIZE(16))
             -- DESCRIPTION
             --     This MIB module requires support for global
             --     ipv6 addresses for the mip6BindingHomeAddress
             --     object.
             --
            "
    MODULE  -- this module
        MANDATORY-GROUPS { mip6SystemGroup,
                           mip6BindingCacheGroup,
                           mip6TotalTrafficGroup
                          }
    ::= { mip6Compliances 2 }
```

          mip6Compliance3 MODULE-COMPLIANCE
              STATUS   current
              DESCRIPTION
                      "The compliance statement for SNMP entities
                       which implement the MOBILEIPV6-MIB and
                       support monitoring of the BindingCache,
                       the Binding History, the total traffic and
                       the mobile node-wide traffic.
                       There are a number of INDEX objects that cannot be
                       represented in the form of OBJECT clauses in SMIv2,
                       but for which there are compliance requirements,
                       expressed in OBJECT clause form in this description:
                       -- OBJECT   mip6BindingHomeAddressType
                       -- SYNTAX   InetAddressType { ipv6(2) }
                       -- DESCRIPTION
                       --   This MIB module requires support for global
                       --   ipv6 addresses for the mip6BindingHomeAddress
                       --   object.
                       --
                       -- OBJECT   mip6BindingHomeAddress
                       -- SYNTAX   InetAddress (SIZE(16))
                       -- DESCRIPTION
                       --   This MIB module requires support for global
                       --   ipv6 addresses for the mip6BindingHomeAddress
                       --   object.
                       --
                       -- OBJECT   mip6BindingHstHomeAddressType
                       -- SYNTAX   InetAddressType { ipv6(2) }
                       -- DESCRIPTION
                       --   This MIB module requires support for global
                       --   ipv6 addresses for the
                       --   mip6BindingHstHomeAddress object.
                       --
                       -- OBJECT   mip6BindingHstHomeAddress
                       -- SYNTAX   InetAddress (SIZE(16))
                       -- DESCRIPTION
                       --   This MIB module requires support for global
                       --   ipv6 addresses for the
                       --   mip6BindingHstHomeAddress object.
                       --
                      "
              MODULE -- this module
                  MANDATORY-GROUPS { mip6SystemGroup,
                                     mip6BindingCacheGroup,
                                     mip6BindingHstGroup,
                                     mip6TotalTrafficGroup,
                                     mip6NodeTrafficGroup
                                   }

```
        ::= { mip6Compliances 3 }


mip6CoreReadOnlyCompliance MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
               "The compliance statement for SNMP entities
                which implement the MOBILEIPV6-MIB without support
                for read-write (i.e. in read-only mode) .
               "
        MODULE  -- this module
            MANDATORY-GROUPS { mip6SystemGroup }

        OBJECT      mip6Status
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."

        ::= { mip6Compliances 4 }

mip6ReadOnlyCompliance2 MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
               "The compliance statement for SNMP entities
                which implement the MOBILEIPV6-MIB without support
                for read-write (i.e. in read-only mode) and,
                support monitoring of the BindingCache and Total
                Traffic.
                There are a number of INDEX objects that cannot be
                represented in the form of OBJECT clauses in SMIv2,
                but for which there are compliance requirements,
                expressed in OBJECT clause form in this description:
                -- OBJECT      mip6BindingHomeAddressType
                -- SYNTAX      InetAddressType { ipv6(2) }
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     ipv6 addresses for the mip6BindingHomeAddress
                --     object.
                --
                -- OBJECT      mip6BindingHomeAddress
                -- SYNTAX      InetAddress (SIZE(16))
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     ipv6 addresses for the mip6BindingHomeAddress
                --     object.
                --
               "
        MODULE  -- this module
```

```
             MANDATORY-GROUPS { mip6SystemGroup,
                                mip6BindingCacheGroup,
                                mip6TotalTrafficGroup
                                 }
          OBJECT       mip6Status
          MIN-ACCESS   read-only
          DESCRIPTION
                "Write access is not required."

          OBJECT       mip6BindingAdminStatus
          MIN-ACCESS   read-only
          DESCRIPTION
                "Write access is not required."
          ::= { mip6Compliances 5 }

     mip6ReadOnlyCompliance3 MODULE-COMPLIANCE
          STATUS   current
          DESCRIPTION
                "The compliance statement for SNMP entities
                 which implement the MOBILEIPV6-MIB without support
                 for read-write (i.e. in read-only mode) and, support
                 monitoring of the BindingCache, the Binding History,
                 the total traffic and the mobile node-wide traffic.
                 There are a number of INDEX objects that cannot be
                 represented in the form of OBJECT clauses in SMIv2,
                 but for which there are compliance requirements,
                 expressed in OBJECT clause form in this description:
                 -- OBJECT       mip6BindingHomeAddressType
                 -- SYNTAX       InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     ipv6 addresses for the mip6BindingHomeAddress
                 --     object.
                 --
                 -- OBJECT       mip6BindingHomeAddress
                 -- SYNTAX       InetAddress (SIZE(16))
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     ipv6 addresses for the mip6BindingHomeAddress
                 --     object.
                 --
                 -- OBJECT       mip6BindingHstHomeAddressType
                 -- SYNTAX       InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     ipv6 addresses for the
                 --     mip6BindingHstHomeAddress object.
                 --
```

```
                -- OBJECT       mip6BindingHstHomeAddress
                -- SYNTAX       InetAddress (SIZE(16))
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     ipv6 addresses for the
                --     mip6BindingHstHomeAddress object.
                --
             "
       MODULE  -- this module
           MANDATORY-GROUPS { mip6SystemGroup,
                              mip6BindingCacheGroup,
                              mip6BindingHstGroup,
                              mip6TotalTrafficGroup,
                              mip6NodeTrafficGroup
                            }
       OBJECT     mip6Status
       MIN-ACCESS  read-only
       DESCRIPTION
             "Write access is not required."

       OBJECT     mip6BindingAdminStatus
       MIN-ACCESS  read-only
       DESCRIPTION
             "Write access is not required."
       ::= { mip6Compliances 6 }

    mip6MnCoreCompliance MODULE-COMPLIANCE
       STATUS  current
       DESCRIPTION
             "The compliance statement for SNMP entities
              which implement the MOBILEIPV6-MIB and
              support monitoring of the basic mobile node
              functionality.
              There are a number of INDEX objects that cannot be
              represented in the form of OBJECT clauses in SMIv2,
              but for which there are compliance requirements,
              expressed in OBJECT clause form in this description:
              -- OBJECT       mip6MnHomeAddressType
              -- SYNTAX       InetAddressType { ipv6(2) }
              -- DESCRIPTION
              --     This MIB module requires support for global
              --     ipv6 addresses for the mip6MnHomeAddress
              --     object.
              --
              -- OBJECT       mip6MnHomeAddress
              -- SYNTAX       InetAddress (SIZE(16))
              -- DESCRIPTION
              --     This MIB module requires support for global
```

```
                    --       ipv6 addresses for the mip6MnHomeAddress
                    --       object.
                    --
                "
        MODULE  -- this module
            MANDATORY-GROUPS { mip6MnSystemGroup
                                }
        ::= { mip6Compliances 7 }

    mip6MnCompliance2 MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
                "The compliance statement for SNMP entities
                 which implement the MOBILEIPV6-MIB and
                 support monitoring of the mobile node
                 functionality specifically the Discovery and
                 Registration related statistics,
                 There are a number of INDEX objects that cannot be
                 represented in the form of OBJECT clauses in SMIv2,
                 but for which there are compliance requirements,
                 expressed in OBJECT clause form in this description:
                 -- OBJECT      mip6MnHomeAddressType
                 -- SYNTAX      InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --      This MIB module requires support for global
                 --      ipv6 addresses for the mip6MnHomeAddress
                 --      object.
                 --
                 -- OBJECT      mip6MnHomeAddress
                 -- SYNTAX      InetAddress (SIZE(16))
                 -- DESCRIPTION
                 --      This MIB module requires support for global
                 --      ipv6 addresses for the mip6MnHomeAddress
                 --      object.
                 --
                 -- OBJECT      mip6MnBLNodeAddressType
                 -- SYNTAX      InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --      This MIB module requires support for global
                 --      ipv6 addresses for the mip6MnBLNodeAddress
                 --      object.
                 --
                 -- OBJECT      mip6MnBLNodeAddress
                 -- SYNTAX      InetAddress (SIZE(16))
                 -- DESCRIPTION
                 --      This MIB module requires support for global
                 --      ipv6 addresses for the mip6MnBLNodeAddress
                 --      object.
```

```
                        --
                      "
              MODULE  -- this module
                  MANDATORY-GROUPS { mip6MnSystemGroup,
                                     mip6MnConfGroup,
                                     mip6MnRegistrationGroup,
                                     mip6TotalTrafficGroup
                                   }
              ::= { mip6Compliances 8 }

      mip6CnCoreCompliance MODULE-COMPLIANCE
              STATUS  current
              DESCRIPTION
                      "The compliance statement for SNMP entities
                       which implement the MOBILEIPV6-MIB and
                       support monitoring of the basic correspondent node
                       functionality.
                      "
              MODULE  -- this module
                  MANDATORY-GROUPS { mip6CnGlobalStatsGroup,
                                     mip6TotalTrafficGroup
                                   }
              ::= { mip6Compliances 9 }

      mip6CnCompliance MODULE-COMPLIANCE
              STATUS  current
              DESCRIPTION
                      "The compliance statement for SNMP entities
                       which implement the MOBILEIPV6-MIB and
                       support monitoring of the basic correspondent node
                       functionality.
                       There are a number of INDEX objects that cannot be
                       represented in the form of OBJECT clauses in SMIv2,
                       but for which there are compliance requirements,
                       expressed in OBJECT clause form in this description:
                       -- OBJECT      mip6BindingHomeAddressType
                       -- SYNTAX      InetAddressType { ipv6(2) }
                       -- DESCRIPTION
                       --     This MIB module requires support for global
                       --     ipv6 addresses for the mip6BindingHomeAddress
                       --     object.
                       --
                       -- OBJECT      mip6BindingHomeAddress
                       -- SYNTAX      InetAddress (SIZE(16))
                       -- DESCRIPTION
                       --     This MIB module requires support for global
                       --     ipv6 addresses for the mip6BindingHomeAddress
                       --     object.
```

```
                   "
            MODULE  -- this module
                MANDATORY-GROUPS { mip6CnGlobalStatsGroup,
                                   mip6CnStatsGroup,
                                   mip6TotalTrafficGroup
                                 }
            ::= { mip6Compliances 10 }

      mip6HaCoreCompliance MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                   "The compliance statement for SNMP entities
                    which implement the MOBILEIPV6-MIB and
                    support monitoring of the basic home agent
                    functionality.
                   "
            MODULE  -- this module
                MANDATORY-GROUPS { mip6HaSystemGroup
                                 }
            ::= { mip6Compliances 11 }

      mip6HaCompliance2 MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                   "The compliance statement for SNMP entities
                    which implement the MOBILEIPV6-MIB and
                    support monitoring of the home agent
                    functionality specifically the Home Agent List
                    and the home agent registration related statistics,
                    There are a number of INDEX objects that cannot be
                    represented in the form of OBJECT clauses in SMIv2,
                    but for which there are compliance requirements,
                    expressed in OBJECT clause form in this description:
                    -- OBJECT      mip6BindingHomeAddressType
                    -- SYNTAX      InetAddressType { ipv6(2) }
                    -- DESCRIPTION
                    --     This MIB module requires support for global
                    --     ipv6 addresses for the mip6BindingHomeAddress
                    --     object.
                    --
                    -- OBJECT      mip6BindingHomeAddress
                    -- SYNTAX      InetAddress (SIZE(16))
                    -- DESCRIPTION
                    --     This MIB module requires support for global
                    --     ipv6 addresses for the mip6BindingHomeAddress
                    --     object.
                    --
                    -- OBJECT      mip6HaLinkLocalAddressType
```

```
                    -- SYNTAX       InetAddressType { ipv6z(4) }
                    -- DESCRIPTION
                    --      This MIB module requires support for local
                    --      ipv6 addresses for the mip6HaLinkLocalAddress
                    --      object
                    --
                    -- OBJECT       mip6HaLinkLocalAddress
                    -- SYNTAX       InetAddress (SIZE(20))
                    -- DESCRIPTION
                    --      This MIB module requires support for local
                    --      ipv6 addresses for the mip6HaLinkLocalAddress
                    --      object.
                    --
                "
        MODULE  -- this module
            MANDATORY-GROUPS { mip6HaSystemGroup,
                               mip6HaListGroup,
                               mip6HaStatsGroup,
                               mip6HaGlobalStatsGroup,
                               mip6TotalTrafficGroup
                              }
        ::= { mip6Compliances 12 }

    mip6HaCompliance3 MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
                "The compliance statement for SNMP entities
                 which implement the MOBILEIPV6-MIB and
                 support monitoring and control of the home agent
                 functionality specifically the Home Agent List
                 and the home agent registration related statistics,

                 There are a number of INDEX objects that cannot be
                 represented in the form of OBJECT clauses in SMIv2,
                 but for which there are compliance requirements,
                 expressed in OBJECT clause form in this description:
                 -- OBJECT       mip6BindingHomeAddressType
                 -- SYNTAX       InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --      This MIB module requires support for global
                 --      ipv6 addresses for the mip6BindingHomeAddress
                 --      object.
                 --
                 -- OBJECT       mip6BindingHomeAddress
                 -- SYNTAX       InetAddress (SIZE(16))
                 -- DESCRIPTION
                 --      This MIB module requires support for global
                 --      ipv6 addresses for the mip6BindingHomeAddress
```

```
                        --     object.
                        --
                        -- OBJECT      mip6HaLinkLocalAddressType
                        -- SYNTAX      InetAddressType { ipv6z(4) }
                        -- DESCRIPTION
                        --     This MIB module requires support for local
                        --     ipv6 addresses for the mip6HaLinkLocalAddress
                        --     object
                        --
                        -- OBJECT      mip6HaLinkLocalAddress
                        -- SYNTAX      InetAddress (SIZE(20))
                        -- DESCRIPTION
                        --     This MIB module requires support for local
                        --     ipv6 addresses for the mip6HaLinkLocalAddress
                        --     object.
                        --
                        "
              MODULE  -- this module
                  MANDATORY-GROUPS { mip6HaSystemGroup,
                                     mip6HaListGroup,
                                     mip6HaStatsGroup,
                                     mip6HaGlobalStatsGroup,
                                     mip6BindingCacheCtlGroup,
                                     mip6TotalTrafficGroup
                                    }
              ::= { mip6Compliances 13 }
```

      mip6HaCoreReadOnlyCompliance MODULE-COMPLIANCE
          STATUS current
          DESCRIPTION
                "The compliance statement for SNMP entities
                 which implement the MOBILEIPV6-MIB without support
                 for read-write (i.e. in read-only mode) and,
                 support monitoring of the basic home agent
                 functionality.
                "
          MODULE -- this module
              MANDATORY-GROUPS { mip6HaSystemGroup
                               }
          OBJECT   mip6HaAdvPreference
          MIN-ACCESS read-only
          DESCRIPTION
                "Write access is not required."

          OBJECT   mip6HaAdvLifetime
          MIN-ACCESS read-only
          DESCRIPTION
                "Write access is not required."

          OBJECT   mip6HaPrefixAdv
          MIN-ACCESS read-only
          DESCRIPTION
                "Write access is not required."

          OBJECT   mip6HaPrefixSolicitation
          MIN-ACCESS read-only
          DESCRIPTION
                "Write access is not required."

          OBJECT   mip6HaMCastCtlMsgSupport
          MIN-ACCESS read-only
          DESCRIPTION
                "Write access is not required."

          ::= { mip6Compliances 14 }

```
      mip6HaReadOnlyCompliance2 MODULE-COMPLIANCE
           STATUS   current
           DESCRIPTION
                   "The compliance statement for SNMP entities
                    which implement the MOBILEIPV6-MIB without support
                    for read-write (i.e. in read-only mode) and,
                    support monitoring of the home agent
                    functionality specifically the Home Agent List
                    and the home agent registration related statistics,

                    There are a number of INDEX objects that cannot be
                    represented in the form of OBJECT clauses in SMIv2,
                    but for which there are compliance requirements,
                    expressed in OBJECT clause form in this description:
                    -- OBJECT       mip6BindingHomeAddressType
                    -- SYNTAX       InetAddressType { ipv6(2) }
                    -- DESCRIPTION
                    --      This MIB module requires support for global
                    --      ipv6 addresses for the mip6BindingHomeAddress
                    --      object.
                    --
                    -- OBJECT       mip6BindingHomeAddress
                    -- SYNTAX       InetAddress (SIZE(16))
                    -- DESCRIPTION
                    --      This MIB module requires support for global
                    --      ipv6 addresses for the mip6BindingHomeAddress
                    --      object.
                    --
                    -- OBJECT       mip6HaLinkLocalAddressType
                    -- SYNTAX       InetAddressType { ipv6z(4) }
                    -- DESCRIPTION
                    --      This MIB module requires support for local
                    --      ipv6 addresses for the mip6HaLinkLocalAddress
                    --      object
                    --
                    -- OBJECT       mip6HaLinkLocalAddress
                    -- SYNTAX       InetAddress (SIZE(20))
                    -- DESCRIPTION
                    --      This MIB module requires support for local
                    --      ipv6 addresses for the mip6HaLinkLocalAddress
                    --      object.
                    --
                   "
           MODULE  -- this module
               MANDATORY-GROUPS { mip6HaSystemGroup,
                                  mip6HaListGroup,
                                  mip6HaStatsGroup,
                                  mip6HaGlobalStatsGroup,
```

                            mip6TotalTrafficGroup
                         }

         OBJECT   mip6HaAdvPreference
         MIN-ACCESS read-only
         DESCRIPTION
             "Write access is not required."

         OBJECT   mip6HaAdvLifetime
         MIN-ACCESS read-only
         DESCRIPTION
             "Write access is not required."

         OBJECT   mip6HaPrefixAdv
         MIN-ACCESS read-only
         DESCRIPTION
             "Write access is not required."

         OBJECT   mip6HaPrefixSolicitation
         MIN-ACCESS read-only
         DESCRIPTION
             "Write access is not required."

         OBJECT   mip6HaMCastCtlMsgSupport
         MIN-ACCESS read-only
         DESCRIPTION
             "Write access is not required."

         ::= { mip6Compliances 15 }

       mip6HaReadOnlyCompliance3 MODULE-COMPLIANCE
            STATUS   current
            DESCRIPTION
                 "The compliance statement for SNMP entities
                  which implement the MOBILEIPV6-MIB without support
                  for read-write (i.e. in read-only mode) and,
                  support monitoring and control of the home agent
                  functionality specifically the Home Agent List
                  and the home agent registration related statistics,

                  There are a number of INDEX objects that cannot be
                  represented in the form of OBJECT clauses in SMIv2,
                  but for which there are compliance requirements,
                  expressed in OBJECT clause form in this description:
                  -- OBJECT   mip6BindingHomeAddressType
                  -- SYNTAX   InetAddressType { ipv6(2) }
                  -- DESCRIPTION
                  --   This MIB module requires support for global
                  --   ipv6 addresses for the mip6BindingHomeAddress
                  --   object.
                  --
                  -- OBJECT   mip6BindingHomeAddress
                  -- SYNTAX   InetAddress (SIZE(16))
                  -- DESCRIPTION
                  --   This MIB module requires support for global
                  --   ipv6 addresses for the mip6BindingHomeAddress
                  --   object.
                  --
                  -- OBJECT   mip6HaLinkLocalAddressType
                  -- SYNTAX   InetAddressType { ipv6z(4) }
                  -- DESCRIPTION
                  --   This MIB module requires support for local
                  --   ipv6 addresses for the mip6HaLinkLocalAddress
                  --   object
                  --
                  -- OBJECT   mip6HaLinkLocalAddress
                  -- SYNTAX   InetAddress (SIZE(20))
                  -- DESCRIPTION
                  --   This MIB module requires support for local
                  --   ipv6 addresses for the mip6HaLinkLocalAddress
                  --   object.
                  --
                 "
            MODULE -- this module
                MANDATORY-GROUPS { mip6HaSystemGroup,
                                   mip6HaListGroup,
                                   mip6HaStatsGroup,
                                   mip6HaGlobalStatsGroup,

```
                                mip6BindingCacheCtlGroup,
                                mip6TotalTrafficGroup
                               }

        OBJECT      mip6HaAdvPreference
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."

        OBJECT      mip6HaAdvLifetime
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."

        OBJECT      mip6HaPrefixAdv
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."

        OBJECT      mip6HaPrefixSolicitation
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."

        OBJECT      mip6HaMCastCtlMsgSupport
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."

        OBJECT      mip6BindingAdminStatus
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."

        ::= { mip6Compliances 16 }

   mip6NotificationCompliance MODULE-COMPLIANCE
       STATUS  current
       DESCRIPTION
              "The compliance statement for SNMP entities
               which implement the MOBILEIPV6-MIB and
               support Notification from home agent or
               correspondent node to management stations
               about the mobile node status.
               There are a number of INDEX objects that cannot be
               represented in the form of OBJECT clauses in SMIv2,
               but for which there are compliance requirements,
               expressed in OBJECT clause form in this description:
```

```
                    -- OBJECT       mip6BindingHomeAddressType
                    -- SYNTAX       InetAddressType { ipv6(2) }
                    -- DESCRIPTION
                    --     This MIB module requires support for global
                    --     ipv6 addresses for the mip6BindingHomeAddress
                    --     object.
                    --
                    -- OBJECT       mip6BindingHomeAddress
                    -- SYNTAX       InetAddress (SIZE(16))
                    -- DESCRIPTION
                    --     This MIB module requires support for global
                    --     ipv6 addresses for the mip6BindingHomeAddress
                    --     object.
                 "
         MODULE  -- this module
             MANDATORY-GROUPS { mip6NotificationGroup
                               }
         ::= { mip6Compliances 17 }


     END
```

[6]. **Security Considerations**

There are a number of management objects defined in this MIB module
with a MAX-ACCESS clause of read-write. Such objects may be
considered sensitive or vulnerable in some network environments. The
support for SET operations in a non-secure environment without proper
protection can have a negative effect on network operations. These
are the tables and objects and the corresponding
sensitivity/vulnerability:
     mip6Status: The value of this object is used to enable or
                   disable the MIPv6 functionality on a MIPv6 entity.
                   Access to this MO may be abused to disrupt the
                   MIPv6 communication.
     mip6HaAdvPreference: Access to this object may be abused to
                   force MNs into selecting the wrong HA.
     mip6HaAdvLifetime: Access to this object may be abused to set
                   the advertised lifetime to incorrect values. That
                   will have an adverse impact on the MIPv6
                   communication.
     mip6BindingAdminStatus: The value of this object is used to
                   control the status of a binding cache entry.
                   Access to this object may be abused to deny mobile
                   IPv6 connectivity to a legitimate user or, to
                   grant Mobile IPv6 connectivity to an illegal user.
     mip6HaPrefixAdv: The value of this object indicates whether
                   the home agent will send ICMP Mobile Prefix
                   Advertisements to the mobile node.
                   Access to this object may be abused to send
                   unwanted/wrong prefix information or to deny the
                   mobile node from receiving information about the
                   changes in the home prefixes.
                   This may result in disruption of the Mobile IPv6
                   connectivity.
     mip6HaPrefixSolicitation: The value of this object indicates
                   whether the home agent should respond to ICMP
                   Mobile Prefix Solicitation messages from a mobile
                   node. Access to this object may be abused to deny
                   the mobile node information about its home prefix.
                   This may result in disruption of the Mobile IPv6
                   connectivity.
     mip6HaMCastCtlMsgSupport: The value of this object decides
                   whether the home agent should process the
                   multicast group membership control messages it
                   receives from mobile nodes. Access to this object
                   maybe used to subvert administrate policy on
                   multicasting, or to disrupt the multicast
                   communication with the mobile node.

Some of the readable objects in this MIB module (i.e., objects with a
MAX-ACCESS other than not-accessible) may be considered sensitive or
vulnerable in some network environments. It is thus important to
control even GET and/or NOTIFY access to these objects and possibly
to even encrypt the values of these objects when sending them over
the network via SNMP. These are the tables and objects and their
sensitivity/vulnerability:

 The address related objects in this MIB may be considered to be
 particularly sensitive and/or private. The care-of address related
 objects reveal the location and movement of the mobile node. This
 information may be considered to be private and sensitive and must
 be carefully handled.
      mip6BindingHstCOAType
      mip6BindingHstCOA
      mip6MnBLCOAType
      mip6MnBLCOA

 The mobile node's home address and home agent related information
 may be considered to be sensitive too as these may provide clues to
 a malicious party on ways to disrupt the mobile nodes communication
 channels.
      mip6BindingHstHomeAddressType,
      mip6BindingHstHomeAddress,
      mip6MnHomeAddressType,
      mip6MnHomeAddress

 The correspondent node's addresses related MOs will reveal the nodes
 with whom the mobile node is corresponding. This information may be
 considered private and sensitive.
      mip6MnBLNodeAddressType,
      mip6MnBLNodeAddress

SNMP versions prior to SNMPv3 did not include adequate security.
Even if the network itself is secure (for example by using IPSec),
even then, there is no control as to who on the secure network is
allowed to access and GET/SET (read/change/create/delete) the objects
in this MIB module.

It is RECOMMENDED that implementers consider the security features as
provided by the SNMPv3 framework (see [RFC3410], section 8),
including full support for the SNMPv3 cryptographic mechanisms (for
authentication and privacy).

Further, deployment of SNMP versions prior to SNMPv3 is NOT
RECOMMENDED. Instead, it is RECOMMENDED to deploy SNMPv3 and to
enable cryptographic security. It is then a customer/operator

responsibility to ensure that the SNMP entity giving access to an
instance of this MIB module is properly configured to give access to
the objects only to those principals (users) that have legitimate
rights to indeed GET or SET (change/create/delete) them.

7. IANA Considerations

IANA should assign a base arc in the 'mib-2' (standards track) OID
tree for the 'mip6MIB' MODULE-IDENTITY defined in the Mobile-IPv6
MIB.

8. References

8.1 Normative References

[RFC2119]   Bradner, S., Key words for use in RFCs to Indicate
              Requirements Levels, BCP 14, RFC 2119, March 1997.

[RFC2578]   McCloghrie, K., Perkins, D., Schoenwaelder, J., Case,
              J., Rose, M. and S. Waldbusser, Structure of
              Management Information Version 2 (SMIv2), STD 58,
              RFC 2578, April 1999.

[RFC2579]   McCloghrie, K., Perkins, D., Schoenwaelder, J., Case,
              J., Rose, M. and S. Waldbusser, Textual Conventions
              for SMIv2, STD 58, RFC 2579, April 1999.

[RFC2580]   McCloghrie, K., Perkins, D., Schoenwaelder, J., Case,
              J., Rose, M. and S. Waldbusser, Conformance
              Statements for SMIv2, STD 58, RFC 2580, April 1999.

[RFC3775]   Johnson, D., Perkins, C. and Arkko J., Mobility
              Support in IPv6 RFC 3775, June 2004.

[RFC2011bis] Routhier, S., Management Information Base for the
              Internet Protocol (IP), work in progress (currently
              <draft-ietf-ipv6-rfc2011-update-10.txt>).

[RFC3291bis] Daniele, M., Haberman, B., Routhier, S. and
              Schoenwaelder, J., Textual Conventions for Internet
              Network Addresses, work in progress (currently
              <draft-ietf-ops-rfc3291bis-06.txt>).

8.2 Informative References

[RFC3410]   Case, J., Mundy, R., Partain, D. and B. Stewart,
              Introduction and Applicability Statements for
              Internet-Standard Management Framework, RFC 3410,
              December 2002.

9. Acknowledgments

The following groups and individuals have contributed to this draft
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Acknowledgment

Changes since draft-ietf-mip6-mipv6-mib-06.txt
a. Fixed the DESCRIPTION of mip6BindingCacheTable
     reworded second paragraph to
     "Entries in this table are not required to survive
      a reboot of the managed entity."
b. Fixed the DESCRIPTION of mip6HaCoreReadOnlyCompliance
     Irrelevant pseudo-OBJECTS clauses have been removed.
c. Editorial nits

Changes since draft-ietf-mip6-mipv6-mib-05.txt
a. Fixed REFERENCE of mip6Capabilities
     RFC3775 : Section 3.2, 4.1
b. Added text in descriptions about the read-write objects
     mip6Status:
                 The value of this object SHOULD remain unchanged
                 across reboots of the managed entity.
     mip6BindingCacheTable:
                 The values of the mip6BindingAdminStatus object
                 in the conceptual rows of this table will be
                 flushed after reboots of the managed entity.

c. Fixed SYNTAX of mip6BindingUsageCount   to Gauge32
d. Fixed SYNTAX of mip6BindingMaxSeq   to Unsigned32 (0..65536)
e. Fixed SYNTAX of mip6BindingHstUsageCount to Gauge32
f. Fixed SYNTAX of mip6HCInOctets   to Counter64
         SYNTAX of mip6HCInPkts   to Counter64
         SYNTAX of mip6HCOutOctets   to Counter64
         SYNTAX of mip6HCOutPkts   to Counter64
         SYNTAX of mip6HCOutPkts   to Counter64
g. Fixed SYNTAX of mip6MnBLRetransmissions to Gauge32
h. Added MO mip6MnBLDontSendBUFlag
    mip6MnBLDontSendBUFlag OBJECT-TYPE
        SYNTAX   TruthValue
        MAX-ACCESS   read-only
        STATUS   current
        DESCRIPTION
                "true(1) indicates that future binding updates
                 will not be sent to mip6MnBLNodeAddress.
                 false(2) implies that binding updates will be
                 sent to mip6MnBLNodeAddress.
                 The mobile node sets this flag in the when it
                 receives an ICMP Parameter Problem, Code 1,
                 error message in response to a return
                 routability message or Binding Update sent to
                 mip6MnBLNodeAddress.
                "
        REFERENCE
                "RFC3775 : Section 11.1"

```
           ::= { mip6MnBLEntry 12 }
```

   i. Fixed SYNTAX of mip6MnBLMaxSeq   to Unsigned32 (0..65536)
   j. Added REFERENCE for
      mip6CnBUsAccepted   "RFC3775 : Section 9.5.1, 9.5.4"
   k. Added the counter discontinuity clause in the DESCRIPTION of
      mip6HaAdvsRecd:
                    Discontinuities in the value of this counter can
                    occur at re-initialization of the management system,
                    and at other times as indicated by the value of
                    mip6CounterDiscontinuityTime.
   l. Fixed REFERENCE of mip6HaAdvsRecd   "RFC3775 : Section 7"
   m. Added text in DESCRIPTION about the read-write objects in
      mip6HaConfTable
                    It is RECOMMENDED that the last written values
                    of the objects in the conceptual rows of this
                    table will remain unchanged across reboots of
                    the managed entity provided that, the interfaces
                    have not been renumbered after the reboot.
   n. Added text in DESCRIPTION about behaviour of
      mip6HaPrefixAdv
                    The state can be changed from enabled(1) to
                    disabled(2) and vice versa by operator
                    intervention.
                    Causing the state to change from enabled(1) to
                    disabled(2) will result in the home agent
                    disabling the Prefix advertisement function.
                    On the other hand, changing the status from
                    disabled(2) to enabled(1) will start the prefix
                    advertisement funtion.
   o. Added text in DESCRIPTION of
      mip6HaGlAddrEntry
                    There is no upper-bound on the maximum number of
                    global addresses on an interface but, for practical
                    purposes the upper-bound of the value
                    mip6HaGaAddrSeqNo is set to 1024.
   p. Changed the MO name from mip6MnMoved to mip6MnCOAChanged
   q. Added REFERENCE to the Notification Object
      mip6MnRegistered
      mip6MnCOAChanged
      mip6MnBindingExpiredAtHA

   r. Clarified the DESCRIPTION of the Notification
      mip6MnRegistered
      mip6MnCOAChanged
      mip6MnBindingExpiredAtHA
                    This notification is sent by a home agent when
                    a mobile node registers with the home agent

                    for the first time.
   s. Fixed the DESCRIPTIONS of the compliances objects for the
      INDEX objects that cannot be represented in the form of
      OBJECT clauses in SMIv2,

   t. Editorial nits

   Changes since draft-ietf-mip6-mipv6-mib-04,txt
   a. Fixed the InetAddress/InetAddressType usage. Now there
      is provision for supporting protocols other than IPv6.
      - the statements constraining the InetAddressType ot
        ipv6(2) and ipv6z(4) have been removed from the
        DESCRIPTION clauses of the InetAddressType type MOs.
      - the statements constraining the InetAddress to a size
        of 16 and 20 octets have been removed from the
        DESCRIPTION clauses of the corresponding InetAddress
        type MOs.
      - the DESCRIPTION clauses of conceptual rows that have
        InetAddress type MOs as index have been revised to
        contain a note like-
           Implementors need to be aware that if the total
           number of octets in InetAddress type index MOs
           (e.g. mip6BindingHomeAddress) exceeds 113 then OIDs
           of column instances in this row will have more than
           128 sub-identifiers and cannot be accessed using
           SNMPv1, SNMPv2c, or SNMPv3.
      - fixed the DESCRIPTION of mip6BindingCOA.
           deleted the statement - A mobile node can have
           multiple care-of addresses. It is correct but not
           relevant in the context of the mip6BindingCacheEntry.
           There will be only one mip6BindingCOA for a
           mip6BindingHomeAddress.
      - editorial nits
   b. Nits fixed in References Section
      - included citation tag for IP-MIB [RFC2011bis]
      - included citation tag for INET-ADDRESS-MIB [RFC3291bis]
      - added RFC2119 to the references list
      - added RFC3291bis to the references list
      - changed citation tag from [MIPv6] to [RFC3775]
      - fixed the "Normative References" and "Informative References"
        section tags.

   c. Added OBJECT clause for mip6BindingAdminStatus that specifies
      a MIN-ACCESS of read-only for mip6HaReadOnlyCompliance3

   d. Fixed editorial nits

         -

    Changes since draft-ietf-mip6-mipv6-mib-03,txt

    a. Title changed to Mobile IPv6 Management Information Base
    b. Informative references cleaned up. Aligned with the latest
       MIB boilerplate. Unreferenced pointers removed.
    c. In the MOBILEIPV6-MIB replaced ipv6IfIndex by ipv6InterfaceIfIndex
       This object is now imported from IP-MIB
    d. Added normative reference for IP-MIB
    e. Added security considerations text for
          mip6BindingAdminStatus
          mip6HaPrefixAdv
          mip6HaPrefixSolicitation
          mip6HaMCastCtlMsgSupport
    f. Base type of Mipv6BURequestRejectionCode changed from BITS to
       enumerated integer.
    g. NOTIFICATION-GROUP imported and NOTIFICATION objects included
       in the mip6NotificationGroup of type NOTIFICATION-GROUP.
    h. mip6BindingHstIndex range changed from (0..4294967295) to
       (1..4294967295.
    i. Index ordering for mip6MnBLEntry changed
       From:
           INDEX { mip6MnBLNodeAddressType,
                   mip6MnBLNodeAddress,
                   mip6MnHomeAddressType,
                   mip6MnHomeAddress
                 }
       To:
           INDEX { mip6MnHomeAddressType,
                   mip6MnHomeAddress,
                   mip6MnBLNodeAddressType,
                   mip6MnBLNodeAddress
                 }
    j. SIZE constraints for InetAddress objects used indices have
       been removed. Instead, appropriate constraints are specified
       in the corresponding DESCRIPTION clauses
    k. DESCRIPTION clauses of InetAddress objects have been updated
       with the specification of the InetAddressType object which
       provides the context or type of the InetAddress object..
    l. Description has been added in the form of commented
       OBJECT clauses to the DESCRIPTION clauses of the
       MODULE-COMPLIANCE for the inaccessible index objects.
    m. All notifications have been directly registered under
       mip6Notifications.

    n. A read-only compliance has been added.
    o. Formatting to take care of lines longer than 72 columns.

p. Other editing issues have been addressed.

Changes since draft-ietf-mip6-mipv6-mib-02.txt

a. Aligned with the new I-D format requirements
     "Status of this memo" is updated
     IANA considerations section is added
     Copyright is included in the MIB MODULE IDENTITY Description
     Full Copyright Statement updated
b. Changed the MO name prefix from mipv6 to mip6
c. Added the instance specifications for MOs included in
   Notifications
d. Reference to the base MIP6 document is updated from the I-D to
   RFC3775