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Proxy Mobile IPv6 Management Information Base

Abstract

This memo defines a portion of the Proxy Mobile IPv6 Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, the Proxy Mobile IPv6 MIB can be used to monitor and control the mobile access gateway (MAG) and the local mobility anchor (LMA) functions of a Proxy Mobile IPv6 (PMIPv6) entity.

Status of This Memo

This is an Internet Standards Track document.

This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Further information on Internet Standards is available in Section 2 of RFC 5741.

Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at http://www.rfc-editor.org/info/rfc6475.

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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 Proxy Mobile IPv6 Protocol Entities

Proxy Mobile IPv6 (PMIPv6) [RFC5213] is an extension to the Mobile IPv6 (MIPv6) protocol that facilitates network-based localized mobility management (NETLMM) for IPv6 nodes in a PMIPv6 domain. There are three types of entities envisaged by the PMIPv6 protocol.

mobile node (MN): In the PMIPv6 context, this term is used to refer to an IP host or router whose mobility is managed by the network.

local mobility anchor (LMA): Local Mobility Anchor is the home agent for the mobile node in a Proxy Mobile IPv6 domain. It is the topological anchor point for the mobile node’s home network prefix(es) and is the entity that manages the mobile node’s binding state. The local mobility anchor has the functional capabilities of a home agent as defined in the Mobile IPv6 base specification [RFC6275] with the additional capabilities required for supporting the Proxy Mobile IPv6 protocol as defined in the PMIPv6 specification [RFC5213].

mobile access gateway (MAG): Mobile Access Gateway is the entity on an access router that manages the mobility-related signaling for a mobile node that is attached to its access link. It is responsible for tracking the mobile node’s movements to and from the access link and for signaling the mobile node’s local mobility anchor.

This document defines a set of managed objects (MOs) that can be used to monitor and control PMIPv6 entities.

2.2. Terminology

The terminology used in this document is consistent with the definitions used in the Mobile IPv6 protocol specification [RFC6275] and in the NETLMM goals document [RFC4831].

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. Proxy Mobile IPv6 Monitoring and Control Requirements

For managing a PMIPv6 entity, it is necessary to monitor the following:

- capabilities of PMIPv6 entities
- signaling traffic due to PMIPv6 signaling
- binding-related details (at LMA and MAG)
- binding-related statistics (at LMA and MAG)

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.

The Proxy Mobile IPv6 Management Information Base (PMIPV6-MIB) extends the Mobile IPv6 Management Information Base (MIPV6-MIB) [RFC4295]. It is assumed that PMIPV6-MIB will always be implemented in conjunction with the MOBILEIPV6-MIB [RFC4295]. The PMIPV6-MIB uses the textual conventions defined in the INET-ADDRESS-MIB [RFC4001] and IP-MIB [RFC4293].

The PMIPV6-MIB is composed of the following groups of definitions:

- pmip6Core: a generic group containing objects that are common to all the Proxy Mobile IPv6 entities. Objects belonging to this group will be implemented on the corresponding Proxy Mobile IPv6 entity. pmip6BindingCacheTable belongs to this group.

- pmip6Mag: this group models the mobile access gateway service. Objects belonging to this group have the "pmip6Mag" prefix and will be implemented on the corresponding MAG.

- pmip6Lma: this group models the local mobility anchor service. Objects belonging to this group have the "pmip6Lma" prefix and will be implemented on the corresponding LMA.

- pmip6Notifications: defines the set of notifications that will be used to asynchronously monitor the Proxy Mobile IPv6 entities.

The tables contained in the above groups are as follows:

- pmip6BindingCacheTable: models the Binding Cache on the local mobility anchor.

- pmip6MagProxyCOATable: models the Proxy Care-of Addresses configured on the egress interfaces of the mobile access gateway.

- pmip6MagMnIdentifierTable: provides a mapping from the MAG-internal pmip6MagMnIndex to the mobile node identifier.

- pmip6MagMnLLIdentifierTable: provides a mapping from the MAG-internal pmip6MagMnLLIndex to the corresponding interface of the mobile node link-layer identifier.

- pmip6MagHomeNetworkPrefixTable: contains the home network prefixes assigned to interfaces of all mobile nodes attached to the MAG. Each interface is distinguished by the attached mobile node identifier (MN-Identifier) and the link-layer identifier (MN-LL-Identifier).

- pmip6MagBLTable: models the Binding Update List (BL) that includes PMIPv6-related information and is maintained by the mobile access gateway.

- pmip6MagMnProfileTable: contains the mobile node’s policy profile that includes the essential operational parameters that are required by the network entities for managing the mobile node’s mobility service.

- pmip6LmaLMAATable: contains the LMA Addresses (LMAAs) that are configured on the local mobility anchor. Each LMA Address acts as a transport endpoint of the tunnel between the local mobility anchor and the mobile access gateway.

- pmip6LmaMnIdentifierTable: provides a mapping from the LMA-internal pmip6BindingMnIndex to the mobile node identifier.

- pmip6LmaMnLLIdentifierTable: provides a mapping from the LMA-internal pmip6BindingMnLLIndex to the corresponding interface of the mobile node link-layer identifier.

- pmip6LmaHomeNetworkPrefixTable: contains the list of home network prefixes assigned to the connected interfaces of the mobile nodes anchored on an LMA.

4.1. Textual Conventions

A Proxy Mobile IPv6 Textual Conventions MIB module containing Textual Conventions to represent commonly used Proxy Mobile IPv6 management information is defined. The intent is that these TEXTUAL CONVENTIONS (TCs) will be imported and used in PMIPv6-related MIB modules that would otherwise define their own representation(s). This MIB module includes references to RFC 4283 [RFC4283] and RFC 5213 [RFC5213].

5. MIB Definitions

5.1. Proxy Mobile IPv6 Textual Conventions MIB

```
PMIPV6-TC-MIB DEFINITIONS ::= BEGIN
   IMPORTS
     MODULE-IDENTITY, mib-2, Unsigned32
                FROM SNMPv2-SMI                   -- [RFC2578]
     TEXTUAL-CONVENTION
                FROM SNMPv2-TC;                   -- [RFC2579]

   pmip6TCMIB  MODULE-IDENTITY
      LAST-UPDATED "201205070000Z"     --  7th May, 2012
      ORGANIZATION "IETF NETLMM Working Group"
      CONTACT-INFO
      "                  Glenn Mansfield Keeni
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                        Mountain View, CA
                        94043
                        USA
                EMail: ryuji@us.toyota-itc.com
        Support Group EMail: netlmm@ietf.org
        "

    DESCRIPTION
        "This MIB module provides textual conventions for
         Proxy Mobile IPv6 Management information.

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         identified as authors of the code.  All rights
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        "

    REVISION "201205070000Z"     --  7th May, 2012
    DESCRIPTION
        "The initial version, published as RFC 6475."
    ::= { mib-2 205 }

-- ------------------------------------------------------------
-- Textual Conventions
-- ------------------------------------------------------------
   Pmip6TimeStamp64  ::=  TEXTUAL-CONVENTION
       DISPLAY-HINT "6d:2d"
       STATUS  current
       DESCRIPTION
           "A 64-bit unsigned integer field containing a timestamp.
            The value indicates the elapsed time since January 1,
            1970, 00:00 UTC, by using a fixed-point format.  In this
```

```
                format, the integer number of seconds is contained in
                the first 48 bits of the field, and the remaining 16
                bits indicate the number of 1/65536 fractions of a
                second.
               "
            REFERENCE
                "RFC 5213: Section 8.8"
            SYNTAX  OCTET STRING (SIZE (8))

        Pmip6MnIdentifier  ::=  TEXTUAL-CONVENTION
            DISPLAY-HINT "255a"
            STATUS  current
            DESCRIPTION
                "The identity of a mobile node in the Proxy Mobile IPv6
                 domain.  This is the stable identifier of a mobile node
                 that the mobility entities in a Proxy Mobile IPv6 domain
                 can always acquire and use for predictably identifying
                 a mobile node.  Various forms of identifiers can be used
                 to identify a mobile node (MN).  Two examples are a
                 Network Access Identifier (NAI) and an opaque
                 identifier applicable to a particular application.
                "
            REFERENCE
                "RFC 4283: Section 3"
            SYNTAX  OCTET STRING (SIZE (0..255))
        Pmip6MnLLIdentifier ::=  TEXTUAL-CONVENTION
            DISPLAY-HINT "255a"
            STATUS  current
            DESCRIPTION
                "An identifier that identifies the attached interface of
                 a mobile node.
                "
            REFERENCE
                "RFC 5213: Section 8.6"
            SYNTAX  OCTET STRING (SIZE (0..255))

        Pmip6MnIndex ::= TEXTUAL-CONVENTION
            DISPLAY-HINT "d"
            STATUS       current
            DESCRIPTION
                "A unique integer value, greater than zero, assigned to
                 each mobile node that is currently attached to the
                 Proxy Mobile IPv6 domain by the management system.
                 It is recommended that the values are assigned in a
                 monotonically increasing order starting from 1.  It may
                 wrap after reaching its maximum value.  The value for
                 each mobile node must remain constant at least from one
                 re-initialization of the entity's network management
```

```
             system to the next re-initialization.
            "
        SYNTAX       Unsigned32 (1..4294967295)
    Pmip6MnLLIndex ::= TEXTUAL-CONVENTION
        DISPLAY-HINT "d"
        STATUS       current
        DESCRIPTION
            "A unique integer value, greater than zero, assigned to
             each interface of a mobile node that is currently
             attached to the Proxy Mobile IPv6 domain by the
             management system.
             It is recommended that the values are assigned in a
             monotonically increasing order starting from 1.  It may
             wrap after reaching its maximum value.  The value for
             each interface of a mobile node must remain constant at
             least from one re-initialization of the entity's network
             management system to the next re-initialization.
            "
        SYNTAX       Unsigned32 (1..4294967295)
    Pmip6MnInterfaceATT ::=  TEXTUAL-CONVENTION
        STATUS  current
        DESCRIPTION
            "The object specifies the access technology that
             connects the mobile node to the access link on the
             mobile access gateway.
             The enumerated values and the corresponding access
             technology are as follows:
              reserved                (0): Reserved (Not used)
              logicalNetworkInterface (1): Logical network interface
              pointToPointInterface   (2): Point-to-point interface
              ethernet                (3): Ethernet interface
              wirelessLan             (4): Wireless LAN interface
              wimax                   (5): Wimax interface
              threeGPPGERAN           (6): 3GPP GERAN
              threeGPPUTRAN           (7): 3GPP UTRAN
              threeGPPEUTRAN          (8): 3GPP E-UTRAN
              threeGPP2eHRPD          (9): 3GPP2 eHRPD
              threeGPP2HRPD          (10): 3GPP2 HRPD
              threeGPP21xRTT         (11): 3GPP2 1xRTT
              threeGPP2UMB           (12): 3GPP2 UMB
            "
        REFERENCE
            "RFC 5213: Section 8.5,
             Mobile IPv6 parameters registry on
             http://www.iana.org/mobility-parameters"

        SYNTAX INTEGER
        {
```

```
               reserved               (0),
               logicalNetworkInterface(1),
               pointToPointInterface  (2),
               ethernet               (3),
               wirelessLan            (4),
               wimax                  (5),
               threeGPPGERAN          (6),
               threeGPPUTRAN          (7),
               threeGPPEUTRAN         (8),
               threeGPP2eHRPD         (9),
               threeGPP2HRPD          (10),
               threeGPP21xRTT         (11),
               threeGPP2UMB           (12)
          }
    END
```

5.2. The Proxy Mobile IPv6 MIB

```
    PMIPV6-MIB DEFINITIONS ::= BEGIN
       IMPORTS
         MODULE-IDENTITY,  mib-2, Integer32, Counter32, Gauge32,
         Unsigned32, OBJECT-TYPE, NOTIFICATION-TYPE
                    FROM SNMPv2-SMI                    -- RFC 2578
         PhysAddress, TimeStamp,
         TruthValue
                    FROM SNMPv2-TC                     -- RFC 2579
         MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
                    FROM SNMPv2-CONF                   -- RFC 2580
         InetAddressType, InetAddress, InetAddressPrefixLength
                    FROM INET-ADDRESS-MIB              -- RFC 4001
         Ipv6AddressIfIdentifierTC
                    FROM IP-MIB                        -- RFC 4293
         mip6MnBLEntry, mip6BindingCacheEntry
                    FROM MOBILEIPV6-MIB                -- RFC 4295
         Pmip6TimeStamp64,    Pmip6MnIdentifier,
         Pmip6MnLLIdentifier, Pmip6MnIndex, Pmip6MnLLIndex,
         Pmip6MnInterfaceATT
                    FROM PMIPV6-TC-MIB                 -- RFC 6475
         ;

       pmip6MIB MODULE-IDENTITY
          LAST-UPDATED "201205070000Z"        --  7th May, 2012
          ORGANIZATION "IETF NETLMM Working Group"
          CONTACT-INFO
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           Support Group EMail: netlmm@ietf.org"

           DESCRIPTION
            "The MIB module for monitoring and controlling PMIPv6
             entities.

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            "

            REVISION    "201205070000Z"      -- 7th May 2012
            DESCRIPTION "Initial version, published as RFC 6475."
         ::= { mib-2  206 }
```

```
-- The PMIPv6 MIB has the following 5 primary groups

pmip6Notifications     OBJECT IDENTIFIER ::= { pmip6MIB 0 }
pmip6Objects           OBJECT IDENTIFIER ::= { pmip6MIB 1 }
pmip6Conformance       OBJECT IDENTIFIER ::= { pmip6MIB 2 }
pmip6Core              OBJECT IDENTIFIER ::= { pmip6Objects 1 }
pmip6Mag               OBJECT IDENTIFIER ::= { pmip6Objects 2 }
pmip6Lma               OBJECT IDENTIFIER ::= { pmip6Objects 3 }

 -- The sub groups

pmip6System            OBJECT IDENTIFIER ::= { pmip6Core 1 }
pmip6Bindings          OBJECT IDENTIFIER ::= { pmip6Core 2 }
pmip6Conf              OBJECT IDENTIFIER ::= { pmip6Core 3 }
pmip6Stats             OBJECT IDENTIFIER ::= { pmip6Core 4 }

pmip6MagSystem         OBJECT IDENTIFIER ::= { pmip6Mag 1 }
pmip6MagConf           OBJECT IDENTIFIER ::= { pmip6Mag 2 }
pmip6MagRegistration   OBJECT IDENTIFIER ::= { pmip6Mag 3 }

pmip6LmaSystem         OBJECT IDENTIFIER ::= { pmip6Lma 1 }
pmip6LmaConf           OBJECT IDENTIFIER ::= { pmip6Lma 2 }

-- The pmip6Stats group has the following sub groups

pmip6BindingRegCounters OBJECT IDENTIFIER ::= { pmip6Stats 1 }

--
--
-- pmip6System group
--
--
pmip6Capabilities OBJECT-TYPE
    SYNTAX      BITS {
         mobilityAccessGateway  (0),
         localMobilityAnchor    (1)
                }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object indicates the PMIPv6 functions that
         are supported by this managed entity.  Multiple
         Proxy Mobile IPv6 functions may be supported by
         a single entity.
         mobilityAccessGateway(0) indicates the availability
         of the mobility access gateway function.
         localMobilityAnchor(1) indicates the availability
         of the local mobility anchor function.
```

```
            "
        REFERENCE
                "RFC 6275: Sections 3.2, 4.1"
        ::= { pmip6System 1 }

    pmip6MobileNodeGeneratedTimestampInUse OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "This flag indicates whether or not the
             MN-generated timestamp mechanism is in use in that
             Proxy Mobile IPv6 domain.
             true(1) indicates that the local mobility anchors and
             mobile access gateways in that Proxy Mobile IPv6
             domain apply the MN-generated timestamp considerations.
             false(0) indicates that the MN-generated timestamp
             mechanism is not in use in that Proxy Mobile IPv6
             domain.
             The default value for this flag is 'false'.
            "
        REFERENCE
            "RFC 5213: Sections 5.5, 9.3"
        DEFVAL { false }
        ::= { pmip6Conf 1 }
    pmip6FixedMagLinkLocalAddressOnAllAccessLinksType OBJECT-TYPE
        SYNTAX      InetAddressType
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The InetAddressType of the
             pmip6FixedMagLinkLocalAddressOnAllAccessLinks
             that follows.
            "
           ::= { pmip6Conf 2 }

    pmip6FixedMagLinkLocalAddressOnAllAccessLinks OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "This variable indicates the link-local address value
             that all the mobile access gateways should use on
             any of the access links shared with any of the
             mobile nodes in that Proxy Mobile IPv6 domain.  If
             this variable is initialized with all zeroes, it
             implies that the use of fixed link-local address mode
             is not enabled for that Proxy Mobile IPv6 domain."
```

```
            REFERENCE
                "RFC 5213: Sections 2.2, 6.8, 6.9.1.1, 6.9.3, 9.3"
            ::= { pmip6Conf 3 }

        pmip6FixedMagLinkLayerAddressOnAllAccessLinks OBJECT-TYPE
            SYNTAX      PhysAddress
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "This variable indicates the link-layer address value
                 that all the mobile access gateways should use on
                 any of the access links shared with any of the mobile
                 nodes in that Proxy Mobile IPv6 domain.  For access
                 technologies where there is no link-layer address,
                 this variable MUST be initialized with all zeroes.
                "
            REFERENCE
                "RFC 5213: Sections 6.9.3, 9.3"
            ::= { pmip6Conf 4 }
        pmip6MagStatus OBJECT-TYPE
            SYNTAX      INTEGER { enabled(1), disabled(2) }
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "This object indicates whether the PMIPv6 mobile
                 access gateway function is enabled for the managed
                 entity.

                 Changing the status from enabled(1) to disabled(2)
                 will terminate the PMIPv6 mobile access gateway
                 function.  On the other hand, changing the status
                 from disabled(2) to enabled(1) will start the PMIPv6
                 mobile access gateway function.

                 The value of this object MUST remain unchanged
                 across reboots of the managed entity.
                "
            DEFVAL { disabled }
            ::= { pmip6MagSystem 1 }

        pmip6MagProxyCOATable OBJECT-TYPE
            SYNTAX      SEQUENCE OF Pmip6MagProxyCOAEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This table models the Proxy Care-of Addresses
                 configured on the egress interfaces of the mobile access
                 gateway.  This address is the transport endpoint of the
```

```
                tunnel between the local mobility anchor and the mobile
                access gateway.

                Entries in this table are not required to survive
                a reboot of the managed entity.
               "
            REFERENCE
                "RFC 5213: Sections 2.2, 6.10"
            ::= { pmip6MagSystem 2 }
        pmip6MagProxyCOAEntry OBJECT-TYPE
            SYNTAX      Pmip6MagProxyCOAEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This entry represents a conceptual row in the
                 Proxy-CoA table.  It represents a Proxy Care-of
                 Address on the mobile access gateway.

                 Implementers need to be aware that if the total
                 number of octets in pmip6MagProxyCOA
                 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  { pmip6MagProxyCOAType, pmip6MagProxyCOA }
            ::= { pmip6MagProxyCOATable 1 }

        Pmip6MagProxyCOAEntry ::=
            SEQUENCE {
             pmip6MagProxyCOAType   InetAddressType,
             pmip6MagProxyCOA       InetAddress,
             pmip6MagProxyCOAState  INTEGER
            }

        pmip6MagProxyCOAType OBJECT-TYPE
            SYNTAX      InetAddressType
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "The InetAddressType of the pmip6MagProxyCOA
                 that follows.
                "
            ::= { pmip6MagProxyCOAEntry 1 }
        pmip6MagProxyCOA OBJECT-TYPE
            SYNTAX      InetAddress
            MAX-ACCESS  not-accessible
            STATUS      current
```

```
            DESCRIPTION
                "The Proxy-CoA configured on the egress interface of the
                 mobile access gateway.

                 The type of the address represented by this object
                 is specified by the corresponding
                 pmip6MagProxyCOAType object.
                "
            REFERENCE
                "RFC 5213: Sections 2.2, 6.10"
            ::= { pmip6MagProxyCOAEntry 2 }

        pmip6MagProxyCOAState  OBJECT-TYPE
            SYNTAX      INTEGER {
                                   unknown(1),
                                   activated(2),
                                   tunneled(3)
                               }
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "This object indicates the state of the Proxy-CoA:
                    unknown     -- The state of the Proxy-CoA
                                   cannot be determined.
                    activated   -- The Proxy-CoA is ready to establish
                                   a tunnel.  This state SHOULD be
                                   indicated when the MAG is up but has
                                   no mobile node.
                    tunneled    -- Bidirectional tunnel is established
                                   using the Proxy-CoA.
                "
            ::= { pmip6MagProxyCOAEntry 3 }
        pmip6MagEnableMagLocalRouting OBJECT-TYPE
            SYNTAX      TruthValue
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "This flag indicates whether or not the mobile access
                 gateway is allowed to enable local routing of the
                 traffic exchanged between a visiting mobile node and
                 a correspondent node that is locally connected to one
                 of the interfaces of the mobile access gateway.
                 The correspondent node can be another visiting mobile
                 node as well, or a local fixed node.
                 true(1) indicates that the mobile access gateway routes
                 the traffic locally.
                 false(0) indicates that the mobile access gateway
                 reverse tunnels all the traffic to the mobile node's
```

```
                local mobility anchor.

                The default value for this flag is 'false'.
               "
            REFERENCE
                "RFC 5213: Section 9.2"           DEFVAL { false }
            ::= { pmip6MagConf 1 }

        pmip6MagMnIdentifierTable OBJECT-TYPE
             SYNTAX      SEQUENCE OF Pmip6MagMnIdentifierEntry
             MAX-ACCESS  not-accessible
             STATUS      current
             DESCRIPTION
                 "A table containing the identifiers of mobile nodes
                  attached to the MAG.
                  Entries in this table are not required to survive
                  a reboot of the managed entity.
                 "
             REFERENCE
                 "RFC 5213: Sections 2.2, 6.1"
             ::= { pmip6MagConf 2 }

        pmip6MagMnIdentifierEntry OBJECT-TYPE
             SYNTAX      Pmip6MagMnIdentifierEntry
             MAX-ACCESS  not-accessible
             STATUS      current
             DESCRIPTION
                 "An entry in the mobile node identifier table.
                 "
             INDEX  { pmip6MagBLMnIndex
                    }
             ::= { pmip6MagMnIdentifierTable 1 }

        Pmip6MagMnIdentifierEntry ::=
             SEQUENCE {
              pmip6MagMnIdentifier      Pmip6MnIdentifier
            }

        pmip6MagMnIdentifier  OBJECT-TYPE
             SYNTAX      Pmip6MnIdentifier
             MAX-ACCESS  read-only
             STATUS      current
             DESCRIPTION
                 "The identity of a mobile node in the Proxy Mobile IPv6
                  domain.
                 "
            REFERENCE
                "RFC 5213: Sections 2.2, 6.1"
```

```
            ::= { pmip6MagMnIdentifierEntry 1 }

        pmip6MagMnLLIdentifierTable OBJECT-TYPE
             SYNTAX      SEQUENCE OF Pmip6MagMnLLIdentifierEntry
             MAX-ACCESS  not-accessible
             STATUS      current
             DESCRIPTION
                 "A table containing the link-layer identifiers
                  of the interfaces of the mobile nodes attached
                  to the MAG.
                  Entries in this table are not required to survive
                  a reboot of the managed entity.
                 "
             REFERENCE
                 "RFC 5213: Sections 2.2, 6.1"
             ::= { pmip6MagConf 3 }

        pmip6MagMnLLIdentifierEntry OBJECT-TYPE
             SYNTAX      Pmip6MagMnLLIdentifierEntry
             MAX-ACCESS  not-accessible
             STATUS      current
             DESCRIPTION
                 "An entry in the mobile node link-layer identifier
                  table.
                 "
             INDEX  { pmip6MagBLMnIndex, pmip6MagBLMnLLIndex
                    }
             ::= { pmip6MagMnLLIdentifierTable 1 }

        Pmip6MagMnLLIdentifierEntry ::=
             SEQUENCE {
              pmip6MagMnLLIdentifier      Pmip6MnLLIdentifier
            }

        pmip6MagMnLLIdentifier  OBJECT-TYPE
             SYNTAX      Pmip6MnLLIdentifier
             MAX-ACCESS  read-only
             STATUS      current
             DESCRIPTION
                 "The link-layer identifier of the mobile node's
                  connected interface on the access link.
                 "
             REFERENCE
                 "RFC 5213: Sections 2.2, 6.1"
             ::= { pmip6MagMnLLIdentifierEntry 1 }

        pmip6MagHomeNetworkPrefixTable   OBJECT-TYPE
             SYNTAX      SEQUENCE OF Pmip6MagHomeNetworkPrefixEntry
```

```
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "A table representing the home network prefixes
                 assigned to the connected interfaces of mobile nodes
                 attached to the MAG.
                "
            REFERENCE
                "RFC 5213: Sections 2, 6.1, 6.2"
            ::= { pmip6MagConf 4 }

        pmip6MagHomeNetworkPrefixEntry OBJECT-TYPE
            SYNTAX      Pmip6MagHomeNetworkPrefixEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "An entry in the home network prefixes table.

                 Implementers need to be aware that if the total
                 number of octets in pmip6MagHomeNetworkPrefix
                 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  { pmip6MagBLMnIndex, pmip6MagBLMnLLIndex,
                     pmip6MagHomeNetworkPrefixType,
                     pmip6MagHomeNetworkPrefix }
            ::= { pmip6MagHomeNetworkPrefixTable 1 }

        Pmip6MagHomeNetworkPrefixEntry ::=
            SEQUENCE {
             pmip6MagHomeNetworkPrefixType      InetAddressType,
             pmip6MagHomeNetworkPrefix          InetAddress,
             pmip6MagHomeNetworkPrefixLength    InetAddressPrefixLength,
             pmip6MagHomeNetworkPrefixLifeTime  Unsigned32
            }

        pmip6MagHomeNetworkPrefixType  OBJECT-TYPE
            SYNTAX      InetAddressType
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "The InetAddressType of the pmip6MagHomeNetworkPrefix
                 that follows.
                "
            ::= { pmip6MagHomeNetworkPrefixEntry 1 }
```

```
    pmip6MagHomeNetworkPrefix   OBJECT-TYPE
         SYNTAX      InetAddress
         MAX-ACCESS  not-accessible
         STATUS      current
         DESCRIPTION
             "The mobile network prefix that is delegated to the
              mobile node.  The type of the address represented by
              this object is specified by the corresponding
              pmip6MagHomeNetworkPrefixType object.
             "
         REFERENCE
             "RFC 5213: Section 2"
         ::= { pmip6MagHomeNetworkPrefixEntry 2 }

    pmip6MagHomeNetworkPrefixLength   OBJECT-TYPE
         SYNTAX      InetAddressPrefixLength
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
             "The prefix length of the home network prefix.
             "
         ::= { pmip6MagHomeNetworkPrefixEntry 3 }

    pmip6MagHomeNetworkPrefixLifeTime   OBJECT-TYPE
         SYNTAX      Unsigned32
         UNITS       "seconds"
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
             "The lifetime parameter (in seconds) that will be
              advertised in Router Advertisements by the MAG for
              this home network prefix.
             "
         REFERENCE
             "RFC 5213: Sections 6.2, 6.7"
         ::= { pmip6MagHomeNetworkPrefixEntry 4 }

    pmip6MagBLTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF Pmip6MagBLEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table corresponds to the Binding Update List (BL)
             that includes PMIPv6-related information and is
             maintained by the mobile access gateway.
             Entries from the table are deleted as the lifetime of
             the binding expires.
            "
```

```
            REFERENCE
                "RFC 6275: Sections 4.5, 11.1
                 RFC 5213: Section 6.1"
            ::= { pmip6MagRegistration 1 }
        pmip6MagBLEntry  OBJECT-TYPE
            SYNTAX      Pmip6MagBLEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "An entry containing additional information from
                 a Binding Update sent by the mobile access gateway
                 to the local mobility anchor.
                "
            AUGMENTS {mip6MnBLEntry}
            ::= { pmip6MagBLTable 1 }

        Pmip6MagBLEntry ::= SEQUENCE {
            pmip6MagBLFlag                    TruthValue,
            pmip6MagBLMnIndex                 Pmip6MnIndex,
            pmip6MagBLMnLLIndex               Pmip6MnLLIndex,
            pmip6MagBLMagLinkLocalAddressType InetAddressType,
            pmip6MagBLMagLinkLocalAddress     InetAddress,
            pmip6MagBLMagIfIdentifierToMn     Ipv6AddressIfIdentifierTC,
            pmip6MagBLTunnelIfIdentifier      Ipv6AddressIfIdentifierTC,
            pmip6MagBLMnInterfaceATT  Pmip6MnInterfaceATT,
            pmip6MagBLTimeRecentlyAccepted    Pmip6TimeStamp64
            }

        pmip6MagBLFlag OBJECT-TYPE
            SYNTAX      TruthValue
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "true(1) indicates that the mobile access gateway sent
                 the Proxy Binding Update with Proxy Registration Flag
                 that indicates to the local mobility anchor that the
                 registration is the Proxy Binding Update and is from a
                 mobile access gateway.
                 false(0) implies that the mobile access gateway is
                 behaving as a simple mobile node.
                "
            REFERENCE
                "RFC 5213: Section 8.1"
            ::= { pmip6MagBLEntry 1 }

        pmip6MagBLMnIndex OBJECT-TYPE
            SYNTAX     Pmip6MnIndex
            MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                "The index to the identifier of the attached mobile
                 node in the pmip6MagMnIdentifierTable.
                "
            REFERENCE
                "RFC 5213: Sections 2.2, 6.1, 8.1"
            ::= { pmip6MagBLEntry 2 }

        pmip6MagBLMnLLIndex OBJECT-TYPE
            SYNTAX      Pmip6MnLLIndex
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The index to the link-layer identifier of the mobile
                 node's connected interface in the
                 pmip6MagMnLLIdentifierTable.
                "
            REFERENCE
                "RFC 5213: Sections 2.2, 6.1, 8.1"
            ::= { pmip6MagBLEntry 3 }

        pmip6MagBLMagLinkLocalAddressType OBJECT-TYPE
            SYNTAX     InetAddressType
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The InetAddressType of the pmip6MagBLMagLinkLocalAddress
                 that follows.
                "
            ::= { pmip6MagBLEntry 4 }

        pmip6MagBLMagLinkLocalAddress OBJECT-TYPE
            SYNTAX     InetAddress
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The link-local address of the mobile access gateway on
                 the access link shared with the mobile node.
                 This is the address that is present in the Link-local
                 Address option of the corresponding Proxy Binding Update
                 message.
                "
            REFERENCE
                "RFC 3963: Sections 4.1, 5.1"
            ::= { pmip6MagBLEntry 5 }

        pmip6MagBLMagIfIdentifierToMn OBJECT-TYPE
```

```
            SYNTAX     Ipv6AddressIfIdentifierTC
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The interface identifier (if-id) of the point-to-point
                 link between the mobile node and the mobile access
                 gateway.  This is internal to the mobile access gateway
                 and is used to associate the Proxy Mobile IPv6 tunnel
                 to the access link where the mobile node is attached.
                "
            REFERENCE
                "RFC 5213: Sections 6.1, 8.1"
            ::= { pmip6MagBLEntry 6 }

        pmip6MagBLTunnelIfIdentifier OBJECT-TYPE
            SYNTAX     Ipv6AddressIfIdentifierTC
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The tunnel interface identifier (tunnel-if-id) of the
                 bidirectional tunnel between the mobile node's local
                 mobility anchor and the mobile access gateway.  This
                 is internal to the mobile access gateway.  The tunnel
                 interface identifier is acquired during the tunnel
                 creation.
                "
            REFERENCE
                "RFC 5213: Sections 6.1, 8.1"
            ::= { pmip6MagBLEntry 7 }

         pmip6MagBLMnInterfaceATT OBJECT-TYPE
            SYNTAX      Pmip6MnInterfaceATT
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The type of the access technology by which the mobile
                 node is currently attached to the mobile access gateway.
                "
            REFERENCE
                "RFC 5213: Sections 6.9.1.1, 6.9.1.5, 8.1"
            ::= { pmip6MagBLEntry 8 }
         pmip6MagBLTimeRecentlyAccepted OBJECT-TYPE
            SYNTAX      Pmip6TimeStamp64
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The 64-bit timestamp value of the most recently
                 accepted Proxy Binding Update message sent for this
```

```
                mobile node.  This is the time of day on the mobile
                access gateway, when the Proxy Binding Acknowledgement
                message with the Status field set to 0
                was received.  If the Timestamp option is not present
                in the Proxy Binding Update message (i.e., when the
                sequence-number-based scheme is in use), the value MUST
                be initialized with all zeroes.
               "
            REFERENCE
                "RFC 5213: Sections 5.1, 8.1"
            ::= { pmip6MagBLEntry 9 }

        pmip6MagMnProfileTable OBJECT-TYPE
            SYNTAX      SEQUENCE OF Pmip6MagMnProfileEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This table corresponds to the mobile node's policy
                 profile that includes the essential operational
                 parameters that are required by the network entities
                 for managing the mobile node's mobility service.
                 It contains policy profiles of mobile nodes that are
                 connected to the mobile access gateway.
                 Entries in this table are not required to survive
                 a reboot of the managed entity.
                "
            REFERENCE
                "RFC 5213: Section 6.2"
            ::= { pmip6MagRegistration 2 }

        pmip6MagMnProfileEntry  OBJECT-TYPE
            SYNTAX      Pmip6MagMnProfileEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "An entry containing information about the
                 mobile node's policy profile.
                "
            INDEX { pmip6MagProfMnIndex }
            ::= { pmip6MagMnProfileTable 1 }

        Pmip6MagMnProfileEntry ::=
            SEQUENCE {
             pmip6MagProfMnIndex                       Pmip6MnIndex,
             pmip6MagProfMnIdentifier                  Pmip6MnIdentifier,
             pmip6MagProfMnLocalMobilityAnchorAddressType
                                                       InetAddressType,
             pmip6MagProfMnLocalMobilityAnchorAddress  InetAddress
```

```
    }

pmip6MagProfMnIndex OBJECT-TYPE
    SYNTAX      Pmip6MnIndex
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The index for a mobile node in the Proxy Mobile IPv6
         domain.
        "
    ::= { pmip6MagMnProfileEntry 1 }

pmip6MagProfMnIdentifier OBJECT-TYPE
    SYNTAX      Pmip6MnIdentifier
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The identity of a mobile node in the Proxy Mobile IPv6
         domain.
        "
    REFERENCE
        "RFC 5213: Section 2.2"
    ::= { pmip6MagMnProfileEntry 2 }

pmip6MagProfMnLocalMobilityAnchorAddressType OBJECT-TYPE
    SYNTAX     InetAddressType
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The InetAddressType of the
         pmip6MagMnLocalMobilityAnchorAddress that follows.
        "
    ::= { pmip6MagMnProfileEntry 3 }
pmip6MagProfMnLocalMobilityAnchorAddress OBJECT-TYPE
    SYNTAX     InetAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The global address that is configured on the interface
         of the local mobility anchor and is the transport
         endpoint of the bidirectional tunnel established
         between the local mobility anchor and the mobile access
         gateway.  This is the address to which the mobile
         access gateway sends the Proxy Binding Update messages.
        "
    REFERENCE
        "RFC 5213: Section 2.2"
    ::= { pmip6MagMnProfileEntry 4 }
```

```
    pmip6BindingCacheTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF Pmip6BindingCacheEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "This table models the Binding Cache on the local
             mobility anchor.

             Entries from the table are deleted as the lifetime
             of the binding expires.

             Entries in this table are not required to survive
             a reboot of the managed entity.
            "
        REFERENCE
            "RFC 6275: Sections 4.5, 9.1, 10.1
             RFC 5213: Section 5.1"
        ::= { pmip6Bindings 1 }

    pmip6BindingCacheEntry  OBJECT-TYPE
        SYNTAX      Pmip6BindingCacheEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "An entry containing additional information contained
             in the Binding Cache table of the local mobility anchor.
            "
        AUGMENTS {mip6BindingCacheEntry}
    ::= { pmip6BindingCacheTable 1 }

    Pmip6BindingCacheEntry ::= SEQUENCE {
         pmip6BindingPBUFlag                  TruthValue,
         pmip6BindingMnIndex                  Pmip6MnIndex,
         pmip6BindingMnLLIndex                Pmip6MnLLIndex,
         pmip6BindingMagLinkLocalAddressType InetAddressType,
         pmip6BindingMagLinkLocalAddress     InetAddress,
         pmip6BindingTunnelIfIdentifier    Ipv6AddressIfIdentifierTC,
         pmip6BindingMnInterfaceATT
                                        Pmip6MnInterfaceATT,
         pmip6BindingTimeRecentlyAccepted     Pmip6TimeStamp64
        }

    pmip6BindingPBUFlag OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "true(1) indicates that the local mobility anchor
```

```
                accepted the binding update with Proxy Registration
                Flag from a mobile access gateway.
                false(0) implies that the binding cache is from a
                mobile node.  In this case, the remaining objects will
                not be accessible.
               "
            REFERENCE
                "RFC 5213: Sections 5.1, 8.1"
            ::= { pmip6BindingCacheEntry 1 }

        pmip6BindingMnIndex OBJECT-TYPE
            SYNTAX      Pmip6MnIndex
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "An index to the identifier of the registered mobile
                 node.
                "
            REFERENCE
                "RFC 5213: Sections 2.2, 5.1, 8.1
                 RFC 4283: Section 3"
            ::= { pmip6BindingCacheEntry 2 }
        pmip6BindingMnLLIndex OBJECT-TYPE
            SYNTAX      Pmip6MnLLIndex
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The index to the link-layer identifier of the mobile
                 node's connected interface on the access link.
                "
            REFERENCE
                "RFC 5213: Sections 2.2, 5.1, 8.1"
            ::= { pmip6BindingCacheEntry 3 }

        pmip6BindingMagLinkLocalAddressType OBJECT-TYPE
            SYNTAX      InetAddressType
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The InetAddressType of the
                 pmip6BindingMagLinkLocalAddress that follows.
                "
            ::= { pmip6BindingCacheEntry 4 }

        pmip6BindingMagLinkLocalAddress OBJECT-TYPE
            SYNTAX      InetAddress
            MAX-ACCESS  read-only
            STATUS      current
```

```
            DESCRIPTION
                "The link-local address of the mobile access gateway on
                 the point-to-point link shared with the mobile node.
                 This is generated by the local mobility anchor after
                 accepting the initial Proxy Binding Update message.
                 This is the address that is present in the Link-local
                 Address option of the corresponding Proxy Binding
                 Acknowledgement message.
                "
            REFERENCE
                "RFC 5213: Sections 5.1, 6.9.1.2, 8.2"
            ::= { pmip6BindingCacheEntry 5 }

        pmip6BindingTunnelIfIdentifier OBJECT-TYPE
            SYNTAX      Ipv6AddressIfIdentifierTC
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The tunnel interface identifier (tunnel-if-id) of the
                 bidirectional tunnel between the local mobility anchor
                 and the mobile access gateway where the mobile node is
                 currently anchored.  This is internal to the local
                 mobility anchor.  The tunnel interface identifier is
                 acquired during the tunnel creation.
                "
            REFERENCE
                "RFC 5213: Sections 5.1, 8.1"
            ::= { pmip6BindingCacheEntry 6 }

        pmip6BindingMnInterfaceATT OBJECT-TYPE
            SYNTAX      Pmip6MnInterfaceATT
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The access technology type by which the mobile node
                 is currently attached.  This is obtained from the
                 Access Technology Type option, present in the Proxy
                 Binding Update message.
                "
            REFERENCE
                "RFC 5213: Sections 5.1, 8.1"
            ::= { pmip6BindingCacheEntry 7 }

        pmip6BindingTimeRecentlyAccepted OBJECT-TYPE
            SYNTAX      Pmip6TimeStamp64
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
```

```
            "The 64-bit timestamp value of the most recently
             accepted Proxy Binding Update message sent for this
             mobile node.  This is the time of day on the local
             mobility anchor, when the message was received.  If
             the Timestamp option is not present in the Proxy
             Binding Update message (i.e., when the sequence number
             based scheme is in use), the value MUST be initialized
             with all zeroes.
            "
        REFERENCE
            "RFC 5213: Sections 5.1, 8.1"
        ::= { pmip6BindingCacheEntry 8 }

    ---
    ---
    --- pmip6Stats group
    ---
    ---

    --
    -- pmip6Stats:pmip6BindingRegCounters
    --

    pmip6MissingMnIdentifierOption  OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Total number of Proxy Binding Update messages
             rejected by the local mobility anchor with status
             code in the Binding Acknowledgement message indicating
             'Missing mobile node identifier option' (Code 160).

             Discontinuities in the value of this counter can
             occur at re-initialization of the mobile router,
             and at other times as indicated by the value of
             pmip6CounterDiscontinuityTime.
            "
        REFERENCE
            "RFC 5213: Sections 5.3.1, 8.9"
            ::= { pmip6BindingRegCounters 1 }

    pmip6MagNotAuthorizedForProxyReg OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Total number of Proxy Binding Update messages
```

```
                rejected by the local mobility anchor with status
                code in the Binding Acknowledgement message indicating
                'Not authorized to send Proxy Binding Updates'
                (Code 154).

                Discontinuities in the value of this counter can
                occur at re-initialization of the mobile router,
                and at other times as indicated by the value of
                pmip6CounterDiscontinuityTime.
               "
            REFERENCE
                "RFC 5213: Sections 5.3.1, 8.9"
                ::= { pmip6BindingRegCounters 2 }

        pmip6NotLMAForThisMobileNode  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages rejected
                 by the local mobility anchor with status code in the
                 Binding Acknowledgement message indicating
                 'Not local mobility anchor for this mobile node'
                 (Code 153).

                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.3.1, 8.9"
                ::= { pmip6BindingRegCounters 3 }

        pmip6ProxyRegNotEnabled  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages rejected
                 by the local mobility anchor with status code in the
                 Binding Acknowledgement message indicating
                 'Proxy Registration not enabled' (Code 152).
                 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
                 pmip6CounterDiscontinuityTime.
                "
```

```
            REFERENCE
                "RFC 5213: Sections 5.3.1, 6.9.1.2, 8.9"
                ::= { pmip6BindingRegCounters 4 }
        pmip6MissingHomeNetworkPrefixOption  OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages rejected
                 by the local mobility anchor with status code in the
                 Binding Acknowledgement message indicating
                 'Missing home network prefix option' (Code 158).
                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.3.1, 8.9"
                ::= { pmip6BindingRegCounters 5 }

        pmip6MissingHandOffIndicatorOption OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages rejected
                 by the local mobility anchor with status code in the
                 Binding Acknowledgement message indicating
                 'Missing handoff indicator option' (Code 161).
                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.3.1, 8.9"
                ::= { pmip6BindingRegCounters 6 }

        pmip6MissingAccessTechTypeOption OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages rejected
                 by the local mobility anchor with status code in the
                 Binding Acknowledgement message indicating
                 'Missing access technology type option' (Code 162).
```

```
                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
                pmip6CounterDiscontinuityTime.
               "
            REFERENCE
                "RFC 5213: Sections 5.3.1, 8.9"
                ::= { pmip6BindingRegCounters 7 }

        pmip6NotAuthorizedForHomeNetworkPrefix OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages rejected
                 by the local mobility anchor with status code in the
                 Binding Acknowledgement message indicating
                 'Mobile node not authorized for one or more of the
                 requesting home network prefixes' (Code 155).

                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.3.2, 6.9.1.2, 8.9"
                ::= { pmip6BindingRegCounters 8 }

        pmip6TimestampMismatch OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages rejected
                 by the local mobility anchor with status code in the
                 Binding Acknowledgement message indicating
                 'Invalid timestamp value (the clocks are out of sync)'
                 (Code 156).
                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.5, 6.9.1.2, 8.9"
                ::= { pmip6BindingRegCounters 9 }
```

```
    pmip6TimestampLowerThanPrevAccepted OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Total number of Proxy Binding Update messages rejected
             by the local mobility anchor with status code in the
             Binding Acknowledgement message indicating
             'The timestamp value is lower than the previously
             accepted value' (Code 157).
             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
             pmip6CounterDiscontinuityTime.
            "
        REFERENCE
            "RFC 5213: Sections 5.5, 6.9.1.2, 8.9"
            ::= { pmip6BindingRegCounters 10 }

    pmip6BcePbuPrefixSetDoNotMatch OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Total number of Proxy Binding Update messages rejected
             by the local mobility anchor with status code in the
             Binding Acknowledgement message indicating
             'All the home network prefixes listed in the Binding
             Cache entry do not match all the prefixes in the
             received Proxy Binding Update' (Code 159).
             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
             pmip6CounterDiscontinuityTime.
            "
        REFERENCE
            "RFC 5213: Sections 5.4.1.1, 8.9"
            ::= { pmip6BindingRegCounters 11 }

    pmip6InitialBindingRegistrations OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Total number of Proxy Binding Update messages that
             newly creates the Binding Cache entry.
             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
                pmip6CounterDiscontinuityTime.
               "
            REFERENCE
                "RFC 5213: Sections 5.3.2"
                ::= { pmip6BindingRegCounters 12 }

        pmip6BindingLifeTimeExtensionNoHandOff OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages for
                 extending the binding lifetime, received from the
                 same mobile access gateway that last updated the
                 binding.
                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.3.3"
                ::= { pmip6BindingRegCounters 13 }

        pmip6BindingLifeTimeExtensionAfterHandOff OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Update messages for
                 extending the binding lifetime, received from a new
                 mobile access gateway where the mobile node's
                 mobility session is handed off.
                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.3.4"
                ::= { pmip6BindingRegCounters 14 }

        pmip6BindingDeRegistrations OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
```

```
                "Total number of Proxy Binding Update messages with
                 the lifetime value of zero.
                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.3.5"
                ::= { pmip6BindingRegCounters 15 }

        pmip6BindingBindingAcks OBJECT-TYPE
            SYNTAX      Counter32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Total number of Proxy Binding Acknowledgement
                 messages.
                 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
                 pmip6CounterDiscontinuityTime.
                "
            REFERENCE
                "RFC 5213: Sections 5.3.5"
                ::= { pmip6BindingRegCounters 16 }

        pmip6CounterDiscontinuityTime 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 PMIPv6 entity's
                 global counters, viz., counters with OID prefix
                 'pmip6BindingRegCounters' 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.
                "
                ::= { pmip6BindingRegCounters 17 }

        pmip6LmaStatus OBJECT-TYPE
            SYNTAX      INTEGER { enabled(1), disabled(2) }
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "This object indicates whether the PMIPv6 local
```

```
                mobility anchor function is enabled for the managed
                entity.

                Changing the status from enabled(1) to disabled(2)
                will terminate the PMIPv6 local mobility anchor
                function.  On the other hand, changing the status
                from disabled(2) to enabled(1) will start the PMIPv6
                local mobility anchor function.

                The value of this object MUST remain unchanged
                across reboots of the managed entity.
               "
            DEFVAL { disabled }
            ::= { pmip6LmaSystem 1 }

        pmip6LmaLMAATable OBJECT-TYPE
            SYNTAX      SEQUENCE OF Pmip6LmaLMAAEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This table models the LMA Addresses configured
                 on the local mobility anchor.  Each LMA Address acts as
                 a transport endpoint of the tunnel between the local
                 mobility anchor and the mobile access gateway and is
                 the transport endpoint of the tunnel between the local
                 mobility anchor and the mobile access gateway.

                 Entries in this table are not required to survive
                 a reboot of the managed entity.
                "
            REFERENCE
                "RFC 5213: Sections 2.2, 5.6"
            ::= { pmip6LmaSystem 2 }

        pmip6LmaLMAAEntry OBJECT-TYPE
            SYNTAX      Pmip6LmaLMAAEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "This entry represents a conceptual row in the
                 LMAA table.  It represents each LMAA on the
                 local mobility anchor.

                 Implementers need to be aware that if the total
                 number of octets in pmip6LmaLMAA 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  { pmip6LmaLMAAType, pmip6LmaLMAA }
        ::= { pmip6LmaLMAATable 1 }

    Pmip6LmaLMAAEntry ::=
        SEQUENCE {
         pmip6LmaLMAAType   InetAddressType,
         pmip6LmaLMAA       InetAddress,
         pmip6LmaLMAAState  INTEGER
        }

    pmip6LmaLMAAType OBJECT-TYPE
        SYNTAX      InetAddressType
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
                "The InetAddressType of the pmip6LmaLMAA
                 that follows.
                "
        ::= { pmip6LmaLMAAEntry 1 }

    pmip6LmaLMAA OBJECT-TYPE
        SYNTAX      InetAddress
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "The LMAA configured on the local mobility anchor.

             The type of the address represented by this object
             is specified by the corresponding
             pmip6LmaLMAAType object.
            "
        REFERENCE
            "RFC 5213: Sections 2.2, 5.6"
        ::= { pmip6LmaLMAAEntry 2 }

    pmip6LmaLMAAState  OBJECT-TYPE
        SYNTAX      INTEGER {
                                unknown(1),
                                activated(2),
                                tunneled(3)
                              }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "This object indicates the state of the LMAA:
                unknown     -- The state of the LMAA
                               cannot be determined.
```

```
                activated   -- The LMAA is ready to establish
                               a tunnel.
                tunneled    -- The LMAA is used to set up the
                               bidirectional tunnel.
            "
        ::= { pmip6LmaLMAAEntry 3 }

    pmip6LmaMinDelayBeforeBCEDelete OBJECT-TYPE
        SYNTAX      Integer32 (1..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "This variable specifies the length of time in
             milliseconds the local mobility anchor MUST wait before
             it deletes a Binding Cache entry of a mobile node, upon
             receiving a Proxy Binding Update message from a mobile
             access gateway with a lifetime value of 0.
             During this wait time, if the local mobility anchor
             receives a Proxy Binding Update for the same mobility
             binding, with a lifetime value greater than 0, then it
             must update the Binding Cache entry with the accepted
             binding values.  By the end of this wait time, if the
             local mobility anchor did not receive any valid Proxy
             Binding Update message for that mobility binding, it
             MUST delete the Binding Cache entry.  This delay
             essentially ensures that a mobile node's Binding Cache
             entry is not deleted too quickly and allows some time
             for the new mobile access gateway to complete the
             signaling for the mobile node.
             The default value for this variable is 10000
             milliseconds.
            "
        REFERENCE
            "RFC 5213: Sections 5.3.5, 9.1"
        DEFVAL { 10000 }
           ::= { pmip6LmaConf 1 }

    pmip6LmaMaxDelayBeforeNewBCEAssign OBJECT-TYPE
        SYNTAX      Integer32 (1..65535)
        UNITS       "milliseconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "This variable specifies the length of time in
             milliseconds the local mobility anchor MUST wait for
             the de-registration message for an existing mobility
             session before it decides to create a new mobility
```

```
                session.

                The default value for this variable is 1500
                milliseconds.  Note that there is a dependency between
                this value and the values used in the retransmission
                algorithm for Proxy Binding Updates.  The
                retransmissions need to happen before
                MaxDelayBeforeNewBCEAssign runs out, as otherwise there
                are situations where a de-registration from a previous
                mobile access gateway may be lost, and the local
                mobility anchor creates, needlessly, a new mobility
                session and new prefixes for the mobile node.  However,
                this affects situations where there is no information
                from the lower layers about the type of a handoff or
                other parameters that can be used for identifying the
                mobility session.
               "
            REFERENCE
                "RFC 5213: Sections 5.4.1.2, 5.4.1.3, 9.1"
            DEFVAL { 1500 }
               ::= { pmip6LmaConf 2 }
        pmip6LmaTimestampValidityWindow OBJECT-TYPE
            SYNTAX      Integer32 (1..65535)
            UNITS       "milliseconds"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "This variable specifies the maximum length of time
                 difference in milliseconds between the timestamp in the
                 received Proxy Binding Update message and the current
                 time of day on the local mobility anchor that is
                 allowed by the local mobility anchor for the received
                 message to be considered valid.
                 The default value for this variable is 300 milliseconds.
                 This variable must be adjusted to suit the deployments.
                "
            REFERENCE
                "RFC 5213: Sections 5.5, 9.1"
            DEFVAL { 300 }
               ::= { pmip6LmaConf 3 }

        pmip6LmaMnIdentifierTable OBJECT-TYPE
            SYNTAX      SEQUENCE OF Pmip6LmaMnIdentifierEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "A table containing the identifiers of mobile nodes
                 served by the LMA.
```

```
                Entries in this table are not required to survive
                a reboot of the managed entity.
               "
            REFERENCE
                "RFC 5213: Sections 2, 6.1"
            ::= { pmip6LmaConf 4 }

        pmip6LmaMnIdentifierEntry OBJECT-TYPE
            SYNTAX      Pmip6LmaMnIdentifierEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "An entry in the mobile node identifier table.
                "
            INDEX  { pmip6BindingMnIndex
                   }
            ::= { pmip6LmaMnIdentifierTable 1 }

        Pmip6LmaMnIdentifierEntry ::=
            SEQUENCE {
             pmip6LmaMnIdentifier      Pmip6MnIdentifier
            }

        pmip6LmaMnIdentifier  OBJECT-TYPE
            SYNTAX      Pmip6MnIdentifier
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The identity of a mobile node in the Proxy Mobile IPv6
                 domain.
                "
            REFERENCE
                "RFC 5213: Section 2.2"
            ::= { pmip6LmaMnIdentifierEntry 1 }

        pmip6LmaMnLLIdentifierTable OBJECT-TYPE
            SYNTAX      SEQUENCE OF Pmip6LmaMnLLIdentifierEntry
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "A table containing the link-layer identifiers
                 of the interfaces of the mobile nodes served
                 by the LMA.
                 Entries in this table are not required to survive
                 a reboot of the managed entity.
                "
            REFERENCE
                "RFC 5213: Sections 2, 6.1"
```

```
        ::= { pmip6LmaConf 5 }

    pmip6LmaMnLLIdentifierEntry OBJECT-TYPE
        SYNTAX      Pmip6LmaMnLLIdentifierEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
            "An entry in the mobile node link-layer identifier
             table.
            "
        INDEX  { pmip6BindingMnIndex, pmip6BindingMnLLIndex
               }
        ::= { pmip6LmaMnLLIdentifierTable 1 }

    Pmip6LmaMnLLIdentifierEntry ::=
        SEQUENCE {
         pmip6LmaMnLLIdentifier      Pmip6MnLLIdentifier
        }

    pmip6LmaMnLLIdentifier  OBJECT-TYPE
         SYNTAX      Pmip6MnLLIdentifier
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
             "The link-layer identifier of the mobile node's
              connected interface on the access link.
             "
         ::= { pmip6LmaMnLLIdentifierEntry 1 }

    pmip6LmaHomeNetworkPrefixTable   OBJECT-TYPE
         SYNTAX      SEQUENCE OF Pmip6LmaHomeNetworkPrefixEntry
         MAX-ACCESS  not-accessible
         STATUS      current
         DESCRIPTION
             "A table representing the home network prefixes
              assigned to the connected interfaces of all the
              mobile nodes anchored at the LMA.
             "
         REFERENCE
             "RFC 5213: Sections 2, 5.1, 5.2"
         ::= { pmip6LmaConf 6 }

    pmip6LmaHomeNetworkPrefixEntry OBJECT-TYPE
         SYNTAX      Pmip6LmaHomeNetworkPrefixEntry
         MAX-ACCESS  not-accessible
         STATUS      current
         DESCRIPTION
             "An entry in the home network prefixes table.
```

```
                Implementers need to be aware that if the total
                number of octets in pmip6LmaHomeNetworkPrefix
                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  { pmip6BindingMnIndex, pmip6BindingMnLLIndex,
                   pmip6LmaHomeNetworkPrefixType,
                   pmip6LmaHomeNetworkPrefix }
          ::= { pmip6LmaHomeNetworkPrefixTable 1 }

     Pmip6LmaHomeNetworkPrefixEntry ::=
          SEQUENCE {
           pmip6LmaHomeNetworkPrefixType      InetAddressType,
           pmip6LmaHomeNetworkPrefix          InetAddress,
           pmip6LmaHomeNetworkPrefixLength    InetAddressPrefixLength,
           pmip6LmaHomeNetworkPrefixLifeTime  Gauge32
         }

     pmip6LmaHomeNetworkPrefixType  OBJECT-TYPE
          SYNTAX      InetAddressType
          MAX-ACCESS  not-accessible
          STATUS      current
          DESCRIPTION
              "The InetAddressType of the pmip6LmaHomeNetworkPrefix
               that follows.
              "
          ::= { pmip6LmaHomeNetworkPrefixEntry 1 }

     pmip6LmaHomeNetworkPrefix   OBJECT-TYPE
          SYNTAX      InetAddress
          MAX-ACCESS  not-accessible
          STATUS      current
          DESCRIPTION
              "The mobile network prefix that is delegated to the
               mobile node.  The type of the address represented by
               this object is specified by the corresponding
               pmip6LmaHomeNetworkPrefixType object.
              "
          REFERENCE
              "RFC 5213: Section 2"

          ::= { pmip6LmaHomeNetworkPrefixEntry 2 }

     pmip6LmaHomeNetworkPrefixLength   OBJECT-TYPE
          SYNTAX      InetAddressPrefixLength
          MAX-ACCESS  read-only
```

```
            STATUS      current
            DESCRIPTION
                    "The prefix length of the home network prefix.
                    "
            ::= { pmip6LmaHomeNetworkPrefixEntry 3 }

        pmip6LmaHomeNetworkPrefixLifeTime   OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS       "seconds"
            MAX-ACCESS  read-write
            STATUS      current
            DESCRIPTION
                "The lifetime (in seconds) granted to the mobile
                 node for this registration.
                "
            REFERENCE
                "RFC 5213: Section 5.3"
            ::= { pmip6LmaHomeNetworkPrefixEntry 4 }

        --
        -- pmip6Notifications
        --
        --

        pmip6MagHomeTunnelEstablished NOTIFICATION-TYPE
            OBJECTS   {
                        pmip6MagBLTunnelIfIdentifier,
                        pmip6MagProxyCOAState
                       }
            STATUS    current
            DESCRIPTION
                "This notification is sent by the Proxy Mobile IPv6
                 entities every time the tunnel is established between
                 the local mobility anchor and mobile access gateway.
                "
            REFERENCE
                "RFC 5213: Section 5.6.1"
                ::= { pmip6Notifications 1 }

        pmip6MagHomeTunnelReleased NOTIFICATION-TYPE
            OBJECTS {
                      pmip6MagBLTunnelIfIdentifier,
                      pmip6MagProxyCOAState
                    }
            STATUS    current
            DESCRIPTION
                "This notification is sent by the Proxy Mobile IPv6
                 entities every time the tunnel between the local
```

```
             mobility anchor and mobile access gateway is released.
            "
        REFERENCE
            "RFC 5213: Section 5.6.1"
            ::= { pmip6Notifications 2}

    pmip6LmaHomeTunnelEstablished NOTIFICATION-TYPE
        OBJECTS   {
                    pmip6BindingTunnelIfIdentifier,
                    pmip6LmaLMAAState
                  }
        STATUS    current
        DESCRIPTION
            "This notification is sent by the Proxy Mobile IPv6
             entities every time the tunnel is established between
             the local mobility anchor and mobile access gateway.
            "
        REFERENCE
            "RFC 5213: Section 5.6.1"
            ::= { pmip6Notifications 3 }

    pmip6LmaHomeTunnelReleased NOTIFICATION-TYPE
        OBJECTS {
                  pmip6BindingTunnelIfIdentifier,
                  pmip6LmaLMAAState
                }
        STATUS    current
        DESCRIPTION
            "This notification is sent by the Proxy Mobile IPv6
             entities every time the tunnel between the local
             mobility anchor and mobile access gateway is released.
            "
        REFERENCE
            "RFC 5213: Section 5.6.1"
            ::= { pmip6Notifications 4}

     -- Conformance information
    pmip6Groups      OBJECT IDENTIFIER ::= { pmip6Conformance 1 }
    pmip6Compliances OBJECT IDENTIFIER ::= { pmip6Conformance 2 }

     -- Units of conformance
    pmip6SystemGroup    OBJECT-GROUP
         OBJECTS {
             pmip6Capabilities,
             pmip6MobileNodeGeneratedTimestampInUse,
             pmip6FixedMagLinkLocalAddressOnAllAccessLinksType,
             pmip6FixedMagLinkLocalAddressOnAllAccessLinks,
             pmip6FixedMagLinkLayerAddressOnAllAccessLinks
```

```
            }
             STATUS  current
             DESCRIPTION
                 " A collection of objects for basic PMIPv6
                   monitoring."
             ::= { pmip6Groups 1 }

        pmip6BindingCacheGroup    OBJECT-GROUP
             OBJECTS {
                 pmip6BindingPBUFlag,
                 pmip6BindingMnIndex,
                 pmip6BindingMnLLIndex,
                 pmip6BindingMagLinkLocalAddressType,
                 pmip6BindingMagLinkLocalAddress,
                 pmip6BindingTunnelIfIdentifier,
                 pmip6BindingMnInterfaceATT,
                 pmip6BindingTimeRecentlyAccepted,
                 pmip6LmaMnIdentifier,
                 pmip6LmaMnLLIdentifier
            }
             STATUS  current
             DESCRIPTION
                 " A collection of objects for monitoring the
                   PMIPv6 extensions of the Binding Cache."
             ::= { pmip6Groups 2 }

        pmip6StatsGroup    OBJECT-GROUP
             OBJECTS {
                 pmip6MissingMnIdentifierOption,
                 pmip6MagNotAuthorizedForProxyReg,
                 pmip6NotLMAForThisMobileNode,
                 pmip6ProxyRegNotEnabled,
                 pmip6MissingHomeNetworkPrefixOption,
                 pmip6MissingHandOffIndicatorOption,
                 pmip6MissingAccessTechTypeOption,
                 pmip6NotAuthorizedForHomeNetworkPrefix,
                 pmip6TimestampMismatch,
                 pmip6TimestampLowerThanPrevAccepted,
                 pmip6BcePbuPrefixSetDoNotMatch,
                 pmip6InitialBindingRegistrations,
                 pmip6BindingLifeTimeExtensionNoHandOff,
                 pmip6BindingLifeTimeExtensionAfterHandOff,
                 pmip6BindingDeRegistrations,
                 pmip6BindingBindingAcks,
                 pmip6CounterDiscontinuityTime
            }
             STATUS  current
             DESCRIPTION
```

```
            " A collection of objects for basic PMIPv6
              statistics monitoring.
            "
         ::= { pmip6Groups 3 }

    pmip6MagSystemGroup    OBJECT-GROUP
         OBJECTS {
           pmip6MagStatus,
           pmip6MagProxyCOAState
        }
         STATUS  current
         DESCRIPTION
             " A collection of objects for monitoring the
               PMIPv6-system-related objects on a mobile router."
         ::= { pmip6Groups 4 }

    pmip6MagConfigurationGroup    OBJECT-GROUP
         OBJECTS {
             pmip6MagHomeNetworkPrefixLength,
             pmip6MagHomeNetworkPrefixLifeTime,
             pmip6MagEnableMagLocalRouting
        }
         STATUS  current
         DESCRIPTION
             " A collection of objects for monitoring the
               configuration-related objects on a mobile access
               gateway.
             "
         ::= { pmip6Groups 5 }
    pmip6MagRegistrationGroup    OBJECT-GROUP
         OBJECTS {
             pmip6MagBLFlag,
             pmip6MagBLMnIndex,
             pmip6MagBLMnLLIndex,
             pmip6MagBLMagLinkLocalAddressType,
             pmip6MagBLMagLinkLocalAddress,
             pmip6MagBLMagIfIdentifierToMn,
             pmip6MagBLTunnelIfIdentifier,
             pmip6MagBLMnInterfaceATT,
             pmip6MagBLTimeRecentlyAccepted,
             pmip6MagMnIdentifier,
             pmip6MagMnLLIdentifier,
             pmip6MagProfMnIdentifier,
             pmip6MagProfMnLocalMobilityAnchorAddressType,
             pmip6MagProfMnLocalMobilityAnchorAddress
        }
         STATUS  current
         DESCRIPTION
```

```
            " A collection of objects for monitoring the
              registration-related objects on a mobile access
              gateway.
            "
        ::= { pmip6Groups 6 }

    pmip6LmaSystemGroup    OBJECT-GROUP
        OBJECTS {
            pmip6LmaStatus,
            pmip6LmaLMAAState
        }
        STATUS  current
        DESCRIPTION
            " A collection of objects for monitoring the
              system-related objects on an LMA."
        ::= { pmip6Groups 7 }

    pmip6LmaConfigurationGroup    OBJECT-GROUP
        OBJECTS {
            pmip6LmaMinDelayBeforeBCEDelete,
            pmip6LmaMaxDelayBeforeNewBCEAssign,
            pmip6LmaTimestampValidityWindow,
            pmip6LmaHomeNetworkPrefixLength,
            pmip6LmaHomeNetworkPrefixLifeTime
        }
        STATUS  current
        DESCRIPTION
            " A collection of objects for Monitoring the
              configuration-related objects on an LMA."
        ::= { pmip6Groups 8 }

    pmip6MagNotificationGroup   NOTIFICATION-GROUP
        NOTIFICATIONS {
                pmip6MagHomeTunnelEstablished,
                pmip6MagHomeTunnelReleased
        }
        STATUS  current
        DESCRIPTION
            "A collection of notifications from a home agent
             or correspondent node to the Manager about the
             tunnel status of the mobile router.
            "
        ::= { pmip6Groups 9 }

    pmip6LmaNotificationGroup   NOTIFICATION-GROUP
        NOTIFICATIONS {
                pmip6LmaHomeTunnelEstablished,
                pmip6LmaHomeTunnelReleased
```

```
           }
            STATUS  current
            DESCRIPTION
                "A collection of notifications from a home agent
                 or correspondent node to the Manager about the
                 tunnel status of the mobile router.
                "
            ::= { pmip6Groups 10 }

       -- Compliance statements
       pmip6CoreCompliance MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities
                 that implement the PMIPV6-MIB.
                 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      pmip6BindingHomeAddressType
                 -- SYNTAX      InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --   This MIB module requires support for global
                 --   ipv6 addresses for the pmip6BindingHomeAddress
                 --   object.
                 --
                 "
            MODULE  -- this module
                MANDATORY-GROUPS { pmip6SystemGroup
                                 }
            ::= { pmip6Compliances 1 }

       pmip6Compliance2 MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities
                 that implement the PMIPV6-MIB.
                 "
            MODULE  -- this module
                MANDATORY-GROUPS { pmip6SystemGroup,
                                   pmip6BindingCacheGroup,
                                   pmip6StatsGroup
                                 }
            ::= { pmip6Compliances 2 }

       pmip6CoreReadOnlyCompliance MODULE-COMPLIANCE
            STATUS  current
```

```
            DESCRIPTION
                "The compliance statement for SNMP entities
                 that implement the PMIPV6-MIB without support
                 for read-write (i.e., in read-only mode).
                 "
            MODULE  -- this module
                MANDATORY-GROUPS { pmip6SystemGroup
                                 }
            OBJECT  pmip6MobileNodeGeneratedTimestampInUse
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."
            OBJECT  pmip6FixedMagLinkLocalAddressOnAllAccessLinksType
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."
            OBJECT  pmip6FixedMagLinkLocalAddressOnAllAccessLinks
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."
            OBJECT  pmip6FixedMagLinkLayerAddressOnAllAccessLinks
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."

            ::= { pmip6Compliances 3 }

       pmip6ReadOnlyCompliance2 MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities
                 that implement the PMIPV6-MIB without support
                 for read-write (i.e., in read-only mode).
                 "
            MODULE  -- this module
                MANDATORY-GROUPS { pmip6SystemGroup,
                                   pmip6BindingCacheGroup,
                                   pmip6StatsGroup
                                 }
            OBJECT  pmip6MobileNodeGeneratedTimestampInUse
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."
            OBJECT  pmip6FixedMagLinkLocalAddressOnAllAccessLinksType
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."
            OBJECT  pmip6FixedMagLinkLocalAddressOnAllAccessLinks
```

```
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."
            OBJECT  pmip6FixedMagLinkLayerAddressOnAllAccessLinks
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."

            ::= { pmip6Compliances 4 }

       pmip6MagCoreCompliance MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities
                 that implement the PMIPV6-MIB.

                 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      pmip6MagProxyCOAType
                  -- SYNTAX      InetAddressType { ipv6(2) }
                  -- DESCRIPTION
                  --     This MIB module requires support for global
                  --     IPv6 addresses for the pmip6MagProxyCOAType
                  --     object.
                  --
                  -- OBJECT      pmip6MagProxyCOA
                  -- SYNTAX      InetAddress (SIZE(16))
                  -- DESCRIPTION
                  --     This MIB module requires support for global
                  --     IPv6 addresses for the pmip6MagProxyCOA
                  --     object.
                  --
                 "
            MODULE  -- this module
                MANDATORY-GROUPS { pmip6MagSystemGroup
                                 }
            ::= { pmip6Compliances 5 }

       pmip6MagCompliance2 MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities that
                 implement the PMIPV6-MIB for monitoring configuration-
                 related information, registration details, and
                 statistics on a mobile access gateway.
```

```
                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      pmip6MagProxyCOAType
                 -- SYNTAX      InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     IPv6 addresses for the pmip6MagProxyCOA
                 --     object.
                 --
                 -- OBJECT      pmip6MagProxyCOA
                 -- SYNTAX      InetAddress (SIZE(16))
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     IPv6 addresses for the pmip6MagProxyCOAType
                 --     object.
                 --
                 -- OBJECT      pmip6MagHomeNetworkPrefixType
                 -- SYNTAX      InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     IPv6 addresses for the
                 --     pmip6MagHomeNetworkPrefix object.
                 --
                 -- OBJECT      pmip6MagHomeNetworkPrefix
                 -- SYNTAX      InetAddress (SIZE(16))
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     IPv6 addresses for the
                 --     pmip6MagHomeNetworkPrefix object.
                 --
                "
            MODULE  -- this module
                MANDATORY-GROUPS { pmip6MagSystemGroup,
                                   pmip6MagConfigurationGroup,
                                   pmip6MagRegistrationGroup
                                 }
            ::= { pmip6Compliances 6 }

        pmip6MagCoreReadOnlyCompliance MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities
                 that implement the PMIPV6-MIB without support
                 for read-write (i.e., in read-only mode).
```

```
                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      pmip6MagProxyCOAType
                 -- SYNTAX      InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     IPv6 addresses for the pmip6MagProxyCOA
                 --     object.
                 --
                 -- OBJECT      pmip6MagProxyCOA
                 -- SYNTAX      InetAddress (SIZE(16))
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     IPv6 addresses for the pmip6MagProxyCOAType
                 --     object.
                 --
                 -- OBJECT      pmip6MagHomeNetworkPrefixType
                 -- SYNTAX      InetAddressType { ipv6(2) }
                 -- DESCRIPTION
                 --     This MIB module requires support for global
                 --     IPv6 addresses for the
                 --     pmip6MagHomeNetworkPrefix object.
                 --
                "
            MODULE  -- this module
                MANDATORY-GROUPS { pmip6MagSystemGroup
                                 }
            OBJECT  pmip6MagStatus
            MIN-ACCESS  read-only
            DESCRIPTION
                   "Write access is not required."
            ::= { pmip6Compliances 7 }

        pmip6MagReadOnlyCompliance2 MODULE-COMPLIANCE
             STATUS  current
             DESCRIPTION
                 "The compliance statement for SNMP entities that
                  implement the PMIPV6-MIB without support for read-
                  write (i.e., in read-only mode) and with support
                  for monitoring configuration-related information,
                  registration details, and statistics on a mobile
                  access gateway.

                  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      pmip6MagProxyCOAType
             -- SYNTAX      InetAddressType { ipv6(2) }
             -- DESCRIPTION
             --     This MIB module requires support for global
             --     IPv6 addresses for the pmip6MagProxyCOA
             --     object.
             --
             -- OBJECT      pmip6MagProxyCOA
             -- SYNTAX      InetAddress (SIZE(16))
             -- DESCRIPTION
             --     This MIB module requires support for global
             --     IPv6 addresses for the pmip6MagProxyCOAType
             --     object.
             --
             -- OBJECT      pmip6MagHomeNetworkPrefixType
             -- SYNTAX      InetAddressType { ipv6(2) }
             -- DESCRIPTION
             --     This MIB module requires support for global
             --     IPv6 addresses for the
             --     pmip6MagHomeNetworkPrefix object.
             --
             -- OBJECT      pmip6MagHomeNetworkPrefix
             -- SYNTAX      InetAddress (SIZE(16))
             -- DESCRIPTION
             --     This MIB module requires support for global
             --     IPv6 addresses for the
             --     pmip6MagHomeNetworkPrefix object.
             --
            "
        MODULE  -- this module
            MANDATORY-GROUPS { pmip6MagSystemGroup,
                               pmip6MagConfigurationGroup,
                               pmip6MagRegistrationGroup
                             }
        OBJECT  pmip6MagStatus
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."
        OBJECT      pmip6MagEnableMagLocalRouting
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."

        ::= { pmip6Compliances 8 }
```

```
       pmip6LmaCoreCompliance MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities
                 that implement the PMIPV6-MIB.
                 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      pmip6LmaLMAAType
                  -- SYNTAX      InetAddressType { ipv6(2) }
                  -- DESCRIPTION
                  --     This MIB module requires support for global
                  --     IPv6 addresses for the pmip6LmaLMAA
                  --     object.
                  --
                  -- OBJECT      pmip6LmaLMAA
                  -- SYNTAX      InetAddress (SIZE(16))
                  -- DESCRIPTION
                  --     This MIB module requires support for global
                  --     IPv6 addresses for the pmip6LmaLMAA
                  --     object.
                  --
                 "
            MODULE  -- this module
                MANDATORY-GROUPS { pmip6LmaSystemGroup
                                 }
            ::= { pmip6Compliances 9 }

       pmip6LmaCompliance2 MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities that
                 implement the PMIPV6-MIB for monitoring configuration-
                 related information, registration details, and
                 statistics on a mobile access gateway.

                 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      pmip6LmaLMAAType
                  -- SYNTAX      InetAddressType { ipv6(2) }
                  -- DESCRIPTION
                  --     This MIB module requires support for global
```

```
                --     IPv6 addresses for the pmip6LmaLMAA
                --     object.
                --
                -- OBJECT      pmip6LmaLMAA
                -- SYNTAX      InetAddress (SIZE(16))
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     IPv6 addresses for the pmip6LmaLMAA
                --     object.
                --
                -- OBJECT      pmip6LmaHomeNetworkPrefixType
                -- SYNTAX      InetAddressType { ipv6(2) }
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     IPv6 addresses for the
                --     pmip6LmaHomeNetworkPrefix object.
                --
                -- OBJECT      pmip6LmaHomeNetworkPrefix
                -- SYNTAX      InetAddress (SIZE(16))
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     IPv6 addresses for the
                --     pmip6LmaHomeNetworkPrefix object.
                --
               "
          MODULE  -- this module
              MANDATORY-GROUPS { pmip6LmaSystemGroup,
                                 pmip6LmaConfigurationGroup
                               }
          ::= { pmip6Compliances 10 }

     pmip6LmaReadOnlyCompliance MODULE-COMPLIANCE
          STATUS  current
          DESCRIPTION
              "The compliance statement for SNMP entities
               that implement the PMIPV6-MIB.
               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      pmip6LmaLMAAType
                -- SYNTAX      InetAddressType { ipv6(2) }
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     IPv6 addresses for the pmip6LmaLMAA
                --     object.
                --
```

```
                -- OBJECT      pmip6LmaLMAA
                -- SYNTAX      InetAddress (SIZE(16))
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     IPv6 addresses for the pmip6LmaLMAA
                --     object.
                --
               "
        MODULE  -- this module
            MANDATORY-GROUPS { pmip6LmaSystemGroup
                             }
        OBJECT  pmip6LmaStatus
        MIN-ACCESS  read-only
        DESCRIPTION
               "Write access is not required."
        ::= { pmip6Compliances 11 }

    pmip6LmaReadOnlyCompliance2 MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
            "The compliance statement for SNMP entities that
             implement the PMIPV6-MIB without support
             for read-write (i.e., in read-only mode) and for
             monitoring configuration-related information,
             registration details, and statistics on a mobile
             access gateway.

             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      pmip6LmaLMAAType
              -- SYNTAX      InetAddressType { ipv6(2) }
              -- DESCRIPTION
              --     This MIB module requires support for global
              --     IPv6 addresses for the pmip6LmaLMAA
              --     object.

              --
              -- OBJECT      pmip6LmaLMAA
              -- SYNTAX      InetAddress (SIZE(16))
              -- DESCRIPTION
              --     This MIB module requires support for global
              --     IPv6 addresses for the pmip6LmaLMAA
              --     object.
              --
```

```
                -- OBJECT      pmip6LmaHomeNetworkPrefixType
                -- SYNTAX      InetAddressType { ipv6(2) }
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     IPv6 addresses for the
                --     pmip6LmaHomeNetworkPrefix object.
                --
                -- OBJECT      pmip6LmaHomeNetworkPrefix
                -- SYNTAX      InetAddress (SIZE(16))
                -- DESCRIPTION
                --     This MIB module requires support for global
                --     IPv6 addresses for the
                --     pmip6LmaHomeNetworkPrefix object.
                --
               "
          MODULE  -- this module
              MANDATORY-GROUPS { pmip6LmaSystemGroup,
                                 pmip6LmaConfigurationGroup
                               }
          OBJECT  pmip6LmaStatus
          MIN-ACCESS  read-only
          DESCRIPTION
                 "Write access is not required."
          OBJECT      pmip6LmaMinDelayBeforeBCEDelete
          MIN-ACCESS  read-only
          DESCRIPTION
                 "Write access is not required."
          OBJECT      pmip6LmaMaxDelayBeforeNewBCEAssign
          MIN-ACCESS  read-only
          DESCRIPTION
                 "Write access is not required."
          OBJECT      pmip6LmaTimestampValidityWindow
          MIN-ACCESS  read-only
          DESCRIPTION
                 "Write access is not required."
          OBJECT      pmip6LmaHomeNetworkPrefixLifeTime
          MIN-ACCESS  read-only
          DESCRIPTION
                 "Write access is not required."

          ::= { pmip6Compliances 12 }

     pmip6MagNotificationCompliance MODULE-COMPLIANCE
          STATUS  current
          DESCRIPTION
                 "The compliance statement for SNMP entities that
                  implement the PMIPV6-MIB and support notification
                  from the mobile access gateway.
```

```
                "
        MODULE  -- this module
            MANDATORY-GROUPS { pmip6MagNotificationGroup
                             }
        ::= { pmip6Compliances 13 }

    pmip6LmaNotificationCompliance MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
                "The compliance statement for SNMP entities that
                 implement the PMIPV6-MIB and support notification
                 from the LMA.
                 "
        MODULE  -- this module
            MANDATORY-GROUPS { pmip6LmaNotificationGroup
                             }
        ::={  pmip6Compliances 14 }

    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:

The value of the following objects is used to enable or disable the PMIPv6 functionality on the corresponding PMIPv6 entity. Access to these MOs may be abused to disrupt the communication that depends on the PMIPv6 functionality.

- pmip6MagStatus
- pmip6LmaStatus

Access to the following MOs may be abused to misconfigure PMIPv6 entities and disrupt communications.

- pmip6MobileNodeGeneratedTimestampInUse
- pmip6FixedMagLinkLocalAddressOnAllAccessLinksType
- pmip6FixedMagLinkLocalAddressOnAllAccessLinks
- pmip6FixedMagLinkLayerAddressOnAllAccessLinks
- pmip6MagEnableMagLocalRouting
- pmip6MagHomeNetworkPrefixLifeTime
- pmip6LmaMinDelayBeforeBCEDelete
- pmip6LmaMaxDelayBeforeNewBCEAssign
- pmip6LmaTimestampValidityWindow

pmip6LmaHomeNetworkPrefixLifeTime

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 following address-related objects may be considered to be particularly sensitive and/or private.

pmip6LmaHomeNetworkPrefixType
pmip6LmaHomeNetworkPrefix
pmip6LmaHomeNetworkPrefixLength

The following MN Identifier-related MOs may be used to identify users. These may be considered to be sensitive and/or private.

pmip6MagMnIdentifier
pmip6MagMnLLIdentifier
pmip6LmaMnIdentifier
pmip6LmaMnLLIdentifier
pmip6MagProfMnIdentifier

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).

Implementations MUST provide the security features described by the SNMPv3 framework (see [RFC3410]), including full support for authentication and privacy via the User-based Security Model (USM) [RFC3414] with the AES cipher algorithm [RFC3826]. Implementations MAY also provide support for the Transport Security Model (TSM) [RFC5591] in combination with a secure transport such as SSH [RFC5592] or TLS/DTLS [RFC6353].

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 has assigned the following:

1. a base arc in the 'mib-2' (Standards Track) OID tree for the 'pmip6TCMIB' MODULE-IDENTITY defined in the PMIPV6-TC-MIB.

2. a base arc in the 'mib-2' (Standards Track) OID tree for the 'pmip6MIB' MODULE-IDENTITY defined in the PMIPV6-MIB.

8. References

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