         Definition of Managed Objects for the MANET Optimized Link State Routing
                              Protocol version 2
                        draft-cole-manet-olsrv2-mib-01

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Abstract

   This memo defines a portion of the Management Information Base (MIB)
   for use with network management protocols in the Internet community.
   In particular, it describes objects for configuring and managing
   aspects of the Optimized Link State Routing protocol version 2. The
   Optimized Link State Routing MIB also reports state information,
   performance metrics, and notifications. In addition to
   configuration, this additional state and performance information is
   useful to management stations troubleshooting Mobile Ad-Hoc Networks
   routing problems.

Table of Contents

1. Introduction

   This memo defines a portion of the Management Information Base (MIB)
   for use with network management protocols in the Internet community.
   In particular, it describes objects for configuring aspects of a
   process implementing the Optimized Link State Routing Protocol
   version 2 (OLSRv2) [I-D.ietf-manet-olsrv2]. OLSRv2 provides ...

2. The Internet-Standard Management Framework

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

3. Conventions

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

4. Overview

   Optimized Link State Routing (OLSR) protocol version 2 (OLSRv2)
   provides ...

4.1. OLSRv2 Management Model

   This section describes the management model for the OLSRv2 node
   routing process. Specifically, ...

4.2. Terms

   The following definitions apply throughout this document:

   o Configuration Objects - switches, tables, objects which are
      initialized to default settings or set through the management
      interface defined by this MIB.

   o Tunable Configuration Objects - objects whose values affect timing
      or attempt bounds on the OLSRv2 routing process.

   o State Objects - automatically generated values which define the
      current operating state of the OLSRv2 routing process in the
      router.

   o Performance Objects - automatically generated values which help an
      administrator or automated tool to assess the performance of the
      OLSRv2 routing process on the router and the overall packet
      forwarding performance within the MANET routing domain.

5. Structure of the MIB Module

   This section presents the structure of the Optimized Link State
   Routing version 2 Management Information Base (OLSRv2-MIB) module.
   The objects are arranged into the following groups:

   o olsrMIBNotifications - defines the notifications associated with
      the OLSRv2-MIB.

   o olsrMIBObjects - defines the objects forming the basis for the
      OLSRv2-MIB. These objects are divided up by function into the
      following groups:

   o

      * Configuration Group - This group contains the OLSR objects that
         configure specific options that determine the overall operation
         of the OLSR routing process and the unicast packet forwarding
         performance.

      * State Group - Contains information describing the current state
         of the OLSR routing process such as the ...

      * Performance Group - Contains objects which help to characterize
         the performance of the OLSR routing process, typically
         statistics counters.

   o olsrMIBConformance - defines minimal and full conformance of
      implementations to this OLSRv2-MIB.

5.1. Textual Conventions

   The textual conventions used in the OLSRv2-MIB are as follows. The
   RowStatus textual convention is imported from RFC 2579 [RFC2579].
   Further, ...

5.2. The Configuration Group

The OLSR device is configured with a set of controls. The list of
configuration controls for the OLSR device follow.

   o ...

5.3. The State Group

The State Subtree reports current state information. Specifically,
...

   o ...

5.4. The Performance Group

The Performance subtree reports primarily counters that relate to
OLSR routing performance. Specifically, ...

   o ...

5.5. The Notifications Group

The Notifications Subtree contains the list of notifications
supported within the OLSRv2-MIB and their intended purpose or
utility. This group is currently empty.

6. Relationship to Other MIB Modules

[TODO]: The text of this section specifies the relationship of the
MIB modules contained in this document to other standards,
particularly to standards containing other MIB modules. Definitions
imported from other MIB modules and other MIB modules that SHOULD be
implemented in conjunction with the MIB module contained within this
document are identified in this section.

6.1. Relationship to the SNMPv2-MIB

The 'system' group in the SNMPv2-MIB [RFC3418] is defined as being
mandatory for all systems, and the objects apply to the entity as a
whole. The 'system' group provides identification of the management
entity and certain other system-wide data. The OLSRv2-MIB does not
duplicate those objects.

6.2. Relationship to the IF-MIB

[TODO] This section is included as an example; If the MIB module is
not an adjunct of the Interface MIB, then this section should be

   removed.

6.3. MIB modules required for IMPORTS

   [TODO]: Citations are not permitted within a MIB module, but any
   module mentioned in an IMPORTS clause or document mentioned in a
   REFERENCE clause is a Normative reference, and must be cited
   someplace within the narrative sections. If there are imported items
   in the MIB module, such as Textual Conventions, that are not already
   cited, they can be cited in text here. Since relationships to other
   MIB modules should be described in the narrative text, this section
   is typically used to cite modules from which Textual Conventions are
   imported.

   The following OLSRv2-MIB module IMPORTS objects from SNMPv2-SMI
   [RFC2578], SNMPv2-TC [RFC2579], SNMPv2-CONF [RFC2580], and IF-MIB
   [RFC2863]

7. Definitions

    MANET-OLSRv2-MIB DEFINITIONS ::= BEGIN

    IMPORTS
       MODULE-IDENTITY, OBJECT-TYPE,
       Counter32, mib-2
          FROM SNMPv2-SMI   -- [RFC2578]
       TruthValue
          FROM SNMPv2-TC   -- [RFC2579]
       MODULE-COMPLIANCE, OBJECT-GROUP
          FROM SNMPv2-CONF   -- [RFC2580]
       InterfaceIndex
          FROM IF-MIB   -- [RFC2863]
       InetAddress, InetAddressType,
       InetAddressPrefixLength
          FROM INET-ADDRESS-MIB   -- [RFC4001]
       NeighborNodeId
          FROM NHDP-MIB   -- [draft nhdp-mib]
       ;

     manetOlsrv2MIB MODULE-IDENTITY
        LAST-UPDATED "200902151300Z" -- Jebruary 15, 2009
        ORGANIZATION "IETF MANET Working Group"
        CONTACT-INFO
           "WG E-Mail: manet@ietf.org

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                        France
                        T.Clausen@computer.org"

        DESCRIPTION
          "This MIB module contains managed object definitions
           for the Manet OLSRv2 routing process defined in:
           Clausen, T. et.al., Optimized Link State Routing
           version 2 draft-ietf-manet-olsrv2-07, July 10, 2008.

           Copyright (C) The IETF Trust (2009). This version
           of this MIB module is part of RFC xxxx; see the RFC
           itself for full legal notices."

        -- Revision History
        REVISION   "200902151300Z"   -- February 15, 2009
        DESCRIPTION
           "Second draft of this MIB module published as
            draft-cole-manet-olsrv2-mib-01.txt. Cleaned up
            table indexing and aligned with the NHDP-MIB
            draft (draft-cole-manet-nhdp-mib-01.txt)."
        REVISION   "200810241300Z"   -- October 24, 2008
        DESCRIPTION
           "Initial draft of this MIB module published as
            draft-cole-manet-olsrv2-mib-00.txt."
        -- RFC-Editor assigns XXXX
        ::= { mib-2 998 }   -- to be assigned by IANA

    --
    -- TEXTUAL CONVENTIONs
    --

```
      -- none




      --
      -- Top-Level Object Identifier Assignments
      --

      olsrv2MIBNotifications OBJECT IDENTIFIER ::= { manetOlsrv2MIB 0 }
      olsrv2MIBObjects       OBJECT IDENTIFIER ::= { manetOlsrv2MIB 1 }
      olsrv2MIBConformance   OBJECT IDENTIFIER ::= { manetOlsrv2MIB 2 }


      --
      -- olsrv2ConfigurationGroup
      --
      --     This group contains the OLSRv2 objects that configure specific
      --     options that determine the overall performance and operation
      --     of the unicast routing process for the router device
      --     and its interfaces.
      --

      olsrv2ConfigurationGroup OBJECT IDENTIFIER ::= {olsrv2MIBObjects 1}

      olsrv2OperationalMode  OBJECT-TYPE
         SYNTAX       INTEGER {
                         withNHDP(1)
                         }
         MAX-ACCESS  read-write
         STATUS      current
         DESCRIPTION
            "The OLSRv2 node operational mode.

             The value withNHDP(1) indicates ..."
         DEFVAL { 1 }
      ::= { olsrv2ConfigurationGroup 1 }



      -- Protocol Parameters for the OLSRv2 routing process.
      -- These are categorized following Section 5 of the
      -- OLSRv2 draft.

      -- Local history times

      olsrv2OHoldTime  OBJECT-TYPE
         SYNTAX       Unsigned32 (0..255)
         UNITS        "seconds"
```

```
      MAX-ACCESS  read-write
      STATUS      current
      DESCRIPTION
         "The O_HOLD_TIME is used to define the time
          for which a recently used and replaced
          originator address is used to recognize
          the node's own messages.

          The following constraint applies to this
          parameter: olsrv2OHoldTime >= 0"
      DEFVAL { TBD }
      REFERENCE
         "The OLSR version 2 draft.
          Section 5 on Protocol Parameters."
   ::= { olsrv2ConfigurationGroup 2 }



   -- Message intervals

   olsrv2TcInterval  OBJECT-TYPE
      SYNTAX      Unsigned32 (0..255)
      UNITS       "seconds"
      MAX-ACCESS  read-write
      STATUS      current
      DESCRIPTION
         "The TC_INTERVAL  - is the maximum time
          between the transmission of two successive
          TC messages by this node.  When no TC
          messages are sent in response to local
          network changes (by design, or because the
          local network is not changing) then TC
          messages SHOULD be sent at a regular
          interval TC_INTERVAL, possibly modified
          by jitter as specified in [RFC5148].

          The following constraint applies to this
          parameter:

              olsrv2TcInterval > 0
              olsrv2TcInterval >= olsrv2TcMinInterval"
      DEFVAL { TBD }
      REFERENCE
         "The OLSR version 2 draft.
          Section 5 on Protocol Parameters."
   ::= { olsrv2ConfigurationGroup 3 }

   olsrv2TcMinInterval  OBJECT-TYPE
```

```
        SYNTAX       Unsigned32 (0..255)
        UNITS        "seconds"
        MAX-ACCESS   read-write
        STATUS       current
        DESCRIPTION
           "The TC_MIN_INTERVAL is the minimum
            interval between transmission of two
            successive TC messages by this node.
            (This minimum interval MAY be modified
            by jitter, as specified in [RFC5148].)

            The following constraint applies to this
            parameter:

                TC_MIN_INTERVAL >= 0
                TC_INTERVAL >= TC_MIN_INTERVAL"
        DEFVAL { TBD }
        REFERENCE
           "The OLSR version 2 draft.
            Section 5 on Protocol Parameters."
    ::= { olsrv2ConfigurationGroup 4 }


    -- Advertised information validity times

    olsrv2THoldTime  OBJECT-TYPE
        SYNTAX       Unsigned32 (0..255)
        UNITS        "seconds"
        MAX-ACCESS   read-write
        STATUS       current
        DESCRIPTION
           "The olsrv2THoldTime is used to define the
            minimum value in the VALIDITY_TIME TLV
            included in all TC messages sent by this node.
            If a single value of parameter TC_HOP_LIMIT
            (see Section 5.6) is used then this will be
            the only value in that TLV.

            The following constraint applies to this
            parameter:

                T_HOLD_TIME > 0
                A_HOLD_TIME >= 0
                T_HOLD_TIME >= TC_INTERVAL

            If TC messages can be lost, then both
            T_HOLD_TIME and A_HOLD_TIME SHOULD be
            significantly greater than TC_INTERVAL;
```

```
         a value >= 3 x TC_INTERVAL is RECOMMENDED.

         T_HOLD_TIME MUST be representable as
         described in [timetlv]."
    DEFVAL { TBD }
    REFERENCE
       "The OLSR version 2 draft.
        Section 5 on Protocol Parameters."
 ::= { olsrv2ConfigurationGroup 5 }


 olsrv2AHoldTime  OBJECT-TYPE
    SYNTAX      Unsigned32 (0..255)
    UNITS       "seconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
       "The olsrv2AHoldTime is the period during
        which TC messages are sent after they no
        longer have any advertised information
        to report, but are sent in order to
        accelerate outdated information removal by
        other nodes.

        The following constraint applies to this
        parameter:

            T_HOLD_TIME > 0
            A_HOLD_TIME >= 0
            T_HOLD_TIME >= TC_INTERVAL

        If TC messages can be lost, then both
        T_HOLD_TIME and A_HOLD_TIME SHOULD be
        significantly greater than TC_INTERVAL;
        a value >= 3 x TC_INTERVAL is RECOMMENDED.

         T_HOLD_TIME MUST be representable as
         described in [timetlv]."
    DEFVAL { TBD }
    REFERENCE
       "The OLSR version 2 draft.
        Section 5 on Protocol Parameters."
 ::= { olsrv2ConfigurationGroup 6 }


 -- Received message validity times

 olsrv2RxHoldTime  OBJECT-TYPE
    SYNTAX      Unsigned32 (0..255)
```

```
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "The olsrv2RxHoldTime is an interface parameter,
            and is the period after receipt of a message
            by the appropriate OLSRv2 interface of this
            node for which that information is recorded,
            in order that the message is recognized as
            having been previously received on this
            OLSRv2 interface.

            The following constraint applies to this
            parameter:

                RX_HOLD_TIME > 0

            All of these parameters SHOULD be greater
            than the maximum difference in time that a
            message may take to traverse the MANET,
            taking into account any message forwarding
            jitter as well as propagation, queuing,
            and processing delays."
        DEFVAL { TBD }
        REFERENCE
           "The OLSR version 2 draft.
            Section 5 on Protocol Parameters."
     ::= { olsrv2ConfigurationGroup 7 }

     olsrv2PHoldTime  OBJECT-TYPE
        SYNTAX      Unsigned32 (0..255)
        UNITS       "seconds"
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "The olsrv2PHoldTime is the period after
            receipt of a message which is processed by
            this node for which that information is
            recorded, in order that the message is
            not processed again if received again.

            The following constraint applies to this
            parameter:

                P_HOLD_TIME > 0

            All of these parameters SHOULD be greater
            than the maximum difference in time that a
```

```
        message may take to traverse the MANET,
        taking into account any message forwarding
        jitter as well as propagation, queuing,
        and processing delays."
    DEFVAL { TBD }
    REFERENCE
        "The OLSR version 2 draft.
        Section 5 on Protocol Parameters."
::= { olsrv2ConfigurationGroup 8 }


olsrv2FHoldTime  OBJECT-TYPE
    SYNTAX      Unsigned32 (0..255)
    UNITS       "seconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "The olsrv2FHoldTime is the period after
         receipt of a message which is forwarded
         by this node for which that information
         is recorded, in order that the message
         is not forwarded again if received again.

         The following constraint applies to this
         parameter:

             F_HOLD_TIME > 0

         All of these parameters SHOULD be greater
         than the maximum difference in time that a
         message may take to traverse the MANET,
         taking into account any message forwarding
         jitter as well as propagation, queuing,
         and processing delays."
    DEFVAL { TBD }
    REFERENCE
        "The OLSR version 2 draft.
        Section 5 on Protocol Parameters."
::= { olsrv2ConfigurationGroup 9 }



-- Jitter times

olsrv2TpMaxJitter  OBJECT-TYPE
    SYNTAX      Unsigned32 (0..65535)
    UNITS       "milliseconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
```

          "If jitter, as defined in [RFC5148], is used
           then the jitter parameters are as follows:

           olsrv2TpMaxJitter represents the value of
           MAXJITTER used in [RFC5148] for periodically
           generated TC messages sent by this node.

           For constraints on these parameters,
           see [RFC5148]."
     DEFVAL { TBD }
     REFERENCE
          "The OLSR version 2 draft.
           Section 5 on Protocol Parameters."
     ::= { olsrv2ConfigurationGroup 10 }

     olsrv2TtMaxJitter OBJECT-TYPE
        SYNTAX   Unsigned32 (0..65535)
        UNITS   "milliseconds"
        MAX-ACCESS read-write
        STATUS   current
        DESCRIPTION
          "If jitter, as defined in [RFC5148], is used
           then the jitter parameters are as follows:

           olsrv2TtMaxJitter represents the value of
           MAXJITTER used in [RFC5148] for externally
           triggered TC messages sent by this node.

           For constraints on these parameters,
           see [RFC5148]."
     DEFVAL { TBD }
     REFERENCE
          "The OLSR version 2 draft.
           Section 5 on Protocol Parameters."
     ::= { olsrv2ConfigurationGroup 11 }

     olsrv2FMaxJitter OBJECT-TYPE
        SYNTAX   Unsigned32 (0..65535)
        UNITS   "milliseconds"
        MAX-ACCESS read-write
        STATUS   current
        DESCRIPTION
          "If jitter, as defined in [RFC5148], is used
           then the jitter parameters are as follows:

           olsrv2FMaxJitter represents the default
           value of MAXJITTER used in [RFC5148] for
           messages forwarded by this node. However

            before using F_MAXJITTER a node MAY attempt
            to deduce a more appropriate value of MAXJITTER,
            for example based on any INTERVAL_TIME or
            VALIDITY_TIME TLVs contained in the message
            to be forwarded.

            For constraints on these parameters,
            see [RFC5148]."
        DEFVAL { TBD }
        REFERENCE
            "The OLSR version 2 draft.
            Section 5 on Protocol Parameters."
    ::= { olsrv2ConfigurationGroup 12 }

    -- Hop limits

    olsrv2TcHopLimit OBJECT-TYPE
        SYNTAX   Unsigned32 (0..255)
        UNITS   "hops"
        MAX-ACCESS   read-write
        STATUS   current
        DESCRIPTION
            "The parameter olsrv2TcHopLimit is the
             hop limit set in each TC message.
             TC_HOP_LIMIT MAY be a single fixed value,
             or MAY be different in TC messages sent
             by the same node.

             The following constraint applies to this
             parameter:

                 The maximum value of
                 olsrv2TcHopLimit >= the network diameter
                 in hops, a value of 255 is RECOMMENDED.

                 All values of olsrv2TcHopLimit >= 2."
         DEFVAL { TBD }
         REFERENCE
           "The OLSR version 2 draft.
            Section 5 on Protocol Parameters."
    ::= { olsrv2ConfigurationGroup 13 }

    -- Willingness

    olsrv2Williness OBJECT-TYPE
        SYNTAX   Unsigned32 (0..255)

         UNITS   ""
         MAX-ACCESS read-write
         STATUS   current
         DESCRIPTION
            "The olsrv2Williness MUST be in the range
             WILL_NEVER (0) to WILL_ALWAYS (255), inclusive,
             and represents its willingness to be an MPR,
             and hence its willingness to forward messages
             and be an intermediate node on routes.

             Note: Need to rethink the range and units for
             this parameter."
         DEFVAL { TBD }
         REFERENCE
            "The OLSR version 2 draft.
             Section 5 on Protocol Parameters."
      ::= { olsrv2ConfigurationGroup 14 }

      -- Local Attached Network Set

      -- This table is part of the OLSR/NHDP
      -- Local Information Base (LIB). It is
      -- placed in the Configuration Group because
      -- this table contains configured information.

      olsrv2LibLocAttNetSetTable OBJECT-TYPE
         SYNTAX   SEQUENCE OF Olsrv2LibLocAttNetSetEntry
         MAX-ACCESS not-accessible
         STATUS   obsolete
         DESCRIPTION
            " A node's Local Attached Network Set records
              its local non-OLSRv2 interfaces that can act
              as gateways to other networks. The Local
              Attached Network Set is not modified by this
              protocol. This protocol MAY respond to changes
              to the Local Attached Network Set, which MUST
              reflect corresponding changes in the node's status.

              Note: Need clarification on the above claim that
              this set records interface information. The
              tuple included in this set is only network
              address information."
         REFERENCE
            "The OLSRv2 draft."
      ::= { olsrv2ConfigurationGroup 15 }

```
     olsrv2LibLocAttNetSetEntry  OBJECT-TYPE
        SYNTAX      Olsrv2LibLocAttNetSetEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
           "The entries include the Local Attached
            Network Tuples:

                (AL_net_addr, AL_dist)

             where:

                AL_net_addr is the network address
                of an attached network which can
                be reached via this node.

                AL_dist is the number of hops to
                the network with address AL_net_addr
                from this node."
        REFERENCE
           "The OLSRv2 draft."
        INDEX { olsrv2LibLocAttNetSetIpAddr,
                olsrv2LibLocAttNetSetIpAddrPrefixLen }
     ::= { olsrv2LibLocAttNetSetTable 1 }

     Olsrv2LibLocAttNetSetEntry ::=
        SEQUENCE {
           olsrv2LibLocAttNetSetIpAddrType
             InetAddressType,
           olsrv2LibLocAttNetSetIpAddr
             InetAddress,
           olsrv2LibLocAttNetSetIpAddrPrefixLen
             InetAddressPrefixLength,
           olsrv2LibLocAttNetSetDistance
             Unsigned32,
           olsrv2LibLocAttNetSetRowStatus
             RowStatus
          }

     olsrv2LibLocAttNetSetIpAddrType  OBJECT-TYPE
        SYNTAX      InetAddressType
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
           "The type of the olsrv2LibLocAttNetSetIpAddr, as defined
            in the InetAddress MIB [RFC 4001]."
        REFERENCE
           "The OLSRv2 draft."
```

```
       ::= { olsrv2LibLocAttNetSetEntry 1 }

    olsrv2LibLocAttNetSetIpAddr  OBJECT-TYPE
       SYNTAX       InetAddress
       MAX-ACCESS  read-write
       STATUS       current
       DESCRIPTION
          "This is the network address of an attached
           network which can be reached via this node.
           This node will act as a gateway for this
           address for the OLSR MANET."
        REFERENCE
           "The OLSRv2 draft."
     ::= { olsrv2LibLocAttNetSetEntry 2 }

    olsrv2LibLocAttNetSetIpAddrPrefixLen  OBJECT-TYPE
      SYNTAX       InetAddressPrefixLength
      MAX-ACCESS  read-write
      STATUS       current
      DESCRIPTION
         "Indicates the number of leading one bits that form the
          mask to be logical-ANDed with the destination address
          before being compared to the value in the
          olsrv2LibLocAttNetSetIpAddr field."
      REFERENCE
         "The OLSRv2 draft."
    ::= { olsrv2LibLocAttNetSetEntry 3 }

    olsrv2LibLocAttNetSetDistance  OBJECT-TYPE
       SYNTAX       Unsigned32 (1..255)
       UNITS       "hops"
       MAX-ACCESS  read-write
       STATUS       current
       DESCRIPTION
          "This object specifies the number of hops
           to the network with address AL_net_addr
           from this node."
       REFERENCE
          "The OLSRv2 draft."
    ::= { olsrv2LibLocAttNetSetEntry 4 }

    olsrv2LibLocAttNetSetRowStatus  OBJECT-TYPE
       SYNTAX       RowStatus
       MAX-ACCESS  read-create
       STATUS       current
       DESCRIPTION
          "This object permits management of the table
           by facilitating actions such as row creation,
```

          construction, and destruction. The value of
          this object has no effect on whether other
          objects in this conceptual row can be
          modified."
      ::= { olsrv2LibLocAttNetSetEntry 5 }

       --
       -- olsrv2StateGroup
       --
       --   Contains information describing the current state of the
       --   OLSRv2 routing process such as the ...
       --

       --
       -- Note: the OLSRv2 draft discusses the option for dynamically
       -- changing the values of the configuration parameters
       -- identified above. In this case we would want to include
       -- a set of state objects (potentially) which track the current
       -- values or the range of values that these dynamic objects
       -- have.
       --

       olsrv2StateGroup OBJECT IDENTIFIER ::= { olsrv2MIBObjects 2 }

       olsrv2NodeStatus OBJECT-TYPE
          SYNTAX   TruthValue
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
             "The current status of the OLSRv2 node
              routing process ..."
       ::= { olsrv2StateGroup 1 }

        --
        -- The OLSRv2 draft defines several information bases
        -- to be maintained by the OLSRv2 compliant nodes.
        -- We list these in the order defined in the OLSRv2
        -- draft.
        --

        --
        -- Local Information Base - as defined in [nhdp],
        -- extended by the addition of an Originator Set,
        -- defined in Section 6.1.1 and a Local Attached
        -- Network Set, defined in Section 6.1.2.

```
        --

        -- Originator Set

        olsrv2LibOrigSetTable OBJECT-TYPE
           SYNTAX        SEQUENCE OF Olsrv2LibOrigSetEntry
           MAX-ACCESS   not-accessible
           STATUS        obsolete
           DESCRIPTION
              " A node's Originator Set records addresses
                that were recently originator addresses.
                If a node's originator address is immutable
                then this set is always empty and MAY be
                omitted.  It consists of Originator Tuples:
                (O_orig_addr, O_time)."
           REFERENCE
              "The OLSRv2 draft."
        ::= { olsrv2StateGroup 2 }

        olsrv2LibOrigSetEntry  OBJECT-TYPE
           SYNTAX        Olsrv2LibOrigSetEntry
           MAX-ACCESS   not-accessible
           STATUS        current
           DESCRIPTION
              " A node's Originator Set records addresses
                that were recently originator addresses.
                If a node's originator address is immutable
                then this set is always empty and MAY be
                omitted.  It consists of Originator Tuples:
                (O_orig_addr, O_time)."
           REFERENCE
              "The OLSRv2 draft."
           INDEX { olsrv2LibOrigSetIpAddr }
        ::= { olsrv2LibOrigSetTable 1 }

        Olsrv2LibOrigSetEntry ::=
           SEQUENCE {
              olsrv2LibOrigSetIpAddrType
                InetAddressType,
              olsrv2LibOrigSetIpAddr
                InetAddress,
              olsrv2LibOrigSetExpireTime
                Unsigned32
             }

        olsrv2LibOrigSetIpAddrType  OBJECT-TYPE
           SYNTAX        InetAddressType
           MAX-ACCESS   read-only
```

```
         STATUS      current
         DESCRIPTION
            "The type of the olsrv2LibOrigSetIpAddr, as defined
             in the InetAddress MIB [RFC 4001]."
         REFERENCE
            "The OLSRv2 draft."
      ::= { olsrv2LibOrigSetEntry 1 }

      olsrv2LibOrigSetIpAddr  OBJECT-TYPE
         SYNTAX      InetAddress
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
            "A recently used originator address
             by this node."
         REFERENCE
            "The OLSRv2 draft."
      ::= { olsrv2LibOrigSetEntry 2 }

       olsrv2LibOrigSetExpireTime  OBJECT-TYPE
         SYNTAX      Unsigned32 (0..65535)
         UNITS       "milliseconds"
         MAX-ACCESS  not-accessible
         STATUS      current
         DESCRIPTION
            "This object specifies the time at which this
             entry expires and MUST be removed.

             Note: need to change the type here to a time/date type,
             not a time in seconds left to expire."
         REFERENCE
            "The OLSRv2 draft."
      ::= { olsrv2LibOrigSetEntry 3 }




      --
      -- Interface Information Bases  - as defined in
      -- [nhdp], one Interface Information Base for
      -- each OLSRv2 interface.
      --

      -- Note: The IIB is fully defined in the NHRP
      -- and its associated MIB.
```

```
        --
        -- Node Information Base  - as defined in [nhdp],
        -- extended by the addition of three elements to
        -- each Neighbor Tuple, as defined in Section 6.2.
        --

        -- Neighbor Set

        olsrv2NibNeighborSetTable OBJECT-TYPE
           SYNTAX       SEQUENCE OF Olsrv2NibNeighborSetEntry
           MAX-ACCESS   not-accessible
           STATUS       obsolete
           DESCRIPTION
              "Each Neighbor Tuple in the Neighbor Set, defined
               in [nhdp], has these additional elements:
                     N_willingness
                     N_mpr
                     N_mpr_selector
               defined here as extensions."
           REFERENCE
              "The OLSRv2 draft."
        ::= { olsrv2StateGroup 4 }

        olsrv2NibNeighborSetEntry  OBJECT-TYPE
           SYNTAX       Olsrv2NibNeighborSetEntry
           MAX-ACCESS   not-accessible
           STATUS       current
           DESCRIPTION
              "Each Neighbor Tuple in the Neighbor Set, defined
               in [nhdp], has these additional elements:
                     N_willingness
                     N_mpr
                     N_mpr_selector
               defined here as extensions."
           REFERENCE
              "The OLSRv2 draft."
           INDEX { olsrv2NibNeighborSetNodeId }
        ::= { olsrv2NibNeighborSetTable 1 }

        Olsrv2NibNeighborSetEntry ::=
           SEQUENCE {
              olsrv2NibNeighborSetNodeId
                NeighborNodeId,
              olsrv2NibNeighborSetNWilliness
                Unsigned32,
              olsrv2NibNeighborSetNMpr
                TruthValue,
              olsrv2NibNeighborSetNMprSelector
```

             TruthValue
           }

     olsrv2NibNeighborSetNodeId OBJECT-TYPE
        SYNTAX   NeighborNodeId
        MAX-ACCESS read-only
        STATUS   current
        DESCRIPTION
           "The object olsrv2NibNeighborSetNodeId is
            the locally assigned ID of the remote node
            referenced in this row. The IP addrs
            associated with this node is contained
            in the NHDP-MIB's 'nhdpDiscIfSetTable'.
           "
        REFERENCE
           "The OLSRv2 draft."
     ::= { olsrv2NibNeighborSetEntry 1 }

     olsrv2NibNeighborSetNWilliness OBJECT-TYPE
        SYNTAX   Unsigned32 (1..255)
        UNITS   ""
        MAX-ACCESS read-only
        STATUS   current
        DESCRIPTION
           "This object, N_willingness, is the neighbor
            node's willingness to be selected as an MPR, in
            the range from WILL_NEVER (0) to WILL_ALWAYS
            (255), both inclusive."
        REFERENCE
           "The OLSRv2 draft."
     ::= { olsrv2NibNeighborSetEntry 2 }

     olsrv2NibNeighborSetNMpr OBJECT-TYPE
        SYNTAX   TruthValue
        UNITS   ""
        MAX-ACCESS read-only
        STATUS   current
        DESCRIPTION
           "This object, N_mpr, is a boolean flag,
            describing if this neighbor is selected as
            an MPR by this node.

            When set to 'true', this neighbor is selected
            as an MPR by this node. When set to 'false',
            it is not selected by this node as an MPR."
        REFERENCE
           "The OLSRv2 draft."
     ::= { olsrv2NibNeighborSetEntry 3 }

olsrv2NibNeighborSetNMprSelector OBJECT-TYPE
   SYNTAX   TruthValue
   UNITS   ""
   MAX-ACCESS read-only
   STATUS   current
   DESCRIPTION
      "This object, N_mpr_selector, is a boolean flag,
       describing if this neighbor has selected this node
       as an MPR, i.e. is an MPR selector of this node.

       When set to 'true', then this node is selected as
       an MPR by the neighbor node. When set to 'false',
       then this node is not selected by the neighbor
       as an MPR"
   REFERENCE
      "The OLSRv2 draft."
::= { olsrv2NibNeighborSetEntry 4 }

--
-- Topology Information Base - this Information
-- Base is specific to OLSRv2, and is defined in
-- Section 6.3.
--

-- Advertised Neighbor Set

 olsrv2TipAdNeighborSetSeqNo OBJECT-TYPE
   SYNTAX   Unsigned32 (0..65535)
   MAX-ACCESS read-only
   STATUS   current
   DESCRIPTION
      "The Advertised Neighbor Set Sequence Number
       (ANSN) is maintained associated with the
       olsrv2TipAdNeighborSetTable. Each time the
       Advertised Neighbor Set Table is updated, the
       ANSN MUST be incremented. The ANSN MUST also
       be incremented if there is a change to the
       set of Local Attached Network Tuples that are to
       be advertised in the node's TC messages."
   REFERENCE
      "The OLSRv2 draft."
::= { olsrv2StateGroup 5 }

      olsrv2TipAdNeighborSetTable OBJECT-TYPE
         SYNTAX   SEQUENCE OF Olsrv2TibAdNeighborSetEntry
         MAX-ACCESS   not-accessible
         STATUS   obsolete
         DESCRIPTION
            "A node's Advertised Neighbor Set Table contains
             interface addresses of symmetric 1-hop neighbors
             which are to be advertised through TC messages."
         REFERENCE
            "The OLSRv2 draft."
      ::= { olsrv2StateGroup 6 }

      olsrv2TibAdNeighborSetEntry OBJECT-TYPE
         SYNTAX   Olsrv2TibAdNeighborSetEntry
         MAX-ACCESS   not-accessible
         STATUS   current
         DESCRIPTION
            "A node's Advertised Neighbor Set Table contains
             interface addresses of symmetric 1-hop neighbors
             which are to be advertised through TC messages."
         REFERENCE
            "The OLSRv2 draft."
         INDEX { olsrv2TibAdNeighborSetIpAddr }
      ::= { olsrv2TibAdNeighborSetTable 1 }

      Olsrv2TibAdNeighborSetEntry ::=
         SEQUENCE {
            olsrv2TibAdNeighborSetIpAddrType
              InetAddressType,
            olsrv2NibNeighborSetIpAddr
              InetAddress
           }

      olsrv2TibAdNeighborSetIpAddrType OBJECT-TYPE
         SYNTAX   InetAddressType
         MAX-ACCESS   read-only
         STATUS   current
         DESCRIPTION
            "The type of the olsrv2TibAdNeighborSetIpAddr, as defined
             in the InetAddress MIB [RFC 4001]."
         REFERENCE
            "The OLSRv2 draft."
      ::= { olsrv2TibAdNeighborSetEntry 1 }

      olsrv2TibAdNeighborSetIpAddr OBJECT-TYPE
         SYNTAX   InetAddress
         MAX-ACCESS   read-only
         STATUS   current

```
        DESCRIPTION
           "This is the interface address of a
            symmetric 1-hop neighbor which is to be
            advertised through TC messages."
        REFERENCE
           "The OLSRv2 draft."
     ::= { olsrv2TibAdNeighborSetEntry 2 }



     -- Advertised Remote Node Set

     -- Note: Need to think more about the structure of this table
     -- due to the existence of multiple IfAddrs per Remote Node

     olsrv2TipAdRemoteNodeSetTable OBJECT-TYPE
        SYNTAX        SEQUENCE OF Olsrv2TibAdRemoteNodeSetEntry
        MAX-ACCESS    not-accessible
        STATUS        obsolete
        DESCRIPTION
           "A node's Advertising Remote Node Set records
            information describing each remote node in the
            network that transmits TC messages."
        REFERENCE
           "The OLSRv2 draft."
     ::= { olsrv2StateGroup 7 }

     olsrv2TibAdRemoteNodeSetEntry  OBJECT-TYPE
        SYNTAX        Olsrv2TibAdRemoteNodeSetEntry
        MAX-ACCESS    not-accessible
        STATUS        current
        DESCRIPTION
           "A node's Advertised Neighbor Set Table entry
            It consists of Advertising Remote Node Tuples:

                (AR_orig_addr, AR_seq_number,
                            AR_iface_addr_list, AR_time)

            Addresses associated with this node are
            found in the NHDP-MIB's 'nhdpDiscIfSetTable'.
            "
        REFERENCE
           "The OLSRv2 draft."
        INDEX { olsrv2TibAdRemoteNodeSetNodeId }
     ::= { olsrv2TibAdNeighborSetTable 1 }

     Olsrv2TibAdNeighborSetEntry ::=
        SEQUENCE {
```

```
          olsrv2TibAdRemoteNodeSetIpAddrType
            InetAddressType,
          olsrv2TibAdRemoteNodeSetIpAddr
            InetAddress,
          olsrv2TibAdRemoteNodeSetNodeId
            NeighborNodeId,
          olsrv2TibAdRemoteNodeSetMaxSeqNo
            Unsigned32,
          olsrv2TibAdRemoteNodeSetExpireTime
            Unsigned32
        }

   olsrv2TibAdRemoteNodeSetIpAddrType  OBJECT-TYPE
      SYNTAX      InetAddressType
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "The type of the olsrv2TibAdRemoteNodeSetIpAddr,
          as defined in the InetAddress MIB [RFC 4001]."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibAdRemoteNodeSetEntry 1 }

   olsrv2TibAdRemoteNodeSetIpAddr  OBJECT-TYPE
      SYNTAX      InetAddress
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "This is the originator address of a received
          TC message."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibAdRemoteNodeSetEntry 2 }

   olsrv2TibAdRemoteNodeSetNodeId  OBJECT-TYPE
      SYNTAX      NeighborNodeId
      UNITS       ""
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "This object is an additional index for each
          Remote Node's IfAddr associated with the
          olsrv2TibAdRemoteNodeSetIpAddr."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibAdRemoteNodeSetEntry 3 }

    olsrv2TipAdRemoteNodeSetMaxSeqNo  OBJECT-TYPE
```

```
          SYNTAX      Unsigned32 (0..65535)
          UNITS       ""
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
             "The  is the greatest ANSN in any TC message
              received which originated from the node
              with originator address AR_orig_addr
             (i.e. which contributed to the information
             contained in this Tuple)."
          REFERENCE
             "The OLSRv2 draft."
      ::= { olsrv2TibAdRemoteNodeSetEntry 4 }

      -- Need to change this type to a time syntax.
      olsrv2TipAdRemoteNodeSetExpireTime  OBJECT-TYPE
        SYNTAX      Unsigned32 (0..65535)
        UNITS       ""
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
           "The AR_time  is the time at which this
            Tuple expires and MUST be removed."
        REFERENCE
           "The OLSRv2 draft."
      ::= { olsrv2TibAdRemoteNodeSetEntry 5 }




     -- Topology Set

     -- Note: Need to think more about the structure of this table
     -- due to the existence of multiple DestAddrs per Orig Addr

     olsrv2TipTopologySetTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF Olsrv2TibTopologySetEntry
        MAX-ACCESS  not-accessible
        STATUS      obsolete
        DESCRIPTION
           "A node's Topology Set records topology
            information about the network."
        REFERENCE
           "The OLSRv2 draft."
     ::= { olsrv2StateGroup 8 }

     olsrv2TibTopologySetEntry  OBJECT-TYPE
        SYNTAX      Olsrv2TibTopologySetEntry
```

```
          MAX-ACCESS  not-accessible
          STATUS      current
          DESCRIPTION
             "It consists of Topology Tuples:

                  (T_dest_iface_addr, T_orig_addr,
                             T_seq_number, T_time)"
          REFERENCE
             "The OLSRv2 draft."
          INDEX { olsrv2TibTopologySetDestIfIpAddr }
       ::= { olsrv2TibTopologySetTable 1 }

       Olsrv2TibTopologySetEntry ::=
          SEQUENCE {
             olsrv2TibTopologySetDestIfIpAddr
               InetAddress,
             olsrv2TibTopologySetOrigIpAddrType
               InetAddressType,
             olsrv2TibTopologySetOrigIpAddr
               InetAddress,
             olsrv2TibTopologySetSeqNo
               Unsigned32,
             olsrv2TibTopologySetExpireTime
               Unsigned32
            }

       olsrv2TibTopologySetDestIfIpAddrType  OBJECT-TYPE
          SYNTAX      InetAddressType
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
             "The type of the olsrv2TibTopologySetDestIfIpAddr
              and olsrv2TibTopologySetDestIfIpAddr,
              as defined in the InetAddress MIB [RFC 4001]."
          REFERENCE
             "The OLSRv2 draft."
       ::= { olsrv2TibTopologySetEntry 1 }

       olsrv2TibTopologySetDestIfIpAddr  OBJECT-TYPE
          SYNTAX      InetAddress
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
             "This is an interface address of a
              destination node, which may be reached
              in one hop from the node with originator
              address T_orig_addr."
          REFERENCE
```

          "The OLSRv2 draft."
       ::= { olsrv2TibTopologySetEntry 2 }

       olsrv2TibTopologySetOrigIpAddrType OBJECT-TYPE
          SYNTAX   InetAddressType
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
             "The type of the olsrv2TibTopologySetOrigIpAddr
              and olsrv2TibTopologySetDestIfIpAddr,
              as defined in the InetAddress MIB [RFC 4001]."
          REFERENCE
             "The OLSRv2 draft."
       ::= { olsrv2TibTopologySetEntry 3 }

       olsrv2TibTopologySetOrigIpAddr OBJECT-TYPE
          SYNTAX   InetAddress
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
             "This is the originator address of a node
              which is the last hop on a path towards
              the node with interface address
              T_dest_iface_addr."
          REFERENCE
             "The OLSRv2 draft."
       ::= { olsrv2TibTopologySetEntry 4 }

        olsrv2TipTopologySetSeqNo OBJECT-TYPE
          SYNTAX   Unsigned32 (0..65535)
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
             "The is the greatest ANSN in any
              TC message received which originated from
              the node with originator address T_orig_addr
              (i.e. which contributed to the information
              contained in this Tuple)."
          REFERENCE
             "The OLSRv2 draft."
       ::= { olsrv2TibTopologySetEntry 5 }

        -- Need to change this type to a time syntax.
        olsrv2TipTopologySetExpireTime OBJECT-TYPE
          SYNTAX   Unsigned32 (0..65535)
          UNITS   ""
          MAX-ACCESS read-only
          STATUS   current

```
      DESCRIPTION
         "This is the time at which this
          Tuple expires and MUST be removed."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibTopologySetEntry 6 }




   -- Attached Network Set

   olsrv2TipAttNetworksSetTable OBJECT-TYPE
      SYNTAX      SEQUENCE OF Olsrv2TibAttNetworksSetEntry
      MAX-ACCESS  not-accessible
      STATUS      obsolete
      DESCRIPTION
         "A node's Attached Network Set records information
          about networks attached to other nodes."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2StateGroup 9 }

   olsrv2TibAttNetworksSetEntry  OBJECT-TYPE
      SYNTAX      Olsrv2TibAttNetworksSetEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
          "It consists of Attached Network Tuples:

                  (AN_net_addr, AN_orig_addr,
                        AN_dist, AN_seq_number, AN_time)"

      REFERENCE
         "The OLSRv2 draft."
      INDEX { olsrv2TibAttNetworksSetNetIpAddrType,
              olsrv2TibAttNetworksSetNetIpAddr,
              olsrv2TibAttNetworksSetNetIpAddrPrefixLen }
   ::= { olsrv2TibTopologySetTable 1 }

   Olsrv2TibAttNetworksSetEntry ::=
      SEQUENCE {
        olsrv2TibAttNetworksSetNetIpAddrType
          InetAddressType,
        olsrv2TibAttNetworksSetNetIpAddr
          InetAddress,
        olsrv2TibAttNetworksSetNetIpAddrPrefixLen
          InetAddressPrefixLength,
```

```
        olsrv2TibAttNetworksSetOrigIpAddr
          InetAddress,
        olsrv2TibAttNetworksSetSeqNo
          Unsigned32,
        olsrv2TibAttNetworksSetDist
          Unsigned32,
        olsrv2TibAttNetworksSetExpireTime
          Unsigned32
      }

olsrv2TibAttNetworksSetNetIpAddrType  OBJECT-TYPE
   SYNTAX      InetAddressType
   MAX-ACCESS  not-accessible
   STATUS      current
   DESCRIPTION
      "The type of the olsrv2TibAttNetworksSetNetIpAddr,
       as defined in the InetAddress MIB [RFC 4001]."
   REFERENCE
      "The OLSRv2 draft."
 ::= { olsrv2TibAttNetworksSetEntry 1 }

olsrv2TibAttNetworksSetNetIpAddr  OBJECT-TYPE
   SYNTAX      InetAddress
   MAX-ACCESS  read-only
   STATUS      current
   DESCRIPTION
      "This is is the network address of an
       attached network, which may be reached via
       the node with originator address AN_orig_addr."
    REFERENCE
      "The OLSRv2 draft."
 ::= { olsrv2TibAttNetworksSetEntry 2 }

olsrv2TibAttNetworksSetNetIpAddrPrefixLen  OBJECT-TYPE
  SYNTAX      InetAddressPrefixLength
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
     "Indicates the number of leading one bits that form the
      mask to be logical-ANDed with the destination address
      before being compared to the value in the
      olsrv2TibAttNetworksSetNetIpAddr field."
   REFERENCE
      "The OLSRv2 draft."
 ::= { olsrv2TibAttNetworksSetEntry 3 }


olsrv2TibAttNetworksSetOrigIpAddr  OBJECT-TYPE
```

```
      SYNTAX       InetAddress
      MAX-ACCESS   not-accessible
      STATUS       current
      DESCRIPTION
         "This is the originator address of a
          node which can act as gateway to the
          network with address AN_net_addr,
          note that this does not include a
          prefix length."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibAttNetworksSetEntry 4 }


   olsrv2TipAttNetworksSetDist  OBJECT-TYPE
      SYNTAX       Unsigned32 (0..255)
      MAX-ACCESS   read-only
      UNITS        "hops"
      STATUS       current
      DESCRIPTION
         "The is the number of hops to the network
          with address AN_net_addr from the node with
          originator address AN_orig_addr."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibAttNetworksSetEntry 5 }

   olsrv2TipAttNetworksSetSeqNo  OBJECT-TYPE
      SYNTAX       Unsigned32 (0..65535)
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
         "The is the greatest ANSN in any TC
          message received which originated from the
          node with originator address AN_orig_addr
          (i.e. which contributed to the information
          contained in this Tuple)."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibAttNetworksSetEntry 6 }

   -- Need to change this type to a time syntax.
   olsrv2TipAttNetworksSetExpireTime  OBJECT-TYPE
      SYNTAX       Unsigned32 (0..65535)
      UNITS        ""
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
```

```
      "This is the time at which this
       Tuple expires and MUST be removed."
   REFERENCE
      "The OLSRv2 draft."
::= { olsrv2TibAttNetworksSetEntry 7 }




-- Routing Set

-- Note:  Does this RoutingSetTable overlap too much with the
-- information already available in the latest standard MIB
-- forwarding table?

-- Note: Do all of these addresses contained in a single
-- entry in the Routing Set have to have the same addrType?

olsrv2TipRoutingSetTable OBJECT-TYPE
   SYNTAX       SEQUENCE OF Olsrv2TibRoutingSetSetEntry
   MAX-ACCESS   not-accessible
   STATUS       obsolete
   DESCRIPTION
      "A node's Routing Set records the selected path to
       each destination for which a route is known."
   REFERENCE
      "The OLSRv2 draft."
::= { olsrv2StateGroup 10 }

olsrv2TibRoutingSetEntry  OBJECT-TYPE
   SYNTAX       Olsrv2TibRoutingSetEntry
   MAX-ACCESS   not-accessible
   STATUS       current
   DESCRIPTION
       "It consists of Routing Tuples:

            (R_dest_addr, R_next_iface_addr,
                      R_dist, R_local_iface_addr)."
   REFERENCE
      "The OLSRv2 draft."
   INDEX { olsrv2TibRoutingSetDestIpAddrType,
           olsrv2TibRoutingSetDestIpAddr,
           olsrv2TibRoutingSetDestIpAddrPrefLen }
::= { olsrv2TibRoutingSetTable 1 }

Olsrv2TibAttNetworksSetEntry ::=
   SEQUENCE {
      olsrv2TibRoutingSetDestIpAddrType
```

```
            InetAddressType,
          olsrv2TibRoutingSetDestIpAddr
            InetAddress,
          olsrv2TibRoutingSetDestIpAddrPrefLen
            InetAddressPrefixLength,
          olsrv2TibRoutingSetNextIfIpAddr
            InetAddress,
          olsrv2TibRoutingSetDist
            Unsigned32,
          olsrv2TibRoutingSetLocalIfIpAddr
            InetAddress
        }

    olsrv2TibRoutingSetDestIpAddrType  OBJECT-TYPE
       SYNTAX      InetAddressType
       MAX-ACCESS  not-accessible
       STATUS      current
       DESCRIPTION
          "The type of the olsrv2TibRoutingSetDestIpAddr
           and olsrv2TibRoutingSetNextIfIpAddr,
           as defined in the InetAddress MIB [RFC 4001]."
       REFERENCE
          "The OLSRv2 draft."
    ::= { olsrv2TibRoutingSetEntry 1 }

    olsrv2TibRoutingSetDestIpAddr  OBJECT-TYPE
       SYNTAX      InetAddress
       MAX-ACCESS  not-accessible
       STATUS      current
       DESCRIPTION
          "This is the address of the destination,
           either the address of an interface of
           a destination node, or the network
           address of an attached network."
       REFERENCE
          "The OLSRv2 draft."
    ::= { olsrv2TibRoutingSetEntry 2 }

    olsrv2TibRoutingSetDestIpAddrPrefixLen  OBJECT-TYPE
      SYNTAX      InetAddressPrefixLength
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
         "Indicates the number of leading one bits that form the
          mask to be logical-ANDed with the destination address
          before being compared to the value in the
          olsrv2TibRoutingSetDestNetIpAddr field.
```

          Note: This definition needs to be consistent
          with the current forwarding table MIB description.
          Specifically, it should allow for longest prefix
          matching of network addresses."
     REFERENCE
        "The OLSRv2 draft."
   ::= { olsrv2TibRoutingSetEntry 3 }

    olsrv2TibRoutingSetNextIfIpAddr OBJECT-TYPE
      SYNTAX   InetAddress
      MAX-ACCESS   read-only
      STATUS   current
      DESCRIPTION
         "This is the OLSRv2 interface address of the
          'next hop' on the selected path to the
          destination."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibRoutingSetEntry 4 }

     olsrv2TipRoutingSetDist OBJECT-TYPE
      SYNTAX   Unsigned32 (0..255)
      MAX-ACCESS   read-only
      UNITS   "hops"
      STATUS   current
      DESCRIPTION
         "The is the number of hops on the selected
          path to the destination."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibRoutingSetEntry 5 }

    olsrv2TibRoutingSetLocalIfIpAddr OBJECT-TYPE
      SYNTAX   InetAddress
      MAX-ACCESS   read-only
      STATUS   current
      DESCRIPTION
         "This is the address of the local OLSRv2
          interface over which a packet MUST be
          sent to reach the destination by the
          selected path."
      REFERENCE
         "The OLSRv2 draft."
   ::= { olsrv2TibRoutingSetEntry 6 }

    --

```
    -- Processing and Forwarding Information Base  - this
    -- Information Base is specific to OLSRv2, and
    -- is defined in Section 6.4.
    --

    -- Note:  Is it appropriate or necessary to put the
    -- level of detail found in the Processing and
    -- Forwarding Information Base into the OLSRv2-MIB?

    -- Received Set

    -- Processed Set

    -- Forwarded Set

    -- Relayed Set


    --
    -- OLSRv2 Performance Group
    --
    --    Contains objects which help to characterize the
    --    performance of the OLSRv2 routing process, such as ...
    --

    olsrv2PerformanceGroup  OBJECT IDENTIFIER ::= { olsrv2MIBObjects 3 }

    olsrv2GlPerfGroup OBJECT IDENTIFIER ::= {olsrv2PerformanceGroup 1}

    -- Note: Objects to be defined.


    --
    -- Per OLSRv2 Interface Performance Table
    --

    olsrv2IfPerfGroup OBJECT IDENTIFIER ::= {olsrv2PerformanceGroup 2}

    -- Note: Objects to be defined.



    --
    -- Notifications
    --

    -- Note:  What notifications do we want for this MIB?
```

```
     --
     -- Compliance Statements
     --

     -- Note: need to update the Compliance section once the mib
     --        objects stabilize.


     olsrv2Compliances  OBJECT IDENTIFIER ::= { olsrv2MIBConformance 1 }
     olsrv2MIBGroups    OBJECT IDENTIFIER ::= { olsrv2MIBConformance 2 }

     olsrv2BasicCompliance  MODULE-COMPLIANCE
        STATUS current
        DESCRIPTION "The basic implementation requirements for
                     managed network entities that implement
                     the OLSRv2 routing process."
        MODULE  -- this module
        MANDATORY-GROUPS { olsrv2ConfigObjectsGroup }
     ::= { olsrv2Compliances 1 }

     olsrv2FullCompliance MODULE-COMPLIANCE
        STATUS current
        DESCRIPTION "The full implementation requirements for
                     managed network entities that implement
                     the OLSRv2 routing process."
        MODULE  -- this module
        MANDATORY-GROUPS { olsrv2ConfigObjectsGroup,
                           olsrv2StateObjectsGroup,
                           olsrv2PerfObjectsGroup }
     ::= { olsrv2Compliances 2 }

     --
     -- Units of Conformance
     --

     olsrv2ConfigObjectsGroup OBJECT-GROUP
        OBJECTS {
                losrv2OperationalMode
        }
        STATUS  current
        DESCRIPTION
           "Set of OLSRv2 configuration objects implemented
            in this module."
     ::= { olsrv2MIBGroups 1 }

     olsrv2StateObjectsGroup  OBJECT-GROUP
        OBJECTS {
                olsrv2NodeStatus
```

```
    }
    STATUS  current
    DESCRIPTION
       "Set of OLSRv2 state objects implemented
        in this module."
 ::= { olsrv2MIBGroups 2 }

 olsrv2PerfObjectsGroup  OBJECT-GROUP
    OBJECTS {
            olsrv2PktsRecvTotal
    }
    STATUS  current
    DESCRIPTION
       "Set of OLSRv2 performance objects implemented
        in this module by total and per interface."
 ::= { olsrv2MIBGroups 3 }

 END
```

8. Security Considerations

[TODO] Each specification that defines one or more MIB modules MUST
contain a section that discusses security considerations relevant to
those modules. This section MUST be patterned after the latest
approved template (available at
http://www.ops.ietf.org/mib-security.html). Remember that the
objective is not to blindly copy text from the template, but rather
to think and evaluate the risks/vulnerabilities and then state/
document the result of this evaluation.

[TODO] if you have any read-write and/or read-create objects, please
include the following boilerplate paragraph.

There are a number of management objects defined in this MIB module
with a MAX-ACCESS clause of read-write and/or read-create. 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 their
sensitivity/vulnerability:

o [TODO] writable MIB objects that could be especially disruptive if
   abused MUST be explicitly listed by name and the associated
   security risks MUST be spelled out; RFC 2669 has a very good
   example.

o [TODO] list the writable tables and objects and state why they are
   sensitive.

[TODO] else if there are no read-write objects in your MIB module,
use the following boilerplate paragraph.

There are no management objects defined in this MIB module that have
a MAX-ACCESS clause of read-write and/or read-create. So, if this
MIB module is implemented correctly, then there is no risk that an
intruder can alter or create any management objects of this MIB
module via direct SNMP SET operations.

[TODO] if you have any sensitive readable objects, please include the
following boilerplate paragraph.

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:

o [TODO] you must explicitly list by name any readable objects that
   are sensitive or vulnerable and the associated security risks MUST
   be spelled out (for instance, if they might reveal customer
   information or violate personal privacy laws such as those of the
   European Union if exposed to unauthorized parties)

o [TODO] list the tables and objects and state why they are
   sensitive.

[TODO] discuss what security the protocol used to carry the
information should have. The following three boilerplate paragraphs
should not be changed without very good reason. Changes will almost
certainly require justification during IESG review.

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

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

Further, deployment of SNMP versions prior to SNMPv3 is NOT
RECOMMENDED. Instead, it is RECOMMENDED to deploy SNMPv3 and to
enable cryptographic security. It is then a customer/operator
responsibility to ensure that the SNMP entity giving access to an
instance of this MIB module is properly configured to give access to
the objects only to those principals (users) that have legitimate
rights to indeed GET or SET (change/create/delete) them.

9. IANA Considerations

[TODO] In order to comply with IESG policy as set forth in
http://www.ietf.org/ID-Checklist.html, every Internet-Draft that is
submitted to the IESG for publication MUST contain an IANA
Considerations section. The requirements for this section vary
depending what actions are required of the IANA. see RFC4181 section
3.5 for more information on writing an IANA clause for a MIB module
document.

[TODO] select an option and provide the necessary details.

Option #1:

     The MIB module in this document uses the following IANA-assigned
     OBJECT IDENTIFIER values recorded in the SMI Numbers registry:

     Descriptor   OBJECT IDENTIFIER value
     ----------   -----------------------

     sampleMIB { mib-2 XXX }

Option #2:

Editor's Note (to be removed prior to publication): the IANA is
requested to assign a value for "XXX" under the 'mib-2' subtree and
to record the assignment in the SMI Numbers registry. When the
assignment has been made, the RFC Editor is asked to replace "XXX"
(here and in the MIB module) with the assigned value and to remove
this note.

Note well: prior to official assignment by the IANA, a draft document
MUST use place holders (such as "XXX" above) rather than actual
numbers. See RFC4181 Section 4.5 for an example of how this is done
in a draft MIB module.

Option #3:

This memo includes no request to IANA.

10. Contributors

   This MIB document uses the template authored by D. Harrington which
   is based on contributions from the MIB Doctors, especially Juergen
   Schoenwaelder, Dave Perkins, C.M.Heard and Randy Presuhn.

11. Acknowledgements

12. References

12.1. Normative References

   [RFC2863]   McCloghrie, K. and F. Kastenholz, "The
                           Interfaces Group MIB", RFC 2863, June 2000.

   [RFC3418]   Presuhn, R., "Management Information Base
                           (MIB) for the Simple Network Management
                           Protocol (SNMP)", STD 62, RFC 3418,
                           December 2002.

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

   [RFC2578]   McCloghrie, K., Ed., Perkins, D., Ed., and
                           J. Schoenwaelder, Ed., "Structure of
                           Management Information Version 2 (SMIv2)",
                           STD 58, RFC 2578, April 1999.

   [RFC2579]   McCloghrie, K., Ed., Perkins, D., Ed., and
                           J. Schoenwaelder, Ed., "Textual Conventions
                           for SMIv2", STD 58, RFC 2579, April 1999.

   [RFC2580]   McCloghrie, K., Perkins, D., and J.
                           Schoenwaelder, "Conformance Statements for
                           SMIv2", STD 58, RFC 2580, April 1999.

   [I-D.ietf-manet-olsrv2] Clausen, T., Dearlove, C., and P. Jacquet,
                           "The Optimized Link State Routing Protocol
                           version 2", draft-ietf-manet-olsrv2-07 (work
                           in progress), July 2008.

12.2. Informative References

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

Appendix A. Change Log

   This section identifies the cahnges made during the development of
   this MIB.

   Here we list the changes made in developing
   draft-cole-manet-olsr-mib-01.

   1. Completely reworked the entire Configuration Objects group in
       order to align with the newly developed NHDP-MIB draft.

Appendix B. Open Issues

   This section contains the set of open issues related to the
   development and design of the OLSRv2-MIB. This section will not be
   present in the final version of the MIB and will be removed once all
   the open issues have been resolved.

   1.   Look into possible redundancy between the TIB Routing Set and
        the latest standard MIB forwarding table.

   2.   Fill out the performance objects group.

   3.   Complete notification group.

   4.   Complete conformance group.

   5.   Work on the relationship to other MIBs, IF-MIB, NHDP-MIB.

   6.   Identify all objects requiring non-volatile storage in their
        DESCRIPTION clauses.

   7.   Incorporate parameter relationship conditions into their
        DESCRIPTION clauses.

   8.   Also, specify specific SNMP response to the snmp set request,
        i.e., 'generic error', 'bad value', etc.

   9.   Fill in all of the DEFVAL within the configuration group
        objects.

   10. Run through the MIB checker.

   11. Complete the security analysis and section.

   12. Clean up all of the 'Note:' statements within the body of the
        MIB.

13. Cleanup all the [TODOs] from the MIB template.

Appendix C.

    ****
    * Note to the RFC Editor (to be removed prior to publication) *
    *   *
    * 1) The reference to RFCXXXX within the DESCRIPTION clauses *
    * of the MIB module point to this draft and are to be   *
    * assigned by the RFC Editor.   *
    *   *
    * 2) The reference to RFCXXX2 throughout this document point *
    * to the current draft-ietf-manet-olsrv2-xx.txt. This   *
    * need to be replaced with the XXX RFC number.   *
    *   *
    ****

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