        Definition of Managed Objects for the Optimized Link State Routing
                             Protocol version 2
                       draft-ietf-manet-olsrv2-mib-12

Abstract

   This document defines the Management Information Base (MIB) module
   for configuring and managing the Optimized Link State Routing
   protocol version 2 (OLSRv2). The OLSRv2-MIB module is structured
   into configuration information, state information, performance
   information, and notifications. This additional state and
   performance information is useful to troubleshoot problems and
   performance issues of the routing protocol. Two levels of compliance
   allow this MIB module to be deployed on constrained routers.

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1. Introduction

   This document defines the Management Information Base (MIB) module
   for configuring and managing the Optimized Link State Routing
   protocol version 2 (OLSRv2). The OLSRv2-MIB module is structured
   into configuration information, state information, performance
   information, and notifications. In addition to configuration, this
   additional state and performance information is useful to
   troubleshoot problems and performance issues of the routing protocol.
   Different levels of compliance allow implementers to use smaller
   subsets of all defined objects, allowing for this MIB module to be
   deployed on more constrained routers.

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
   [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 module are defined using the mechanisms defined in
   the Structure of Management Information (SMI). This document
   specifies a MIB module that is compliant to the SMIv2, which is
   described in [RFC2578], [RFC2579], and [RFC2580].

3. Conventions

   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
   [RFC2119].

4. Overview

   The Optimized Link State Routing Protocol version 2 (OLSRv2) [OLSRv2]
   is a table driven, proactive routing protocol, i.e., it exchanges
   topology information with other routers in the network periodically.
   OLSRv2 is an optimization of the classical link state routing
   protocol. Its key concept is that of MultiPoint Relays (MPRs). Each
   router selects a set of its neighbor routers (which "cover" all of
   its symmetrically connected 2-hop neighbor routers) as MPRs. MPRs
   are then used to achieve both flooding reduction and topology
   reduction.

   This document provides management and control capabilities of an
   OLSRv2 instance, allowing management applications to monitor the

state and performance of an OLSRv2 router, as well as to change
settings of the OLSRv2 instance (e.g., router or interface parameters
such as message intervals, etc.).

As OLSRv2 relies on the neighborhood information discovered by the
"Mobile Ad Hoc Network (MANET) Neighborhood Discovery Protocol
(NHDP)" [RFC6130], the OLSRv2-MIB module is aligned with the NHDP-MIB
[RFC6779] module and augments several of the tables and objects in
the NHDP-MIB. In particular, common indexes for router interfaces
and discovered neighbors are used, as described in Section 5.2.

4.1. 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 module.

o State Objects - automatically generated values which define the
   current operating state of the OLSRv2 protocol instance 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.

o Notification Objects - define triggers and associated notification
   messages allowing for asynchronous tracking of pre-defined events
   on the managed router.

5. Structure of the MIB Module

This section presents the structure of the OLSRv2-MIB module. The
objects are arranged into the following structure:

o olsrv2MIBObjects - defines objects forming the basis for the
   OLSRv2-MIB module. These objects are divided up by function into
   the following groups:

   * Configuration Group - defining objects related to the
      configuration of the OLSRv2 instance on the router.

   * State Group - defining objects which reflect the current state
      of the OLSRv2 instance running on the router.

   * Performance Group -defining objects which are useful to a
      management station when characterizing the performance of

OLSRv2 on the router and in the MANET.

o olsrv2MIBNotifications - objects defining OLSRv2-MIB module
   notifications.

o olsrv2MIBConformance - defining the minimal and maximal
   conformance requirements for implementations of this MIB module.

5.1. The Configuration Group

   The OLSRv2 router is configured with a set of controls. The
   authoritative list of configuration controls within the OLSRv2-MIB
   module is found within the MIB module itself. Generally, an attempt
   was made in developing the OLSRv2-MIB module to support all
   configuration objects defined in [OLSRv2]. For all of the
   configuration parameters, the same constraints and default values of
   these parameters as defined in [OLSRv2] are followed.

5.2. The State Group

   The State Group reports current state information of a router running
   [OLSRv2]. The OLSRv2-MIB module State Group tables were designed to
   contain the complete set of state information defined within the
   information bases in [OLSRv2].

   The OLSRv2-MIB module State Group tables are constructed as
   extensions to the corresponding tables within the State Group of the
   NHDP-MIB [RFC6779] module. Use of the AUGMENTS clause is made, when
   possible, to accomplish these table extensions. Further, the State
   Group tables defined in this MIB module are aligned with the
   according tables in the NHDP-MIB [RFC6779] module, as described in
   Section 6.2.

5.3. The Performance Group

   The Performance Group reports values relevant to system performance.
   Frequent changes of sets or frequent recalculation of the routing set
   or the MPRs can have a negative influence on the performance of
   OLSRv2. This MIB module defines several objects that can be polled
   in order to, e.g., calculate histories or monitor frequencies of
   changes. This may help the network administrator to determine
   unusual topology changes or other changes that affect stability and
   reliability of the MANET. One such framework is specified in REPORT-
   MIB [REPORT-MIB].

5.4. The Notifications Group

   The Notifications Group contains Control
   (olsrv2NotificationsControl), Objects (olsrv2NotificationsObjects)
   and States (olsrv2NotificationsStates), where the Control contains
   definitions of objects to control the frequency of notifications
   being generated. The Objects define the supported notifications and
   the State is used to define additional information to be carried
   within the notifications.

   The olsrv2NotificationsObjects sub-tree contains the list of
   notifications supported within the OLSRv2-MIB module and their
   intended purpose or utility.

   The same mechanisms for improving the network performance by reducing
   the number of notifications apply as defined in Section 5.1 of
   [RFC6779]. The following objects are used to define the thresholds
   and time windows for specific notifications defined in the NHDP-MIB
   module: olsrv2RoutingSetRecalculationCountThreshold,
   olsrv2RoutingSetRecalculationCountWindow,
   olsrv2MPRSetRecalculationCountThreshold, and
   olsrv2MPRSetRecalculationCountWindow.

5.5. Tables and Indexing

   The OLSRv2-MIB module's tables are indexed by the following
   constructs:

   o nhdpIfIndex - the ifIndex of the local router on which NHDP is
      configured. This is defined in the NHDP-MIB.

   o nhdpDiscIfIndex - a locally managed index representing a known
      interface on a neighboring router. This is defined in the NHDP-
      MIB.

   o nhdpDiscRouterIndex - a locally managed index representing an ID
      of a known neighboring router. This is defined in the NHDP-MIB.

   o {olsrv2LibOrigSetIpAddrType, olsrv2LibOrigSetIpAddr} - this index
      (pair) uniquely identifies recently used originator addresses
      found within the olsrv2LibOrigSetTable.

   o {olsrv2LibLocAttNetSetIpAddrType, olsrv2LibLocAttNetSetIpAddr,
      olsrv2LibLocAttNetSetIpAddrPerfixLen} - this index (triplet)
      uniquely identifies local attached networks reachable through
      local (non-OLSRv2) interfaces on this router. These are recorded
      in the olsrv2LibLocAttNetSetTable.

o {olsrv2TibAdRemoteRouterSetIpAddrType,
  olsrv2TibAdRemoteRouterSetIpAddr} - this index (pair) uniquely
  identifies each router in the network that transmits TC messages
  received by this router. These records are recorded in the
  olsrv2TibAdRemoteRouterSetIpAddr.

o {olsrv2TibRouterTopologySetFromOrigIpAddrType,
  olsrv2TibRouterTopologySetFromOrigIpAddr,
  olsrv2TibRouterTopologySetToOrigIpAddrType,
  olsrv2TibRouterTopologySetToOrigIpAddr} - this index (quadruplet)
  uniquely identifies discovered links within the network recorded
  by this router. Information associated with each link is stored
  in the olsrv2TibRouterTopologySetTable.

o {olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType,
  olsrv2TibRoutableAddressTopologySetFromOrigIpAddr,
  olsrv2TibRoutableAddressTopologySetFromDestIpAddrType,
  olsrv2TibRoutableAddressTopologySetFromDestIpAddr} - this index
  (quadruplet) uniquely identifies reachable addresses within the
  network and the router's advertising these addresses. This
  information is stored in the
  olsrv2TibRoutableAddressTopologySetTable.

o {olsrv2TibAttNetworksSetOrigIpAddrType,
  olsrv2TibAttNetworksSetOrigIpAddr,
  olsrv2TibAttNetworksSetNetIpAddrType,
  olsrv2TibAttNetworksSetNetIpAddr,
  olsrv2TibAttNetworksSetNetIpAddrPrefixLen} - this index
  (quintuplet) uniquely identifies the networks (which may be
  outside the MANET) and the routers through which these networks
  can be reached. This information is stored in the
  olsrv2TibAttNetworksSetTable.

o {olsrv2TibRoutingSetDestIpAddrType, olsrv2TibRoutingSetDestIpAddr,
  olsrv2TibRoutingSetDestIpAddrPrefixLen} - this index (triplet)
  uniquely identifies the address of a reachable destination in the
  network. This indexes the olsrv2TibRoutingSetTable which contains
  the next hop information to reach the indexed addresses.

These tables and their indexing are:

o olsrv2InterfaceTable - describes the OLSRv2 status on the NHDP
  interfaces of this router. This table augments nhdpInterfaceEntry
  and as such it is indexed by the {nhdpIfIndex} from the NHDP-MIB.

o olsrv2IibLinkSetTable - records all links from other routers which
  are, or recently were, 1-hop neighbors. This table augments
  nhdpIibLinkSetEntry and as such it is indexed by nhdpIfIndex and

nhdpDiscIfIndex.

o olsrv2Iib2HopSetTable - records network addresses of symmetric
   2-hop neighbors and the links to the associated 1-hop neighbors.
   This table augments nhdpIib2HopSetEntry and as such it is indexed
   by {nhdpIfIndex, nhdpDiscIfIndex, nhdpIib2HopSetIpAddressType,
   nhdpIib2HopSetIpAddress}.

o olsrv2LibOrigSetTable - records addresses that were recently used
   as originator addresses by this router. This table is indexed by
   {olsrv2LibOrigSetIpAddrType, olsrv2LibOrigSetIpAddr}.

o olsrv2LibLocAttNetSetTable - records its local non-OLSRv2
   interfaces via which it can act as gateways to other networks.
   This table is indexed by {olsrv2LibLocAttNetSetIpAddrType,
   olsrv2LibLocAttNetSetIpAddr,
   olsrv2LibLocAttNetSetIpAddrPerfixLen}.

o olsrv2NibNeighborSetTable - records all network addresses of each
   1-hop neighbor. This table augments nhdpNibNeighborSetEntry and
   as such it is indexed by the {nhdpDiscRouterIndex}.

o olsrv2TibAdRemoteRouterSetTable - records information describing
   each remote router in the network that transmits TC messages.
   This table is indexed by {olsrv2TibAdRemoteRouterSetIpAddrType,
   olsrv2TibAdRemoteRouterSetIpAddr}.

o olsrv2TibRouterTopologySetTable - records topology information
   about the network. This table is indexed by
   {olsrv2TibRouterTopologySetFromOrigIpAddrType,
   olsrv2TibRouterTopologySetFromOrigIpAddr,
   olsrv2TibRouterTopologySetToOrigIpAddrType,
   olsrv2TibRouterTopologySetToOrigIpAddr}.

o olsrv2TibRoutableAddressTopologySetTable - records topology
   information about the routable addresses within the MANET, and via
   which routers they may be reached. This table is indexed by
   {olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType,
   olsrv2TibRoutableAddressTopologySetFromOrigIpAddr,
   olsrv2TibRoutableAddressTopologySetFromDestIpAddrType,
   olsrv2TibRoutableAddressTopologySetFromDestIpAddr}.

o olsrv2TibAttNetworksSetTable - records information about networks
   (which may be outside the MANET) attached to other routers and
   their routable addresses. This table is indexed by
   {olsrv2TibAttNetworksSetOrigIpAddrType,
   olsrv2TibAttNetworksSetOrigIpAddr,
   olsrv2TibAttNetworksSetNetIpAddrType,

           olsrv2TibAttNetworksSetNetIpAddr,
           olsrv2TibAttNetworksSetNetIpAddrPrefixLen}.

   o olsrv2TibRoutingSetTable - records the first hop along a selected
      path to each destination for which any such path is known. This
      table is indexed by {olsrv2TibRoutingSetDestIpAddrType,
      olsrv2TibRoutingSetDestIpAddr,
      olsrv2TibRoutingSetDestIpAddrPrefixLen}.

   o olsrv2InterfacePerfTable - records performance counters for each
      active OLSRv2 interface on this device. This table augments
      nhdpInterfacePerfEntry and as such it is indexed by {nhdpIfIndex}
      from the NHDP-MIB.

6. Relationship to Other MIB Modules

   This section specifies the relationship of the MIB modules contained
   in this document to other standards, particularly to standards
   containing other MIB modules. MIB modules and specific definitions
   imported from 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] module 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
   module does not duplicate those objects.

6.2. Relationship to the NHDP-MIB

   OLSRv2 depends on the neighborhood information that is discovered by
   [RFC6130]. An instance of OLSRv2 MUST have an associated instance of
   NHDP running on the same device for proper operations of the
   discovery and routing system. In order for the OLSRv2-MIB module to
   correctly populate the objects relating to discovered neighbors, the
   State Group tables of the NHDP-MIB [RFC6779] module are aligned with
   the State Group tables of this MIB module. This is accomplished
   through the use of the AUGMENTS capability of SMIv2 (where
   appropriate). This will allow for cross referencing of information
   between the two MIB modules within a given SNMP context.

6.3. MIB modules required for IMPORTS

   The following OLSRv2-MIB module IMPORTS objects from NHDP-MIB
   [RFC6779], SNMPv2-SMI [RFC2578], SNMPv2-TC [RFC2579], SNMPv2-CONF

   [RFC2580], IF-MIB [RFC2863] and INET-ADDRESS-MIB [RFC4001]. The
   OLSRv2-MIB module also IMPORTS objects from the
   IANAolsrv2LinkMetricType-MIB which is defined in Appendix A of this
   document.

7. Definitions

   This section contains the OLSRv2-MIB module defined by the
   specification.

   OLSRv2-MIB DEFINITIONS ::= BEGIN

   IMPORTS

       MODULE-IDENTITY, OBJECT-TYPE, Counter32, Counter64,
       Integer32, Unsigned32, mib-2, TimeTicks,
       NOTIFICATION-TYPE
               FROM SNMPv2-SMI -- RFC 2578

       TEXTUAL-CONVENTION, TimeStamp, TruthValue
               FROM SNMPv2-TC -- RFC 2579

       MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
               FROM SNMPv2-CONF -- STD 58

       InetAddressType, InetAddress,
       InetAddressPrefixLength
               FROM INET-ADDRESS-MIB -- RFC 3291

       nhdpInterfaceEntry,
       nhdpIibLinkSetEntry, nhdpIib2HopSetEntry,
       nhdpNibNeighborSetEntry, nhdpInterfacePerfEntry
               FROM NHDP-MIB -- RFC 6779

       IANAolsrv2LinkMetricTypeTC
               FROM IANAolsrv2LinkMetricType-MIB
       ;

   manetOlsrv2MIB MODULE-IDENTITY
       LAST-UPDATED "201306240000Z"   --24 June 2013
       ORGANIZATION "IETF MANET Working Group"
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        DESCRIPTION
           "This OLSRv2-MIB module is applicable to routers
           implementing the Optimized Link State Routing Protocol
           version 2 (OLSRv2) defined in RFC XXXX.

        -- Revision History
        REVISION   "201306240000Z"   -- 24 June 2013
        DESCRIPTION

              "Initial version of this MIB module,
               published as RFC YYYY."

            -- RFC-Editor assigns ZZZZ (this comment can be removed)
            ::= { mib-2 ZZZZ }

--
-- TEXTUAL CONVENTIONS
--

Olsrv2MetricValueCompressedFormTC ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS   current
    DESCRIPTION
       "OLSRv2 Metrics are expressed in terms of a Link Metric
        Compressed Form within the OLSRv2 protocol. This textual
        convention defines the syntax of the metric objects
        consistent with the definitions of the OLSRv2 Link
        Metric Compressed Form in Section 6.2 of RFC XXXX.

        The 12-bit compressed form of a link metric uses a modified
        form of a representation with an 8-bit mantissa (denoted a)
        and a 4-bit exponent (denoted b). Note that if represented
        as the 12 bit value 256b+a then the ordering of those 12 bit
        values is identical to the ordering of the represented values.

        The value so represented is $(257+a)2^b - 256$, where ^ denotes
        exponentiation. This has a minimum value
        (when a = 0 and b = 0) of MINIMUM_METRIC = 1 and a maximum
        value (when a = 255 and b = 15) of MAXIMUM_METRIC = $2^{24} - 256$.

        Hence the compressed form metric values range from 1 to
        16776960. The special value of 0 is reserved for the
        UNKNOWN_METRIC value.

        If a network manager sets the metric value 'm' through the
        MIB-module, then the OLSRv2 code can derive 'compressed_m'
        = M(a,b) according to the algorithm in RFC 5497 and
        'compressed_m' is the value represented in the OLSRv2 messages.
        But the value 'm' is persistently stored by the MIB-module.
        If the MIB-module is pulling this time parameter from some other
        source, i.e., the protocol instance, then this value is stored
        as is."
    SYNTAX Unsigned32 (0..16776960)

Olsrv2TimeValueCompressedForm32TC ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "x"

        STATUS   current
        DESCRIPTION
            "OLSRv2 time values may be expressed in terms of a compressed
            form within the OLSRv2 protocol. This textual convention
            defines the syntax of the time objects defined in terms of
            an interger number of millisceonds, consistent with the
            definitions of the 8-bit exponent-mantissa compressed form
            defined in Section 5 of RFC 5497. Time values with this
            representation are defined in terms of a constant C which
            is represented in terms of seconds. The constant C
            (time granularity) is used as specified in RFC 5497.
            It MUST be the same as is used by the NHDP protocol
            RFC 6130.

            The 8-bit compressed form of a time value uses a modified
            form of a representation with an 3-bit mantissa (denoted a)
            and a 5-bit exponent (denoted b). Note that if represented
            as the 8 bit value 8b+a then the ordering of those 8 bit
            values is identical to the ordering of the represented values.

            The minimum time-value that can be represented in this manner
            is C. The maximum time-value that can be represented in
            this manner is 15 * 2^28 * C, 15*268,435,456 * C,
            4,026,531,840 * C or about 45 days if, for example,
            C = 1/1024 second.

            This TEXTUAL-CONVENTION limits the maximum value of the
            time granularity constant C to be no greater than 1/1024
            seconds due to its use of the Unsigned32 syntax limiting
            the maximum number of milliseconds to no more than
            3932160000.

            When OLSRv2 uses this 8-bit exponent-mantissa compressed
            form, this object value MUST be translated from the
            integer form represented in this MIB-module into the
            exponent-mantissa form for the OLSRv2 protocol to use
            according to the algorithm defined in Section 5 of
            RFC 5497 for finding the next larger time value within
            the exponent-mantissa format.

            If a network manager sets the time value 't' through the
            MIB-module, then the OLSRv2 code can derive
            'compressed_t' = T(a,b) according to the algorithm
            in RFC 5497 and 'compressed_t' is the value represented
            in the OLSRv2 messages. But the value 't' is persistently
            stored by the MIB-module. If the MIB-module is pulling
            this time parameter from some other source which is using
            the compressed form, i.e., the protocol instance, then

```
      this value is stored as is, after converting from
      number of time constants C into number of milliseconds."
   SYNTAX  Unsigned32 (1..3932160000)

Olsrv2StatusTC ::= TEXTUAL-CONVENTION
   STATUS      current
   DESCRIPTION
      "Controls the operation of the OLSRv2
       protocol on the device or a specific interface.
       For example, for an interface: 'enabled' indicates
       that OLSRv2 is permitted to operate,
       and 'disabled' indicates that it is not."
   SYNTAX  INTEGER {
      enabled (1),
      disabled (2)
   }

WillingnessTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "x"
   STATUS      current
   DESCRIPTION
      "A willingness value which evaluates to the
       device's interest in participating in
       a particular function, process or behavior.

       The williness ranges from a low value of
       WILL_NEVER(0) to a high value of
       WILL_ALWAYS(15).  For each parameter x,
       there is an associated willingness value
       W(x) such that WILL_NEVER < W(x) <= WILL_ALWAYS."
   SYNTAX   Unsigned32 (0..15)


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

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


--
-- olsrv2ConfigurationGroup
--


--     Contains the OLSRv2 objects that configure specific
--     options that determine the overall performance and operation
--     of the OLSRv2 routing process.
```

olsrv2ConfigurationGroup OBJECT IDENTIFIER ::= {olsrv2MIBObjects 1}

    olsrv2AdminStatus OBJECT-TYPE
        SYNTAX   Olsrv2StatusTC
        MAX-ACCESS   read-write
        STATUS   current
        DESCRIPTION
            "The configured status of the OLSRv2 process
             on this device. 'enabled(1)' means that
             OLSRv2 is configured to run on this device.
             'disabled(2)' mean that the OLSRv2 process
             is configured off.

             Operation of the OLSRv2 routing protocol
             requires the operation of the Neighborhood
             Discovery Protocol (RFC 6130). Hence, this
             object cannot have a status of 'enabled'
             unless at least one interface on the device
             is a MANET interface with NHDP enabled on that
             interface. If a network manager attempts to
             set this object to 'enabled' when no interfaces
             on this device have HNDP enabled, the device
             MUST fail the set with inconsistentValue.
             If all device interfaces running NHDP become
             disabled or removed, then the
             olsrv2AdminStatus MUST be 'disabled'.

             If the network manager, or other means, sets
             this object to 'disabled', then the associated
             interface specific objects, i.e., the
             olsrv2InterfaceAdminStatus objects MUST all
             be 'disabled'.

             This object is persistent and when written
             the entity SHOULD save the change to
             non-volatile storage."
        DEFVAL { 2 }
    ::= { olsrv2ConfigurationGroup 1 }

    olsrv2InterfaceTable OBJECT-TYPE
        SYNTAX   SEQUENCE OF Olsrv2InterfaceEntry
        MAX-ACCESS   not-accessible
        STATUS   current
        DESCRIPTION
            "The olsrv2InterfaceTable describes the OLSRv2
             status on the NHDP interfaces of this router.
             As such, this table augments the nhdpInterfaceTable

          defined in the NHDP-MIB (RFC 6779). NHDP interfaces
          are explicitly defined by network management, CLI,
          or other means for interfaces on the device that are
          intended to run MANET protocols. The
          olsrv2InterfaceTable contains a single object, the
          olsrv2InterfaceAdminStatus object. This
          object is set by network management, or by
          other means, e.g., CLI.

          A conceptual row in this table exists if and only
          if a corresponding entry in the nhdpInterfaceTable
          exists. If the corresponding entry with nhdpIfIndex
          value is deleted from the nhdpInterfaceTable, then
          the entry in this table is automatically deleted and
          OLSRv2 is disabled on this interface,
          and all configuration and state information
          related to this interface is to be removed
          from memory.

          The olsrv2InterfaceAdminStatus can only be
          'enabled' if the corresponding olsrv2AdminStatus
          object is also set to 'enabled'."
      REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
    ::= { olsrv2ConfigurationGroup 2 }

    olsrv2InterfaceEntry OBJECT-TYPE
      SYNTAX   Olsrv2InterfaceEntry
      MAX-ACCESS   not-accessible
      STATUS   current
      DESCRIPTION
          "The olsrv2InterfaceEntry describes one OLSRv2
          local interface configuration as indexed by
          its nhdpIfIndex as defined in the
          NHDP-MIB (RFC 6779).

          The objects in this table are persistent and when
          written the device SHOULD save the change to
          non-volatile storage. For further information
          on the storage behavior for these objects, refer
          to the description for the nhdpIfRowStatus
          object in the NHDP-MIB (RFC6779)."
      REFERENCE
          "RFC 6779 - The Neighborhood Discovery Protocol MIB,
          Herberg, U., Cole, R.G. and I. Chakeres,
          October 2012"

```
      AUGMENTS { nhdpInterfaceEntry }
   ::= { olsrv2InterfaceTable 1 }

   Olsrv2InterfaceEntry ::=
      SEQUENCE {
         olsrv2InterfaceAdminStatus
            Olsrv2StatusTC
      }

   olsrv2InterfaceAdminStatus OBJECT-TYPE
      SYNTAX       Olsrv2StatusTC
      MAX-ACCESS   read-create
      STATUS       current
      DESCRIPTION
         "The OLSRv2 interface's administrative status.
          The value 'enabled(1)' denotes that the interface
          is permitted to participate in the OLSRv2 routing
          process.  The value 'disabled(2)' denotes that
          the interface is not permitted to participate
          in the OLSRv2 routing process.

          The configuration objects for the OLSRv2 routing
          process, other than the administrative status objects,
          are common to all interfaces on this device.
          As such, the OLSRv2 configuration objects are globally
          defined for the device and are not contained within
          the olsrv2InterfaceTable."
      DEFVAL { 2 }
   ::= { olsrv2InterfaceEntry 1 }

   olsrv2OrigIpAddrType  OBJECT-TYPE
      SYNTAX       InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS   read-write
      STATUS       current
      DESCRIPTION
         "The type of the olsrv2OrigIpAddr, as defined
          in the InetAddress MIB module (RFC 4001).

          Only the values 'ipv4(1)' and
          'ipv6(2)' are supported."
      REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
   ::= { olsrv2ConfigurationGroup 3 }

   olsrv2OrigIpAddr  OBJECT-TYPE
      SYNTAX       InetAddress (SIZE(4|16))
```

```
        MAX-ACCESS   read-write
        STATUS       current
        DESCRIPTION
           "The router's originator address. An address that
            is unique (within the MANET) to this router.

            This object is persistent and when written
            the entity SHOULD save the change to
            non-volatile storage."
        REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
     ::= { olsrv2ConfigurationGroup 4 }


   --
   -- Local History Times
   --

   olsrv2OHoldTime   OBJECT-TYPE
      SYNTAX       Unsigned32
      UNITS        "milliseconds"
      MAX-ACCESS   read-write
      STATUS       current
      DESCRIPTION
         "olsrv2OHoldTime corresponds to
         O_HOLD_TIME of OLSRv2 and represents the
         time for which a recently used and replaced
         originator address is used to recognize the router's
         own messages.

         Guidance for setting this object may be found
         in Section 5 of the OLSRv2 specification (RFC XXXX),
         which indicates that:
             o   olsrv2OHoldTime > 0

         This object is persistent and when written
         the entity SHOULD save the change to
         non-volatile storage."
      REFERENCE
         "Section 5 on Protocol Parameters.
          RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
      DEFVAL { 30000 }
   ::= { olsrv2ConfigurationGroup 5 }
```

    --
    -- Message intervals
    --

    olsrv2TcInterval OBJECT-TYPE
        SYNTAX   Olsrv2TimeValueCompressedForm32TC
        UNITS   "milliseconds"
        MAX-ACCESS   read-write
        STATUS   current
        DESCRIPTION
            "olsrv2TcInterval corresponds to
            TC_INTERVAL of OLSRv2 and represents the
            maximum time between the transmission of
            two successive TC messages by this router.

            Guidance for setting this object may be found
            in Section 5 of the OLSRv2 specification (RFC XXXX),
            which indicates that:

                o olsrv2TcInterval > 0
                o olsrv2TcInterval >= olsrv2TcMinInterval

            This object is persistent and when written
            the entity SHOULD save the change to
            non-volatile storage."
        REFERENCE
            "Section 5 on Representing Time.
             RFC 5497 - Representing Multi-Value Time in
             Mobile Ad Hoc Networks (MANETs),
             Clausen, T. and C. Dearlove, March 2009.

             and

             Section 5 on Protocol Parameters.
             RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
        DEFVAL { 5000 }
    ::= { olsrv2ConfigurationGroup 6 }

    olsrv2TcMinInterval OBJECT-TYPE
        SYNTAX   Olsrv2TimeValueCompressedForm32TC
        UNITS   "milliseconds"
        MAX-ACCESS   read-write
        STATUS   current
        DESCRIPTION
            "olsrv2TcMinInterval corresponds to
            TC_MIN_INTERVAL of OLSRv2 and represents

                the minimum interval between transmission of
                two successive TC messages by this router.

                Guidance for setting this object may be found
                in Section 5 of the OLSRv2 specification (RFC XXXX),
                which indicates that:
                    o olsrv2TcInterval >= olsrv2TcMinInterval

                The OLSRv2 protocol may choose to represent this
                time interval in terms of the 8-bit exponent-mantissa
                form defined in Section 5 of RFC 5497. When this
                is the case, this object value MUST be translated
                from the integer form represented in this
                MIB-module into the exponent-mantissa form for the
                OLSRv2 protocol to use according to the algorithm
                defined in Section 5 of RFC 5497 for finding the
                next larger time value within the exponent-mantissa
                format.

                This object is persistent and when written
                the entity SHOULD save the change to
                non-volatile storage."
            REFERENCE
                "Section 5 on Representing Time.
                 RFC 5497 - Representing Multi-Value Time in
                 Mobile Ad Hoc Networks (MANETs),
                 Clausen, T. and C. Dearlove, March 2009.

                 and

                 Section 5 on Protocol Parameters.
                 RFC XXXX - The Optimized Link State Routing Protocol
                 version 2, Clausen, T., Dearlove, C., Jacquet, P.
                 and U. Herberg, March 2013."
            DEFVAL { 1250 }
        ::= { olsrv2ConfigurationGroup 7 }

    --
    -- Advertised information validity times
    --

    olsrv2THoldTime OBJECT-TYPE
        SYNTAX   Olsrv2TimeValueCompressedForm32TC
        UNITS   "milliseconds"
        MAX-ACCESS   read-write
        STATUS   current
        DESCRIPTION

            "olsrv2THoldTime corresponds to
            T_HOLD_TIME of OLSRv2 and is used as the
            minimum value in the TLV with
            Type = VALIDITY_TIME included in all
            TC messages sent by this router.

            Guidance for setting this object may be found
            in Section 5 of the OLSRv2 specification (RFC XXXX),
            which indicates that:
                o olsrv2THoldTime >= olsrv2TcInterval
                o If TC messages can be lost, then
                  olsrv2THoldTime SHOULD be
                  significantly greater than olsrv2TcInterval;
                  a value >= 3 x olsrv2TcInterval is RECOMMENDED.

            This object is persistent and when written
            the entity SHOULD save the change to
            non-volatile storage."
        REFERENCE
            "Section 5 on Representing Time.
             RFC 5497 - Representing Multi-Value Time in
             Mobile Ad Hoc Networks (MANETs),
             Clausen, T. and C. Dearlove, March 2009.

             and

             Section 5 on Protocol Parameters.
             RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
        DEFVAL { 15000 }
    ::= { olsrv2ConfigurationGroup 8 }

    olsrv2AHoldTime   OBJECT-TYPE
        SYNTAX   Olsrv2TimeValueCompressedForm32TC
        UNITS   "milliseconds"
        MAX-ACCESS   read-write
        STATUS   current
        DESCRIPTION
            "olsrv2AHoldTime corresponds to
            A_HOLD_TIME of OLSRv2 and represents
            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
            routers.

            Guidance for setting this object may be found

          in Section 5 of the OLSRv2 specification (RFC XXXX),
          which indicates that:
             o If TC messages can be lost, then
               olsrv2AHoldTime SHOULD be
               significantly greater than olsrv2TcInterval;
               a value >= 3 x olsrv2TcInterval is
               RECOMMENDED.

          This object is persistent and when written
          the entity SHOULD save the change to
          non-volatile storage."
       REFERENCE
          "Section 5 on Representing Time.
           RFC 5497 - Representing Multi-Value Time in
           Mobile Ad Hoc Networks (MANETs),
           Clausen, T. and C. Dearlove, March 2009.

           and

           Section 5 on Protocol Parameters.
           RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
       DEFVAL { 15000 }
    ::= { olsrv2ConfigurationGroup 9 }

    --
    -- Received message validity times
    --

    olsrv2RxHoldTime OBJECT-TYPE
       SYNTAX   Unsigned32
       UNITS   "milliseconds"
       MAX-ACCESS   read-write
       STATUS   current
       DESCRIPTION
          "olsrv2RxHoldTime corresponds to
           RX_HOLD_TIME of OLSRv2 and represents the period
           after receipt of a message by the appropriate OLSRv2
           interface of this router for which that information
           is recorded, in order that the message is recognized
           as having been previously received on this OLSRv2
           interface.

           Guidance for setting this object may be found
           in Section 5 of the OLSRv2 specification (RFC XXXX),
           which indicates that:
              o olsrv2RxHoldTime > 0

```
             o This parameter 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.

          This object is persistent and when written
          the entity SHOULD save the change to
          non-volatile storage."
     REFERENCE
         "Section 5 on Protocol Parameters.
          RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
     DEFVAL { 30000 }
   ::= { olsrv2ConfigurationGroup 10 }

   olsrv2PHoldTime   OBJECT-TYPE
     SYNTAX        Unsigned32
     UNITS         "milliseconds"
     MAX-ACCESS    read-write
     STATUS        current
     DESCRIPTION
         "olsrv2PHoldTime corresponds to
          P_HOLD_TIME of OLSRv2 and represents the period
          after receipt of a message that is processed by
          this router for which that information is recorded,
          in order that the message is not processed again
          if received again.

          Guidance for setting this object may be found
          in Section 5 of the OLSRv2 specification (RFC XXXX),
          which indicates that:
             o olsrv2PHoldTime > 0
             o This parameter 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.

          This object is persistent and when written
          the entity SHOULD save the change to
          non-volatile storage."
     REFERENCE
         "Section 5 on Protocol Parameters.
          RFC XXXX - The Optimized Link State Routing Protocol
```

```
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    DEFVAL { 30000 }
 ::= { olsrv2ConfigurationGroup 11 }

 olsrv2FHoldTime  OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "milliseconds"
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "olsrv2FHoldTime corresponds to
        F_HOLD_TIME of OLSRv2 and represents the period
        after receipt of a message that is forwarded by this
        router for which that information is recorded, in order
        that the message is not forwarded again if received again.

        Guidance for setting this object may be found
        in Section 5 of the OLSRv2 specification (RFC XXXX),
        which indicates that:
           o olsrv2FHoldTime > 0
           o This parameter 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.

        This parameter 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.

        This object is persistent and when written
        the entity SHOULD save the change to
        non-volatile storage."
    REFERENCE
        "Section 5 on Protocol Parameters.
        RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    DEFVAL { 30000 }
 ::= { olsrv2ConfigurationGroup 12 }


 --
```

```
   -- Jitter times
   --


   olsrv2TpMaxJitter  OBJECT-TYPE
      SYNTAX       Unsigned32
      UNITS        "milliseconds"
      MAX-ACCESS   read-write
      STATUS       current
      DESCRIPTION
          "olsrv2TpMaxJitter corresponds to
           TP_MAXJITTER of OLSRv2 and represents the value
           of MAXJITTER used in RFC5148 for periodically
           generated TC messages sent by this router.

           For constraints on these parameters see RFC 5148.

           This object is persistent and when written
           the entity SHOULD save the change to
           non-volatile storage."
      REFERENCE
          "Section 5 on Protocol Parameters.
           RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
      DEFVAL { 500 }
   ::= { olsrv2ConfigurationGroup 13 }

   olsrv2TtMaxJitter  OBJECT-TYPE
      SYNTAX       Unsigned32
      UNITS        "milliseconds"
      MAX-ACCESS   read-write
      STATUS       current
      DESCRIPTION
          "olsrv2TtMaxJitter corresponds to
           TT_MAXJITTER of OLSRv2 and represents the value
           of MAXJITTER used in RFC5148 for externally
           triggered TC messages sent by this router.

           For constraints on these parameters see RFC 5148.

           This object is persistent and when written
           the entity SHOULD save the change to
           non-volatile storage."
      REFERENCE
          "Section 5 on Protocol Parameters.
           RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
```

```
      DEFVAL { 500 }
   ::= { olsrv2ConfigurationGroup 14 }


   olsrv2FMaxJitter  OBJECT-TYPE
      SYNTAX      Unsigned32
      UNITS       "milliseconds"
      MAX-ACCESS  read-write
      STATUS      current
      DESCRIPTION
         "olsrv2FMaxJitter corresponds to
          F_MAXJITTER of OLSRv2 and represents the
          default value of MAXJITTER used in RFC 5148 for
          messages forwarded by this router.

          For constraints on these parameters see RFC 5148.

          This object is persistent and when written
          the entity SHOULD save the change to
          non-volatile storage."
      REFERENCE
         "Section 5 on Protocol Parameters.
          RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
      DEFVAL { 500 }
   ::= { olsrv2ConfigurationGroup 15 }


   --
   -- Hop limits
   --

   olsrv2TcHopLimit  OBJECT-TYPE
      SYNTAX      Unsigned32 (0..255)
      UNITS       "hops"
      MAX-ACCESS  read-write
      STATUS      current
      DESCRIPTION
         "olsrv2TcHopLimit corresponds to
          TC_HOP_LIMIT of OLSRv2.

          Guidance for setting this object may be found
          in Section 5 of the OLSRv2 specification (RFC XXXX),
          which indicates that:
             o The maximum value of
               olsrv2TcHopLimit >= the network diameter
              in hops, a value of 255 is RECOMMENDED.
```

```
            o All values of olsrv2TcHopLimit >= 2.

          This object is persistent and when written
          the entity SHOULD save the change to
          non-volatile storage."
       REFERENCE
         "Section 5 on Protocol Parameters.
          RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
       DEFVAL { 255 }
   ::= { olsrv2ConfigurationGroup 16 }


   --
   -- Willingness
   --

   olsrv2WillRouting  OBJECT-TYPE
       SYNTAX       WillingnessTC
       MAX-ACCESS   read-write
       STATUS       current
       DESCRIPTION
           "olsrv2WillRouting corresponds to
           WILL_ROUTING of OLSRv2.

           Guidance for setting this object may be found
           in Section 5 of the OLSRv2 specification (RFC XXXX),
           which indicates that:
               o WILL_NEVER (0) <= olsrv2WillRouting <=
                                  WILL_ALWAYS (15)

           This object is persistent and when written
           the entity SHOULD save the change to
           non-volatile storage."
       REFERENCE
           "Section 5 on Protocol Parameters.
           RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
       DEFVAL { 7 }
   ::= { olsrv2ConfigurationGroup 17 }


   olsrv2WillFlooding     OBJECT-TYPE
       SYNTAX       WillingnessTC
       MAX-ACCESS   read-write
       STATUS       current
```

         DESCRIPTION
             "olsrv2WillFlooding corresponds to
              WILL_FLOODING of OLSRv2.

              Guidance for setting this object may be found
              in Section 5 of the OLSRv2 specification (RFC XXXX),
              which indicates that:
                 o WILL_NEVER (0) <= olsrv2WillFlooding <=
                                    WILL_ALWAYS (15)

              This object is persistent and when written
              the entity SHOULD save the change to
              non-volatile storage."
         REFERENCE
             "Section 5 on Protocol Parameters.
              RFC XXXX - The Optimized Link State Routing Protocol
              version 2, Clausen, T., Dearlove, C., Jacquet, P.
              and U. Herberg, March 2013."
         DEFVAL { 7 }
       ::= { olsrv2ConfigurationGroup 18 }

     olsrv2LinkMetricType OBJECT-TYPE
         SYNTAX   IANAolsrv2LinkMetricTypeTC
         MAX-ACCESS   read-write
         STATUS   current
         DESCRIPTION
             "olsrv2LinkMetricType corresponds to
              LINK_METRIC_TYPE of OLSRv2.

              If olsrv2LinkMetricType changes, then all
              link metric information recorded by this router
              is invalid. The router MUST take the
              actions described in Section 5.5.
              'Parameter Change Constraints' and
              Section 17 'Information Base Changes'
              in RFC XXXX.

              This object is persistent and when written
              the entity SHOULD save the change to
              non-volatile storage."
         REFERENCE
             "Section 5 on Protocol Parameters.
              RFC XXXX - The Optimized Link State Routing Protocol
              version 2, Clausen, T., Dearlove, C., Jacquet, P.
              and U. Herberg, March 2013."
         DEFVAL { 0 }
       ::= { olsrv2ConfigurationGroup 19 }

```
--
-- olsrv2StateGroup
--


--
-- Contains information describing the current state of
-- the OLSRv2 process.
--

olsrv2StateGroup  OBJECT IDENTIFIER ::= { olsrv2MIBObjects 2 }

   --
   -- Interface Information Base (IIB)
   --


   --
   -- Link Set from RFC 6130, extended by L_in_metric,
   -- L_out_metric, and L_mpr_selector entries for each tuple
   --

   olsrv2IibLinkSetTable OBJECT-TYPE
       SYNTAX       SEQUENCE OF Olsrv2IibLinkSetEntry
       MAX-ACCESS   not-accessible
       STATUS       current
       DESCRIPTION
          "A Link Set of an interface records all links
           from other routers which are, or recently
           were, 1-hop neighbors."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
       ::= { olsrv2StateGroup 1 }

   olsrv2IibLinkSetEntry  OBJECT-TYPE
       SYNTAX       Olsrv2IibLinkSetEntry
       MAX-ACCESS   not-accessible
       STATUS       current
       DESCRIPTION
          "A Link Set consists of Link Tuples, each
           representing a single link indexed by the
           local and remote interface pair. Each Link Set
           from NHDP is extended by OLSRv2 by the following
           fields:

           (L_in_metric (olsrv2IibLinkSetInMetricValue),
            L_out_metric (olsrv2IibLinkSetOutMetricValue),
            L_mpr_selector (olsrv2IibLinkSetMprSelector))"
```

```
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
    AUGMENTS { nhdpIibLinkSetEntry }
::= { olsrv2IibLinkSetTable 1 }

Olsrv2IibLinkSetEntry ::=
    SEQUENCE {
        olsrv2IibLinkSetInMetricValue
            Olsrv2MetricValueCompressedFormTC,
        olsrv2IibLinkSetOutMetricValue
            Olsrv2MetricValueCompressedFormTC,
        olsrv2IibLinkSetMprSelector
            TruthValue
    }

olsrv2IibLinkSetInMetricValue  OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "olsrv2IibLinkSetInMetricValue is the metric of the link
         from the OLSRv2 interface with addresses
         L_neighbor_iface_addr_list to this OLSRv2 interface.
         The L_neighbor_iface_addr_list is identified by
         the nhdpDiscIfIndex which is an index to the
         nhdpIibLinkSetTable which this table augments."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
::= { olsrv2IibLinkSetEntry 1 }

olsrv2IibLinkSetOutMetricValue  OBJECT-TYPE
    SYNTAX      Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "olsrv2IibLinkSetOutMetricValue is the metric of the
         link to the OLSRv2 interface with addresses
         L_neighbor_iface_addr_list from this OLSRv2 interface.
         The L_neighbor_iface_addr_list is identified by
         the nhdpDiscIfIndex which is an index to the
         nhdpIibLinkSetTable which this table augments."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
```

          and U. Herberg, March 2013."
    ::= { olsrv2IibLinkSetEntry 2 }

    olsrv2IibLinkSetMprSelector OBJECT-TYPE
       SYNTAX   TruthValue
       MAX-ACCESS   read-only
       STATUS   current
       DESCRIPTION
          "olsrv2IibLinkSetMprSelector is a boolean flag,
           recording whether this neighbor has selected this router
           as a flooding MPR, i.e., is a flooding MPR selector
           of this router."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2IibLinkSetEntry 3 }

    --
    -- 2-Hop Set; from RFC 6130, extended by OLSRv2 by the
    -- following fields: N2_in_metric, N2_out_metric
    --

    olsrv2Iib2HopSetTable OBJECT-TYPE
       SYNTAX   SEQUENCE OF Olsrv2Iib2HopSetEntry
       MAX-ACCESS   not-accessible
       STATUS   current
       DESCRIPTION
          "A 2-Hop Set of an interface records network
           addresses of symmetric 2-hop neighbors, and
           the symmetric links to symmetric 1-hop neighbors
           through which these symmetric 2-hop neighbors
           can be reached. It consists of 2-Hop Tuples."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2StateGroup 2 }

    olsrv2Iib2HopSetEntry OBJECT-TYPE
       SYNTAX   Olsrv2Iib2HopSetEntry
       MAX-ACCESS   not-accessible
       STATUS   current
       DESCRIPTION
          "olsrv2Iib2HopSetTable consists of 2-Hop Tuples,
           each representing a single network address of
           a symmetric 2-hop neighbor, and a single MANET
           interface of a symmetric 1-hop neighbor.

          Each 2-Hop Set from NHDP is extended by
          OLSRv2 by the following fields:

          (N2_in_metric (olsrv2Iib2HopSetInMetricValue),
           N2_out_metric (olsrv2Iib2HopSetOutMetricValue))"
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
       AUGMENTS { nhdpIib2HopSetEntry }
    ::= { olsrv2Iib2HopSetTable 1 }

    Olsrv2Iib2HopSetEntry ::=
       SEQUENCE {
          olsrv2Iib2HopSetInMetricValue
             Olsrv2MetricValueCompressedFormTC,
          olsrv2Iib2HopSetOutMetricValue
             Olsrv2MetricValueCompressedFormTC
       }

    olsrv2Iib2HopSetInMetricValue OBJECT-TYPE
       SYNTAX   Olsrv2MetricValueCompressedFormTC
       MAX-ACCESS   read-only
       STATUS   current
       DESCRIPTION
          "olsrv2Iib2HopSetInMetricValue is the neighbor
           metric from the router with address
           N2_2hop_iface_addr to the router
           with OLSRv2 interface addresses
           N2_neighbor_iface_addr_list.

           The N2_2hop_iface_addr is identified by the
           (nhdpIib2HopSetIpAddressType,
           nhdpIib2HopSetIpAddress) pair from the
           nhdpIibLinkSetTable which this table augments.

           The N2_neighbor_iface_addr_list is defined by
           the nhdpDiscIfIndex which is an index of the
           nhdpIibLinkSetTable which this table augments."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013.

           and

           RFC 6779 - Definition of Managed Objects for the
           Neighboorhood Discovery Process, Herberg, U.,

```
        Cole, R. and I. Chakeres, October 2012."
   ::= { olsrv2Iib2HopSetEntry 1 }

   olsrv2Iib2HopSetOutMetricValue  OBJECT-TYPE
      SYNTAX       Olsrv2MetricValueCompressedFormTC
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
         "olsrv2Iib2HopSetOutMetricValue is the neighbor metric
          to the router with address N2_2hop_iface_addr
          from the router with OLSRv2 interface addresses
          N2_neighbor_iface_addr_list.

          The N2_2hop_iface_addr is identified by the
          (nhdpIib2HopSetIpAddressType,
          nhdpIib2HopSetIpAddress) pair from the
          nhdpIibLinkSetTable which this table augments.

          The N2_neighbor_iface_addr_list is defined by
          the nhdpDiscIfIndex which is an index of the
          nhdpIibLinkSetTable which this table augments."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013.

          and

          RFC 6779 - Definition of Managed Objects for the
          Neighboorhood Discovery Process, Herberg, U.,
          Cole, R. and I. Chakeres, October 2012."
   ::= { olsrv2Iib2HopSetEntry 2 }


   --
   -- Local Information Base  - as defined in RFC 6130,
   -- extended by the addition of an Originator Set,
   -- defined in Section 6.1 and a Local Attached
   -- Network Set, defined in Section 6.2.
   --

   --
   -- Originator Set
   --

   olsrv2LibOrigSetTable OBJECT-TYPE
      SYNTAX       SEQUENCE OF Olsrv2LibOrigSetEntry
      MAX-ACCESS   not-accessible
```

```
      STATUS        current
      DESCRIPTION
         "A router's Originator Set records addresses
          that were recently used as originator addresses
          by this router."
       REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2StateGroup 3 }

   olsrv2LibOrigSetEntry  OBJECT-TYPE
      SYNTAX        Olsrv2LibOrigSetEntry
      MAX-ACCESS  not-accessible
      STATUS        current
      DESCRIPTION
         "A router's Originator Set consists of
          Originator Tuples:

          (O_orig_addr (olsrv2LibOrigSetIpAddrType
           and olsrv2LibOrigSetIpAddr),
           O_time (olsrv2LibOrigSetExpireTime))."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
      INDEX { olsrv2LibOrigSetIpAddrType,
             olsrv2LibOrigSetIpAddr }
   ::= { olsrv2LibOrigSetTable 1 }

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

   olsrv2LibOrigSetIpAddrType  OBJECT-TYPE
      SYNTAX        InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS  not-accessible
      STATUS        current
      DESCRIPTION
         "The type of the olsrv2LibOrigSetIpAddr,
          as defined in the InetAddress MIB (RFC4001).
```

```
        Only the values 'ipv4(1)' and
        'ipv6(2)' are supported."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2LibOrigSetEntry 1 }


 olsrv2LibOrigSetIpAddr  OBJECT-TYPE
    SYNTAX       InetAddress (SIZE(4|16))
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
       "An originator address recently employed
        by this router."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2LibOrigSetEntry 2 }


 olsrv2LibOrigSetExpireTime  OBJECT-TYPE
    SYNTAX       TimeStamp
    UNITS        "centiseconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
       "olsrv2LibOrigSetExpireTime specifies the value
        of sysUptime when this entry SHOULD expire and be
        removed from the olsrv2LibOrigSetTable.  This time
        is determined at the time the entry is added,
        derived from the following expression:

           O_time := current time + O_HOLD_TIME

        where O_time is olsrv2LibOrigSetExpireTime,
        current_time is current sysUpTime and
        O_HOLD_TIME is a parameter of the OLSRv2
        protocol.  In the event that the
        O_HOLD_TIME is changed, then the
        olsrv2LibOrigSetExpireTime needs to be
        recomputed for each of the entries in this Table."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2LibOrigSetEntry 3 }
```

```
   --
   -- Local Attached Network Set
   --

   olsrv2LibLocAttNetSetTable OBJECT-TYPE
       SYNTAX       SEQUENCE OF Olsrv2LibLocAttNetSetEntry
       MAX-ACCESS   not-accessible
       STATUS       current
       DESCRIPTION
           "A router's Local Attached Network Set records
            its local non-OLSRv2 interfaces via which it
            can act as gateways to other networks."
       REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
   ::= { olsrv2StateGroup 4 }

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

            (AL_net_addr (olsrv2LibLocAttNetSetIpAddr),
             AL_dist (olsrv2LibLocAttNetSetDistance),
             AL_metric (olsrv2LibLocAttNetSetMetricValue)
            )

            where:

               AL_net_addr is the network address
               of an attached network which can
               be reached via this router.  The
               AL_net_addr is defined in this MIB
               module by the tuple
               (olsrv2LibLocAttNetSetIpAddrType,
                olsrv2LibLocAttNetSetIpAddr,
                olsrv2LibLocAttNetSetIpAddrPrefixLen).

               AL_dist is the number of hops to
               the network with address AL_net_addr
               from this router.  The AL_dist is
               defined in this MIB module by the
               olsrv2LibLocAttNetSetDistance object.
```

```
             AL_metric is the metric of the link to
             the attached network with address
             AL_net_addr from this router. The
             AL_metric is defined in this MIB module
             by the olsrv2LibLocAttNetSetMetricValue
             object.

          OLSRv2 (RFC XXXX) defines the rules for managing
          entries within this table, e.g., populating
          and purging entries.  Specific instructions for the
          olsrv2LibLocAttNetSetEntry(s) are found in
          Section 7.2 and Section 17 of OLSRv2 (RFC XXXX)."
      REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
      INDEX { olsrv2LibLocAttNetSetIpAddrType,
              olsrv2LibLocAttNetSetIpAddr,
              olsrv2LibLocAttNetSetIpAddrPrefixLen }
   ::= { olsrv2LibLocAttNetSetTable 1 }

   Olsrv2LibLocAttNetSetEntry ::=
      SEQUENCE {
         olsrv2LibLocAttNetSetIpAddrType
            InetAddressType,
         olsrv2LibLocAttNetSetIpAddr
            InetAddress,
         olsrv2LibLocAttNetSetIpAddrPrefixLen
            InetAddressPrefixLength,
         olsrv2LibLocAttNetSetDistance
            Unsigned32,
         olsrv2LibLocAttNetSetMetricValue
            Olsrv2MetricValueCompressedFormTC
      }

   olsrv2LibLocAttNetSetIpAddrType  OBJECT-TYPE
      SYNTAX       InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS   not-accessible
      STATUS       current
      DESCRIPTION
          "The type of the olsrv2LibLocAttNetSetIpAddr, as defined
           in the InetAddress MIB (RFC 4001).

           Only the values 'ipv4(1)' and
           'ipv6(2)' are supported."
      REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
```

```
            and U. Herberg, March 2013."
    ::= { olsrv2LibLocAttNetSetEntry 1 }

    olsrv2LibLocAttNetSetIpAddr  OBJECT-TYPE
       SYNTAX       InetAddress (SIZE(4|16))
       MAX-ACCESS   not-accessible
       STATUS       current
       DESCRIPTION
          "This is the network address of an attached
           network which can be reached via this router."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2LibLocAttNetSetEntry 2 }

    olsrv2LibLocAttNetSetIpAddrPrefixLen  OBJECT-TYPE
       SYNTAX       InetAddressPrefixLength
       UNITS        "bits"
       MAX-ACCESS   not-accessible
       STATUS       current
       DESCRIPTION
          "Indicates the number of leading one bits that form the
           mask to be logically ANDed with the destination address
           before being compared to the value in the
           olsrv2LibLocAttNetSetIpAddr field."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2LibLocAttNetSetEntry 3 }

    olsrv2LibLocAttNetSetDistance  OBJECT-TYPE
       SYNTAX       Unsigned32 (1..255)
       UNITS        "hops"
       MAX-ACCESS   read-only
       STATUS       current
       DESCRIPTION
          "This object specifies the number of hops
           to the network with address
           olsrv2LibLocAttNetSetIpAddr from this router."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2LibLocAttNetSetEntry 4 }

    olsrv2LibLocAttNetSetMetricValue  OBJECT-TYPE
```

       SYNTAX   Olsrv2MetricValueCompressedFormTC
       MAX-ACCESS   read-only
       STATUS   current
       DESCRIPTION
          "This object specifies the metric of the
           link to the attached network with
           address AL_net_addr from this router. The
           AL_net_addr is defined by the tuple
           (olsrv2LibLocAttNetSetIpAddrType,
            olsrv2LibLocAttNetSetIpAddr,
            olsrv2LibLocAttNetSetIpAddrPrefixLen)."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2LibLocAttNetSetEntry 5 }

    --
    -- Neighbor Information Base - as defined in RFC 6130,
    -- extended by OLSRv2 by the addition of the following
    -- elements to each Neighbor Tuple
    --

    --
    -- Neighbor Set
    --

    olsrv2NibNeighborSetTable OBJECT-TYPE
       SYNTAX   SEQUENCE OF Olsrv2NibNeighborSetEntry
       MAX-ACCESS   not-accessible
       STATUS   current
       DESCRIPTION
          "A router's Neighbor Set records all network
           addresses of each 1-hop neighbor. It consists
           of Neighbor Tuples, each representing a single
           1-hop neighbor. "
        REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
     ::= { olsrv2StateGroup 5 }

      olsrv2NibNeighborSetEntry OBJECT-TYPE
         SYNTAX   Olsrv2NibNeighborSetEntry
         MAX-ACCESS   not-accessible
         STATUS   current
         DESCRIPTION

```
     "Each Neighbor Tuple in the Neighbor Set, defined
      in RFC 6130, has these additional elements:
          N_orig_addr (olsrv2NibNeighborSetNOrigIpAddrType,
                       olsrv2NibNeighborSetNOrigIpAddr)
          N_in_metric (olsrv2NibNeighborSetNInMetricValue)
          N_out_metric (olsrv2NibNeighborSetNOutMetricValue)
          N_will_flooding (olsrv2NibNeighborSetNWillFlooding)
          N_will_routing (olsrv2NibNeighborSetNWillRouting)
          N_flooding_mpr (olsrv2NibNeighborSetNFloodingMpr)
          N_routing_mpr (olsrv2NibNeighborSetNRoutingMpr)
          N_mpr_selector (olsrv2NibNeighborSetNMprSelector)
          N_advertised (olsrv2NibNeighborSetNAdvertised)
      defined here as extensions."
   REFERENCE
     "RFC XXXX - The Optimized Link State Routing Protocol
      version 2, Clausen, T., Dearlove, C., Jacquet, P.
      and U. Herberg, March 2013."
   AUGMENTS { nhdpNibNeighborSetEntry }
::= { olsrv2NibNeighborSetTable 1 }

Olsrv2NibNeighborSetEntry ::=
   SEQUENCE {
     olsrv2NibNeighborSetNOrigIpAddrType
        InetAddressType,
     olsrv2NibNeighborSetNOrigIpAddr
        InetAddress,
     olsrv2NibNeighborSetNInMetricValue
        Olsrv2MetricValueCompressedFormTC,
     olsrv2NibNeighborSetNOutMetricValue
        Olsrv2MetricValueCompressedFormTC,
     olsrv2NibNeighborSetNWillFlooding
        WillingnessTC,
     olsrv2NibNeighborSetNWillRouting
        WillingnessTC,
     olsrv2NibNeighborSetNFloodingMpr
        TruthValue,
     olsrv2NibNeighborSetNRoutingMpr
        TruthValue,
     olsrv2NibNeighborSetNMprSelector
        TruthValue,
     olsrv2NibNeighborSetNAdvertised
        TruthValue
   }

olsrv2NibNeighborSetNOrigIpAddrType  OBJECT-TYPE
   SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
   MAX-ACCESS  read-only
   STATUS      current
```

         DESCRIPTION
            "The type of the olsrv2NibNeighborSetNOrigIpAddr, as defined
             in the InetAddress MIB module (RFC4001).

             Only the values 'ipv4(1)' and
             'ipv6(2)' are supported."
         REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
      ::= { olsrv2NibNeighborSetEntry 1 }

      olsrv2NibNeighborSetNOrigIpAddr OBJECT-TYPE
         SYNTAX   InetAddress (SIZE(4|16))
         MAX-ACCESS   read-only
         STATUS   current
         DESCRIPTION
            "This is the originator IP address of the neighbor
             represented by this table entry."
         REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
      ::= { olsrv2NibNeighborSetEntry 2 }

      olsrv2NibNeighborSetNInMetricValue OBJECT-TYPE
         SYNTAX   Olsrv2MetricValueCompressedFormTC
         MAX-ACCESS   read-only
         STATUS   current
         DESCRIPTION
            "This object is the neighbor metric of any
             link from this neighbor to an OLSRv2 interface
             of this router, i.e., the minimum of all corresponding
             L_in_metric (olsrv2IibLinkSetInMetricValue)
             with L_status = SYMMETRIC and
             L_in_metric (olsrv2IibLinkSetInMetricValue) != UNKNOWN_METRIC,
             UNKNOWN_METRIC if there are no such Link Tuples.
             UNKNOWN_METRIC has a value of 0."
         REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
      ::= { olsrv2NibNeighborSetEntry 3 }

      olsrv2NibNeighborSetNOutMetricValue OBJECT-TYPE
         SYNTAX   Olsrv2MetricValueCompressedFormTC
         MAX-ACCESS   read-only
         STATUS   current

        DESCRIPTION
           "This object is the neighbor metric of any
            link from an OLSRv2 interface of this router
            to this neighbor, i.e., the minimum of all
            corresponding L_out_metric
            (olsrv2IibLinkSetOutMetricValue) with L_status =
            SYMMETRIC and L_out_metric
            (olsrv2IibLinkSetOutMetricValue) != UNKNOWN_METRIC,
            UNKNOWN_METRIC if there are no such Link Tuples.
            UNKNOWN_METRIC has a value of 0."
        REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
     ::= { olsrv2NibNeighborSetEntry 4 }

     olsrv2NibNeighborSetNWillFlooding OBJECT-TYPE
        SYNTAX   WillingnessTC
        MAX-ACCESS   read-only
        STATUS   current
        DESCRIPTION
           "This object is the neighbor's willingness to be
            selected as a flooding MPR, in the range from
            WILL_NEVER to WILL_ALWAYS, both inclusive, taking
            the value WILL_NEVER if no OLSRv2 specific
            information is received from this neighbor."
        REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
     ::= { olsrv2NibNeighborSetEntry 5 }

     olsrv2NibNeighborSetNWillRouting OBJECT-TYPE
        SYNTAX   WillingnessTC
        MAX-ACCESS   read-only
        STATUS   current
        DESCRIPTION
           "This object is the neighbor's willingness to be
            selected as a routing MPR, in the range from
            WILL_NEVER to WILL_ALWAYS, both inclusive, taking
            the value WILL_NEVER if no OLSRv2 specific
            information is received from this neighbor."
        REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
     ::= { olsrv2NibNeighborSetEntry 6 }

    olsrv2NibNeighborSetNFloodingMpr OBJECT-TYPE
       SYNTAX   TruthValue
       MAX-ACCESS   read-only
       STATUS   current
       DESCRIPTION
          "This object is a boolean flag, recording whether
           this neighbor is selected as a flooding MPR
           by this router."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2NibNeighborSetEntry 7 }

    olsrv2NibNeighborSetNRoutingMpr OBJECT-TYPE
       SYNTAX   TruthValue
       MAX-ACCESS   read-only
       STATUS   current
       DESCRIPTION
          "This object is a boolean flag, recording whether
           this neighbor is selected as a routing MPR
           by this router."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2NibNeighborSetEntry 8 }

    olsrv2NibNeighborSetNMprSelector OBJECT-TYPE
       SYNTAX   TruthValue
       MAX-ACCESS   read-only
       STATUS   current
       DESCRIPTION
          "This object is a boolean flag,
           recording whether this neighbor has selected this router
           as a routing MPR, i.e., is a routing MPR
           selector of this router.

           When set to 'true', then this router is selected as
           a routing MPR by the neighbor router.
           When set to 'false',
           then this router is not selected by the neighbor
           as a routing MPR."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2NibNeighborSetEntry 9 }

    olsrv2NibNeighborSetNAdvertised OBJECT-TYPE
       SYNTAX   TruthValue
       MAX-ACCESS   read-only
       STATUS   current
       DESCRIPTION
          "This object, N_mpr_selector
           (olsrv2NibNeighborSetNMprSelector), is a boolean flag,
           recording whether this router has elected to
           advertise a link to this neighbor in its TC messages."
        REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2NibNeighborSetEntry 10 }

    olsrv2NibNeighborSetTableAnsn OBJECT-TYPE
       SYNTAX   Unsigned32 (0..65535)
       MAX-ACCESS   read-only
       STATUS   current
       DESCRIPTION
          "Advertised Neighbor Sequence Number (ANSN), is
           a variable, whose value is included in TC messages to
           indicate the freshness of the information transmitted."
       REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
    ::= { olsrv2StateGroup 6 }

    --
    -- Topology Information Base - this Information
    -- Base is specific to OLSRv2, and is defined in
    -- Section 10 of RFC XXXX.
    --

    --
    -- Advertising Remote Router Set
    --

    olsrv2TibAdRemoteRouterSetTable OBJECT-TYPE
       SYNTAX   SEQUENCE OF Olsrv2TibAdRemoteRouterSetEntry
       MAX-ACCESS   not-accessible
       STATUS   current
       DESCRIPTION
          "A router's Advertising Remote Router Set records
           information describing each remote router in the

                network that transmits TC messages."
         REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
     ::= { olsrv2StateGroup 7 }

     olsrv2TibAdRemoteRouterSetEntry OBJECT-TYPE
         SYNTAX   Olsrv2TibAdRemoteRouterSetEntry
         MAX-ACCESS not-accessible
         STATUS   current
         DESCRIPTION
            "A router's Advertised Neighbor Set Table entry
             consists of Advertising Remote Router Tuples:

             (AR_orig_addr (olsrv2TibAdRemoteRouterSetIpAddrType,
                            olsrv2TibAdRemoteRouterSetIpAddr),
              AR_seq_number (olsrv2TibAdRemoteRouterSetMaxSeqNo),
              AR_time (olsrv2TibAdRemoteRouterSetExpireTime).

             Addresses associated with this router are
             found in the NHDP-MIB module's nhdpDiscIfSetTable.

             OLSRv2 (RFC XXXX) defines the rules for managing
             entries within this table, e.g., populating
             and purging entries. Specific instructions for the
             olsrv2TibAdRemoteRouterSetEntry(s) are found in
             Section 10.1 and Section 17 of OLSRv2 (RFC XXXX)."
         REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
         INDEX { olsrv2TibAdRemoteRouterSetIpAddrType,
                 olsrv2TibAdRemoteRouterSetIpAddr }
     ::= { olsrv2TibAdRemoteRouterSetTable 1 }

     Olsrv2TibAdRemoteRouterSetEntry ::=
         SEQUENCE {
             olsrv2TibAdRemoteRouterSetIpAddrType
                 InetAddressType,
             olsrv2TibAdRemoteRouterSetIpAddr
                 InetAddress,
             olsrv2TibAdRemoteRouterSetMaxSeqNo
                 Unsigned32,
             olsrv2TibAdRemoteRouterSetExpireTime
                 TimeStamp
         }

```
   olsrv2TibAdRemoteRouterSetIpAddrType  OBJECT-TYPE
      SYNTAX       InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS  not-accessible
      STATUS       current
      DESCRIPTION
         "The type of the olsrv2TibAdRemoteRouterSetIpAddr,
          as defined in the InetAddress MIB module (RFC4001).

          Only the values 'ipv4(1)' and
          'ipv6(2)' are supported."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibAdRemoteRouterSetEntry 1 }

   olsrv2TibAdRemoteRouterSetIpAddr  OBJECT-TYPE
      SYNTAX       InetAddress (SIZE(4|16))
      MAX-ACCESS  not-accessible
      STATUS       current
      DESCRIPTION
         "This is the originator address of a received
          TC message."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibAdRemoteRouterSetEntry 2 }

   olsrv2TibAdRemoteRouterSetMaxSeqNo  OBJECT-TYPE
      SYNTAX       Unsigned32 (0..65535)
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
         "This is the greatest Assigned Neighbor Sequence
          Number (ANSN) in any TC message
          received which originated from the router
          with originator address
          olsrv2TibAdRemoteRouterSetIpAddr.

          Sequence numbers are used in the OLSRv2 protocol
          for the purpose of discarding 'old' information,
          i.e., messages received out of order.  However
          with a limited number of bits for representing
          sequence numbers, wrap-around (that the sequence
          number is incremented from the maximum possible
          value to zero) will occur.  To prevent this from
          interfering with the operation of this protocol,
```

         OLSRv2 implementations observe the following when
         determining the ordering of sequence numbers.

         In OLSRv2, MAXVALUE designates one more than the
         largest possible value for a sequence number.
         For a 16 bit sequence number MAXVALUE is 65536.

         The sequence number S1 is said to be 'greater than'
         the sequence number S2 if:

            o S1 > S2 AND S1 - S2 < MAXVALUE/2 OR

            o S2 > S1 AND S2 - S1 > MAXVALUE/2

         When sequence numbers S1 and S2 differ by MAXVALUE/2
         their ordering cannot be determined. In this case,
         which should not occur, either ordering may be
         assumed.

         Thus when comparing two messages, it is possible
         - even in the presence of wrap-around - to determine
         which message contains the most recent information."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibAdRemoteRouterSetEntry 3 }

   olsrv2TibAdRemoteRouterSetExpireTime OBJECT-TYPE
      SYNTAX   TimeStamp
      UNITS   "centiseconds"
      MAX-ACCESS   not-accessible
      STATUS   current
      DESCRIPTION
         "olsrv2TibAdRemoteRouterSetExpireTime specifies the value
          of sysUptime when this entry SHOULD expire and be
          removed from the olsrv2TibAdRemoteRouterSetTable."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibAdRemoteRouterSetEntry 4 }

   --
   -- Router Topology Set
   --

```
   olsrv2TibRouterTopologySetTable OBJECT-TYPE
       SYNTAX        SEQUENCE OF Olsrv2TibTopologySetEntry
       MAX-ACCESS    not-accessible
       STATUS        current
       DESCRIPTION
           "A router's Router Topology Set records topology
            information about the network."
       REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
   ::= { olsrv2StateGroup 8 }

   olsrv2TibRouterTopologySetEntry  OBJECT-TYPE
       SYNTAX        Olsrv2TibTopologySetEntry
       MAX-ACCESS    not-accessible
       STATUS        current
       DESCRIPTION
           "It consists of Router Topology Tuples:

            (TR_from_orig_addr
               (olsrv2TibRouterTopologySetFromOrigIpAddrType,
                olsrv2TibRouterTopologySetFromOrigIpAddr),
             TR_to_orig_addr
               (olsrv2TibRouterTopologySetToOrigIpAddrType,
                olsrv2TibRouterTopologySetToOrigIpAddr),
             TR_seq_number (olsrv2TibRouterTopologySetSeqNo),
             TR_metric (olsrv2TibRouterTopologySetMetricValue),
             TR_time (olsrv2TibRouterTopologySetExpireTime)).

             OLSRv2 (RFC XXXX) defines the rules for managing
             entries within this table, e.g., populating
             and purging entries.  Specific instructions for the
             olsrv2TibRouterTopologySetEntry(s) are found in
             Section 10.2 and Section 17 of OLSRv2 (RFC XXXX)."
       REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
       INDEX { olsrv2TibRouterTopologySetFromOrigIpAddrType,
               olsrv2TibRouterTopologySetFromOrigIpAddr,
               olsrv2TibRouterTopologySetToOrigIpAddrType,
               olsrv2TibRouterTopologySetToOrigIpAddr }
   ::= { olsrv2TibRouterTopologySetTable 1 }

   Olsrv2TibTopologySetEntry ::=
       SEQUENCE {
         olsrv2TibRouterTopologySetFromOrigIpAddrType
```

```
              InetAddressType,
          olsrv2TibRouterTopologySetFromOrigIpAddr
              InetAddress,
          olsrv2TibRouterTopologySetToOrigIpAddrType
              InetAddressType,
          olsrv2TibRouterTopologySetToOrigIpAddr
              InetAddress,
          olsrv2TibRouterTopologySetSeqNo
              Unsigned32,
          olsrv2TibRouterTopologySetMetricValue
              Olsrv2MetricValueCompressedFormTC,
          olsrv2TibRouterTopologySetExpireTime
              TimeStamp
      }

  olsrv2TibRouterTopologySetFromOrigIpAddrType  OBJECT-TYPE
      SYNTAX        InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS  not-accessible
      STATUS        current
      DESCRIPTION
          "The type of the olsrv2TibRouterTopologySetFromOrigIpAddr,
           as defined in the InetAddress MIB module (RFC4001).

           Only the values 'ipv4(1)' and
           'ipv6(2)' are supported."
      REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
  ::= { olsrv2TibRouterTopologySetEntry 1 }

  olsrv2TibRouterTopologySetFromOrigIpAddr  OBJECT-TYPE
      SYNTAX        InetAddress (SIZE(4|16))
      MAX-ACCESS  not-accessible
      STATUS        current
      DESCRIPTION
          "This is the originator address of a router which can
           reach the router with originator address TR_to_orig_addr
           in one hop."
      REFERENCE
          "RFC XXXX - The Optimized Link State Routing Protocol
           version 2, Clausen, T., Dearlove, C., Jacquet, P.
           and U. Herberg, March 2013."
  ::= { olsrv2TibRouterTopologySetEntry 2 }

  olsrv2TibRouterTopologySetToOrigIpAddrType  OBJECT-TYPE
      SYNTAX        InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS  not-accessible
```

```
        STATUS        current
        DESCRIPTION
           "The type of the olsrv2TibRouterTopologySetToOrigIpAddr,
            as defined in the InetAddress MIB module (RFC4001).

            Only the values 'ipv4(1)' and
            'ipv6(2)' are supported."
        REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
     ::= { olsrv2TibRouterTopologySetEntry 3 }

   olsrv2TibRouterTopologySetToOrigIpAddr  OBJECT-TYPE
        SYNTAX        InetAddress (SIZE(4|16))
        MAX-ACCESS  not-accessible
        STATUS        current
        DESCRIPTION
           "This is the originator address of a router which can be
            reached by the router with originator address
            TR_to_orig_addr in one hop."
        REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
     ::= { olsrv2TibRouterTopologySetEntry 4 }

   olsrv2TibRouterTopologySetSeqNo  OBJECT-TYPE
        SYNTAX        Unsigned32 (0..65535)
        MAX-ACCESS  read-only
        STATUS        current
        DESCRIPTION
           "This is the greatest Assigned Neighbor Sequence
            Number (ANSN) in any TC message
            received which originated from the router
            with originator address TR_from_orig_addr,
            i.e., which contributed to the information
            contained in this Tuple and is defined by the
            objects:
                (olsrv2TibRouterTopologySetFromOrigIpAddrType,
                 olsrv2TibRouterTopologySetFromOrigIpAddr).

            Sequence numbers are used in the OLSRv2 protocol
            for the purpose of discarding 'old' information,
            i.e., messages received out of order.  However
            with a limited number of bits for representing
            sequence numbers, wrap-around (that the sequence
            number is incremented from the maximum possible
```

value to zero) will occur. To prevent this from
interfering with the operation of this protocol,
OLSRv2 implementations observe the following when
determining the ordering of sequence numbers.

In OLSRv2, MAXVALUE designates one more than the
largest possible value for a sequence number.
For a 16 bit sequence number MAXVALUE is 65536.

The sequence number S1 is said to be 'greater than'
the sequence number S2 if:

    o S1 > S2 AND S1 - S2 < MAXVALUE/2 OR

    o S2 > S1 AND S2 - S1 > MAXVALUE/2

When sequence numbers S1 and S2 differ by MAXVALUE/2
their ordering cannot be determined. In this case,
which should not occur, either ordering may be
assumed.

Thus when comparing two messages, it is possible
- even in the presence of wrap-around - to determine
which message contains the most recent information."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    ::= { olsrv2TibRouterTopologySetEntry 5 }

olsrv2TibRouterTopologySetMetricValue OBJECT-TYPE
    SYNTAX   Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
       "This is the neighbor metric from the router
        with originator address TR_from_orig_addr
        (olsrv2TibRouterTopologySetFromOrigIpAddrType,
        olsrv2TibRouterTopologySetFromOrigIpAddr) to
        the router with originator address TR_to_orig_addr
        (olsrv2TibRouterTopologySetToOrigIpAddrType,
        olsrv2TibRouterTopologySetToOrigIpAddr)."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    ::= { olsrv2TibRouterTopologySetEntry 6 }

    olsrv2TibRouterTopologySetExpireTime OBJECT-TYPE
        SYNTAX   TimeStamp
        UNITS   "centiseconds"
        MAX-ACCESS   not-accessible
        STATUS   current
        DESCRIPTION
            "olsrv2TibRouterTopologySetExpireTime specifies the value
             of sysUptime when this entry SHOULD expire and be
             removed from the olsrv2TibRouterTopologySetTable."
        REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
    ::= { olsrv2TibRouterTopologySetEntry 7 }

    --
    -- Routable Address Topology Set
    --

    olsrv2TibRoutableAddressTopologySetTable OBJECT-TYPE
        SYNTAX   SEQUENCE OF Olsrv2TibRoutableAddressTopologySetEntry
        MAX-ACCESS   not-accessible
        STATUS   current
        DESCRIPTION
            "A router's Routable Address Topology Set records topology
             information about the routable addresses within the MANET,
             and via which routers they may be reached."
        REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
    ::= { olsrv2StateGroup 9 }

    olsrv2TibRoutableAddressTopologySetEntry OBJECT-TYPE
        SYNTAX   Olsrv2TibRoutableAddressTopologySetEntry
        MAX-ACCESS   not-accessible
        STATUS   current
        DESCRIPTION
            "It consists of Router Topology Tuples:

             (TA_from_orig_addr
                 (olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
                  olsrv2TibRoutableAddressTopologySetFromOrigIpAddr),
              TA_dest_addr
                 (olsrv2TibRoutableAddressTopologySetFromDestIpAddrType
                  olsrv2TibRoutableAddressTopologySetFromDestIpAddr),
              TA_seq_number (olsrv2TibRoutableAddressTopologySetSeqNo)

```
         TA_metric (olsrv2TibRoutableAddressTopologySetMetricValue)
         TA_time (olsrv2TibRoutableAddressTopologySetExpireTime)
         )

         OLSRv2 (RFC XXXX) defines the rules for managing
         entries within this table, e.g., populating
         and purging entries.  Specific instructions for the
         olsrv2TibRoutableAddressTopologySetEntry(s) are found
         in Section 10.3 and Section 17 of OLSRv2 (RFC XXXX)."
   REFERENCE
      "RFC XXXX - The Optimized Link State Routing Protocol
       version 2, Clausen, T., Dearlove, C., Jacquet, P.
       and U. Herberg, March 2013."
   INDEX { olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType,
           olsrv2TibRoutableAddressTopologySetFromOrigIpAddr,
           olsrv2TibRoutableAddressTopologySetDestIpAddrType,
           olsrv2TibRoutableAddressTopologySetDestIpAddr }
 ::= { olsrv2TibRoutableAddressTopologySetTable 1 }

 Olsrv2TibRoutableAddressTopologySetEntry ::=
    SEQUENCE {
       olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
         InetAddressType,
       olsrv2TibRoutableAddressTopologySetFromOrigIpAddr
         InetAddress,
       olsrv2TibRoutableAddressTopologySetDestIpAddrType
         InetAddressType,
       olsrv2TibRoutableAddressTopologySetDestIpAddr
         InetAddress,
       olsrv2TibRoutableAddressTopologySetSeqNo
         Unsigned32,
       olsrv2TibRoutableAddressTopologySetMetricValue
         Olsrv2MetricValueCompressedFormTC,
       olsrv2TibRoutableAddressTopologySetExpireTime
         TimeStamp
    }

olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType  OBJECT-TYPE
   SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
   MAX-ACCESS  not-accessible
   STATUS      current
   DESCRIPTION
      "The type of the
       olsrv2TibRoutableAddressTopologySetFromOrigIpAddr,
       as defined in the InetAddress MIB module (RFC 4001).

       Only the values 'ipv4(1)' and
       'ipv6(2)' are supported."
```

      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutableAddressTopologySetEntry 1 }

   olsrv2TibRoutableAddressTopologySetFromOrigIpAddr OBJECT-TYPE
      SYNTAX   InetAddress (SIZE(4|16))
      MAX-ACCESS not-accessible
      STATUS   current
      DESCRIPTION
         "This is the originator address of a router which can
          reach the router with routable address TA_dest_addr
          in one hop."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutableAddressTopologySetEntry 2 }

   olsrv2TibRoutableAddressTopologySetDestIpAddrType OBJECT-TYPE
      SYNTAX   InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS not-accessible
      STATUS   current
      DESCRIPTION
         "The type of the olsrv2TibRouterTopologySetToOrigIpAddr,
          as defined in the InetAddress MIB module (RFC 4001).

          Only the values 'ipv4(1)' and
          'ipv6(2)' are supported."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutableAddressTopologySetEntry 3 }

   olsrv2TibRoutableAddressTopologySetDestIpAddr OBJECT-TYPE
      SYNTAX   InetAddress (SIZE(4|16))
      MAX-ACCESS not-accessible
      STATUS   current
      DESCRIPTION
         "This is a routable address of a router which can be
          reached by the router with originator address
          TA_from_orig_addr in one hop. The TA_from_orig_addr
          is defined by the tuple
          (olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
           olsrv2TibRoutableAddressTopologySetFromOrigIpAddr)."
      REFERENCE

```
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
  ::= { olsrv2TibRoutableAddressTopologySetEntry 4 }


  olsrv2TibRoutableAddressTopologySetSeqNo  OBJECT-TYPE
     SYNTAX        Unsigned32 (0..65535)
     MAX-ACCESS  read-only
     STATUS        current
     DESCRIPTION
        "This is the greatest ANSN in any TC message
         received which originated from the router
         with originator address TA_from_orig_addr,
         i.e., which contributed to the information
         contained in this Tuple.  The TA_from_orig_addr
         is defined by the tuple
         (olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
          olsrv2TibRoutableAddressTopologySetFromOrigIpAddr)."
     REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
  ::= { olsrv2TibRoutableAddressTopologySetEntry 5 }


  olsrv2TibRoutableAddressTopologySetMetricValue  OBJECT-TYPE
     SYNTAX        Olsrv2MetricValueCompressedFormTC
     MAX-ACCESS  read-only
     STATUS        current
     DESCRIPTION
        "This is the neighbor metric from the router
         with originator address TA_from_orig_addr (defined
         by the tuple
         (olsrv2TibRoutableAddressTopologySetFromOrigIpAddrType
          olsrv2TibRoutableAddressTopologySetFromOrigIpAddr))
         to the router with OLSRv2 interface address TA_dest_addr
         (defined by the tuple
         (olsrv2TibRoutableAddressTopologySetFromDestIpAddrType
          olsrv2TibRoutableAddressTopologySetFromDestIpAddr))."
     REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
  ::= { olsrv2TibRoutableAddressTopologySetEntry 6 }


  olsrv2TibRoutableAddressTopologySetExpireTime  OBJECT-TYPE
     SYNTAX        TimeStamp
     UNITS         "centiseconds"
     MAX-ACCESS  read-only
```

```
        STATUS       current
        DESCRIPTION
           "olsrv2TibRoutableAddressTopologySetExpireTime
            specifies the value of sysUptime when this entry
            SHOULD expire and be removed from the
            olsrv2TibRoutableAddressTopologySetTable."
        REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
     ::= { olsrv2TibRoutableAddressTopologySetEntry 7 }



  --
  -- Attached Network Set
  --

  olsrv2TibAttNetworksSetTable OBJECT-TYPE
        SYNTAX       SEQUENCE OF Olsrv2TibAttNetworksSetEntry
        MAX-ACCESS   not-accessible
        STATUS       current
        DESCRIPTION
           "A router's Attached Network Set records information
            about networks (which may be outside the MANET)
            attached to other routers and their routable addresses."
        REFERENCE
           "RFC XXXX - The Optimized Link State Routing Protocol
            version 2, Clausen, T., Dearlove, C., Jacquet, P.
            and U. Herberg, March 2013."
     ::= { olsrv2StateGroup 10 }

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

            (AN_orig_addr
               (olsrv2TibAttNetworksSetOrigIpAddrType,
                olsrv2TibAttNetworksSetOrigIpAddr),
             AN_net_addr
               (olsrv2TibAttNetworksSetNetIpAddrType,
                olsrv2TibAttNetworksSetNetIpAddr,
                olsrv2TibAttNetworksSetNetIpAddrPrefixLen),
             AN_seq_number (olsrv2TibAttNetworksSetSeqNo),
             AN_dist (olsrv2TibAttNetworksSetDist),
             AN_metric (olsrv2TibAttNetworksSetMetricValue),
```

```
         AN_time (olsrv2TibAttNetworksSetExpireTime)
         )

         OLSRv2 (RFC XXXX) defines the rules for managing
         entries within this table, e.g., populating
         and purging entries.  Specific instructions for the
         olsrv2TibRoutableAddressTopologySetEntry(s) are found
         in Section 10.4 and Section 17 of OLSRv2 (RFC XXXX)."
     REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
     INDEX { olsrv2TibAttNetworksSetOrigIpAddrType,
             olsrv2TibAttNetworksSetOrigIpAddr,
             olsrv2TibAttNetworksSetNetIpAddrType,
             olsrv2TibAttNetworksSetNetIpAddr,
             olsrv2TibAttNetworksSetNetIpAddrPrefixLen }
   ::= { olsrv2TibAttNetworksSetTable 1 }

   Olsrv2TibAttNetworksSetEntry ::=
       SEQUENCE {
           olsrv2TibAttNetworksSetOrigIpAddrType
              InetAddressType,
           olsrv2TibAttNetworksSetOrigIpAddr
              InetAddress,
           olsrv2TibAttNetworksSetNetIpAddrType
              InetAddressType,
           olsrv2TibAttNetworksSetNetIpAddr
              InetAddress,
           olsrv2TibAttNetworksSetNetIpAddrPrefixLen
              InetAddressPrefixLength,
           olsrv2TibAttNetworksSetSeqNo
              Unsigned32,
           olsrv2TibAttNetworksSetDist
              Unsigned32,
           olsrv2TibAttNetworksSetMetricValue
              Olsrv2MetricValueCompressedFormTC,
           olsrv2TibAttNetworksSetExpireTime
              TimeStamp
       }

   olsrv2TibAttNetworksSetOrigIpAddrType  OBJECT-TYPE
       SYNTAX      InetAddressType { ipv4(1) , ipv6(2) }
       MAX-ACCESS  not-accessible
       STATUS      current
       DESCRIPTION
         "The type of the olsrv2TibAttNetworksSetOrigIpAddr,
          as defined in the InetAddress MIB module (RFC4001).
```

```
      Only the values 'ipv4(1)' and
      'ipv6(2)' are supported."
   REFERENCE
      "RFC XXXX - The Optimized Link State Routing Protocol
       version 2, Clausen, T., Dearlove, C., Jacquet, P.
       and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 1 }


 olsrv2TibAttNetworksSetOrigIpAddr  OBJECT-TYPE
    SYNTAX       InetAddress (SIZE(4|16))
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
       "This is the originator address, of type
        olsrv2TibAttNetworksSetOrigIpAddrType, of a
        router which can act as gateway to the
        network with address AN_net_addr.  The
        AN_net_addr is defined by the tuple
           (olsrv2TibAttNetworksSetNetIpAddrType,
            olsrv2TibAttNetworksSetNetIpAddr,
            olsrv2TibAttNetworksSetNetIpAddrPrefixLen)."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 2 }

 olsrv2TibAttNetworksSetNetIpAddrType  OBJECT-TYPE
    SYNTAX       InetAddressType { ipv4(1) , ipv6(2) }
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
       "The type of the olsrv2TibAttNetworksSetNetIpAddr,
        as defined in the InetAddress MIB module (RFC 4001).

        Only the values 'ipv4(1)' and
        'ipv6(2)' are supported."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 3 }

 olsrv2TibAttNetworksSetNetIpAddr  OBJECT-TYPE
    SYNTAX       InetAddress (SIZE(4|16))
    MAX-ACCESS   not-accessible
    STATUS       current
```

```
   DESCRIPTION
      "This is is the network address,of type
       olsrv2TibAttNetworksSetNetIpAddrType, of an
       attached network, which may be reached via
       the router with originator address AN_orig_addr.
       The AN_orig_addr is defined by the tuple
          (olsrv2TibAttNetworksSetOrigIpAddrType,
           olsrv2TibAttNetworksSetOrigIpAddr)."
   REFERENCE
      "RFC XXXX - The Optimized Link State Routing Protocol
       version 2, Clausen, T., Dearlove, C., Jacquet, P.
       and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 4 }

 olsrv2TibAttNetworksSetNetIpAddrPrefixLen  OBJECT-TYPE
    SYNTAX        InetAddressPrefixLength
    UNITS         "bits"
    MAX-ACCESS    not-accessible
    STATUS        current
    DESCRIPTION
       "Indicates the number of leading one bits that form the
        mask to be logically ANDed with the destination address
        before being compared to the value in the
        olsrv2TibAttNetworksSetNetIpAddr field."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 5 }

 olsrv2TibAttNetworksSetSeqNo  OBJECT-TYPE
    SYNTAX        Unsigned32 (0..65535)
    MAX-ACCESS    read-only
    STATUS        current
    DESCRIPTION
       "This is the greatest Assigned Neighbor Sequence
        Number (ANSN) in any TC message received
        which originated from the router
        with originator address AN_orig_addr
        (i.e., which contributed to the information
        contained in this Tuple).  The AN_orig_addr
        is defined by the tuple
           (olsrv2TibAttNetworksSetOrigIpAddrType,
            olsrv2TibAttNetworksSetOrigIpAddr).

        Sequence numbers are used in the OLSRv2 protocol
        for the purpose of discarding 'old' information,
        i.e., messages received out of order.  However
```

with a limited number of bits for representing
sequence numbers, wrap-around (that the sequence
number is incremented from the maximum possible
value to zero) will occur. To prevent this from
interfering with the operation of this protocol,
the following MUST be observed when determining
the ordering of sequence numbers.

The term MAXVALUE designates in the following one
more than the largest possible value for a sequence
number. For a 16 bit sequence number (as are those
defined in this specification) MAXVALUE is 65536.

The sequence number S1 is said to be 'greater than'
the sequence number S2 if:

    o S1 > S2 AND S1 - S2 < MAXVALUE/2 OR

    o S2 > S1 AND S2 - S1 > MAXVALUE/2

When sequence numbers S1 and S2 differ by MAXVALUE/2
their ordering cannot be determined. In this case,
which should not occur, either ordering may be
assumed.

Thus when comparing two messages, it is possible
- even in the presence of wrap-around - to determine
which message contains the most recent information."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    ::= { olsrv2TibAttNetworksSetEntry 6 }

olsrv2TibAttNetworksSetDist OBJECT-TYPE
    SYNTAX   Unsigned32 (0..255)
    UNITS   "hops"
    MAX-ACCESS   read-only
    STATUS   current
    DESCRIPTION
       "The number of hops to the network
        with address AN_net_addr from the router with
        originator address AN_orig_addr.
        The AN_orig_addr is defined by the tuple
           (olsrv2TibAttNetworksSetOrigIpAddrType,
            olsrv2TibAttNetworksSetOrigIpAddr)."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol

```
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 7 }


 olsrv2TibAttNetworksSetMetricValue  OBJECT-TYPE
    SYNTAX       Olsrv2MetricValueCompressedFormTC
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
       "The metric of the link from the router with
        originator address AN_orig_addr to the attached
        network with address AN_net_addr.
        The AN_net_addr is defined by the tuple
          (olsrv2TibAttNetworksSetNetIpAddrType,
           olsrv2TibAttNetworksSetNetIpAddr,
           olsrv2TibAttNetworksSetNetIpAddrPrefixLen)."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 9 }


 olsrv2TibAttNetworksSetExpireTime  OBJECT-TYPE
    SYNTAX       TimeStamp
    UNITS        "centiseconds"
    MAX-ACCESS  read-only
    STATUS       current
    DESCRIPTION
       "olsrv2TibAttNetworksSetExpireTime
        specifies the value of sysUptime when this
        entry SHOULD expire and be removed from the
        olsrv2TibAttNetworksSetTable."
    REFERENCE
       "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
 ::= { olsrv2TibAttNetworksSetEntry 10 }



 --
 -- Routing Set
 --

 olsrv2TibRoutingSetTable OBJECT-TYPE
    SYNTAX        SEQUENCE OF Olsrv2TibRoutingSetEntry
    MAX-ACCESS   not-accessible
    STATUS        current
```

```
    DESCRIPTION
        "A router's Routing Set records the first hop along a
         selected path to each destination for which any such
         path is known."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
 ::= { olsrv2StateGroup 11 }

 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_local_iface_addr, R_dist, R_metric)"
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
    INDEX { olsrv2TibRoutingSetDestIpAddrType,
            olsrv2TibRoutingSetDestIpAddr,
            olsrv2TibRoutingSetDestIpAddrPrefixLen }
 ::= { olsrv2TibRoutingSetTable 1 }

 Olsrv2TibRoutingSetEntry ::=
    SEQUENCE {
        olsrv2TibRoutingSetDestIpAddrType
           InetAddressType,
        olsrv2TibRoutingSetDestIpAddr
           InetAddress,
        olsrv2TibRoutingSetDestIpAddrPrefixLen
           InetAddressPrefixLength,
        olsrv2TibRoutingSetNextIfIpAddrType
           InetAddressType,
        olsrv2TibRoutingSetNextIfIpAddr
           InetAddress,
        olsrv2TibRoutingSetLocalIfIpAddrType
           InetAddressType,
        olsrv2TibRoutingSetLocalIfIpAddr
           InetAddress,
        olsrv2TibRoutingSetDist
           Unsigned32,
        olsrv2TibRoutingSetMetricValue
           Olsrv2MetricValueCompressedFormTC
```

```
        }

    olsrv2TibRoutingSetDestIpAddrType  OBJECT-TYPE
        SYNTAX       InetAddressType { ipv4(1) , ipv6(2) }
        MAX-ACCESS   not-accessible
        STATUS       current
        DESCRIPTION
            "The type of the olsrv2TibRoutingSetDestIpAddr,
             as defined in the InetAddress MIB module (RFC 4001).

             Only the values 'ipv4(1)' and 'ipv6(2)' are
             supported."
        REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
    ::= { olsrv2TibRoutingSetEntry 1 }

    olsrv2TibRoutingSetDestIpAddr  OBJECT-TYPE
        SYNTAX       InetAddress (SIZE(4|16))
        MAX-ACCESS   not-accessible
        STATUS       current
        DESCRIPTION
            "This is the address of the destination,
             either the address of an interface of
             a destination router, or the network
             address of an attached network."
        REFERENCE
            "RFC XXXX - The Optimized Link State Routing Protocol
             version 2, Clausen, T., Dearlove, C., Jacquet, P.
             and U. Herberg, March 2013."
    ::= { olsrv2TibRoutingSetEntry 2 }

    olsrv2TibRoutingSetDestIpAddrPrefixLen  OBJECT-TYPE
        SYNTAX       InetAddressPrefixLength
        UNITS        "bits"
        MAX-ACCESS   not-accessible
        STATUS       current
        DESCRIPTION
            "Indicates the number of leading one bits that form the
             mask to be logically ANDed with the destination address
             before being compared to the value in the
             olsrv2TibRoutingSetDestIpAddr field.

             Note: This definition needs to be consistent
             with the current forwarding table MIB module description.
             Specifically, it SHOULD allow for longest prefix
             matching of network addresses."
```

```
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutingSetEntry 3 }

   olsrv2TibRoutingSetNextIfIpAddrType  OBJECT-TYPE
      SYNTAX       InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
         "The type of the olsrv2TibRoutingSetNextIfIpAddr,
          as defined in the InetAddress MIB module (RFC 4001).

          Only the values 'ipv4(1)' and
          'ipv6(2)' are supported."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutingSetEntry 4 }

   olsrv2TibRoutingSetNextIfIpAddr  OBJECT-TYPE
      SYNTAX       InetAddress (SIZE(4|16))
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
         "This object is the OLSRv2 interface address of the
          next hop on the selected path to the
          destination."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutingSetEntry 5 }

   olsrv2TibRoutingSetLocalIfIpAddrType  OBJECT-TYPE
      SYNTAX       InetAddressType { ipv4(1) , ipv6(2) }
      MAX-ACCESS  read-only
      STATUS       current
      DESCRIPTION
         "The type of the olsrv2TibRoutingSetLocalIfIpAddr
          and olsrv2TibRoutingSetNextIfIpAddr,
          as defined in the InetAddress MIB module (RFC 4001).

          Only the values 'ipv4(1)' and
          'ipv6(2)' are supported."
      REFERENCE
```

```
        "RFC XXXX - The Optimized Link State Routing Protocol
         version 2, Clausen, T., Dearlove, C., Jacquet, P.
         and U. Herberg, March 2013."
   ::= { olsrv2TibRoutingSetEntry 6 }


   olsrv2TibRoutingSetLocalIfIpAddr  OBJECT-TYPE
      SYNTAX       InetAddress (SIZE(4|16))
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
         "This object is the address of the local OLSRv2
          interface over which a packet must be
          sent to reach the destination by the
          selected path."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutingSetEntry 7 }

   olsrv2TibRoutingSetDist  OBJECT-TYPE
      SYNTAX       Unsigned32 (0..255)
      UNITS        "hops"
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
         "This object is the number of hops on the selected
          path to the destination."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutingSetEntry 8 }

   olsrv2TibRoutingSetMetricValue  OBJECT-TYPE
      SYNTAX       Olsrv2MetricValueCompressedFormTC
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
         "This object is the metric of the route
          to the destination with address R_dest_addr."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
   ::= { olsrv2TibRoutingSetEntry 9 }
```

```
--
-- OLSRv2 Performance Group
--


--
--    Contains objects which help to characterize the
--    performance of the OLSRv2 routing process.
--

olsrv2PerformanceObjGrp  OBJECT IDENTIFIER ::= {olsrv2MIBObjects 3}

     --
     -- Objects per local interface
     --

   olsrv2InterfacePerfTable  OBJECT-TYPE
      SYNTAX       SEQUENCE OF Olsrv2InterfacePerfEntry
      MAX-ACCESS   not-accessible
      STATUS       current
      DESCRIPTION
         "This table summarizes performance objects that are
          measured per each active local OLSRv2 interface.
          If the olsrv2InterfaceAdminStatus of the interface
          changes to 'disabled' then the row associated with this
          interface SHOULD be removed from this table."
      REFERENCE
         "RFC XXXX - The Optimized Link State Routing Protocol
          version 2, Clausen, T., Dearlove, C., Jacquet, P.
          and U. Herberg, March 2013."
    ::= { olsrv2PerformanceObjGrp 1 }

   olsrv2InterfacePerfEntry OBJECT-TYPE
      SYNTAX       Olsrv2InterfacePerfEntry
      MAX-ACCESS   not-accessible
      STATUS       current
      DESCRIPTION
         "A single entry contains performance counters for
          each active local OLSRv2 interface."
      AUGMENTS { nhdpInterfacePerfEntry }
    ::= { olsrv2InterfacePerfTable 1 }

   Olsrv2InterfacePerfEntry ::=
      SEQUENCE {
         olsrv2IfTcMessageXmits
            Counter32,
         olsrv2IfTcMessageRecvd
            Counter32,
         olsrv2IfTcMessageXmitAccumulatedSize
```

```
        Counter64,
     olsrv2IfTcMessageRecvdAccumulatedSize
        Counter64,
     olsrv2IfTcMessageTriggeredXmits
        Counter32,
     olsrv2IfTcMessagePeriodicXmits
        Counter32,
     olsrv2IfTcMessageForwardedXmits
        Counter32,
     olsrv2IfTcMessageXmitAccumulatedMPRSelectorCount
        Counter32
   }

olsrv2IfTcMessageXmits  OBJECT-TYPE
   SYNTAX       Counter32
   UNITS        "messages"
   MAX-ACCESS   read-only
   STATUS       current
   DESCRIPTION
      "A counter is incremented each time a TC
       message has been transmitted on that interface."
::= { olsrv2InterfacePerfEntry 1 }

olsrv2IfTcMessageRecvd  OBJECT-TYPE
   SYNTAX       Counter32
   UNITS        "messages"
   MAX-ACCESS   read-only
   STATUS       current
   DESCRIPTION
      "A counter is incremented each time a
       TC message has been received on that interface.
       This excludes all messages that are ignored due to
       OLSRv2 protocol procedures."
::= { olsrv2InterfacePerfEntry 2 }

olsrv2IfTcMessageXmitAccumulatedSize  OBJECT-TYPE
   SYNTAX       Counter64
   UNITS        "octets"
   MAX-ACCESS   read-only
   STATUS       current
   DESCRIPTION
      "A counter is incremented by the number of octets in
       a TC message each time a TC message has been sent."
::= { olsrv2InterfacePerfEntry 3 }

olsrv2IfTcMessageRecvdAccumulatedSize  OBJECT-TYPE
   SYNTAX       Counter64
   UNITS        "octets"
```

```
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "A counter is incremented by the number of octets in
          a TC message each time a TC message has been received.
          This excludes all messages that are ignored due to
          OLSRv2 protocol procedures."
   ::= { olsrv2InterfacePerfEntry 4 }


   olsrv2IfTcMessageTriggeredXmits  OBJECT-TYPE
      SYNTAX      Counter32
      UNITS       "messages"
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "A counter is incremented each time a triggered
          TC message has been sent."
   ::= { olsrv2InterfacePerfEntry 5 }


   olsrv2IfTcMessagePeriodicXmits  OBJECT-TYPE
      SYNTAX      Counter32
       UNITS       "messages"
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "A counter is incremented each time a periodic
          TC message has been sent."
   ::= { olsrv2InterfacePerfEntry 6 }


   olsrv2IfTcMessageForwardedXmits  OBJECT-TYPE
      SYNTAX      Counter32
      UNITS       "messages"
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "A counter is incremented each time a
          TC message has been forwarded."
   ::= { olsrv2InterfacePerfEntry 7 }

   olsrv2IfTcMessageXmitAccumulatedMPRSelectorCount OBJECT-TYPE
      SYNTAX      Counter32
      UNITS       "advertised MPR selectors"
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "A counter is incremented by the number of advertised
          MPR selectors in a TC each time a TC
          message has been sent."
```

```
   ::= { olsrv2InterfacePerfEntry 8 }



   --
   -- Objects concerning the Routing set
   --

   olsrv2RoutingSetRecalculationCount  OBJECT-TYPE
      SYNTAX       Counter32
      UNITS        "recalculations"
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
         "This counter increments each time the Routing Set has
          been recalculated."
   ::= { olsrv2PerformanceObjGrp 2 }

   --
   -- Objects concerning the MPR set
   --

   olsrv2MPRSetRecalculationCount  OBJECT-TYPE
      SYNTAX       Counter32
      UNITS        "recalculations"
      MAX-ACCESS   read-only
      STATUS       current
      DESCRIPTION
         "This counter increments each time the MPRs
          of this router have been recalculated for
          any of its interfaces."
   ::= { olsrv2PerformanceObjGrp 3 }



--
-- Notifications
--

olsrv2NotificationsObjects OBJECT IDENTIFIER ::=
                                  { olsrv2MIBNotifications 0 }
olsrv2NotificationsControl OBJECT IDENTIFIER ::=
                                  { olsrv2MIBNotifications 1 }
olsrv2NotificationsStates  OBJECT IDENTIFIER ::=
                                  { olsrv2MIBNotifications 2 }
```

    -- olsrv2NotificationsObjects

    olsrv2RouterStatusChange NOTIFICATION-TYPE
       OBJECTS { olsrv2OrigIpAddrType, -- The address type of
                                       --   the originator of
                                       --   the notification.
                 olsrv2OrigIpAddr,   -- The originator of
                                       --   the notification.
                 olsrv2AdminStatus   -- The new state.
       }
       STATUS   current
       DESCRIPTION
          "olsrv2RouterStatusChange is a notification generated
           when the OLSRv2 router changes it status.
           The router status is maintained in the
           olsrv2AdminStatus object."
    ::= { olsrv2NotificationsObjects 1 }

    olsrv2OrigIpAddrChange NOTIFICATION-TYPE
       OBJECTS { olsrv2OrigIpAddrType, -- The address type of
                                       --   the originator of
                                       --   the notification.
                 olsrv2OrigIpAddr,   -- The originator of
                                       --   the notification.
                 olsrv2PreviousOrigIpAddrType, -- The address
                                       -- type of previous
                                       -- address of
                                       -- the originator of
                                       -- the notification.
                 olsrv2PreviousOrigIpAddr -- The previous
                                       -- address of the
                                       -- originator of
                                       -- the notification.
       }
       STATUS   current
       DESCRIPTION
          "olsrv2OrigIpAddrChange is a notification generated when
           the OLSRv2 router changes it originator IP address.
           The notification includes the new and the previous
           originator IP address of the OLSRv2 router."
    ::= { olsrv2NotificationsObjects 2 }

    olsrv2RoutingSetRecalculationCountChange NOTIFICATION-TYPE
       OBJECTS { olsrv2OrigIpAddrType, -- The address type of
                                       --   the originator of
                                       --   the notification.
                 olsrv2OrigIpAddr,   -- The originator of
                                       --   the notification.

```
                       olsrv2RoutingSetRecalculationCount  -- Number
                                          -- of the
                                          -- routing set
                                          -- recalculations.
    }
    STATUS        current
    DESCRIPTION
        "The olsrv2RoutingSetRecalculationCountChange
         notification is generated when a significant number of
         routing set recalculations have occurred in a short time.
         This notification SHOULD be generated no more than once
         per olsrv2RoutingSetRecalculationCountWindow.
         The network administrator SHOULD select
         appropriate values for 'significant number of
         routing set recalculations' and 'short time' through
         the settings of the
         olsrv2RoutingSetRecalculationCountThreshold
         and olsrv2RoutingSetRecalculationCountWindow objects."
    ::= { olsrv2NotificationsObjects 3 }

olsrv2MPRSetRecalculationCountChange NOTIFICATION-TYPE
    OBJECTS { olsrv2OrigIpAddrType, -- The address type of
                                    --   the originator of
                                    --   the notification.
              olsrv2OrigIpAddr,     -- The originator of
                                    --   the notification.
              olsrv2MPRSetRecalculationCount  -- Number of
                                    --   MPR set
                                    --   recalculations.
    }
    STATUS        current
    DESCRIPTION
        "The olsrv2MPRSetRecalculationCountChange
         notification is generated when a significant
         number of MPR set recalculations occur in
         a short period of time.  This notification
         SHOULD be generated no more than once
         per olsrv2MPRSetRecalculationCountWindow.
         The network administrator SHOULD select
         appropriate values for 'significant number of
         MPR set recalculations' and 'short period of
         time' through the settings of the
         olsrv2MPRSetRecalculationCountThreshold and
         olsrv2MPRSetRecalculationCountWindow objects."
    ::= { olsrv2NotificationsObjects 4 }


    -- olsrv2NotificationsControl
```

```
olsrv2RoutingSetRecalculationCountThreshold OBJECT-TYPE
    SYNTAX       Integer32 (0..255)
    UNITS        "recalculations"
    MAX-ACCESS   read-write
    STATUS       current
    DESCRIPTION
        "A threshold value for the
         olsrv2RoutingSetRecalculationCount object.
         If the number of occurrences exceeds this
         threshold within the previous
         olsrv2RoutingSetRecalculationCountWindow,
         then the olsrv2RoutingSetRecalculationCountChange
         notification is to be generated.

         It is RECOMMENDED that the value of this
         threshold be set to at least 20 and higher
         in dense topologies with frequent expected
         topology changes."
    DEFVAL { 20 }
 ::= { olsrv2NotificationsControl 1 }

olsrv2RoutingSetRecalculationCountWindow OBJECT-TYPE
    SYNTAX       TimeTicks
    MAX-ACCESS   read-write
    STATUS       current
    DESCRIPTION
        "This object is used to determine whether to generate
         an olsrv2RoutingSetRecalculationCountChange notification.
         This object represents an interval from the present moment,
         extending into the past, expressed in hundredths of
         a second.  If the change in the value of the
         olsrv2RoutingSetRecalculationCount object during
         this interval has exceeded the value of
         olsrv2RoutingSetRecalculationCountThreshold, then
         an olsrv2RoutingSetRecalculationCountChange notification
         is generated.

         It is RECOMMENDED that the value for this
         window be set to at least 5 times the
         nhdpHelloInterval (whose default value is
         2 seconds."
    DEFVAL { 1000 }
 ::= { olsrv2NotificationsControl 2 }

olsrv2MPRSetRecalculationCountThreshold OBJECT-TYPE
    SYNTAX       Integer32 (0..255)
    UNITS        "recalculations"
    MAX-ACCESS   read-write
```

```
        STATUS        current
        DESCRIPTION
           "A threshold value for the
            olsrv2MPRSetRecalculationCount object.
            If the number of occurrences exceeds this
            threshold within the previous
            olsrv2MPRSetRecalculationCountWindow,
            then the
            olsrv2MPRSetRecalculationCountChange
            notification is to be generated.

            It is RECOMMENDED that the value of this
            threshold be set to at least 20 and higher
            in dense topologies with frequent expected
            topology changes."
        DEFVAL { 20 }
     ::= { olsrv2NotificationsControl 3 }

   olsrv2MPRSetRecalculationCountWindow OBJECT-TYPE
        SYNTAX        TimeTicks
        MAX-ACCESS    read-write
        STATUS        current
        DESCRIPTION
           "This object is used to determine whether to generate
            an olsrv2MPRSetRecalculationCountChange notification.
            This object represents an interval from the present moment,
            extending into the past, expressed in hundredths of
            a second.  If the change in the value of the
            olsrv2MPRSetRecalculationCount object during
            that interval has exceeded the value of
            olsrv2MPRSetRecalculationCountThreshold, then the
            an olsrv2MPRSetRecalculationCountChange notification
            is generated.

            It is RECOMMENDED that the value for this
            window be set to at least 5 times the
            nhdpHelloInterval."
        DEFVAL { 1000 }
     ::= { olsrv2NotificationsControl 4 }


   olsrv2PreviousOrigIpAddrType  OBJECT-TYPE
        SYNTAX        InetAddressType { ipv4(1) , ipv6(2) }
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
           "The type of the olsrv2PreviousOrigIpAddr,
            as defined in the InetAddress MIB module (RFC 4001).
```

```
        Only the values 'ipv4(1)' and
        'ipv6(2)' are supported.

        This object MUST have the same persistence
        characteristics as olsrv2PreviousOrigIpAddr."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    ::= { olsrv2NotificationsStates 1 }

olsrv2PreviousOrigIpAddr  OBJECT-TYPE
    SYNTAX       InetAddress (SIZE(4|16))
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "The previous origination IP address
        of this OLSRv2 router.

        This object SHOULD be updated each time
        the olsrv2OrigIpAddr is modified.

        This object is persistent and when written
        the entity SHOULD save the change to
        non-volatile storage."
    REFERENCE
        "RFC XXXX - The Optimized Link State Routing Protocol
        version 2, Clausen, T., Dearlove, C., Jacquet, P.
        and U. Herberg, March 2013."
    ::= { olsrv2NotificationsStates 2 }



    --
    -- Compliance Statements
    --

    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,
                       olsrv2NotificationsObjectsGroup,
                       olsrv2NotificationsGroup }
   ::= { olsrv2Compliances 2 }

--
-- Units of Conformance
--

olsrv2ConfigObjectsGroup OBJECT-GROUP
    OBJECTS {
        olsrv2AdminStatus,
        olsrv2InterfaceAdminStatus,
        olsrv2OrigIpAddrType,
        olsrv2OrigIpAddr,
        olsrv2OHoldTime,
        olsrv2TcInterval,
        olsrv2TcMinInterval,
        olsrv2THoldTime,
        olsrv2AHoldTime,
        olsrv2RxHoldTime,
        olsrv2PHoldTime,
        olsrv2FHoldTime,
        olsrv2TpMaxJitter,
        olsrv2TtMaxJitter,
        olsrv2FMaxJitter,
        olsrv2TcHopLimit,
        olsrv2WillFlooding,
        olsrv2WillRouting,
        olsrv2LinkMetricType
    }
    STATUS      current
    DESCRIPTION
       "Objects to permit configuration of OLSRv2.
        All of these SHOULD be backed by non-volatile
        storage."
   ::= { olsrv2MIBGroups 1 }
```

```
   olsrv2StateObjectsGroup  OBJECT-GROUP
       OBJECTS {
           olsrv2LibOrigSetExpireTime,
           olsrv2LibLocAttNetSetDistance,
           olsrv2LibLocAttNetSetMetricValue,
           olsrv2IibLinkSetInMetricValue,
           olsrv2IibLinkSetOutMetricValue,
           olsrv2IibLinkSetMprSelector,
           olsrv2Iib2HopSetInMetricValue,
           olsrv2Iib2HopSetOutMetricValue,
           olsrv2NibNeighborSetNOrigIpAddrType,
           olsrv2NibNeighborSetNOrigIpAddr,
           olsrv2NibNeighborSetNInMetricValue,
           olsrv2NibNeighborSetNOutMetricValue,
           olsrv2NibNeighborSetNWillFlooding,
           olsrv2NibNeighborSetNWillRouting,
           olsrv2NibNeighborSetNFloodingMpr,
           olsrv2NibNeighborSetNRoutingMpr,
           olsrv2NibNeighborSetNMprSelector,
           olsrv2NibNeighborSetNAdvertised,
           olsrv2NibNeighborSetTableAnsn,
           olsrv2TibAdRemoteRouterSetMaxSeqNo,
           olsrv2TibRouterTopologySetSeqNo,
           olsrv2TibRouterTopologySetMetricValue,
           olsrv2TibRoutableAddressTopologySetExpireTime,
           olsrv2TibRoutableAddressTopologySetSeqNo,
           olsrv2TibRoutableAddressTopologySetMetricValue,
           olsrv2TibAttNetworksSetSeqNo,
           olsrv2TibAttNetworksSetDist,
           olsrv2TibAttNetworksSetMetricValue,
           olsrv2TibAttNetworksSetExpireTime,
           olsrv2TibRoutingSetNextIfIpAddrType,
           olsrv2TibRoutingSetNextIfIpAddr,
           olsrv2TibRoutingSetLocalIfIpAddrType,
           olsrv2TibRoutingSetLocalIfIpAddr,
           olsrv2TibRoutingSetDist,
           olsrv2TibRoutingSetMetricValue
       }
       STATUS        current
       DESCRIPTION
           "Objects to permit monitoring of OLSRv2 state."
   ::= { olsrv2MIBGroups 2 }

   olsrv2PerfObjectsGroup  OBJECT-GROUP
       OBJECTS {
           olsrv2IfTcMessageXmits,
           olsrv2IfTcMessageRecvd,
           olsrv2IfTcMessageXmitAccumulatedSize,
```

```
        olsrv2IfTcMessageRecvdAccumulatedSize,
        olsrv2IfTcMessageTriggeredXmits,
        olsrv2IfTcMessagePeriodicXmits,
        olsrv2IfTcMessageForwardedXmits,
        olsrv2IfTcMessageXmitAccumulatedMPRSelectorCount,
        olsrv2RoutingSetRecalculationCount,
        olsrv2MPRSetRecalculationCount
    }
    STATUS      current
    DESCRIPTION
        "Objects to support monitoring of OLSRv2 performance."
::= { olsrv2MIBGroups 3 }

olsrv2NotificationsObjectsGroup OBJECT-GROUP
    OBJECTS {
        olsrv2RoutingSetRecalculationCountThreshold,
        olsrv2RoutingSetRecalculationCountWindow,
        olsrv2MPRSetRecalculationCountThreshold,
        olsrv2MPRSetRecalculationCountWindow,
        olsrv2PreviousOrigIpAddrType,
        olsrv2PreviousOrigIpAddr
    }
    STATUS      current
    DESCRIPTION
        "Objects to support the notification types in the
         olsrv2NotificationsGroup.  Some of these appear in
         notification payloads, others serve to control
         notification generation."
::= { olsrv2MIBGroups 4 }


olsrv2NotificationsGroup NOTIFICATION-GROUP
    NOTIFICATIONS {
        olsrv2RouterStatusChange,
        olsrv2OrigIpAddrChange,
        olsrv2RoutingSetRecalculationCountChange,
        olsrv2MPRSetRecalculationCountChange
    }
    STATUS current
    DESCRIPTION
        "Notification types to support management of OLSRv2."
::= { olsrv2MIBGroups 5 }

END
```

8. Security Considerations

   This MIB module defines objects for the configuration, monitoring and
   notification of the Optimized Link State Routing protocol version 2
   [OLSRv2]. OLSRv2 allows routers to acquire topological information
   of the routing domain by virtue of exchanging TC message, to
   calculate shortest paths to each destination router in the routing
   domain, to select relays for network-wide transmissions etc.

   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 olsrv2TcInterval, olsrv2TcMinInterval - these writable objects
      control the rate at which TC messages are sent. If set at too
      high a rate, this could represent a form of DOS attack by
      overloading interface resources. If set low, OLSRv2 may not
      converge fast enough to provide accurate routes to all
      destinations in the routing domain.

   o olsrv2TcHopLimit - defines the hop limit for TC messages. If set
      too low, messages will not be forwarded beyond the defined scope,
      and thus routers further away from the message originator will not
      be able to construct appropriate topology graphs.

   o olsrv2OHoldTime, olsrv2THoldTime, olsrv2AHoldTime,
      olsrv2RxHoldTime, olsrv2PHoldTime, olsrv2FHoldTime - define hold
      times for tuples of different Information Bases of OLSRv2. If set
      too low, information will expire quickly, and may this harm a
      correct operation of the routing protocol.

   o olsrv2WillFlooding and olsrv2WillRouting - define the willingness
      of this router to become MPR. If this is set to WILL_NEVER (0),
      the managed router will not forward any TC messages, nor accept a
      selection to become MPR by neighboring routers. If set to
      WILL_ALWAYS (15), the router will be preferred by neighbors during
      MPR selection, and may thus attract more traffic.

   o olsrv2TpMaxJitter, olsrv2TtMaxJitter, olsrv2FMaxJitter - define
      jitter values for TC message transmission and forwarding. If set
      too low, control traffic may get lost if the channel is lossy.

   o olsrv2LinkMetricType - defines the type of the link metric that a
      router uses (e.g., ETX or hop-count). Whenever this value

changes, all link metric information recorded by the router is
invalid, causing a reset of information acquired from other
routers in the MANET. Moreover, if olsrv2LinkMetricType on a
router is set to a value that is not known to other routers in the
MANET, these routers will not be able to establish routes to that
router or transiting that router. Existing routes to the router
with a olsrv2LinkMetricType unknown to other routers in the MANET
will be removed.

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 olsrv2TibRouterTopologySetTable - The contains information on the
   topology of the MANET, specifically the IP address of the routers
   in the MANET (as identified by
   olsrv2TibRouterTopologySetFromOrigIpAddr and
   olsrv2TibRouterTopologySetToOrigIpAddr objects). This information
   provides an adversary broad information on the members of the
   MANET, located within this single table. This information can be
   used to expedite attacks on the other members of the MANET without
   having to go through a laborious discovery process on their own.

Some of the Tables in this MIB AUGMENT Tables defined in NHDP-MIB
[RFC6779]. Hence, care must be taken in configuring access control
here in order make sure that the permitted permissions granted for
the AUGMENT-ing Tables here are consistent with the access controls
permitted within the NHDP-MIB. The below list identifies the
AUGMENT-ing Tables and their NHDP-MIB counterparts. It is recommend
that access control policies for these Table pairs are consistently
set.

o The olsrv2InterfaceTable AUGMENTs the nhdpInterfaceTable.

o The olsrv2IibLinkSetTable AUGMENTs the nhdpIibLinkSetTable.

o The olsrv2Iib2HopSetTable AUGMENTs the nhdpIib2HopSetTable.

o The olsrv2NibNeighborSetTable AUGMENTs the
   nhdpNibNeighborSetTable.

o The olsrv2InterfacePerfTable AUGMENTs the nhdpInterfacePerfTable.

MANET technology is often deployed to support communications of

emergency services or military tactical applications. In these
applications, it is imperative to maintain the proper operation of
the communications network and to protect sensitive information
related to its operation. Therefore, when implementing these
capabilities, the full use of SNMPv3 cryptographic mechanisms for
authentication and privacy is RECOMMENDED.

SNMP versions prior to SNMPv3 did not include adequate security.
Even if the network itself is secure (for example by using IPsec),
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.

Implementations SHOULD provide the security features described by the
SNMPv3 framework (see [RFC3410]), and implementations claiming
compliance to the SNMPv3 standard MUST include 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.

9. Applicability Statement

This document describes objects for configuring parameters of the
Optimized Link State Routing version 2 (OLSRv2) Protocol [OLSRv2]
process on a router. This MIB module, denoted OLSRv2-MIB, also
reports state, performance information and notifications. The OLSRv2
protocol relies upon information gathered via the Neighborhood
Discovery Protocol [RFC6130] in order to perform its operations. The
NHDP protocol is managed via the NHDP-MIB [RFC6779].

MANET deployments can greatly differ in aspects of dynamics of the
topology, capacity and loss rates of underlying channels, traffic
flow directions, memory and CPU capacity of routers etc. SNMP and
therefore this MIB module are only applicable for a subset of MANET
deployments, in particular deployments:

o In which routers have enough memory and CPU resources to run SNMP
   and expose the MIB module.

o Where a network management station (NMS) is defined to which
   notifications are generated, and from which routers can be
   managed.

o Where this NMS is reachable from routers in the MANET most of the
   time (as notifications to the NMS and management information from
   the NMS to the router will be lost when connectivity is
   temporarily lost). This requires that the topology of the MANET
   is only moderately dynamic.

o Where the underlying wireless channel supports enough bandwidth to
   run SNMP, and where loss rates of the channel are not exhaustive.

Certain MANET deployments, such as community networks with non-mobile
routers, dynamic topology because of changing link quality, and a
pre-defined gateway (that could also serve as NMS), are examples of
networks applicable for this MIB module. Other, more constrained
deployments of MANETs may not be able to run SNMP and require
different management protocols.

Some level of configuration, i.e., read-write objects, is desirable
for OLSRv2 deployments. Topology related configuration such as the
ability to enable OLSRv2 on new interfaces or initially configure
OLSRv2 on a router's interfaces through the
olsrv2InterfaceAdminStatus object is critical to initial system
startup. The OLSRv2 protocol allows for some level of performance
tuning through various protocol parameters and this MIB module allows
for configuration of those protocol parameters through read-write
objects such as the olsrv2TcHopLimit or the olsrv2FMaxJitter. Other
read-write objects allow for the control of Notification behavior
through this MIB module, e.g., the
olsrv2RoutingSetRecalculationCountThreshold object. A fuller
discussion of MANET network management applicability is to be
provided elsewhere [USE-CASES].

10. IANA Considerations

The RFC editor should remove the specification of the
IANAolsrv2LinkMetricType-MIB found in Appendix A upon publication of
the OLSRv2-MIB. Further, IANA should take over the
IANAolsrv2LinkMetricType-MIB and keep it synchronized with the
registry identified below within the IANAolsrv2LinkMetricType
TEXTUAL-CONVENTION.

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

```
           Descriptor          OBJECT IDENTIFIER value
           ----------          ----------------------
           OLSRv2-MIB          { mib-2 ZZZZ }
           IANA EDITOR NOTE: please assign ZZZZ
```

11. Acknowledgements

   The authors would like to thank Randy Presuhn, Benoit Claise, Adrian
   Farrel, as well as the entire MANET WG for reviews of this document.

   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.

12. References

12.1. Normative References

   [OLSRv2]   Clausen, T., Dearlove, C., Jacquet, P., and U. Herberg,
                   "The Optimized Link State Routing Protocol version 2",
                   draft-ietf-manet-olsrv2-19 (work in progress),
                   March 2013.

   [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.

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

   [RFC3414]   Blumenthal, U. and B. Wijnen, "User-based Security
                   Model (USM) for version 3 of the Simple Network
                   Management Protocol (SNMPv3)", December 2002.

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

RFC 3418, December 2002.

[RFC3826]   Blumenthal, U., Maino, F., and K. McCloghrie, "The
            Advanced Encryption Standard (AES) Cipher Algorithm in
            the SNMP User-based Security Model", June 2004.

[RFC4001]   Daniele, M., Haberman, B., Routhier, S., and J.
            Schoenwaelder, "Textual Conventions for Internet
            Network Addresses", RFC 4001, February 2005.

[RFC5591]   Harrington, D. and W. Hardaker, "Transport Security
            Model for the Simple Network Management Protocol
            (SNMP)", June 2009.

[RFC5592]   Harrington, D., Saloway, J., and W. Hardaker, "Secure
            Shell Transport Model for the Simple Network
            Management Protocol (SNMP)", June 2009.

[RFC6130]   Clausen, T., Dearlove, C., and J. Dean, "Mobile Ad Hoc
            Network (MANET) Neighborhood Discovery Protocol
            (NHDP)", RFC 6130, April 2011.

[RFC6353]   Hardaker, W., "Transport Layer Security (TLS) Transport
            Model for the Simple Network Management Protocol
            (SNMP)", July 2011.

[RFC6779]   Herberg, U., Cole, R., and I. Chakeres, "Definition of
            Managed Objects for the Neighborhood Discovery
            Protocol", RFC 6779, May 2012.

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.

[REPORT-MIB] Cole, R., Macker, J., and A. Bierman, "Definition of
            Managed Objects for Performance Reporting",
            draft-ietf-manet-report-mib-03 (work in progress),
            November 2012.

[USE-CASES] Nguyen, J., Cole, R., Herberg, U., Yi, J., and J. Dean,
            "Network Management of Mobile Ad hoc Networks (MANET):
            Architecture, Use Cases, and Applicability",
            draft-nguyen-manet-management-00 (work in progress),
            February 2013.

Appendix A.   Appendix A:

   This appendix contains the IANAolsrv2LinkMetricType-MIB module
   defined by this specification below. The RFC editor should remove
   this specification of the IANAolsrv2LinkMetricType-MIB upon
   publication of the OLSRv2-MIB. Further, IANA should take over the
   IANAolsrv2LinkMetricType-MIB and to keep it synchronized with the
   registry identified below within the IANAolsrv2LinkMetricType
   TEXTUAL-CONVENTION.

       IANAolsrv2LinkMetricType-MIB DEFINITIONS ::= BEGIN

       IMPORTS
           MODULE-IDENTITY, mib-2
                   FROM SNMPv2-SMI
           TEXTUAL-CONVENTION
                   FROM SNMPv2-TC;

       ianaolsrv2LinkMetricType MODULE-IDENTITY
           LAST-UPDATED "201306240000Z" -- June 24, 2013
           ORGANIZATION "IANA"
           CONTACT-INFO "Internet Assigned Numbers Authority

                         Postal: ICANN
                                 4676 Admiralty Way, Suite 330
                                 Marina del Rey, CA 90292

                         Tel: +1 310 823 9358
                         E-Mail: iana@iana.org"
           DESCRIPTION "This MIB module defines the
                         IANAolsrv2LinkMetricType Textual
                         Convention, and thus the enumerated values of
                         the olsrv2LinkMetricType object defined in
                         the OLSRv2-MIB."
           REVISION   "201306240000Z" -- June 24, 2013
           DESCRIPTION "Initial version of this MIB as published in
                          RFC KKKK."

           ::= { mib-2 kkkk }

     IANAolsrv2LinkMetricTypeTC ::= TEXTUAL-CONVENTION
        STATUS   current
        DESCRIPTION
           "This data type is used as the syntax of the
            olsrv2LinkMetricType object in the definition
            of the OLSRv2-MIB module.

```
        The olsrv2LinkMetricType corresponds to
        LINK_METRIC_TYPE of OLSRv2 (RFC XXXX).
        OLSRv2 uses bidirectional additive link metrics
        to determine shortest distance routes (i.e.,
        routes with smallest total of link metric values).

        OLSRv2 has established a registry for the LINK_METRIC_TYPEs
        (denoted 'LINK_METRIC Address Block TLV Type Extensions'):
                http://www.iana.org/assignments/manet-parameters/
                    manet-parameters.xml#
                    link-metric-address-block-tlv-type-extension

        This is done in Section 24.5 in OLSRv2 (RFC XXXX).
        The LINK_METRIC_TYPE (which has as corresponding
        object in the MIB module olsrv2LinkMetricType)
        corresponds to the type extension of
        the LINK_METRIC TLV that is set up in the
        'LINK_METRIC Address Block TLV Type Extensions' registry.
        Whenever new link metric types are added to that registry,
        IANA MUST update this textual convention accordingly.

        The definition of this textual convention with the
        addition of newly assigned values is published
        periodically by the IANA, in either the Assigned
        Numbers RFC, or some derivative of it specific to
        Internet Network Management number assignments.  (The
        latest arrangements can be obtained by contacting the
        IANA.)

        Requests for new values should be made to IANA via
        email (iana@iana.org)."
    SYNTAX  INTEGER {
            unknown(0)      -- Link metric meaning assigned
                            --      by administrative action
                            -- 1-223 Unassigned
                            -- 224-255 Reserved for
                            --      Experimental Use
    }

    END
```

Appendix B. Note to the RFC Editor


```
***************************************************************
* Note to the RFC Editor (to be removed prior to publication) *
*                                                             *
* 1) The reference to RFCYYYY 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 RFCXXXX throughout this document point  *
* to the current draft-ietf-manet-olsrv2-xx.txt.  This        *
* needs to be replaced with the XXXX RFC number for the       *
* OLSRv2 publication.                                         *
*                                                             *
* 3) Appendix A contains the IANAolsrv2LinkMetricType-MIB     *
* module which is defined by this specification in the        *
* appendix.  The RFC editor should remove this specification  *
* of the IANAolsrv2LinkMetricType-MIB upon publication of     *
* the OLSRv2-MIB.  Further, IANA should take over the         *
* IANAolsrv2LinkMetricType-MIB and keep it synchronized       *
* with the registry identified within the contained          *
* IANAolsrv2LinkMetricType TEXTUAL-CONVENTION.                *
*                                                             *
***************************************************************
```

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